Republic of the Philippines

Department of Transportation and Communication

Republic of the Philippines

Detailed Design Study Report of New Bohol Airport Construction and Sustainable Environment Protection Project

Final Report

Appendix-1: Draft Bid Documents

Document Ⅰ

Invitation for Bids
PART 1 – Bidding Procedures
PART 2 – Works Requirements
PART 3 – Conditions of Contract and Contract Form

September 2013

Japan International Cooperation Agency (JICA)

Japan Airport Consultants, Inc. (JAC)
Nippon Koei Co., Ltd. (NK)
NJS Consultants Co., Ltd. (NJS)
Joint Venture

Republic of the Philippines
DEPARTMENT OF TRANSPORTATION
AND
COMMUNICATIONS

JAPAN
INTERNATIONAL
COOPERATION
AGENCY

NEW BOHOL AIRPORT CONSTRUCTION AND SUSTAINABLE ENVIRONMENT PROTECTION PROJECT

(Loan No: PH-P256)

DRAFT BID DOCUMENT I

INVITATION FOR BID

Part 1 Bidding Procedure

Part 2 Works Requiremnents

Part 3 Conditions of Contract and Contract Form

August 2013

JICA Design Consultant Joint Venture

JAPAN AIRPORT CONSULTANTS, INC.

NIPPON KOEI CO., LTD.

NJS CONSULTANTS CO., LTD.

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(Without Prequalification, Single-Stage, Two-Envelop)

Invitation for Bids:

(Separate file)

(Letterhead of DOTC)

Invitation for Bids

for
Procurement
of
New Bohol Airport Construction and Sustainable Environment Protection Project

Date of and Number of IFB	*Date to be specified. IFB Number to be provided.*
Project:	New Bohol Airport Construction and Sustainable Environment Protection Project
Loan No. and Title:	Loan Agreement PH-P256 dated 27th March 2013 for New Bohol Airport Construction and Sustainable Environment Protection Project
Deadline for Submission of Bids:	*To be specified (90 days after Date of IFB)*

1. The Government of the Republic of the Philippines (hereinafter referred to as the "Government") has received a loan from Japan International Cooperation Agency (JICA) towards the cost for New Bohol Airport Construction and Sustainable Environment Protection Project. It is intended that part of the proceeds of this loan will be applied to eligible payments under the Contract for New Bohol Airport Construction and Sustainable Environment Protection Project (hereinafter called the "Project"). Loan Agreement No. PH-P256 was singed between JICA and the Government on 27th March 2013.

2. The Government now invites sealed Bids from eligible Bidders for the execution and completion of the Project that comprises the following components:

Component	Work Description
Component-1: General Requirements (G)	As specified in GCC and Specification 1000 including: - Performance security; - Insurances specified; - Employer's and Engineer's facilities; - Environment Management; - Project Equipment; and - Maintenance Equipment.
Component-2: Civil Works (C)	Construction of access road and airport infrastructure of runway strip, runway, taxiways, and apron including earthworks, pavement works, drainage works, landscaping and miscellaneous works:
Subcomponent-2-1	(C1) Access Road
Subcomponent-2-2	(C2) Airport Infrastructure
Component-3: Utility Works (U)	Design, supply and installation of the equipment, piping, cabling and associated works for the following facilities:
Subcomponent-3-1	(U1) Water Supply System
Subcomponent-3-2	(U2) Power Supply System
Subcomponent-3-3	(U3) Sewage Treatment System
Component-4: Building Works (B)	Construction of the following buildings including structural works, architectural works, mechanical works, electrical works, IT works and landscaping works as well as installation of airport special equipment such as baggage handling system and security check system:
Subcomponent-4-1	(B1) Passenger Terminal Building
Subcomponent-4-2	(Not used)
Subcomponent-4-3	(B3) Control Tower, ATC Operation & Administration Building
Subcomponent-4-4	(B4) Fire Station and Airport Maintenance Building

Component	Work Description
Subcomponent-4-5	Ancillary Buildings (B51) Driver's Lounge (B52) Car Parks Toilet (B53) Guard House (B54) Tollbooths
Subcomponent-4-6	Utility Buildings (B61) Water Tank & Pump Station (B62) Power Houses (B63) STP Control Room (B64) Material Recover Facility
Subcomponent-4-7	Navaids Buildings (B71) LLZ Building (B72) GS Building (B73) VOR Building
Component-5: Air Navigation Facilities (N)	Supply and installation of the following Air navigation Facilities:
Subcomponent-5-1	(N1) ILS
Subcomponent-5-2	(N2) VOR/DME
Subcomponent-5-3	(N3) ATS and Telecommunications
Subcomponent-5-4	(N4) Meteorological Observation System
Component-6: Aeronautical Ground Lighting Works (L)	Supply and installation of the following Aeronautical Ground Lighting:
Subcomponent-6-1	(L1) Approach Lighting Systems
Subcomponent-6-2	(L2) Precision Approach Path Indicators
Subcomponent-6-3	(L3) Runway Lighting System
Subcomponent-6-4	(L4) Taxiway Lighting System
Subcomponent-6-5	(L5) Other Aeronautical Lightings
Subcomponent-6-6	(L6) Apron Floodlighting
Subcomponent-6-7	(L7) Underground Cable Ducts
Subcomponent-6-8	(L8) Control and Monitor System

3. Bidding will be conducted through single-stage two-envelope procedure with no pre-qualification in accordance with the applicable Guidelines for Procurement under Japanese ODA Loans, and is open to all Bidders from eligible source countries, as defined herein and detailed in the Bidding Document.

4. Eligible Bidders must meet the following criteria on a pass/fail basis:

i) Eligibility

Eligible nationality of a Bidder shall be the following:

a) Japan in the case of the prime contractor; and
b) All countries and areas in the case of the sub-contractors.

In case where the prime contractor is a joint venture, such joint venture will be eligible provided that the nationality of the lead partner is Japan, that the nationality of the other partners is Japan and/or the Republic of the Philippines and that the total share of work of Japanese partners in the joint venture is more than fifty percent (50%) of the contract amount.

ii) Historical Contract Non-Performance

A Bidder or each member of a joint venture shall meet the following:

a) non-performance of a contract did not occur as a result of contractor's default since 1st January 2011;

b) all pending litigation shall be treated as resolved against the Bidder and shall in total not represent more than 50 % of the Bidder's net worth;

c) no consistent history of court/arbitral award decisions against the Bidder since 1st January 2008.

iii) Financial Situation

A Bidder or each member of a JV shall comply with the following:

a) The audited balance sheets or, if not required by the laws of a Bidder's country, other financial statements acceptable to the Employer, for the last 5 years shall be submitted and must demonstrate the current soundness of the Bidder's financial position and indicate its prospective long-term profitability.

As the minimum requirement, a Bidder's net worth calculated as the difference between total assets and total liabilities shall be positive in the last 5 years.

b) Minimum average annual construction turnover of Japanese Yen (JPY) eight (8) Billion or equivalent, calculated as total certified payments received for contracts in progress and/ or completed, within the last 5 years, divided by 5.

iv) General Construction Experience

A Bidder or each member of a JV shall comply with the following:

Experience under construction contracts in the role of prime contractor (single entity or JV member), subcontractor, or management contractor for at least the last 10 years, since 1st January 2003.

v) Specific Construction Experience

A Bidder including JV members or specialist subcontractor shall comply collectively with the following minimum criteria:

A minimum number of one (1) similar contract that has been satisfactorily and substantially completed as a prime contractor (single entity or JV member) between 1st January 2003 and Bid submission deadline.

As minimum requirements for similar size and nature, the scope of previous contracts shall include the followings:

- Airport construction and expansion projects to include at least a runway and/or taxiway pavement work or passenger terminal building work or both to accommodate A320/B737 class or larger aircraft with a total contract price of JPY 1 (one) Billion or more. Prices of separate contracts consecutively awarded to a Bidder for a specific airport project during its project period (for example separate three contracts for runway extension awarded to a Bidder from first to third years of its project period) may collectively be deemed as one contract and such prices may be summed

up to arrive at the minimum specified amount of JPY 1 Billion.

For the above or other contracts completed and under implementation as prime contractor (single entity or JV member), management contractor or subcontractor between 1st January 2003 and Bid submission deadline, a minimum construction experience in the following key activities successfully completed;

1) Construction works of airport passenger terminal or other public buildings (e.g. railway station, civic hall, office building, hotel and shopping complex) of more than 8,000 m^2 floor space including mechanical & electrical installations.

vi) Financial Resources

(i) The Bidder shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as JPY1,300 Million for the subject contract(s) net of the Bidders other commitments.

5. The Bidder shall demonstrate that he possesses its technical capacity and capability in respect of Work method, Equipment and Personnel to meet the requirements specified in the Bidding Document.

6. Interested eligible Bidders may obtain further information from, and inspect the Bidding Documents at the following office:

Office:	Department of Transportation and Communications Attention: Atty. Catherine P. Gonzales BAC Secretariat
Address:	15th Floor, Unit 153, The Columbia Tower, Barangay Wack-Wack, Ortigas Avenue 1555 Mandaluyong City Metro Manila, the Philippines
Tel:	63 2 654 77 25
Fax:	63 2 654 77 25
E-mail:	bacsec@dotc.gov.ph

6. A complete set of Bidding Documents may be purchased by interested Bidders on the submission of a written application to the address above and upon payment of a non-refundable fee of Philippines Peso 75,000 by cash.

7. The provisions in the Instructions to Bidders and in the General Conditions of Contract are the provisions of the Standard Bidding Documents under Japanese ODA Loans for the Procurement of Works dated October 2012.

8. The pre-bid meeting shall be conducted at time, date and place as indicated below:

Time: *To be specified.*
Date: *To be specified.*
Place: *To be specified.*

9. Bids must be delivered to the address above on or before [*insert time*] hours on [*insert date*] and must be accompanied by a Bid Security of Philippines Peso 80,000,000.

10. Bids will be opened in the presence of Bidders' representatives who choose to attend at [*insert time and date*] at the following office:

Time:	[To be specified]
Date:	[To be specified]
Office:	Bids and Award Committee (BAC) Department of Transportation and Communications
Address:	15th Floor, Unit 153 , The Columbia Tower, Barangay Wack-Wack, Ortigas Avenue 1555

	Mandaluyong City Metro Manila, the Philippines
Tel:	63 2 654 77 25
Fax:	63 2 654 77 25
E-mail:	bacsec@dotc.gov.ph

Faithfully yours,

ATTY. PERPETUO M. LOTILLA
BAC Chairman
Bids and Awards Committee
Department of Transportation and Communications

PART 1 – BIDDING PROCEDURES

PART 1 – BIDDING PROCEDURES

OPTION B: Two-Envelope Bidding

Section I. Instructions to Bidders

Notes on the Instructions to Bidders

Section I, Instructions to Bidders, provides the information necessary for Bidders to prepare responsive Bids in accordance with the requirements of the Employer. It also gives information on Bid submission, opening, and evaluation, and on the award of the Contract.

The use of the Standard Instructions to Bidders set forth in Section I of these Standard Bidding Documents for the Procurement of Works (version 1.0) published by JICA in October, 2012 (hereafter referred to as "Standard ITB"), in all Bidding Documents for construction works financed by Japanese ODA Loans is **required**, and they shall be used without modification. Any necessary changes, acceptable to JICA, to address specific country and project issues, shall be introduced only through the Bid Data Sheet.

The Instructions to Bidders will not be part of the Contract.

Section I. Instructions to Bidders

*[Note to the Employer: The Instructions to Bidders governing this bidding process are the Standard Instructions to Bidders included in **Option B**: Two-Envelope Bidding, of the Standard Bidding Documents for Procurement of Works (SBD (Works)) (version 1.0) published by JICA in October 2012.*

A copy of the Standard Instructions to Bidders may be attached to the Bidding Documents prepared by the Employer for reference purposes only. If the Instructions to Bidders in the Bidding Documents prepared by the Employer contain modifications from the Standard Instructions to Bidders, JICA will not consider them valid and the Standard Instructions to Bidders, as defined above, shall apply.

Instead of attaching a copy of the Standard Instructions to Bidders, the Employer may use the following introductory text.]

The Instructions to Bidders governing this bidding process are the "Instructions to Bidders" included in **Option B**: Two-Envelope Bidding, Section I, of the Standard Bidding Documents for Procurement of Works (version 1.0), published by JICA in October, 2012. Those Instructions to Bidders are available on the JICA's web site shown below:

http://www.jica.go.jp/english/our_work/types_of_assistance/oda_loans/oda_op_info/guide/tender/index.html

A copy of these Instructions to Bidders is not attached to these Bidding Documents.

Table of Clauses

A. General

1. Scope of Bid

1.1 In connection with the Invitation for Bids **specified in Section II, Bid Data Sheet (BDS)**, the Employer, as **specified in the BDS**, issues these Bidding Documents (hereinafter referred to as "Bidding Documents") for the procurement of Works as specified in Section VI, Works Requirements. The name, identification, and number of the lot(s) (contract(s)) comprising this International Competitive Bidding (ICB) process are **specified in the BDS.**

1.2 Throughout these Bidding Documents:

(a) the term "in writing" means communicated in written form and delivered against receipt;

(b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and

(c) "day" means calendar day.

2. Source of Funds

2.1 The Borrower **specified in the BDS** has received or has applied for a Japanese ODA Loan from Japan International Cooperation Agency (hereinafter referred to as "JICA"), with the number, in the amount and on the signed date of the Loan Agreement **specified in the BDS**, towards the cost of the project **specified in the BDS**. The Borrower intends to apply a portion of the proceeds of the loan to payments under the contract(s) for which these Bidding Documents are issued.

2.2 Disbursement of a Japanese ODA Loan by JICA will be subject, in all respects, to the terms and conditions of the Loan Agreement, including the disbursement procedures and the applicable Guidelines for Procurement under Japanese ODA Loans **specified in the BDS.** No party other than the Borrower shall derive any rights from the Loan Agreement or have any claim to the loan proceeds.

2.3 The above Loan Agreement will cover only a part of the project cost. As for the remaining portion, the Borrower will take appropriate measures for finance.

3. Corrupt and Fraudulent Practices

3.1 It is JICA's policy to require that Bidders and Contractors, as well as Borrowers, under contracts funded with Japanese ODA Loans and other Japanese ODA, observe the highest standard of ethics during the procurement and execution of

such contracts. In pursuance of this policy, JICA:

(a) will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

(b) will recognize a Bidder or Contractor as ineligible, for a period determined by JICA, to be awarded a contract funded with Japanese ODA Loans if it at any time determines that the Bidder or the Contractor has engaged in corrupt or fraudulent practices in competing for, or in executing, another contract funded with Japanese ODA Loans or other Japanese ODA; and

(c) will recognize a Contractor as ineligible to be awarded a contract funded with Japanese ODA Loans if the Contractor or subcontractor, who has a direct contract with the Contractor, is debarred under the cross debarment decisions by the Multilateral Development Banks. Such period of ineligibility shall not exceed three (3) years from (and including) the date on which the cross debarment is imposed.

"Cross debarment decisions by the Multilateral Development Banks" is a corporate sanction in accordance with the agreement among the African Development Bank Group, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and the World Bank Group signed on 9 April, 2010 (as amended from time to time). JICA will recognize the World Bank Group's debarment of which period exceeds one year, imposed after 19 July, 2010, the date on which the World Bank Group started cross debarment, as "cross debarment decisions by the Multilateral Development Banks." The list of debarred firms and individuals is available at the electronic address **specified in the BDS**.

JICA will recognize a Bidder or Contractor as ineligible to be awarded a contract funded with Japanese ODA Loans if the Bidder or Contractor is debarred by the World Bank Group for the period starting from the date of the Invitation for Bid, if prequalification has not been conducted, or the date of the Advertisement for Prequalification, if prequalification has been conducted, up to the signing of the contract, unless (i) such debarment period does not exceed one year, or (ii) three

(3) years have passed since such debarment decision.

If it is revealed that the Contractor was ineligible to be awarded a contract according to above, JICA will, in principle, impose sanctions against the Contractor.

If it is revealed that the subcontractor, who has a direct contract with the Contractor, was debarred by the World Bank Group on the subcontract date, JICA will, in principle, require the Borrower to have the Contractor cancel the subcontract immediately, unless (i) such debarment period does not exceed one year, or (ii) three (3) years have passed since such debarment decision. If the Contractor refuses, JICA will require the Borrower to declare invalidity or cancellation of the contract and demand the refund of the relevant proceeds of the loan or any other remedies on the grounds of contractual violation.

3.2 Furthermore, Bidders shall be aware of the provision stated in Sub-Clause 15.6 of the General Conditions.

4. Eligible Bidders

4.1 A Bidder may be a firm that is a single entity or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a JV, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution.

4.2 A Bidder shall not have a conflict of interest. A Bidder shall not be employed under any of the circumstances set forth below, where it is determined to have a conflict of interest throughout the bidding/selection process and/or the execution of the contract unless the conflict has been resolved in a manner acceptable to JICA.

(a) A firm shall be disqualified from providing goods or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of a project that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm. This provision does not apply to the

various firms (consultants, contractors, or suppliers) only due to the reason that those firms together are performing the Contractor's obligations under a turnkey or design and build contract.

(b) A firm that has a close business relationship with the Borrower's professional personnel, who are directly or indirectly involved in any part of: (i) the preparation of the Bidding Documents for the contract, (ii) the Bid evaluation, or (iii) the supervision of such contract, shall be disqualified.

(c) Based on the "One Bid Per Bidder" principle, which is to ensure fair competition, a firm and any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm shall not be allowed to submit more than one Bid, either individually as a Bidder or as a member of a JV. A firm (including its affiliate), if acting in the capacity of a subcontractor in one Bid, may participate in other Bids, only in that capacity.

(d) A firm having any other form of conflict of interest other than (a) through (c) above shall be disqualified.

4.3 A Bidder, and all members constituting the Bidder, shall be from any of the eligible source countries as indicated in Section V, Eligible Source Countries of Japanese ODA Loans.

4.4 A Bidder that has been determined to be ineligible by JICA in accordance with ITB 3.1 shall not be eligible to be awarded a contract.

4.5 This bidding is open only to prequalified Bidders unless **specified in the BDS**.

4.6 A Bidder shall provide such evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.

5. Eligible Materials, Equipment, and Services

5.1 The materials, equipment and services to be supplied under the Contract and financed by JICA shall have their origin in any of the eligible source countries indicated in Section V, Eligible Source Countries of Japanese ODA Loans. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment and services.

5.2 For purposes of ITB 5.1 above, "origin" means the place where the materials and equipment are mined, grown, produced or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.

B. Contents of Bidding Documents

6. Sections of Bidding Documents

6.1 The Bidding Documents consist of Parts 1, 2, and 3, which include all the Sections specified below, and which should be read in conjunction with any addenda issued in accordance with ITB 8.

PART 1 Bidding Procedures

- Section I. Instructions to Bidders (ITB)
- Section II. Bid Data Sheet (BDS)
- Section III. Evaluation and Qualification Criteria
- Section IV. Bidding Forms
- Section V. Eligible Source Countries of Japanese ODA Loans

PART 2 Works Requirements

- Section VI. Works Requirements

PART 3 Conditions of Contract and Contract Forms

- Section VII. General Conditions (GC)
- Section VIII. Particular Conditions (PC)
- Section IX. Annex to the Particular Conditions - Contract Forms

6.2 The Invitation for Bids issued by the Employer is not part of the Bidding Documents.

6.3 Unless obtained directly from the Employer, the Employer is not responsible for the completeness of the Bidding Documents, responses to requests for clarification, the minutes of the pre-bid meeting (if any), or addenda to the Bidding Documents in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Employer shall prevail.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its Bid all information and documentation as is required by the Bidding Documents.

7. Clarification of Bidding Documents, Site Visit, Pre-Bid Meeting

7.1 A Bidder requiring any clarification of the Bidding Documents shall contact the Employer in writing at the Employer's address **specified in the BDS** or raise its enquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than fourteen (14) days prior to the deadline for submission of Bids. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. If so **specified in the BDS**, the Employer shall also promptly publish its response at the web page **identified in the BDS**. Should the clarification result in changes to the essential elements of the Bidding Documents, the Employer shall amend the Bidding Documents following the procedure under ITB 8 and ITB 22.2.

7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

7.4 If so **specified in the BDS**, the Bidder's designated representative is invited to attend a pre-bid meeting. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

7.5 The Bidder is requested to submit any questions in writing, to reach the Employer not later than one (1) week before the

meeting.

7.6 Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by Bidders, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3. Any modification to the Bidding Documents that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting. Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

8. Amendment of Bidding Documents

8.1 At any time prior to the deadline for submission of Bids, the Employer may amend the Bidding Documents by issuing addenda.

8.2 Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Documents from the Employer in accordance with ITB 6.3. If so **specified in the BDS**, the Employer shall also promptly publish the addendum on the Employer's web page in accordance with ITB 7.1.

8.3 To give Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Employer may extend the deadline for the submission of Bids, pursuant to ITB 22.2.

C. Preparation of Bids

9. Cost of Bidding

9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

10. Language of Bid

10.1 The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Employer, shall be written in the language **specified in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language of Bid, in which case, for purposes of interpretation of the Bid, such translation shall govern.

11. Documents

11.1 The Bid shall comprise two envelopes submitted

Comprising the Bid

simultaneously, one called the Technical Bid containing the documents listed in ITB 11.2 and the other the Price Bid containing the documents listed in ITB 11.3, both envelopes enclosed together in an outer single envelope.

11.2 The Technical Bid shall comprise the following:

(a) Letter of Technical Bid;

(b) Bid Security, in accordance with ITB 19;

(c) alternative bids, if permissible, in accordance with ITB 13;

(d) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;

(e) documentary evidence in accordance with ITB 17 establishing the Bidder's qualifications to perform the contract if its Bid is accepted;

(f) Technical Proposal in accordance with ITB 16;

(g) Acknowledgement of Compliance with Guidelines for Procurement under Japanese ODA Loans (Form ACK), which shall be signed and dated by the Bidder's authorized representative.

(h) Any other document **required in the BDS.**

11.3 The Price Bid shall comprise the following:

(a) Letter of Price Bid;

(b) completed Price Schedules, in accordance with ITB 12 and 14;

(c) alternative price bids, at Bidder's option and if permissible, in accordance with ITB 13;

(d) Any other document **required in the BDS.**

11.4 In addition to the requirements under ITB 11.2, Bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed Agreement.

12. Letters of Bid and Schedules

12.1 The Letters of Technical Bid and Price Bid and the Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as

provided under ITB 20.2. All blank spaces shall be filled in with the information requested.

13. Alternative Bids

13.1 **Unless otherwise specified in the BDS**, alternative Bids shall not be considered.

13.2 When alternative times for completion are explicitly invited, a statement to that effect **will be included in the BDS**, as will the method of evaluating different times for completion.

13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Documents must first price the Employer's design as described in the Bidding Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.

13.4 **When specified in the BDS**, Bidders are permitted to submit alternative technical solutions for specified parts of the Works, and such parts **will be identified in the BDS**, as will the method for their evaluating, and described in Section VI, Works Requirements.

14. Bid Prices and Discounts

14.1 The prices and discounts (including any price reduction) quoted by the Bidder in the Letter of Price Bid and in the Bill of Quantities shall conform to the requirements specified below.

14.2 The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Employer. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Bid, and provided that the Bid is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive Bidders will be added to the Bid Price and the equivalent total cost of the Bid so determined will be used for price comparison.

14.3 The price to be quoted in the Letter of Price Bid, in

accordance with ITB 12.1, shall be the total price of the Bid, excluding any discounts offered.

14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Price Bid, in accordance with ITB 12.1.

14.5 **Unless otherwise specified in the BDS** and the Contract, the rates and prices quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract. In such a case, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Employer may require the Bidder to justify its proposed indices and weightings.

14.6 If so specified in BDS 1.1, Bids are being invited for individual lots (contracts) or for any combination of lots (packages). Bidders wishing to offer discounts for the award of more than one Contract shall specify in their Letter of Price Bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4, provided the Bids for all lots (contracts) are opened at the same time.

14.7 **Unless otherwise provided in the BDS**, all duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date twenty-eight (28) days prior to the deadline for submission of Bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.

15. Currencies of Bid and Payment

15.1 The currency(ies) of the Bid shall be **as specified in the BDS**. Payment of the contract price shall be made in the currency or currencies in which the Bid Price is expressed in the Bid of the successful Bidder.

15.2 Bidders may be required by the Employer to justify, to the Employer's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Adjustment Data are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Bidders.

15.3 The foreign currency requirements generally include the

following:

(a) expatriate staff and labour employed directly on the Works;

(b) social, insurance, medical and other charges relating to such expatriate staff and labour, and foreign travel - expenses;

(c) imported materials, both temporary and permanent, including fuels, oil and lubricants required for the Works;

(d) depreciation and usage of imported Plant and Contractor's Equipment, including spare parts, required for the Works;

(e) foreign insurance and freight charges for imported materials, Plant and Contractor's Equipment, including spare parts; and

(f) overhead expenses, fees, profit, and financial charges arising outside the Employer's country in connection with the Works.

16. Documents Comprising the Technical Proposal

16.1 The Bidder shall furnish as part of the Technical Bid, a Technical Proposal including a statement of work methods, equipment, personnel, schedule, safety plan and any other information as stipulated in Section IV, Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidder's proposal to meet the work requirements and the completion time.

17. Documents Establishing the Qualifications of the Bidder

17.1 In accordance with Section III, Evaluation and Qualification Criteria, if the prequalification process was conducted prior to the bidding process, the Bidder shall provide in the corresponding information sheets included in Section IV, Bidding Forms, (i) updated information on any assessed aspect that changed from that time to establish that the Bidder continues to meet the criteria used at the time of prequalification and (ii) the requested information on the additional qualification criteria stated in Section III, Evaluation and Qualification Criteria, or if the assessment of qualification criteria was not conducted prior to the bidding process, the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Bidding Forms.

17.2 Any change in the structure or formation of a Bidder after

being prequalified and invited to bid (including, in the case of a JV, any change in the structure or formation of any member thereto) shall be subject to the written approval of the Employer prior to the deadline for submission of Bids. Such approval shall be denied if (i) such change has not taken place by the free choice of the firms involved; (ii) as a consequence of the change, the Bidder no longer substantially meets the qualification criteria set forth in the Prequalification Documents; or (iii) in the opinion of the Employer, the change may result in a substantial reduction in competition. Any such change should be submitted to the Employer not later than fourteen (14) days after the date of the Invitation for Bids.

18. Period of Validity of Bids

18.1 Bids shall remain valid for the period **specified in the BDS** after the Bid submission deadline date prescribed by the Employer in accordance with ITB 22.1. A Bid valid for a shorter period shall be rejected by the Employer as non-responsive.

18.2 In exceptional circumstances, prior to the expiration of the Bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. The Bid Security shall also be extended for twenty-eight (28) days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its Bid, except as provided in ITB 18.3.

18.3 If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial Bid validity, the Contract price shall be determined as follows:

(a) In the case of fixed price contracts, the Contract price shall be the Bid Price adjusted by the factor **specified in the BDS**.

(b) In the case of adjustable price contracts, to determine the Contract price, the fixed portion of the Bid Price shall be adjusted by the factor **specified in the BDS.**

(c) In any case, Bid evaluation shall be based on the Bid Price without taking into consideration the applicable correction from those indicated above.

19. Bid Security

19.1 The Bidder shall furnish as part of its Technical Bid, a Bid Security in the amount and currency **specified in the BDS**.

19.2 The Bid Security shall be a demand guarantee in any of the following forms at the Bidder's option:

(a) an unconditional guarantee issued by a bank or financial institution (such as an insurance, bonding or surety company);

(b) an irrevocable letter of credit;

(c) a cashier's or certified check; or

(d) another security **specified in the BDS**,

from a reputable source from an eligible source country. If the unconditional guarantee is issued by a financial institution located outside the Employer's Country, the issuing financial institution shall have a correspondent financial institution located in the Employer's Country to make it enforceable. In the case of a bank guarantee, the Bid Security shall be submitted either using the Bid Security Form included in Section IV, Bidding Forms, or in another substantially similar format approved by the Employer prior to Bid submission. In either case, the form must include the complete name of the Bidder. The Bid Security shall be valid for twenty-eight (28) days beyond the original validity period of the Bid, or beyond any period of extension if requested under ITB 18.2.

19.3 Any Bid not accompanied by a substantially responsive Bid Security shall be rejected by the Employer as non-responsive.

19.4 The Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the Contract and furnishing the Performance Security pursuant to ITB 42.

19.5 The Bid Security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required Performance Security.

19.6 The Bid Security may be forfeited:

(a) if a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid, or any extension thereto provided by the Bidder; or

(b) if the successful Bidder fails to:

(i) sign the Contract in accordance with ITB 41; or

(ii) furnish a Performance Security in accordance with ITB 42.

19.7 The Bid Security of a JV shall be in the name of the JV that submits the Bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the Bid Security shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.4.

20. Format and Signing of Bid

20.1 The Bidder shall prepare one original of the Technical Bid and one original of the Price Bid comprising the Bid as described in ITB 11 and clearly mark them "ORIGINAL – TECHNICAL BID" and "ORIGINAL – PRICE BID". Alternative Bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE." In addition, the Bidder shall submit copies of the Technical and Price Bids, in the number **specified in the BDS** and clearly mark each of them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

20.2 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation **as specified in the BDS** and shall be attached to the Bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Bid where entries or amendments have been made shall be signed or initialed by the person signing the Bid.

20.3 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.

20.4 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

D. Submission and Opening of Bids

21. Sealing and Marking of Bids

21.1 The Bidder shall enclose the original of the Technical Bid, the original of the Price Bid, each copy of the Technical Bid and each copy of the Price Bid, including alternative Bids, if

permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL - TECHNICAL BID", "ORIGINAL – PRICE BID", "COPY– TECHNICAL BID", "COPY – PRICE BID", and "ALTERNATIVE", as appropriate. These envelopes containing the original and the copies shall then be enclosed in one single envelope.

21.2 The inner and outer envelopes shall:

(a) bear the name and address of the Bidder;

(b) be addressed to the Employer in accordance with ITB 22.1; and

(c) bear the specific identification of this bidding process specified in BDS 1.1.

21.3 The outer envelopes and the inner envelopes containing the Technical Bid shall bear a warning not to open before the time and date for the opening of Technical Bid, in accordance with ITB 25.1.

21.4 The inner envelopes containing the Price Bid shall bear a warning not to open until advised by the Employer, in accordance with ITB 25.7.

21.5 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the Bid.

22. Deadline for Submission of Bids

22.1 Bids must be received by the Employer at the address and no later than the date and time **specified in the BDS**.

22.2 The Employer may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

23. Late Bids

23.1 The Employer shall not consider any Bid that arrives after the deadline for submission of Bids, in accordance with ITB 22. Any Bid received by the Employer after the deadline for submission of Bids shall be declared late, rejected, and returned unopened to the Bidder.

24. Withdrawal, Substitution, and Modification of Bids

24.1 A Bidder may withdraw, substitute, or modify its Bid – Technical or Price – after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with

ITB 20.2, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Bid must accompany the respective written notice. All notices must be:

(a) prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION;" and

(b) received by the Employer prior to the deadline prescribed for submission of Bids, in accordance with ITB 22.

24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 No Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bids and the expiration of the period of Bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid or any extension thereof.

25. Bid Opening

25.1 Except in the cases specified in ITB 23 and ITB 24, the Employer shall publicly open and read out in accordance with ITB 25.5 all Technical Bids received by the deadline, at the date, time and place **specified in the BDS**, in the presence of Bidders' designated representatives and anyone who choose to attend. The Price Bids will remain unopened and will be held in custody of the Employer until the specified time of their opening in accordance with ITB 25.7.

25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding Bid shall not be opened, but returned to the Bidder. No Bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at the opening of Technical Bids.

25.3 Second, outer envelopes marked "SUBSTITUTION" shall be opened. The inner envelopes containing Substitution Technical Bid and/or Substitution Price Bid shall be exchanged for the corresponding envelopes being substituted, which are to be returned to the Bidder unopened. Only the Substitution Technical Bid, if any, shall be opened and read out. Substitution Price Bid will remain unopened in

accordance with ITB 25.1. No envelope substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at the opening of Technical Bids.

25.4 Next, outer envelopes marked "MODIFICATION" shall be opened. No Technical Bid and/or Price Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at the opening of Technical Bids. Only the Technical Bids, both Original as well as Modification, are to be opened and read out at the opening of Technical Bids. Price Bids, both Original as well as Modification, will remain unopened in accordance with ITB 25.1.

25.5 All other envelopes holding the Technical Bids shall be opened one at a time, reading out:

(a) the name of the Bidder;

(b) whether there is a modification;

(c) the presence or absence of a Bid Security; and

(d) any other details as the Employer may consider appropriate.

Only Technical Bids and alternative Technical Bids read out at Bid opening shall be considered for evaluation. The Employer shall neither discuss the merits of any Bid nor reject any Bid (except for late Bids, in accordance with ITB 23.1).

25.6 The Employer shall prepare a record of the opening of Technical Bids that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; alternative proposals and the presence or absence of a Bid Security. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

25.7 At the end of the evaluation of the Technical Bids, the Employer will invite Bidders who have submitted substantially responsive Technical Bids and who have been determined as being qualified for award to attend the opening of the Price Bids. The date, time, and location of the opening of Price Bids will be advised in writing by the

Employer. The opening date should allow Bidders sufficient time to make arrangements for attending the opening of Price Bids.

25.8 The Employer will notify Bidders in writing who have been rejected on the grounds of their Technical Bids being substantially non-responsive to the requirements of the Bidding Document and return their Price Bids unopened.

25.9 The Employer shall conduct the opening of Price Bids of all Bidders who submitted substantially responsive Technical Bids, in the presence of Bidders' representatives who choose to attend at the address, date and time specified by the Employer. The Bidder's representatives who are present shall be requested to sign a register evidencing their attendance.

25.10 All envelopes containing Price Bids shall be opened one at a time, reading out:

(a) the name of the Bidder;

(b) whether there is a modification;

(c) the Bid Prices, including any discounts and alternative Bids; and

(d) any other details as the Employer may consider appropriate.

Only Price Bids discounts, and alternative Bids read out and recorded during the opening of Price Bids shall be considered for evaluation. No Bid shall be rejected at the opening of Price Bids.

25.11 The Employer shall prepare a record of the opening of Price Bids that shall include, as a minimum: the name of the Bidder, the Bid Price (per lot if applicable), any discounts, and alternative Bids. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

E. Evaluation and Comparison of Bids

26. Confidentiality

26.1 Information relating to the evaluation of Bids and recommendation of contract award shall not be disclosed to Bidders or any other persons not officially concerned with the bidding process until information on Contract award is

communicated to all Bidders in accordance with ITB 40.

26.2 Any attempt by a Bidder to influence the Employer in the evaluation of the Bids or Contract award decisions may result in the rejection of its Bid.

26.3 Notwithstanding ITB 26.2, from the time of Bid opening to the time of Contract award, if a Bidder wishes to contact the Employer on any matter related to the bidding process, it shall do so in writing.

27. Clarification of Bids

27.1 To assist in the examination, evaluation, and comparison of the Technical and Price Bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid, giving a reasonable time for a response. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change in the substance of the Technical Bid or prices in the Price Bid, including any voluntary increase or decrease in the prices, shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Price Bids, in accordance with ITB 33.

27.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Employer's request for clarification, its Bid may be rejected.

28. Deviations, Reservations, and Omissions

28.1 During the evaluation of Bids, the following definitions apply:

(a) "Deviation" is a departure from the requirements specified in the Bidding Documents;

(b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and

(c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Documents.

29. Preliminary Examination of Technical Bids

29.1 The Employer shall examine the Technical Bid to confirm that all documents and technical documentation requested in ITB 11.2 have been provided, and to determine the completeness of each document submitted.

29.2 The Employer shall confirm that the following documents

and information have been provided in the Technical Bid. If any of these documents or information is missing, the Bid shall be rejected.

(a) Letter of Technical Bid;

(b) written confirmation of authorization to commit the Bidder;

(c) Bid Security; and

(d) Technical Proposal in accordance with ITB 16;

30. Qualification of the Bidder

30.1 The Employer shall determine to its satisfaction whether Bidders meet the qualifying criteria specified in Section III, Evaluation and Qualification Criteria, during the evaluation of Technical Bids. However, if prequalification was carried out prior to the bidding process, the Employer may carry out the assessment of the qualification criteria specified in Section III, Evaluation and Qualification Criteria, for the Bidder who submitted the lowest evaluated and substantially responsive Bid only.

30.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant ITB 17.

30.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the Bid, in which event if the assessment of the Bidder's qualification was conducted for the lowest evaluated Bidder only, in accordance with ITB 30.1, the Employer shall proceed to the next lowest evaluated Bid to make a similar determination.

31. Determination of Responsiveness of Technical Bid

31.1 The Employer's determination of a Technical Bid's responsiveness is to be based on the contents of the Bid itself, as defined in ITB 11.2.

31.2 A substantially responsive Technical Bid is one that meets the requirements of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

(a) if accepted, would

(i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

(ii) limit in any substantial way, inconsistent with the Bidding Documents, the Employer's rights or the Bidder's obligations under the proposed Contract; or

(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.

31.3 The Employer shall examine the Technical Bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section VI, Works Requirements have been met without any material deviation, reservation or omission.

31.4 If a Technical Bid is not substantially responsive to the requirements of the Bidding Documents, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

32. Nonmaterial Nonconformities

32.1 Provided that a Bid is substantially responsive, the Employer may waive any nonconformities in the Bid that do not constitute a material deviation, reservation, or omission.

32.2 Provided that a Technical Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the Price Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

32.3 Provided that a Technical Bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the method specified in Section III, Evaluation and Qualification Criteria.

33. Correction of Arithmetical Errors

33.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price

and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

(b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

33.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 33.1, shall result in the rejection of the Bid.

34. Conversion to Single Currency

34.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency **as specified in the BDS**.

35. Subcontractors

35.1 **Unless otherwise stated in the BDS,** the Employer does not intend to execute any specific elements of the Works by subcontractors selected in advance by the Employer (nominated subcontractors).

35.2 In case Prequalification was not conducted prior to the bidding process, Bidders planning to subcontract any of the key activities indicated in Section III, Evaluation and Qualification Criteria, shall clearly identify the proposed specialist subcontractor(s) in Forms ELI-2 and EXP-2(b) in Section IV, Bidding Forms. Such proposed specialist subcontractors(s) shall meet the corresponding qualification requirements specified in Section III, Evaluation and Qualification Criteria.

35.3 In case Prequalification was conducted prior to the bidding process, the Bidder's Bid shall name the same specialist subcontractor(s) whose experience in the key activities was evaluated in the Prequalification, unless such change is explicitly approved by the Employer in accordance with ITB 17.2.

36. Evaluation of Price Bids

36.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

36.2 To evaluate a Price Bid, the Employer shall consider the following:

(a) the Bid Price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including Daywork items, where priced competitively;

(b) price adjustment for correction of arithmetic errors in accordance with ITB 33.1;

(c) price adjustment due to discounts offered in accordance with ITB 14.4;

(d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 34;

(e) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 32.3;

(f) the additional evaluation factors specified in Section III, Evaluation and Qualification Criteria;

36.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Bid evaluation.

36.4 If these Bidding Documents allow Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated price of the lot (contract) combinations, including any discounts offered in the Letter of Price Bid, is specified in Section III, Evaluation and Qualification Criteria.

36.5 If the Bid, which results in the lowest Evaluated Bid Price, is seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments,

the Employer may require that the amount of the Performance Security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

37. Comparison of Bids

37.1 The Employer shall compare the evaluated prices of all substantially responsive Bids established in accordance with ITB 36.2 to determine the lowest evaluated Bid.

38. Employer's Right to Accept Any Bid, and to Reject Any or All Bids

38.1 The Employer reserves the right to accept or reject any Bid, and to annul the bidding process and reject all Bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, Bid securities, shall be promptly returned to the Bidders.

F. Award of Contract

39. Award Criteria

39.1 Subject to ITB 38.1, the Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated Bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

40. Notification of Award

40.1 Prior to the expiration of the period of Bid validity, the Employer shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the "Letter of Acceptance") shall specify the sum that the Employer will pay the Contractor in consideration of the execution and completion of the Works (hereinafter and in the Conditions of Contract and Contract Forms called "the Accepted Contract Amount"). At the same time, the Employer shall also notify all other Bidders of the results of the bidding.

40.2 After a contract has been determined to be eligible for financing under Japanese ODA Loans, the following information may be made public by JICA:

(a) name of each Bidder who submitted a Bid;

(b) Bid Prices as read out at Bid Opening;

(c) name and address of the successful Bidder;

(d) name and address of supplier; and

(e) award date and amount of the contract.

40.3 Until a formal contract is prepared and executed, the Letter of Acceptance shall constitute a binding Contract.

40.4 After notification of award, unsuccessful Bidders may request in writing to the Employer a debriefing seeking explanations on the grounds on which their Bids were not selected. The Employer shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests a debriefing.

41. Signing of Contract

41.1 Promptly upon notification, the Employer shall send the successful Bidder the Contract Agreement.

41.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

42. Performance Security

42.1 Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the Employer, the successful Bidder shall furnish the Performance Security in accordance with the General Conditions of Contract, subject to ITB 36.5, using for that purpose the Performance Security Form included in Section IX, Annex to the Particular Conditions - Contract Forms, or another form acceptable to the Employer. If the Performance Security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Employer. A foreign institution providing a bond shall have a correspondent financial institution located in the Employer's Country.

42.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose Bid is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

Section II. Bid Data Sheet

Bid Data Sheet

A. General	
ITB 1.1	The number of the Invitation for Bids is: [insert number of the Invitation for Bids]
ITB 1.1	The Employer is: **Department of Transportation and Communications (DOTC), the Government of the Republic of the Philippines**
ITB 1.1	The name of ICB is: **New Bohol Airport Construction and Sustainable Environment Protection Project** The number of contract is: **one (1) lot** Identification Number: *(if any in DOTC)*
ITB 2.1	The Borrower is: **The Government of the Republic of the Philippines**
ITB 2.1	The number of the Loan Agreement is: **PH-P256** The amount of a Japanese ODA Loan is: **Japanese Yen 10,782,000,000** The signed date of the Loan Agreement is: **27th March 2013.**
ITB 2.1	The name of the Project is: **New Bohol Airport Construction and Sustainable Environment Protection Project**
ITB 2.2	The applicable Guidelines for Procurement under Japanese ODA Loans are those **dated April 2012**
ITB 3.1(c)	A list of debarred firms and individuals is available at: **The World Bank's website: www.worldbank.org/debarr**
ITB 4.5	This bidding **is not** subject to prequalification.
B. Bidding Documents	
ITB 7.1	For **clarification purposes** only, the Employer's address is: Attention: **ATTY. JOSE PERPETUO M. LOTILLA** **BAC Chairman** Address: **15th Floor, Unit 153, The Columbia Tower,** **Barangay Wack-Wack, Ortigas Avenue 1555** **Mandaluyong City, Metro Manila, the Philippines** Telephone: 63-2-654-77-25 Facsimile: 63-2-654-77-25 E-mail: bacsec@dotc.gov.ph
ITB 7.1	Responses to any request for clarification, if any, **will not be published on the Employer's web page.**
ITB 7.4	A Pre-bid meeting will take place at the following date, time and place: Date: To be specified

	Time: To be specified Place: To be specified A site visit conducted by the Employer will be organized.
ITB 8.2	Addenda, if any, **"will not"** be published on the Employer's web page.
C. Preparation of Bids	
ITB 10.1	The language of the Bid is: **English**
ITB 11.2 (h)	The Bidder shall submit with its Technical Bid the following additional documents: ✓ Procurement Plan of Major Materials and Equipment.
ITB 11.3 (d)	The Bidder shall submit with its Price Bid the following additional documents: ✓ Price List of Japanese Origin Items; and ✓ Electronic editable file of priced BOQ.
ITB 13.2	Alternative times for completion **"will not be**" permitted.
ITB 15.1	The currencies of the Bid shall be as described below: The unit rates and prices shall be quoted by the Bidder in the Bill of Quantities separately in the following currencies: (i) for those inputs to the Works that the Bidder expects to supply from within the Employer's country, in **Philippines Peso (PhP)**, the name of the currency of the Employer's country, and further referred to as the "local currency"; and (ii) for those inputs to the Works that the Bidder expects to supply from outside the Employer's country (referred to as the "foreign currency"), in **Japanese Yen (JPY)**.
ITB 18.1	The Bid validity period shall be 120 days.
ITB 18.3 (b)	The fixed portion of the Bid Price shall be adjusted by the following factors: ✓ For local currency portion; consumer price index of the Philippines (all items) published by the National Statistics Office of the Philippines. ✓ For foreign currency portion; consumer price index of Japan (all items) published by the Statistics Bureau of Japan.
ITB 19.1	The amount and currency of the Bid Security shall be Philippine Peso Eighty Million (PhP 80,000,000).
ITB 19.2 (d)	Other types of acceptable securities: **None**
ITB 20.1	In addition to the original of the Bid, the number of copies is: **Four (4) copies**
ITB 20.2	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: Power of Attorney duly certified by a Notary Public.

D. Submission and Opening of Bids	
ITB 22.1	For **Bid submission purposes** only, the Employer's address is : Office: Department of Transportation and Communications Bids and Awards Committee Attention: Atty. Jose Perpetou M. Lotilla Address: 15th Floor, unit 153, The Columbia Tower, Barangay Wack-Wack, Ortigas Avenue 1555 Mandaluyong City Metro Manila, the Philippines Tel: 63-2-654-77-25 Fax: 63-2-654-77-25 E-mail: bacsec@dotc.gov.ph **The deadline for Bid submission is:** Date: [insert day, month, and year] Time: [insert time, and identify if a.m. or p.m., e.g. 10:30 a.m.]
ITB 25.1	The opening of the Technical Bid shall take place at: Office: Bids and Award Committee (BAC) Department of Transportation and Communications Address: 15th Floor, Unit 153 , The Columbia Tower, Barangay Wack-Wack, Ortigas Avenue 1555 Mandaluyong City Metro Manila, the Philippines Tel: 63 2 654 77 25 Fax: 63 2 654 77 25 Date: *To be specified.* Time: *To be specified.*
E. Evaluation, and Comparison of Bids	
ITB 34.1	The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: **Japanese Yen** The source of selling exchange rate shall be: **Bangko Sentral ng Pilipinas (BSP)** The date for the selling exchange rate shall be: **28 days prior to the deadline for submission**. The Employer will convert the amounts in various currencies in which the Bid Price, corrected pursuant to ITB 33, is payable (excluding Provisional Sums but including Daywork where priced competitively) to the single currency identified above at the selling rates established for similar transactions by the authority specified and on the date stipulated above.

Section III. Evaluation and Qualification Criteria
(Without Prequalification)

Notes on Evaluation and Qualification Criteria

This Section contains all the criteria that the Employer shall use to evaluate Bids and qualify Bidders. In accordance with ITB 30 and ITB 36, no other factors, methods or criteria shall be used. The Bidder shall provide all the information requested in the forms included in Section IV, Bidding Forms.

Table of Section III

Evaluation and Qualification Criteria

1. Evaluation

1.1 Evaluation Process

a) Bids will be evaluated in two (2) steps as stipulated hereunder:

Evaluation of Technical Bid	Evaluation of Technical Bids shall include the following aspects: i) Preliminary examination of Technical Bids; ii) Assessment of adequacy of Technical Proposal with the work requirements; iii) Qualification of Bidder; and iv) Determination of responsiveness of Technical Bid.
Evaluation of Price Bid	Evaluation of the Priced Bids shall include the following steps: i) Correction of arithmetical errors; ii) Quantifiable nonmaterial nonconformities and omissions; iii) Confirmation on share of goods and services to be procured from Japan; iv) Conversion to single currency; v) Determination of the Lowest Evaluated Bid Price; and vi) Examination of unbalanced or front loaded prices.

b) The evaluation of Technical Bids shall be carried out on Pass/Fail basis. In case a Bid fails to pass any of the criteria prescribed hereunder, such a Bid shall be rejected.

c) Bids will proceed to the Price Bid Evaluation only if they have passed the Technical Bid Evaluation.

d) Results of evaluation of the Technical and Price Bids each shall be subject to the separate concurrence of JICA.

1.2 Clarification of Bids

a) The Employer may request clarification of any Bid in accordance with the provisions of Instructions to Bidders, ITB 27.

b) If clarification is required, the Employer will send written (or faxed) requests to the official representative of the Bidder concerned for clarification, specifying the deadline for receipt of reply. Replies will generally be required within a maximum of seven (7) days.

c) Answers to the above requests shall be solely to clarify and/or elaborate the items already included in the submitted Bids for the purpose of evaluation. Answers shall not change the price or substance of the Bids. Any information or documents provided in the answers that are deemed as constituting a change to the price or substance will not be considered by the Employer and may provide grounds for rejection of the Bid.

2. Evaluation of Technical Bids

2.1 Preliminary Examination of Technical Bids

a) Preliminary examination of the Technical Bids will be made in accordance with ITB 29 whether the following documents are submitted properly:

(i) Letter of Technical Bid;
(ii) Written confirmation of authorization to commit the Bidder. In case of a joint venture, authorization documents from each member are required;
(iii) Bid Security;
(iv) Technical Proposal in accordance with ITB 16;
(v) Bidder's Qualification; and
(vi) Sealed Price Bid.

b) If any of these documents or information is missing, such a Bid shall be rejected.

2.2 Assessment of Adequacy of Technical Proposal with Requirements

a) Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity and capability to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section VI (Works Requirements).

b) Adequacy of the **Technical Proposal** to meet each requirement will be examined based upon the criteria specified hereinafter, and determination of the responsiveness of the Technical Specification will be made in accordance with ITB 31.

c) For the purpose of examination on adequacy of the Technical Proposal, the Technical Proposal will be evaluated on a basis of the criteria listed in items 2.2.1 through 2.2.6 below.

d) The Employer may at its discretion ask any Bidder for a clarification of its Technical Proposal, and no response to the clarification by the Bidder will be considered non-responsive and be rejected in accordance with ITB 27.

e) **Failure** to submit the required information specified in Section III: Evaluation and Qualification Criteria and Section IV: Bidding Forms as a part of the Technical Proposal, or of which information does not meet the requirements specified in the Bidding Documents including the Drawings, Specifications and Bill of Quantities, will be considered as **substantially non-responsive** in accordance with ITB 31.

2.2.1 Head Office and Site Organization

a) The Bidder shall show his Head Office Organization including all partners and subcontractors which support the operations on the Site.

b) Site Organization shall include an organization chart to clearly show key positions and name of personnel who will be assigned to complete the Works under the Contract, and their function and responsibility.

c) The timing and period of assignment of key personnel shall be justified in relation to the expected sequence of the works (manning chart in relation to the construction schedule).

2.2.2 Work Method Statement

a) **Work Method Statement** shall explain clearly the proposed methodology plans on management, temporary works, work execution of each component, and procurement of materials and equipment for permanent works under the Contract using graphics and tables as much as possible.

b) **Work Method Statement** shall include, at least, but not limited to the following items:

Contract Management Plan:	
1	Mobilization Plan of Personnel and Construction Plants
2	Communication Plan
3	Traffic Management Plan including Consideration for Public Use of Existing Roads
4	Safety Management Plan (GCC 4.8)
5	Schedule Control Plan
6	Quality Management Plan (GCC 4.9)
7	Environment Management Plan (GCC 4.18)
Temporary Work Plan	
1	Contractor's Yard Layout
2	Layout Plan of Plants (GCC 4.17)
3	Mobilization Pan of Plant & Equipment
4	Utility Plan for Construction
5	Temporary Road (GCC 4.15), Fences and Gates
6	Material Transport Route (GCC 4.16)
7	Temporary Drainage
Work Execution Plan (GCC 7 & 8.3)	
1	Earthwork
2	Subgrade Work
3	Asphalt Pavement Work
4	Concrete Pavement Work
5	Utility Works
6	Passenger Terminal Building Work
7	Tower, ATC Operation & Administration Building Work
8	Fire Station & Airport Maintenance Building Work
9	Ancillary Buildings Work
10	Utility Buildings Work
11	Navaids Buildings Work
12	Air Navigation Facilities Work
13	Aeronautical Ground Lighting Works

2.2.3 Basic Program for the Works

a) **Basic Program** for the Works shall be prepared at least taking into account of the following:

	Content to be shown in Construction Schedule
1	Divide into required Sections/Divisions of each component of the works including mobilization.
2	Consider programme/works social and natural constraints in the Philippines and the project area including timing of complete relocation of the residents in the Site.
3	Consider design, preparation of drawings, fabrication time, shipment and delivery to the Site, construction and installation, inspection testing and commissioning, training and completion activities.
4	Supported by notes and calculations.
5	Realistic Critical Path.

2.2.4 Procurement Plan of Major Materials and Equipment

a) **Procurement Plan of Major Materials and Equipment** proposed by the Bidder for use for the Permanent Works shall be submitted in Form MME.

b) List of items to be submitted **as Procurement Plan of Major Materials and Equipment** is shown in Section IV: Bidding Forms (Form MME).

c) The evaluation of **Procurement Plan of Major Materials and Equipment** will be made with respect to compliance with the requirements specified in the Bidding Documents including Drawings, Bill of Quantities and Specifications.

2.2.5 Personnel

a) The Bidder must demonstrate that it has the personnel for the key positions that meet the following requirements:

No.	Position	Total Work Experience (years)	Experience in Similar Works (years)
1	Project Manager (Contractor's Representative under GCC 4.3)	20	10
2	Chief Civil Engineer	15	7
3	Chief Architect	15	7
4	Chief Mechanical Engineer	15	5
5	Chief Electrical Engineer	15	5
6	Chief Air Navigation Engineer	10	5
7	Chief Utility Engineer	10	5
8	Procurement Manager	10	5
9	Health & Safety (Accident Prevention) Officer	10	5

b) The Bidder shall provide details of the proposed personnel and their experience records in Form PER-1 and Form PER-2 in Section IV, Bidding Forms. Alternative candidates for key personnel shall not be evaluated.

c) Assignment schedule of each personnel shall be attached.

2.2.6 Equipment

a) The Bidder must demonstrate that it has the key equipment listed hereafter:

No.	Equipment Type and Characteristics	Minimum Capacity	Minimum Number required	Years after Manufacturing
1	Concrete Batching Plant	50 m^3 / hour	1	Not older than 7 years
2	Asphalt Plant	80 t / hour	1	Not older than 7 years
3	Aggregate Crushing Plant	50 t / hour	1	Not older than 7 years
4	Asphalt Paver	6 m wide	2	Not older than 7 years
5	Concrete Pavement Finisher	5 m wide	1	Not older than 7 years
6	Bulldozer with Ripper	25~30 ton	2	Not older than 7 years

b) The Bidder shall provide further details of the proposed items of equipment using Form EQU in Section IV, Bidding Forms.

2.3 Qualification of Bidders

a) The Eligible Nationality of the Contractor(s) shall be following:

(i) Japan in the case of the prime contractor, and

(ii) All countries and areas in the case of the sub-contractor(s).

b) With regard to (i) above, in case where the prime contractor is a joint venture such joint venture will be eligible provided that the nationality of the lead partner is Japan, that the nationality of the other partner is Japan and/or the Republic of the Philippines and that the total share of work of Japanese partners in the joint venture is more than fifty percent (50%) of the contract amount.

c) With regard to sub-sections (a) and (b) above,

(i) For goods and services, except consulting services, (1) the prime contractor or, in the case of a joint venture, the lead partner and other partners regarded as the Japanese partners shall be nationals of Japan or juridical persons incorporated and registered in Japan, and have their appropriate facilities for producing or providing the goods and services in Japan and actually conduct their business there; and (2) in the case of a joint venture, the partners except Japanese partners shall be nationals of the Republic of the Philippines or juridical persons incorporated and registered in Japan or the Republic of the Philippines, and have their appropriate facilities for producing or providing the goods and services in Japan or the Republic of the Philippines and actually conduct their business there.

d) The total cost of goods and services procured from Japan shall not be less than thirty percent (30%) of the total amount of contract.

e) Exchange Rate for Qualification Criteria

Wherever any Form in Section IV, Bidding Forms, requires a Bidder to state a monetary amount other than Japanese Yen, Bidders should indicate the Japanese Yen equivalent using the rate of exchange determined as follows:

(i) For construction turnover or financial data required for each year: Exchange rate prevailing on the last day of the respective calendar year.

(ii) Value of single contract: Exchange rate prevailing on the date of the contract signing.

(iii) Exchange rates shall be taken from the publicly available source **identified in BDS 34.1** or, in case such rates are not available in the source identified above, any other publicly available source acceptable to the Employer. Any error in determining the exchange rates may be corrected by the Employer.

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Factor	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
2.3.1 Eligibility							
2.3.1 (1)	Nationality	Nationality in accordance with ITB 4.3	Must meet requirement.	N/A	Must meet requirement.	N/A	Forms ELI – 1 and 2, with attachments
2.3.1 (2)	Conflict of Interest	No conflicts of interest in ITB 4.2	Must meet requirement.	N/A	Must meet requirement.	N/A	Letter of Technical Bid
2.3.1 (3)	JICA Ineligibility	Not having been declared ineligible by JI.CA, as described in ITB 4.4	Must meet requirement.	N/A	Must meet requirement.	N/A	Letter of Bid Form ACK

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Factor	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
2.3.2 Historical Contract Non-Performance							
2.3.2 (1)	History of Non-Performing Contracts	Non-performance of a contract [(i)] did not occur as a result of contractor's default since 1st January 2011.	Must meet requirement. [(ii)]	N/A	Must meet requirement. [(ii)]	N/A	Form CON
2.3.2 (2)	Pending Litigation	All pending litigation shall be treated as resolved against the Bidder and shall in total not represent more than 50 % of the Bidder's net worth.	Must meet requirement by itself or as partner to past or existing JV. [(ii)]	N/A	Must meet requirement. [(ii)]	N/A	Form CON
2.3.2 (3)	Litigation History	No consistent history of court/arbitral award decisions against the Bidder [(iii)] since 1st January 2008.	Must meet requirement. [(ii)]	N/A	Must meet requirement. [(ii)]	N/A	Form CON

Notes for the Bidder

(i) Non-performance, as decided by the Employer, shall include all contracts:

(a) where non-performance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and

(b) that were so challenged but fully settled against the contractor.

Non-performance shall not include contracts where Employer's decision was overruled by the dispute resolution mechanism. Non-performance must be based on all information on fully settled disputes or litigation, i.e. dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted.

(ii) This requirement also applies to contracts executed by the Bidder as a JV member.

(iii) The Bidder shall provide accurate information on the related Bidding Form about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the last five (5) years. A consistent history of awards against the Bidder or any member of a joint venture may result in failure of the Bid.

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Factor	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
2.3.3 Financial Situation							
2.3.3 (1)	**Financial Performance**	The audited balance sheets or, if not required by the laws of the Bidder's country, other financial statements acceptable to the Employer, for the last **5 years** shall be submitted and must demonstrate the current soundness of the Bidder's financial position and indicate its prospective long-term profitability. As the minimum requirement, a Bidder's net worth calculated as the difference between total assets and total liabilities shall be positive.	Must meet requirement.	N/A	Must meet requirement.	N/A	Form FIN –1 with attachments
2.3.3 (2)	**Average Annual Construction Turnover**	Minimum average annual construction turnover of Japanese **Yen 8.0 Billion**, calculated as total certified payments received for contracts in progress and/ or completed, within the last **5 years, divided by 5 years.**	Must meet requirement.	Must meet requirement.	Must meet 25 % of the requirement.	Must meet 40 % of the requirement.	Form FIN – 2

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Factor	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
2.3.4. Experience							
2.3.4 (1)	General Construction Experience	Experience under construction contracts in the role of prime contractor (single entity or JV member), subcontractor, or management contractor [(i)] for at least the last 10 years, starting 1st January 2003.	Must meet requirement.	N/A	Must meet requirement.	N/A	Form EXP – 1
2.3.4. (2)-a	Specific Construction Experience	A minimum number of one (1) similar [(ii)] contract that has been satisfactorily and substantially [(iii)] completed as a prime contractor (single entity or JV member) [(iv)] between 1st January 2003 and Bid submission deadline. As minimum requirements for similar size and nature, the scope of previous contracts should include the followings: 1) Airport construction and expansion projects to include at least a runway and/or taxiway pavement work or passenger terminal building work or both to accommodate A320/B737 class or larger aircraft with a total contract price of JPY one (1) Billion or more. Prices of separate contracts awarded to a Bidder for a specific airport project during its project period (for example separate three contracts for runway extension awarded to a Bidder from first to third years of its project period) may collectively be deemed as one contract and such prices may be summed up to arrive at the minimum specified amount of JPY 1 Billion.	Must meet requirement.	Must meet requirement [(v)]	N/A	N/A	Form EXP – 2 (a)
2.3.4 (2)-b		For the above or other contracts completed and under implementation as a prime contractor (single entity or JV member), management contractor or subcontractor [(vi)] between 1st January 2003 and Bid submission deadline, a minimum number of one (1) construction work experience involving following key activities successfully completed [(vii)]: 1) Construction works of airport passenger terminal or other public building complex (e.g. railway station, civic hall, office building, hotel and shopping complex) of more	Must meet requirement (can be a specialist subcontractor).	Must meet requirement (can be a specialist subcontractor).	N/A	N/A	Form EXP – 2 (b)

		than 8,000 m² floor space including mechanical & electrical installations.					

Notes for the Bidder

(i) A management contractor is a firm which takes on the role of contract management as a "general" contractor of sort could do. It does not normally perform directly the construction work(s) associated with the contract. Rather, it manages the work of other (sub) contractors while bearing full responsibility and risk for price, quality, and timely performance of the work contract.

(ii) The similarity shall be based on the physical size, complexity, methods/technology and/or other characteristics described in Section VI, Works Requirements. Summation of number of small value contracts (less than the value specified under requirement) to meet the overall requirement will not be accepted.

(iii) Substantial completion shall be based on 80% or more of the works completed under the contract.

(iv) For contracts under which the Bidder participated as a JV member, only the Bidder's share, by value, shall be considered to meet this requirement.

(v) In case of a JV, the value of contracts completed by its members shall not be aggregated to determine whether the requirement of the minimum value of a single contract has been met. Instead, each contract performed by each member shall satisfy the minimum value of a single contract as required for single entity. In determining whether the JV meets the requirement of total number of contracts, only the number of contracts completed by all members, each of value equal or more than the minimum value required shall be aggregated.

(vi) For contracts under which the Bidder participated as a JV member or subcontractor, only the Bidder's share, by value, shall be considered to meet this requirement.

(vii) Volume, number or rate of production of any key activity can be demonstrated in one or more contracts combined if executed during same time period. The rate of production shall be the annual production rate for the key construction activity (or activities). For the rate of production, either the average during the entire period or in any one or more years during the period should be specified.

(viii) The minimum experience requirement for multiple contracts will be the sum of the minimum requirements for respective individual contracts.

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Factor	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
2.3.5 Financial Resources							
2.3.5 (1)	Financial Resources	The Bidder shall demonstrate that it has access to, or has available liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as Japanese Yen 1,300 million for the subject contract(s) net of the Bidders other commitments.	Must meet requirement.	Must meet requirement.	Must meet 25% of the requirement (not less than JPY 325 million).	Must meet 40% of the requirement (not less than JPY 520 million).	From Forms FIR–1 and FIR-2

Note for the Bidder

The amount of Bidder's financial resources for the subject contract shall be defined as the difference between the sum of all of the financial resources specified in Form FIR-1 and the sum of all of the average monthly invoicing over last six months provided in Form FIR-2.
Specific method to verify this requirement is as follows:
[Sum of amounts of all of the Sources of financing specified in Form FIR-1] minus [[Sum of Average Monthly Invoicing Over Last Six Months of all of the Contracts provided in Form FIR-2] shall not be less than JPY 1,300 million.
In case of JV, one and the other member(s) must meet 40 % and 25 % of the requirement respectively, in addition to the requirement for all parities combined.

3. Evaluation of Price Bids

3.1 Correction of Arithmetical Errors

a) Evaluation of Price Bids will be made in accordance with the criteria and methodology specified in ITB 36.

b) Correction of the Bill of Quantities submitted by the Bidders will be made in accordance with ITB 33.

c) Bidders shall be requested to accept correction of arithmetical errors made by the Employer. Failure to accept the correction in accordance with 33.1 shall result in the rejection of the Bid.

3.2 Quantifiable Nonmaterial Nonconformities and Omissions

The evaluated cost of quantifiable nonconformities is determined as follows:

Pursuant to ITB 32.3, the cost of all quantifiable nonmaterial nonconformities or omissions shall be evaluated. The Employer will make its own assessment of the cost of any nonmaterial nonconformities and omissions for the purpose of ensuring fair comparison of Bids, except for the omissions stated in ITB 14.2 which shall be treated in accordance with said clause.

3.3 Goods and Services to be Procured from Japan

In addition to the criteria listed in ITB 36.2 (a) – (d) the following criteria shall apply:

The total cost of goods and services procured from Japan shall not be less than thirty percent (30%) of the total amount of the Contract.

3.4 Conversion to Single Currency

a) For evaluation and comparison purpose of the Price Bid, the currency of the Bid shall be converted into a single currency as specified in the BDS.

Section IV. Bidding Forms

Table of Forms

Following Bid Forms shall be prepared and submitted by the Bidders:

- ✓ **Letter of Technical Bid**
- ✓ **Letter of Price Bid**
- ✓ **Schedule of Adjustment Data**
- ✓ **Bill of Quantities**
- ✓ **Technical Proposal**
  - Site Organization
  - Work Method Statement
  - Construction Schedule
  - Procurement Plan of Major Materials & Equipment
  - Form PER - 1: Proposed Personnel
  - Form PER - 2: Resume of Proposed Personnel
  - Form EQU: Equipment
- ✓ Bidder's Qualification
  - Form ELI -1: Bidder Information
  - Form ELI -2: Bidder's Party Information
  - Form CON: Historical Contract Non-Performance
  - Form FIN -1: Financial Situation
  - Form FIN -2: Average Annual Construction Turnover
  - Form FIR -1: Financial Resources
  - Form FIR -2: Current Contract Commitment
  - Form EXP -1: General Construction Experience
  - Form EXP -2(a): Specific Construction Experience
  - Form EXP -2(b): Construction Experience in Key Activities
- ✓ **Form ACK: Acknowledgement of Compliance with Guidelines for Procurement under Japanese ODA Loan**
- ✓ **Form of Bid Security**
- ✓ **Additional Information**
  - Form MME: Procurement Plan of Major Materials and Equipment
  - Form JPO: Price List of Japanese Origin Items
  - Electronic editable file priced Bill of Quantities

Following Forms shall be submitted as part of the Technical Bid:

a) Letter of Technical Bid (Power of Attorney for the authorized signatory, certified by a Notary Public shall be attached);

b) Form of Bid Security;

c) Technical Proposal (all information and Forms);

d) Bidder's Qualification (all Forms);

e) Form ACK: Acknowledgement of Compliance with Guidelines for Procurement under Japanese ODA Loan; and

f) Additional Information Form MPM: Procurement Plan of Major Materials and Equipment.

Following Forms shall be submitted as the Price Bid:

a) Letter of Price Bid;

b) Schedule of Adjustment Data;

c) Bill of Quantities;

d) Additional Information: Form JPO: Price List of Japanese Origin Items; and

e) Electronic editable file of priced Bill of Quantities.

Letter of Technical Bid

Date: *[insert date of Bid submission]*
Loan Agreement No.: *[insert No of Loan]*
IFB No.: *[insert number]*

To: *[insert full name of Employer]*

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including addenda issued in accordance with Instructions to Bidders (ITB 8). *[Insert the number and issuing date of each addendum]*;

(b) We, including subcontractors meet the eligibility requirements in accordance with ITB 4 and ITB 5;

(c) We, including subcontractors have no conflict of interest in accordance with ITB 4;

(d) We offer to execute in conformity with the Bidding Documents the New Bohol Airport Construction and Sustainable Environment Protection Project;

(e) Our Bid shall be valid for a period of 120 days from the date fixed for the Bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(f) We are not participating, as a Bidder or as a subcontractor, in more than one Bid in this bidding process in accordance with ITB 4.2(c), other than alternative Bids submitted in accordance with ITB 13; and

(g) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption.

Name of the Bidder***** *[insert complete name of person signing the Bid]*
Name of the person duly authorized to sign the Bid on behalf of the Bidder****** *[insert complete name of person duly authorized to sign the Bid]*

Title of the person signing the Bid *[insert complete title of the person signing the Bid]*

Signature of the person named above *[insert signature of person whose name and capacity are shown above]*

Date signed *[insert date of signing]* day of *[insert month], [insert year]*

*****: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder
******: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid.

Letter of Price Bid

Date: *[insert date of Bid submission]*
Loan Agreement No.: *[insert No of Loan]*
IFB No.: *[insert number]*

To: *[insert full name of Employer]*

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including addenda issued in accordance with Instructions to Bidders (ITB 8). *[Insert the number and issuing date of each addendum]*;

(b) We offer to execute in conformity with the Bidding Documents and Technical Bid the New Bohol Airport Construction and Sustainable Environment Protection Project;

(c) The total price of our Bid, excluding any discounts offered in item (d) below is: *[insert the total price of the Bid in words and figures, indicating the various amounts and the respective currencies]*

(d) The discounts offered and the methodology for their application are:

The discounts offered are: *[specify in detail each discount offered.]*

The exact method of calculations to determine the net price after application of discounts is shown below: *[specify in detail the method that shall be used to apply the discounts.]* ;

(e) Our Bid shall be valid for a period of 120 days from the date fixed for the Bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(f) If our Bid is accepted, we commit to obtain a Performance Security in accordance with the Bidding Documents;

(g) We understand that this Bid, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed; and

(h) We understand that you are not bound to accept the lowest evaluated Bid or any other Bid that you may receive.

Name of the Bidder***** *[insert complete name of person signing the Bid]*
Name of the person duly authorized to sign the Bid on behalf of the Bidder****** *[insert complete name of person duly authorized to sign the Bid]*

Title of the person signing the Bid *[insert complete title of the person signing the Bid]*

Signature of the person named above *[insert signature of person whose name and capacity are shown above]*

Date signed *[insert date of signing]* day of *[insert month], [insert year]*

*****: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder
**: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid.

Schedule of Adjustment Data

In Tables A and B below, the Bidder shall (a) indicate its proposed source and base values of indices for local and foreign currency elements of cost for the works subject to adjustment in accordance with the provisions of Sub-clause 13.8 of the Conditions of Contract, and (b) derive its proposed weightings for local and foreign currency payment.

Table A. Local Currency

Index code	Index description	Source of Index: Construction Price Index issued by the National Statistics Office or other appropriate government agency of the Philippines	Base value on Base Date	Bidder's related currency amount (Philippine Pesos)	Bidder's proposed weighting
	Nonadjustable	—	—		a: 0.2 b: _____ c: _____ d: _____ e: _____
			Total		**1.00**

Table B. Foreign Currency

Index code	Index description	Source of index: Ministry of Land, Infrastructure, Transport and Tourism or other appropriate agency or like of Japan	Base value on Base Date	Bidder's related currency amount (Japanese Yen)	Bidder's proposed weighting
	Nonadjustable	—	—		a: 0.2 b: _____ c: _____ d: _____ e: _____
			Total		**1.00**

Bill of Quantities

Bill of Quantities is issued to the Bidders separately from this Document.

Technical Proposal

Technical Proposal shall describe clearly the Bidder's proposed plan to execute and complete the Works specified in the Bidding Document taking into account of the requirements contained in Section III Evaluation and Qualification Criteria.

The Bidder is recommended to prepare their Technical Proposal tidily and orderly to demonstrate their proposal of each item.

The Bidder is requested to insert "Chapter Separators" in each section with "Earmark (Index mark of each chapter) for easy reference.

Form PER -1: Proposed Personnel

[insert day, month, year]
Bidder's Legal Name: *[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* page

[The Bidder shall provide the names of suitably qualified personnel to meet the specified requirements stated in Section III, Evaluation and Qualification Criteria, Clause 2.2.5.]

1.	**Title of position***
	Name
2.	**Title of position***
	Name
3.	**Title of position***
	Name
4.	**Title of position***
	Name

*As listed in Section III.

Form PER -2: Resume of Proposed Personnel

[insert day, month, year]
Bidder's Legal Name: *[insert full name]*
Joint Venture Party Legal Name:*[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* page

[The Bidder shall provide the data on the experience of the personnel indicated in Form PER-1, in the form below:]

Name of Bidder

Position		
Personnel information	**Name**	**Date of birth**
	Professional qualifications	
Present employment	**Name of employer**	
	Address of employer	
	Telephone	**Contact (manager / personnel officer)**
	Fax	**E-mail**
	Job title	**Years with present employer**

[Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.]

From	To	Company / Project / Position / Relevant technical and management experience

Form EQU: Equipment

[insert day, month, year]
Bidder's Legal Name: *[insert full name]*
Joint Venture Party Legal Name:*[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* page

[The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III, Evaluation and Qualification Criteria, Clause 2.2.6. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.]

Item of equipment		
Equipment information	**Name of manufacturer**	**Model and power rating**
	Capacity	**Year of manufacture**
Current status	**Current location**	
	Details of current commitments	
Source	**Indicate source of the equipment** ☐ **Owned** ☐ **Rented** ☐ **Leased** ☐ **Specially manufactured**	

Omit the following information for equipment owned by the Bidder.

Owner	**Name of owner**	
	Address of owner	
	Telephone	**Contact name and title**
	Fax	**Telex**
Agreements	**Details of rental / lease / manufacture agreements specific to the project**	

Bidders Qualification

To establish its qualifications to perform the contract in accordance with Section III, Evaluation and Qualification Criteria, the Bidders shall provide the information requested in the corresponding Forms included hereunder:

2.3.1 Eligibility
Form ELI -1: Bidder Information Form
Form ELI -2: Bidder's Party Information Form
2.3.2 Historical Contract Non-Performance
Form CON: Historical Contract Non-Performance
2.3.3 Financial Situation
Form FIN -1: Financial Situation
Form FIN -2: Average Annual Construction Turnover
2.3.4 Experience
Form EXP -1: General Construction Experience
Form EXP -2(a): Specific Construction Experience
Form EXP -2(b): Construction Experience in Key Activities
2.3.5 Financial Resources
Form FIR -1: Financial Resources
Form FIR -2: Current Contract Commitments

Form ELI -1: Bidder Information

Date: *[insert day, month, year]*
IFB No.: *[insert number]*
Page *[insert page number]* of *[insert total number]* pages

[Bidders shall provide the following information:]

Bidder's legal name *[insert full name]*
In case of a JV, legal name of the representative member and of each member: *[insert full name of each member in the JV and specify the representative member.]*
Bidder's actual or intended country of registration: *[insert country of registration]*
Bidder's actual or intended year of incorporation: *[insert year of incorporation]*
Bidder's legal address in country of registration: *[insert street/ number/ town or city/ country]*
Bidder's authorized representative information Name: *[insert full name]* Address: *[inset street/ number/ town or city/ country]* Telephone/Fax numbers: *[insert telephone/fax numbers, including country and city codes]* E-mail address: *[insert E-mail address]*
1. Attached are copies of original documents of ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.3. ☐ In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

Form ELI -2: Bidder's Party Information

Date: *[insert day, month, year]*
IFB No.: *[insert number]*
Page *[insert page number]* of *[insert total number]* pages

[The following form is additional to Form ELI-1, and shall be completed to provide information relating to each JV member (in case the Bidder is a JV) as well as any specialist subcontractor proposed to be used by the Bidder for any part of the Contract resulting from this process.]

Bidder's legal name: *[insert full name]*
Bidder's Party legal name: *[insert full name of Bidder's party]*
Bidder's Party country of registration: *[insert country of registration]*
Bidder's Party year of incorporation: *[insert year of incorporation]*
Bidder's Party legal address in country of registration: *[insert street/ number/ town or city/ country]*
Bidder's Party authorized representative information Name: *[insert full name]* Address: *[insert street/ number/ town or city/ country]* Telephone/Fax numbers: *[insert telephone/fax numbers, including country and city codes]* E-mail address: *[insert E-mail address]*
1. Attached are copies of original documents of ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.3. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

Form CON: Historical Contract Non-Performance

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
Bidder's Party Legal Name:*[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* pages
[The following table shall be filled in for the Bidder and for each member of a JV]

1. History of Non-Performing Contracts

Non-Performing Contracts
☐ Contract non-performance did not occur since 1st January *[insert year*], in accordance with the Prequalification criteria or Section III, Evaluation and Qualification Criteria, Sub-Factor 2.2.1, as appropriate. ☐ Contract(s) not performed since 1st January *[insert year]*, in accordance with the Prequalification criteria or Section III, Evaluation and Qualification Criteria, Sub-Factor 2.2.1, as appropriate, is(are) indicated below:

Year	**Non- performed portion of contract**	**Contract Identification**	**Total Contract Amount (current value, currency, exchange rate and USD equivalent)**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[insert complete contract name, number, and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Reason(s) for non-performance: *[indicate main reason(s)]*	*[insert amount]*

2. Pending Litigation

Pending Litigation
☐ No pending litigation in accordance with the Prequalification criteria or Section III, Evaluation and Qualification Criteria, Sub-Factor 2.2.2, as appropriate.
☐ Pending litigation in accordance with the Prequalification criteria or Section III, Evaluation and Qualification Criteria, Sub-Factor 2.2.2, as appropriate, is indicated below:

Year of dispute	**Amount in dispute (currency)**	**Outcome as Percentage of Net Worth**	**Contract Identification**	**Total Contract Amount (current value, currency, exchange rate and USD equivalent)**
[insert year]	*[insert amount]*	*[insert percentage]*	Contract Identification: *[indicate complete contract name, number, and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/ city/ country]* Matter in dispute: *[indicate main issues in dispute]* Status of dispute: *[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]*	*[insert amount]*

3. Litigation History

Litigation History
☐ No court/arbitral award decisions against the Bidder since 1st January *[insert year],* in accordance with the Prequalification criteria or Section III, Evaluation and Qualification Criteria, Sub-Factor 2.2.3, as appropriate. ☐ Court/ arbitral award decisions against the Bidder since 1st January *[insert year],* in accordance with the Prequalification criteria or Section III, Evaluation and Qualification Criteria, Sub-Factor 2.2.3, as appropriate, are indicated below:

Year of award	**Contract Identification**	**Total Contract Amount (current value, currency, exchange rate and USD equivalent)**
[insert year]	Contract Identification: *[indicate complete contract name, number, and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Matter in dispute: *[indicate main issues in dispute]* Party who initiated the dispute: *[indicate "Employer" or "Contractor"]* Status of dispute: *[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]*	*[insert amount]*

Form FIN -1: Financial Situation

[The following table shall be filled in for the Bidder and for each member of a JV.]

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
Bidder's Party Legal Name:*[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* page

1. Financial data

Type of Financial information in Japanese Yen equivalent	**Historic information for previous 5 years (amount in Japanese Yen equivalent)**				
	Year 1	Year 2	Year 3	Year 4	Year 5
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Profits After Taxes (PAT)					

2. Financial documents

The Bidder and its parties shall provide copies of the financial statements for 5 years pursuant to the Section III, Evaluation and Qualification Criteria Sub-Factor 2.3 .3 as appropriate. The financial statements shall:

(a) reflect the financial situation of the Bidder or in case of JV, of each member, and not of an affiliated entity (such as parent company or group member).

(b) be independently audited or certified in accordance with local legislation.

(c) be complete, including all notes to the financial statements.

(d) correspond to accounting periods already completed and audited.

Attached are copies of financial statements* for the 5 years required above; and complying with the requirements.

* If the most recent set of financial statements is for a period earlier than 12 months from the date of bid, the reason for this should be justified.

Form FIN -2: Average Annual Construction Turnover

[The following table shall be filled in for the Bidder, and in case of a JV for each member of the JV as well as for all parties combined.]

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
Bidder's Party Legal Name:*[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* page

Annual Turnover Data (Construction only)			
Year	**Amount and Currency**	**Exchange rate**	**Japanese Yen equivalent**
[indicate year]	*[insert amount and indicate currency]*	*[insert applicable exchange rate]*	*[insert amount in Japanese Yen equivalent]*
Average Annual Construction Turnover *			

* Total Japanese Yen equivalent for all years divided by the total number of years, in accordance with the Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.3.

Form FIR -1: Financial Resources

[The following table shall be filled in for the Bidder, and in case of a JV for each member of the JV as well as all parties combined.]

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
Bidder's Party Legal Name:*[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* page

[Specify sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, available to meet the total construction cash flow demands of all of the contracts including subject contract as specified in Section III, Sub-Factor 2.3.5.]

Financial Resources		
No.	**Source of financing**	**Amount (Japanese Yen equivalent)**
1		
2		
3		

Form FIR -2: Current Contract Commitments

[The following table shall be filled in for the Bidder, and in case of a JV for each member of the JV as well as all parties combined.]

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
Bidder's Party Legal Name:*[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* page

[Bidders and each member to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued, in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.5.]

Current Contract Commitments					
No.	**Name of Contract**	**Employer's Contact Address, Tel, Fax**	**Value of Outstanding Work[Japanese Yen Equivalent]**	**Estimated Completion Date**	**Average Monthly Invoicing Over Last Six Months [Japanese Yen/month)]**
1					
2					
3					
4					
5					

Form EXP -1: General Construction Experience

[The following table shall be filled in for the Bidder and for each member of a JV.]

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
Bidder's Party Legal Name:*[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* page

[Identify contracts that demonstrate continuous construction work over the past 10 years pursuant to Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.4. List contracts chronologically, according to their commencement (starting) dates.]

General Construction Experience			
Starting Year	Ending Year	Contract Identification	Role of Bidder
[indicate year]	*[indicate year]*	Contract name: *[insert full name]* Brief description of the Works performed by the Bidder: *[describe Works performed briefly]* Amount of contract: *[insert amount in currency, mention currency used, exchange rate and USD equivalent]* Name of Employer: *[indicate full name]* Address: *[indicate street/number/town or city/country]*	*[insert "Prime Contractor (single entity or JV member)" or "Subcontractor" or "Management Contractor"]*

Form EXP -2(a): Specific Construction Experience

[The following table shall be filled in for the Bidder and for each member of a JV]

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
Bidder's Party Legal Name:*[insert full name]*
IFB No. *[insert number]*
Page *[insert page number]* of *[insert total number]* page
[Fill out one (1) form per contract, in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.4(2)-a.]

Contract of Similar Size and Nature			
Similar Contract No. ***[insert number]* of *[insert number of similar contracts required]***	**Information**		
Contract Identification	*[insert contract name and reference identification number, if applicable]*		
Award Date	*[insert day, month, year, e.g., 15 June, 2015]*		
Completion Date	*[insert day, month, year, e.g., 03 October, 2017]*		
Role in Contract ***[check the appropriate box]***	**Prime Contractor**		
	Single entity ☐		JV member ☐
Total Contract Amount	*[insert total contract amount and currency(ies)]*		USD *[insert exchange rate and total contract amount in USD equivalent]*
If member in a JV, specify participation in total Contract amount	*[insert a percentage amount]*	*[insert total contract amount and currency(ies)]*	USD*[insert exchange rate and total contract amount in USD equivalent]*
Employer's Name:	*[insert full name]*		
Address: **Telephone/fax number** **E-mail:**	*[indicate street / number / town or city / country]* *[insert telephone/fax numbers, including country and city area codes]* *[insert E-mail address, if available]*		

Description of the similarity in accordance with Sub-Factor 2.3.4(2)-a of Section III:	Information
1. Physical size of required works items	*[insert physical size of items]*
2. Complexity	*[insert description of complexity]*
3. Methods/Technology	*[insert specific aspects of the methods/ technology involved in the contract]*
4. Other Characteristics	*[insert other characteristics as described in Section VI, Works Requirements]*

Form EXP -2(b): Construction Experience in Key Activities

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
Bidder's Party Legal Name:*[insert full name]*
Subcontractor's Legal Name *[insert full name]*
IFB No.: *[insert number]*
Page *[insert page number]* of *[insert total number]* pages

[Fill out one (1) form per contract, in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.4(2)-b.]

1. Key Activity No (1): _____: *[insert brief description of the Activity, emphasizing its specificity]*
Total Quantity of Activity under the contract: _____

Contract with Similar Key Activities				
Item	**Information**			
Contract Identification	*[insert contract name and number, if applicable]*			
Award Date	*[insert day, month, year, e.g., 15 June, 2015]*			
Completion Date	*[insert day, month, year, e.g., 03 October, 2017]*			
Role in Contract *[check the appropriate box]*	Prime Contractor		Management Contractor ☐	Subcontractor ☐
	Single entity ☐	JV member ☐		
Total Contract Amount	*[insert total contract amount and currency(ies)]*		USD *[insert Exchange rate and total contract amount in USD equivalent]*	
Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year *[Insert extent of participation indicating actual quantity of key activity successfully completed in the role performed]*	Total quantity in the contract (i)	Percentage participation (ii)		Actual Quantity Performed (i) x (ii)
Year 1				
Year 2				
Year 3				
Year 4				
Employer's Name:	*[insert full name]*			
Address: Telephone/fax number E-mail:	*[indicate street / number / town or city / country]* *[insert telephone/fax numbers, including country and city area codes]* *[insert E-mail address, if available]*			

Form ACK
Acknowledgement of Compliance with Guidelines for Procurement under Japanese ODA Loans

A) I, *[insert name and position of authorized signatory]*, duly authorized by *[insert name of Bidder/members of joint venture ("JV")]* (hereinafter referred to as "Bidder") hereby certify on behalf of the Bidder and myself that information provided in the Bid submitted by the Bidder for *[insert Loan No and name of the Project]* is true, correct and accurate to the best of my knowledge and belief. I further certify on behalf of the Bidder that;

(i) the Bid has been prepared and submitted in compliance with the terms and conditions set forth in the Guidelines for Procurement under Japanese ODA Loans (hereinafter referred to as "Guidelines"); and

(ii) the Bidder has not taken any action which is or constitutes a corrupt, fraudulent, collusive or coercive practice and is not subject to any conflict of interest as stipulated in the relevant section of the Guidelines.

<If debarment for more than one year by the World Bank Group is NOT imposed, use the following sentence B).>

B) I certify that the Bidder has NOT been debarred for more than one year by the World Bank Group since the date of issuance of Invitation for Bids.[1]

<If debarment for more than one year by the World Bank Group has been imposed BUT three (3) years have passed since such debarment decision, use the following sentence B').>

B') I certify that the Bidder has been debarred by the World Bank Group BUT three (3) years have passed since such debarment decision, on the date of issuance of Invitation for Bids. The profile of the debarment is as follows;

name of the debarred firm	starting date of debarment	ending date of debarment	reason of debarment

C) I certify that the Bidder will not make a subcontract with a firm which is debarred for more than one year by the World Bank Group, unless three (3) years have passed since such debarment decision on the subcontract date.

D) I further certify on behalf of the Bidder that, if selected to undertake services in connection with the contract, I shall carry out such services in continuing compliance with the terms and conditions of the Guidelines.

E) If any of the statement, as acknowledged above, proves to contradict the facts subsequently, or is not complied with, I have no objection as to whether (i) the Employer exercises any remedies, and/or (ii) JICA imposes sanctions against the Bidder.

Authorized SIGNATORY

For and on behalf of the Bidder
Date:

[1] The starting date should be revised to "request for price quotation," if the Borrower is selected through the International Shopping"; to "appointment", if a contractor is selected through the Direct Contracting; or "Commencement of actual selection/bidding process, if the Borrower wishes to adopt procurement procedures other than ICB, Limited International Shopping, International Shopping, or Direct Contracting.

Form of Bid Security

(Bank Guarantee)

[Guarantor letterhead or SWIFT identifier code]
Beneficiary: *[Employer to insert its name and address]*
IFB No.: *[Employer to insert number of Invitation for Bids]*
Date: *[Insert date of issue]*
BID GUARANTEE No.: *[Insert guarantee reference number]*
Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of the Bidder, which in the case of a joint venture shall be the name of the joint venture (whether legally constituted or prospective) or the names of all members thereof]* (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Bid (hereinafter called "the Bid") for the execution of *[insert description of contract]* under the Loan Agreement No. *[insert Loan Agreement Number]*.
Furthermore, we understand that, according to the Beneficiary's conditions, Bids must be supported by a bid guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in words]* (*[insert amount in figures]*) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

(a) has withdrawn its Bid during the period of bid validity set forth in the Applicant's Letters of Technical and Price Bid ("the Bid Validity Period"), or any extension thereto provided by the Applicant; or

(b) having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance Security, in accordance with the Instructions to Bidders of the Beneficiary's bidding documents.

This guarantee will expire and shall be returned: (a) if the Applicant is the successful Bidder, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security issued to the Beneficiary in relation to such contract agreement; or (b) if the Applicant is not the successful Bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the bidding process; or (ii) twenty-eight days after the end of the Bid Validity Period.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.
This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

[signature(s)]
[Note: All italicized text is for use in preparing this form and shall be deleted from the final product.]

Form MME: Procurement Plan of Major Materials and Equipment

No	Specification	Items	Model, Manufactures or Supplier, Source of Materials	Country of Origin	Page or reference nos. Catalogue if attached to the Proposal	Compliant with Specification
Component-1: General Requirements						
1.	Section 1210	Vehicle Type I				
2.	Section 1210	Vehicle Type II				
3.	Section 1210	Vehicle Type III				
4.	Section 1210	Electronic Total Station				
Component-2: Civil Works						
5.	Section 1400 Section 2270 Section 2280	Portland Cement				
6.	Section 1400 Section 2220 Section 2270 Section 2280	Aggregates for Cement Structures and Pavement Works				
7.	Section 1420 Section 2280	Dowel and Tie Bars				
8.	Section 2230 Section 2240	Bituminous Material				
Component-3: Utility Works						
9.	Section 3150	Water Distribution Pump Water Service Pump				
10.	Section 3230	Standby Generators				
11.	Section 3200	UPS				
12.	Section 3250	Photovoltaic Power Generation System				
13.	Section 3350	Raw Water Pumps				
Component-4: Building Works						
14.	Section 4230	Structural Steel				
15.	Section 4330	Metal Roofing				
16.	Section 4340	Aluminium Works (item 4.1 (b)				
17.	Section 4370	Ceramic Tiling				
18.	Section 5200	VRG				
19.	Section 5300	FM200 Gas System				
20.	Section 6500	Public Address system				
21.	Section 6700	CCTV System				
22.	Section 7200	Elevators				
23.	Section 7300	Baggage Handling System				
24.	Section 7400	Airport Security System				
25.	Section 7500	Flight Information Display System				
26.	Section 7600	Building Management System				

No	Specification	Items	Model, Manufactures or Supplier, Source of Materials	Country of Origin	Page or reference nos. Catalogue if attached to the Proposal	Compliant with Specification
Componnet-5: Air Navigation Facilities						
27.	Section 8100	ILS				
28.	Section 8200	VOR/DME				
29.	Section 8300	VCCS				
30.	Section 8300	VHF Air Ground Communication				
31.	Section 8400	Weather Data Processing System				
Componnet-5: Aeronautical Ground Lighting						
32.	Section 9100	Precision Approach Lighting System				
33.	Section 9200	Precision Approach Path Indicators				
34.	Section 9300	Runway Edge Lights				
35.	Section 9400	Taxiway Edge Lights				
36.	Section 9600	Apron Flood Lights				
37.	Section 9800	Constant Current Regulators				

Form JPO: Price List of Japanese Origin Items

1. **"Form JPO: Price List of Japanese Orign Items"** shall be submitted with the Price Bids, not with Technical Proposal.

2. Detail Form JPO is attached to the Bill of Quantities.

Section V. Eligible Source Countries of Japanese ODA Loans

1. Guidelines to be used for procurement under the Loan

Procurement of all goods and services, except consulting services, to be financed out of the proceeds of the Loan shall be in accordance with the Guidelines for Procurement under Japanese ODA Loans dated April 2012 (hereinafter referred to as the "Procurement Guidelines").

2. Eligible Nationality

(1) The Eligible Nationality of the Supplier(s) shall be the following:

(a) Japan in the case of the prime contractor; and

(b) All countries and areas in the case of the sub-contractors(s).

(2) With regard to sub-section (1) above, in case where the prime contractor is a joint venture, such joint venture will be eligible provided that the nationality of the lead partner is Japan, that the nationality of the other partners is Japan and/or the Republic of Philippines and that the total share of work of Japanese partners in the joint venture is more than fifty percent (50%) of the contract amount.

(3) With regard to sub-sections (1) and (2) above,

For goods and services, except consulting services, (i) the prime contractor or, in the case of joint venture, the lead partner and other partners regarded as the Japanese partners shall be nationals of Japan or judicial persons incorporated and registered in Japan, and which have their appropriate facilities for producing or providing the goods and services in Japan and actually conduct their businesses there; and (ii) in the case of a joint venture, the partners except Japanese partners shall be nationals of the Republic of the Philippines or judicial persons incorporated and registered in Japan or the Republic of the Philippines, and which have their appropriate facilities for producing or providing the goods and services in Japan or the Republic of the Philippines and actually conduct their business there.

(4) The total costs of goods and services procured from Japan shall not be less than thirty percent (30%) of the total price of contract.

(5) With regard to sub-section (4) mentioned above, the goods procured from the eligible local manufacturing company(ies) (hereinafter referred to as the "Eligible Local Manufacturing Company(ies)") invested by Japanese companies can be regarded and counted as Japanese origin if such Eligible Local Manufacturing Company(ies) satisfy(ies) the following conditions:

(a) Juridical persons incorporated and registered in the Republic of the Philippines, and which have their appropriate facilities for producing or providing the goods and services in the he Republic of Philippines and actually conduct their business there;

(b) Not less than ten percent (10%) of shares are held by a single Japanese company; and

(c) The proportion of the shares held by the Japanese company mentioned in (b) above (or the company having the largest share among Japanese companies if more than one

Japanese company meet the condition stated in (b) above) is the same as or greater than that of the shares held by any company of a third country.

(6) With regard to sub-section (4) above, the goods procured from the eligible development partners' manufacturing company(ies) (hereinafter referred to as the "Eligible Development Partners' Manufacturing Company(ies)") invested by Japanese companies can be regarded and counted as Japanese origin if such Eligible Development Partners' Manufacturing Company(ies) satisfy(ies) the following conditions:

(a) Juridical persons incorporated and registered in a country or area on DAC List of ODA Recipients effective at the time of conclusion of the Loan Agreement and which have their appropriate facilities for producing or providing the goods and services in the country or area and actually conduct their business there;

(b) Not less than one-third of shares are held by a single Japanese company; and

(c) The proportion of the shares held by the Japanese company mentioned in (b) above (or the company having the largest share among Japanese companies if more than one Japanese company meet the condition stated in (b) above) is the same as or greater than that of the shares held by any company of a third country.

DAC List of ODA Recipients:
Effective for reporting on 2012 and 2013 flows

Least Developed Countries	Other Low Income Countries (per capita GNI <= $1 005 in 2010)	Lower Middle Income Countries and Territories (per capita GNI $1 006-$3 975 in 2010)	Upper Middle Income Countries and Territories (per capita GNI $3 976-$12 275 in 2010)
Afghanistan	Kenya	Armenia	Albania
Angola	Korea, Dem. Rep.	Belize	Algeria
Bangladesh	Kyrgyz Rep.	Bolivia	*Anguilla
Benin	Tajikistan	Cameroon	Antigua and Barbuda
Bhutan	Zimbabwe	Cape Verde	Argentina
Burkina Faso		Congo, Rep.	Azerbaijan
Burundi		Côte d'Ivoire	Belarus
Cambodia		Egypt	Bosnia and Herzegovina
Central African Rep.		El Salvador	Botswana
Chad		Fiji	Brazil
Comoros		Georgia	Chile
Congo, Dem. Rep.		Ghana	China
Djibouti		Guatemala	Colombia
Equatorial Guinea		Guyana	Cook Islands
Eritrea		Honduras	Costa Rica
Ethiopia		India	Cuba
Gambia		Indonesia	Dominica
Guinea		Iraq	Dominican Republic
Guinea-Bissau		Kosovo[1]	Ecuador
Haiti		Marshall Islands	Former Yugoslav Republic of Macedonia
Kiribati		Micronesia, Federated States	Gabon
Laos		Moldova	Grenada
Lesotho		Mongolia	Iran
Liberia		Morocco	Jamaica
Madagascar		Nicaragua	Jordan
Malawi		Nigeria	Kazakhstan
Mali		Pakistan	Lebanon
Mauritania		Papua New Guinea	Libya
Mozambique		Paraguay	Malaysia
Myanmar		Philippines	Maldives
Nepal		Sri Lanka	Mauritius
Niger		Swaziland	Mexico
Rwanda		Syria	Montenegro
Samoa		*Tokelau	*Montserrat
São Tomé and Principe		Tonga	Namibia
Senegal		Turkmenistan	Nauru
Sierra Leone		Ukraine	Niue
Solomon Islands		Uzbekistan	Palau
Somalia		Vietnam	Panama
South Sudan		West Bank and Gaza Strip	Peru
Sudan			Serbia
Tanzania			Seychelles
Timor-Leste			South Africa
Togo			*St. Helena
Tuvalu			St. Kitts-Nevis
Uganda			St. Lucia
Vanuatu			St. Vincent and Grenadines
Yemen			Suriname
Zambia			Thailand
			Tunisia
			Turkey
			Uruguay
			Venezuela
			*Wallis and Futuna

*Territory

(1) This is without prejudice to the status of Kosovo under international law

PART 2 –WORKS REQUIREMENTS

Section VI Works Requirements

Section VI. Works Requirements

Contents

1. Scope of Works

The outline Scope of Works of the Contract shall include the execution, completion and remedying defects of the following, all as more particularly indicated and described in the Drawings, Specifications and other documents comprising the Bidding Documents.

Component	Work Description
Component-1: **General Requirements (G)**	As specified in GCC and this Specification 1000 including: - Performance security - Insurances specified - Employer's and Engineer's facilities - Environment Management - Project Equipment - Maintenance Equipment
Component-2: **Civil Works (C)**	Construction of access road and airport infrastructure of runway strip, runway, taxiways, and apron including earthworks, pavement works, drainage works, landscaping and miscellaneous works
Subcomponent-2-1	(C1) Access Road
Subcomponent-2-2	(C2) Airport Infrastructure
Component-3: **Utility Works (U)**	Design, supply and installation of the equipment, piping, cabling and associated works for the following facilities:
Subcomponent-3-1	(U1) Water Supply System
Subcomponent-3-2	(U2) Power Supply System
Subcomponent-3-3	(U3) Sewage Treatment System
Component-4: **Building Works (B)**	Construction of the following buildings including structural works, architectural works, mechanical works, electrical works, IT works and landscaping works, and installation of airport special equipment such as baggage handling system and security check system:
Subcomponent-4-1	(B1) Passenger Terminal Building
Subcomponent-4-2	(Not used)
Subcomponent-4-3	(B3) Control Tower, ATC Operation & Administration Building
Subcomponent-4-4	(B4) Fire Station and Airport Maintenance Building
Subcomponent-4-5	Ancillary Buildings (B51) Driver's Lounge (B52) Car Parks Toilet (B53) Guard House (B54) Tollbooths
Subcomponent-4-6	Utility Buildings (B61) Water Tank & Pump Station (B62) Power Houses (B63) STP Control Room (B64) Material Recover Facility
Subcomponent-4-7	Navaids Buildings (B71) LLZ Building (B72) GS Building (B73) VOR Building
Component-5:	Supply and installation of the following Air navigation Facilities:

Component	Work Description
Air Navigation Facilities (N)	
Subcomponent-5-1	(N1) ILS
Subcomponent-5-2	(N2) VOR/DME
Subcomponent-5-3	(N3) ATS and Telecommunications
Subcomponent-5-4	(N4) Meteorological Observation System
Component-6: Aeronautical Ground Lighting Works (L)	Supply and installation of the following Aeronautical Ground Lighting:
Subcomponent-6-1	(L1) Approach Lighting Systems
Subcomponent-6-2	(L2) Precision Approach Path Indicators
Subcomponent-6-3	(L3) Runway Lighting System
Subcomponent-6-4	(L4) Taxiway Lighting System
Subcomponent-6-5	(L5) Other Aeronautical Lighting
Subcomponent-6-6	(L6) Apron Floodlighting
Subcomponent-6-7	(L7) Underground Cable Ducts
Subcomponent-6-8	(L8) Control and Monitor System

2. Specifications

The Specifications consist of the following Sections and are issued as separate documents for each of the Sections:

Section 1000 Series - General Requirements;

Section 2000 Series - Civil Works;

Section 3000 Series - Utility Works;

Section 4000 Series - Architectural Works;

Section 5000 Series - Mechanical Works;

Section 6000 Series - Electrical Works;

Section 7000 Series - Special Equipment;

Section 8000 Series - Air Navigation Facilities; and

Section 9000 Series - Aeronautical Ground Lighting Works.

3. Drawings

The Drawings were compiled as follows and are issued as separate documents.

Component	Works
Component-2: Civil Works	
Subcomponent-2-1	**(C1): Access Road**
Subcomponent-2-2	**(C2): Airport Infrastructure**
Component-3:Utility Works	
Subcomponent-3-1	**(U1): Water Supply System**
Subcomponent-3-2	**(U2): Power Supply System**
Subcomponent-3-3	**(U3): Sewage Treatment System**
Component-4:Building Works	
Subcomponent-4-1	**(B1): PTB**
Subcomponent-4-3	**(B3): Control Tower, ATC Operation & Administration Building**
Subcomponent-4-4	**(B4): Fire Station**
Subcomponent-4-5	**(B5): Ancillary Buildings**
	(B51) Driver's Lounge
	(B52) Car Parks Toilet
	(B53) Guard House
	(B54) Tollbooths
Subcomponent-4-6	**(B6): Utility Buildings**
	(B61) Water Tank & Pump Station
	(B62) Power Houses
	(B63) STP Control Room
	(B64) Material Recover Facility
Subcomponent-4-7	**(B7): Navaids Buildings**
	(B71) LLZ Building
	(B72) GS Building
	(B73) VOR Building
Component-5: Air Navigation Facilities (N)	
Subcomponent-5-1	(N1) ILS
Subcomponent-5-2	(N2) VOR/DME
Subcomponent-5-3	(N3) ATS and Telecommunications
Subcomponent-5-4	(N4) Meteorological Observation System
Component-6:Aeronautical Ground Lighting (L)	
Subcomponent-6-1	(L1) Approach Lighting Systems
Subcomponent-6-2	(L2) Precision Approach Path Indicators
Subcomponent-6-3	(L3) Runway Lighting System
Subcomponent-6-4	(L4) Taxiway Lighting System
Subcomponent-6-5	(L5) Other Aeronautical Lighting
Subcomponent-6-6	(L6) Apron Floodlighting
Subcomponent-6-7	(L7) Underground Cable Ducts
Subcomponent-6-8	(L8) Control and Monitor System

4. Supplementary Information

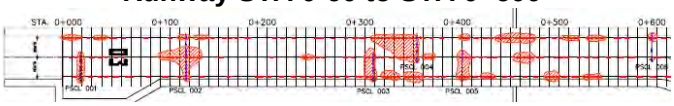
4.1 Geological Conditions

The project site is situated at 2 to 9 m above mean sea level, and underlain by Late Oligocene to Middle Miocene sediments and volcanic, mainly marine sandstone, shale and reef limestone; with some conglomerate, coal measure and marine and elastic-basaltic pyroclastic and lavas. A thick layer of coralline limestone underlain by thin layer of mostly medium plastic stiff to hard brown sandy elastic silt at the surface are the prevalent soil-rock formation as evidenced through the boreholes and test pits conducted. Information obtained from exploratory boreholes and test pits indicate that the site area is mostly consisting of cohesive deposits on top and under laying rock formations.

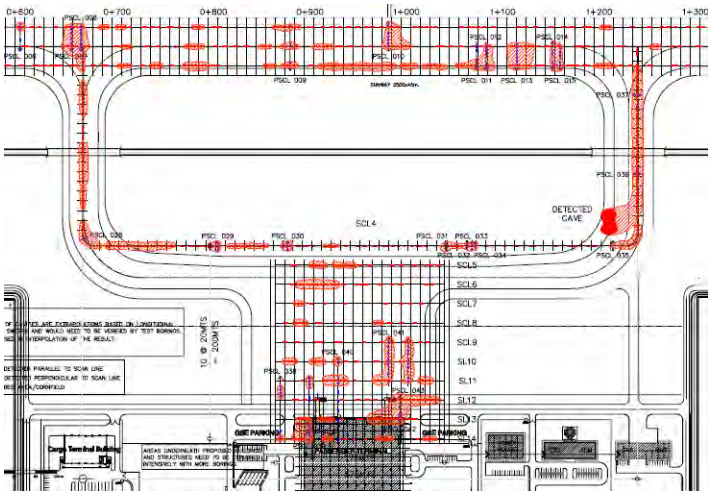
4.1.1 Previous Geological Survey conducted in 2009

Through Ground Penetration Radar (GPR) survey conducted in 2009, there were potential cavities which were suspected to exist underground as shown in Figure 4.1-1.

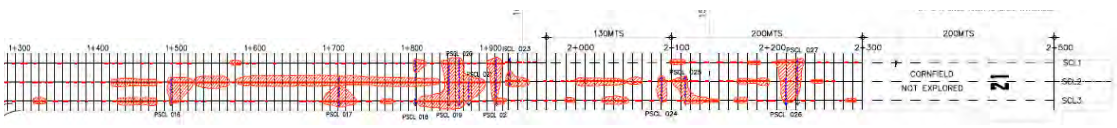
Runway STA 0-60 to STA 0+600



Runway STA + 600 to STA 1+300



Runway STA 1+300 to STA 2+560



Source: JICA Study Team

Figure 4.1-1 Potential Cavity suspected through GPR Survey (in 2009)

After having obtained the same results of GPR survey, geological Investigations by means of Borehole (BH) and Test Pits were implemented, locations and logs of which are summarized as shown in Figures 4.1-2 (1) to (3), with the runway centerline profile as shown in Figures 4.1-3 (1) to (4).

One (1) 80-cm deep cavity was detected at an elevation of 2 m below the ground (at Borehole No. May 09 BH-2) as shown in Figure 4.1-2 (2) among 43 bore holes. This cavity is situated 1 m below subgrade level, and should be considered to be grouted or replaced and re-compacted with good soil, through the course of further borehole investigation scheduled to be carried out just after subgrade excavation.

At the Borehole No. Aug 09 BH-6, a low N-value (of 3 to 6) was detected at an elevation of 4 to 6m below the ground level as shown in Figure 4.1-3 (2). Another relatively lower N-Value (of 9 to 11) was detected at an elevation of 1 to 3 m below the ground level (in the Borehole No. May 09 BH-3) as shown in Figure 4.1-3 (2). At the both Boreholes, ground water table was not found, therefore the subsoil below is permeable and not saturated by water.

Such lower N-values were explained by geological specialist that even if the location had originally been likely cavity, it was already filled up with soil by storm-water penetration. As shown in Figure 4.1-3 (2) those 2 lower N-value strata are located below the subgrade excavation bottom which should be earmarked as the potential location of weak subsoil where replacement/ re-compaction of soil may be necessary later subgrade construction is commenced.

With the exception of the three (3) Boreholes mentioned above, subsoil below the bottom of runway subgrade excavation level are generally covered by dense coralline limestone strata, similar to Mactan International Airport, and in some part are elastic silt or silty sand with the N-values of more than 15, which is equivalent to geological conditions at Narita Airport and its surroundings..

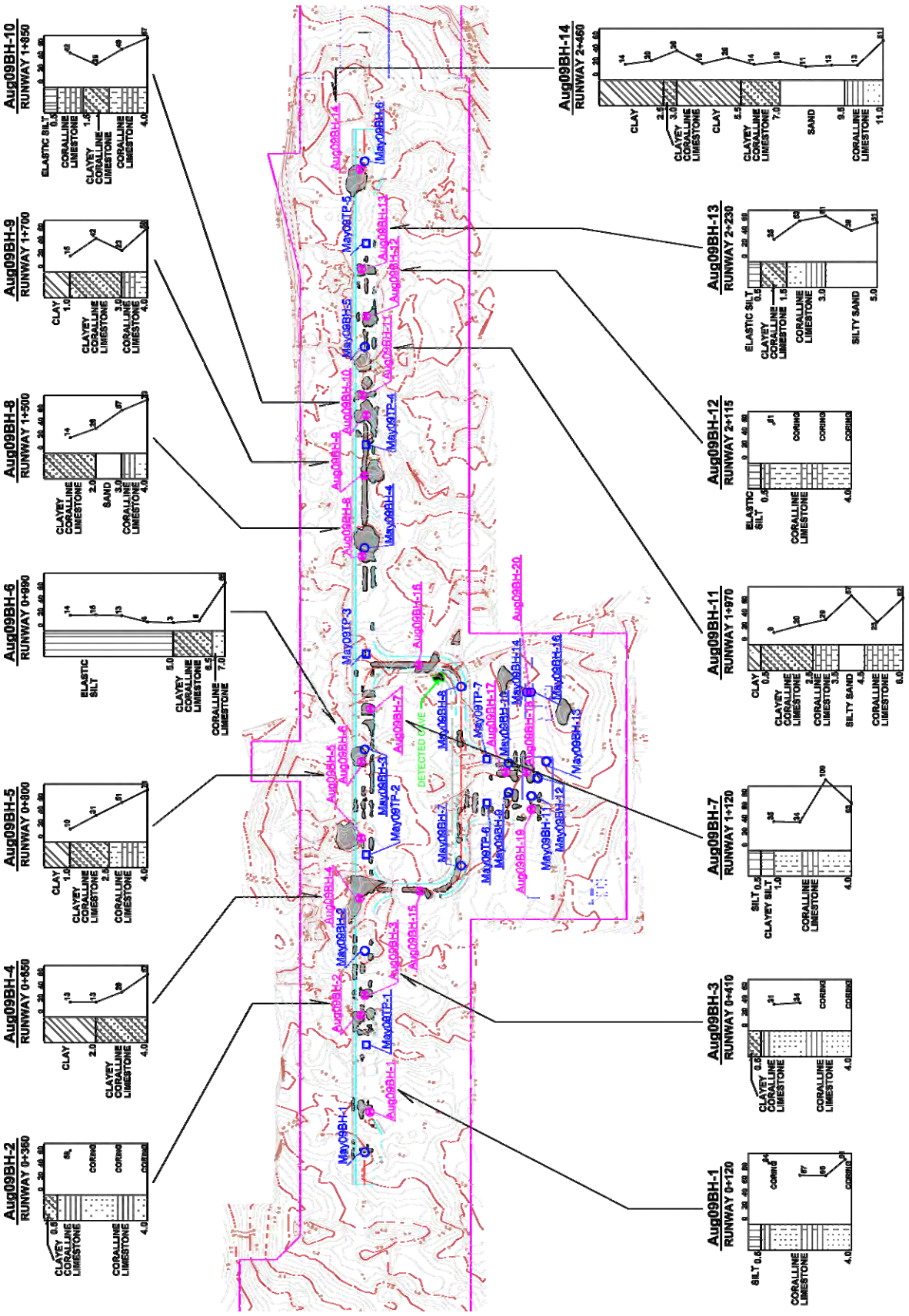


Figure 4.1-2 (1) Boreholes and Test Pits investigated in May & August 2009 along Runway & Taxiways

Source: JICA Study Team

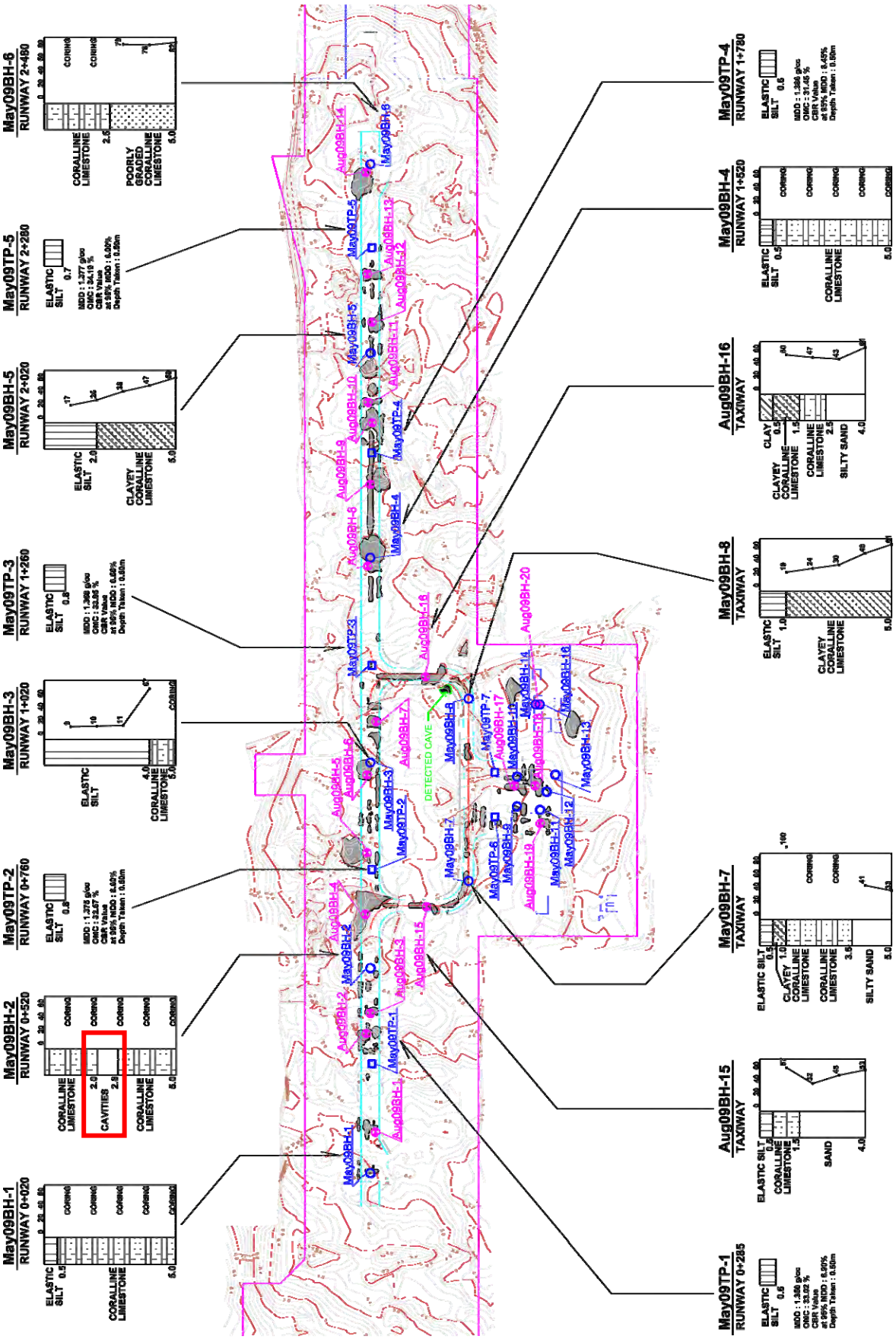
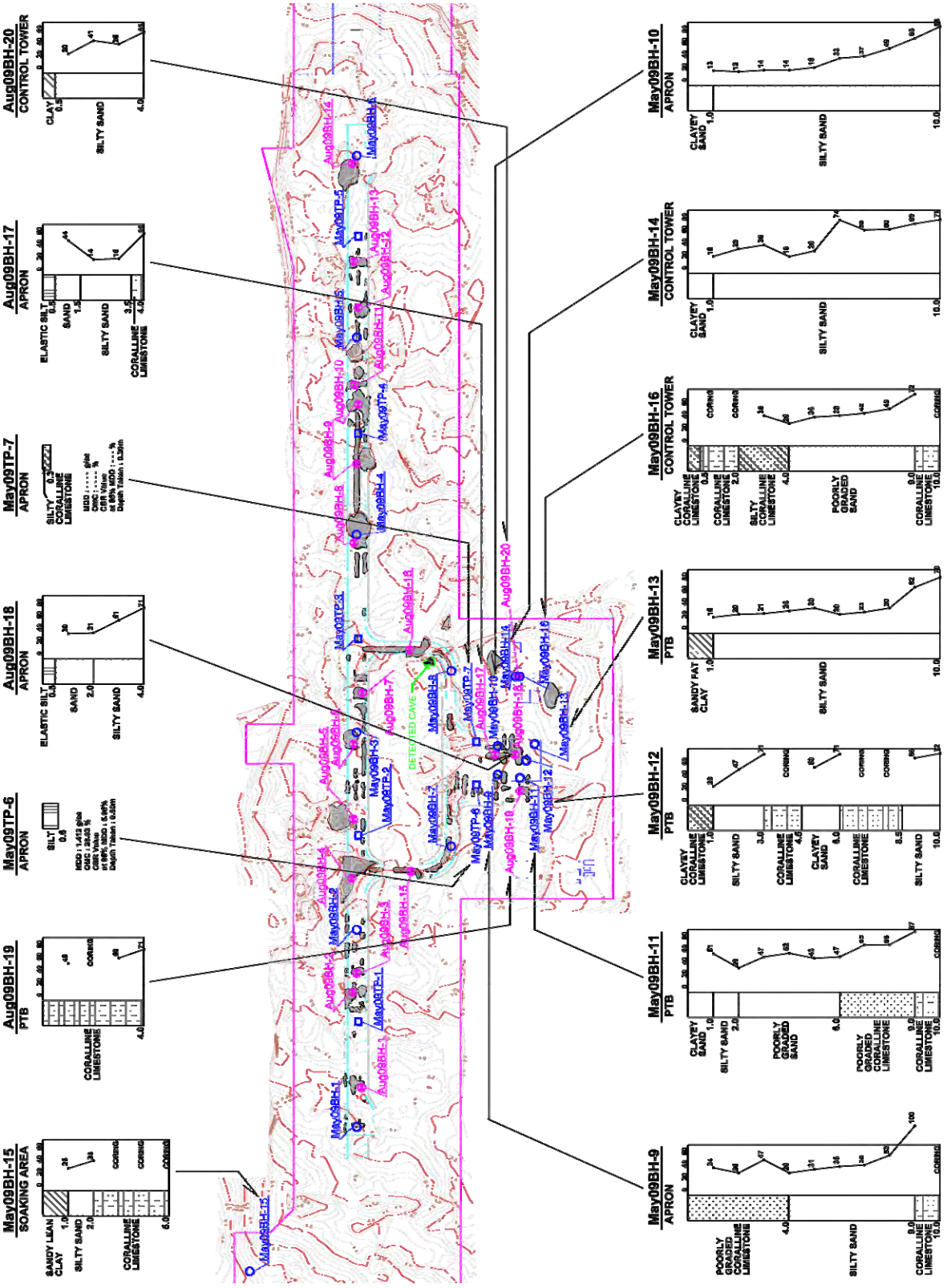


Figure 4.1-2 (2) Boreholes and Test Pits investigated in May & August 2009 along Runway & Taxiways

Source: JICA Study Team



Source: JICA Study Team

Figure 4.1-2 (3) Boreholes and Test Pits investigated in May & August 2009 at Terminal Area

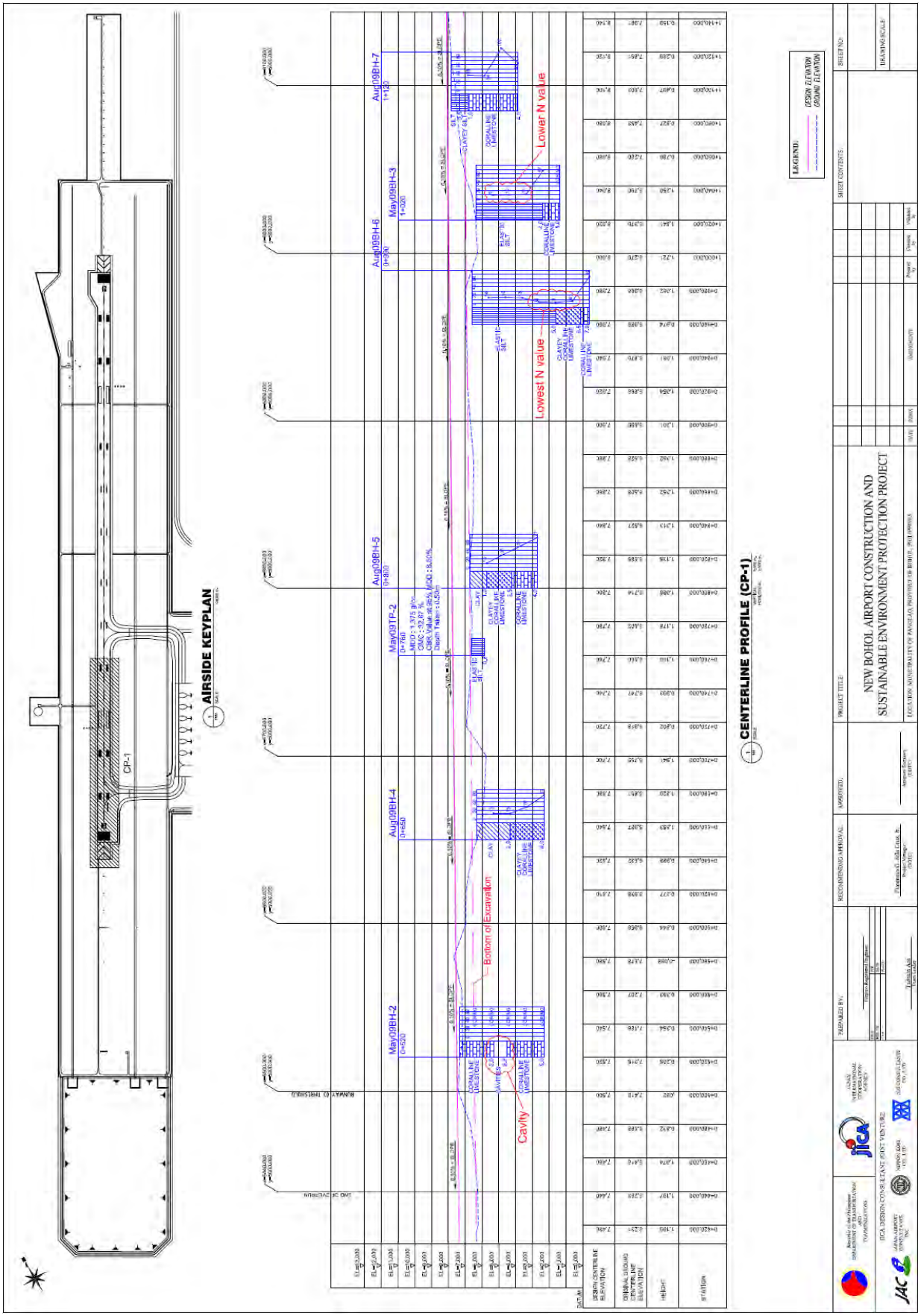
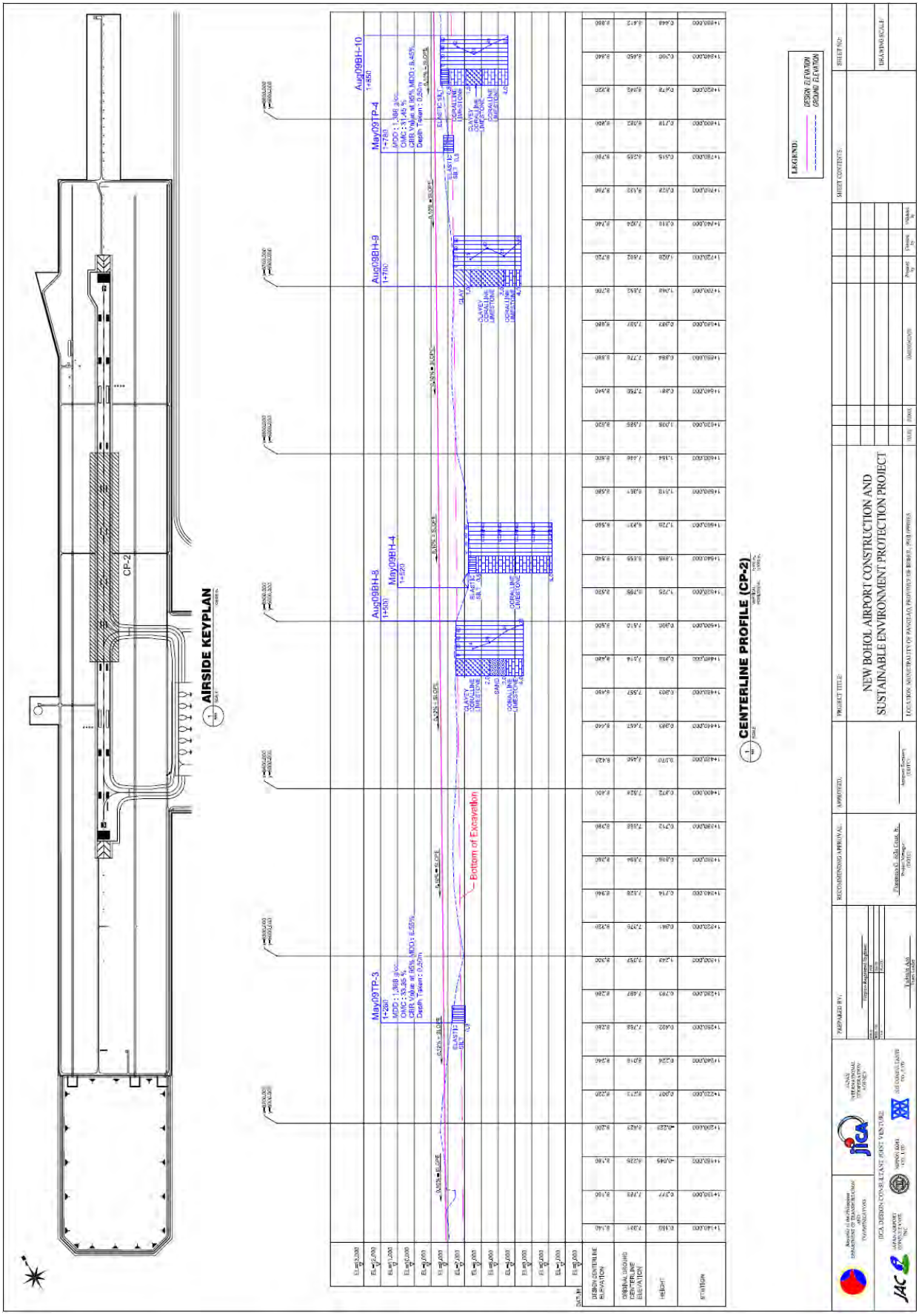


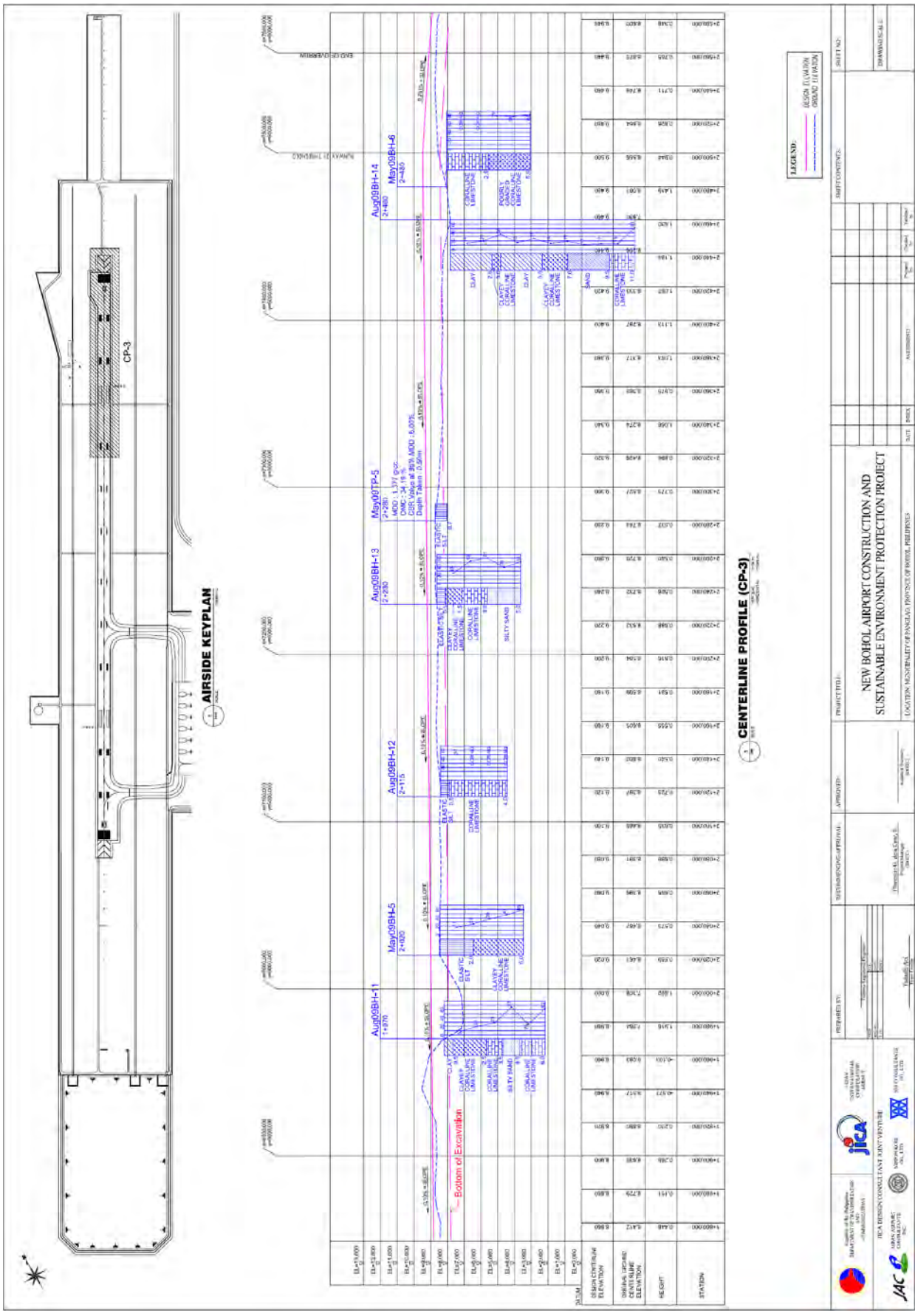
Figure 4.1-3 (1) Runway Centerline Profile with Borehole and Test Pit logs (sta. 420 m – 1,140 m)

Source: JICA Study Team



Source: JICA Study Team

Figure 4.1-3 (2) Runway Centerline Profile with Borehole and Test Pit logs (sta. 1,140 m - 1,860 m)



Source: JICA Study Team

Figure 4.1-3 (3) Runway Centerline Profile with Borehole and Test Pit logs (sta. 1,860 m - 2,560 m)

4.1.2 Additional Geological Survey conducted in 2013

Additional geotechnical surveys for forty eight (48) boreholes were conducted by DOTC in February 2013. Locations of the boreholes are:

- 2 rows of 13 boreholes at 200-m longitudinal spacing along the runway, each row at a lateral distance of 50 m from the centreline; 26 boreholes in total .
- 4 boreholes at Soaking Yard
- 4 boreholes at taxiways
- 4 boreholes at apron
- 4 boreholes at Passenger Terminal Building (PTB)
- 1 borehole at control tower
- 6 boreholes along centreline of access road

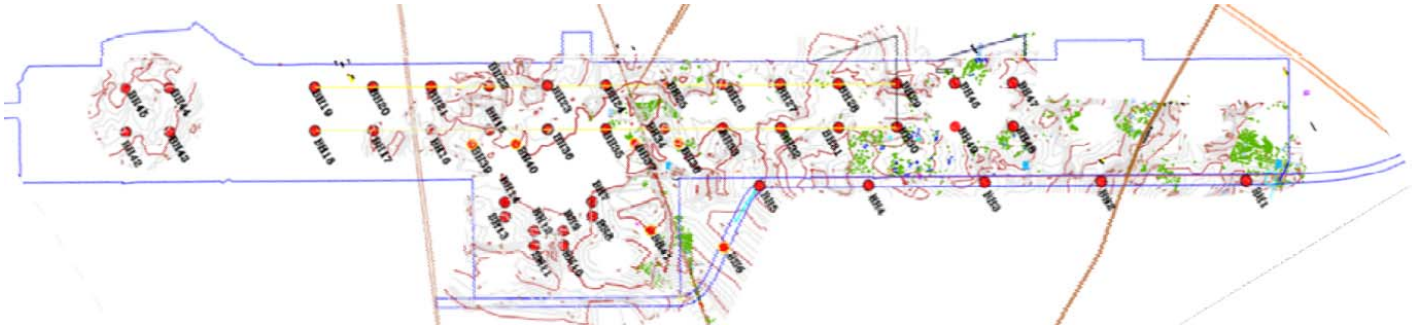


Figure 4.1-4 Location of Additional 48 Boreholes

Depth of the boreholes was 5-m only since primary purpose was to ascertain whether any shallow cavity exists underneath the airport pavement and buildings.

As the results, no major cavity was found except porous nature appeared on an undisturbed core sample shown in the Picture which was only the recovered core sample among 48 boreholes.

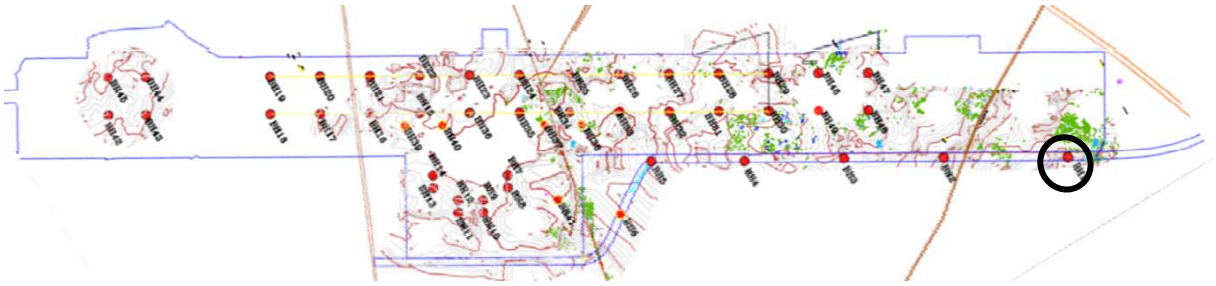
Standard Penetration Test (STP) by means of 63.5-kg automatic hammer with tripping device (free drop from the height of 76 cm) at every 1-m depth at 48 boreholes could have been achieved without coring, and N-value is measured at generally 50 to 100. This means that the dense soil strata are generally of porous non-plastic coralline limestone, where the terrain is much permeable that resulted in less vegetation or trees grown.

Picture 4.1-1 Core Sample Recovered

Borehole test data are shown in the subsequent pages.

Borehole BH-1 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

Existing Grade: 13.6 m Finished Grade: 13.0 m Subgrade Elevation: 12.0 m Cut height: 1.6 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-1

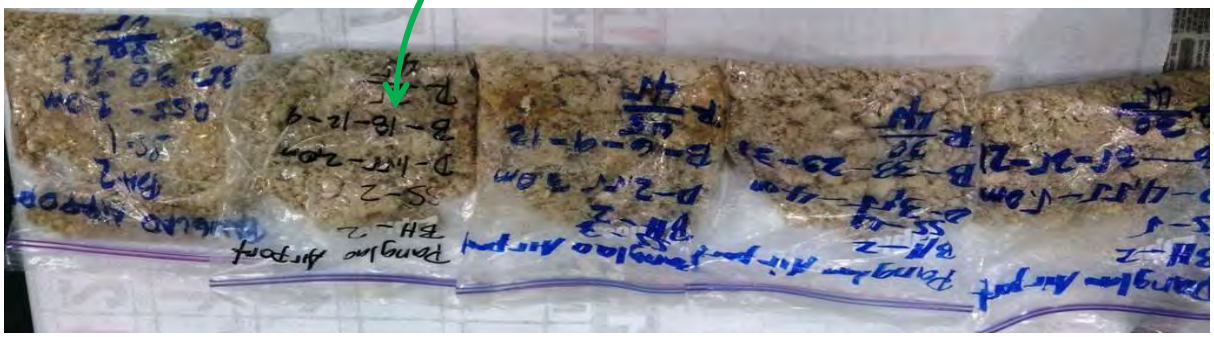
LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 2/25/2013 DATE FINISHED: 2/25/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
						Ground Surface																
1	1	100	-	SS	SM	Brown, dense silty sand with gravel (broken corals with limestone) of no plasticity	23	29	19		14.50	NP	NP		100	92	85	81	70	65	50	30
2	2	89	-	SS	GM	Light brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	34	20	22		16.96	NP	NP	100	93	79	59	52	40	34	20	15
3	3	78	-	SS	GM	Light brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	27	16	19		20.14	NP	NP	100	89	75	61	52	46	36	29	22
4	4	67	-	SS	SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	20	29	43		13.48	NP	NP			100	82	79	66	48	25	18
5	5	67	-	SS	GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	30	37	41		12.59	NP	NP		100	95	76	68	48	36	24	15
						END OF BOREHOLE																

Subgrade Cut 1.6m

Pictures of disturbed soil samples



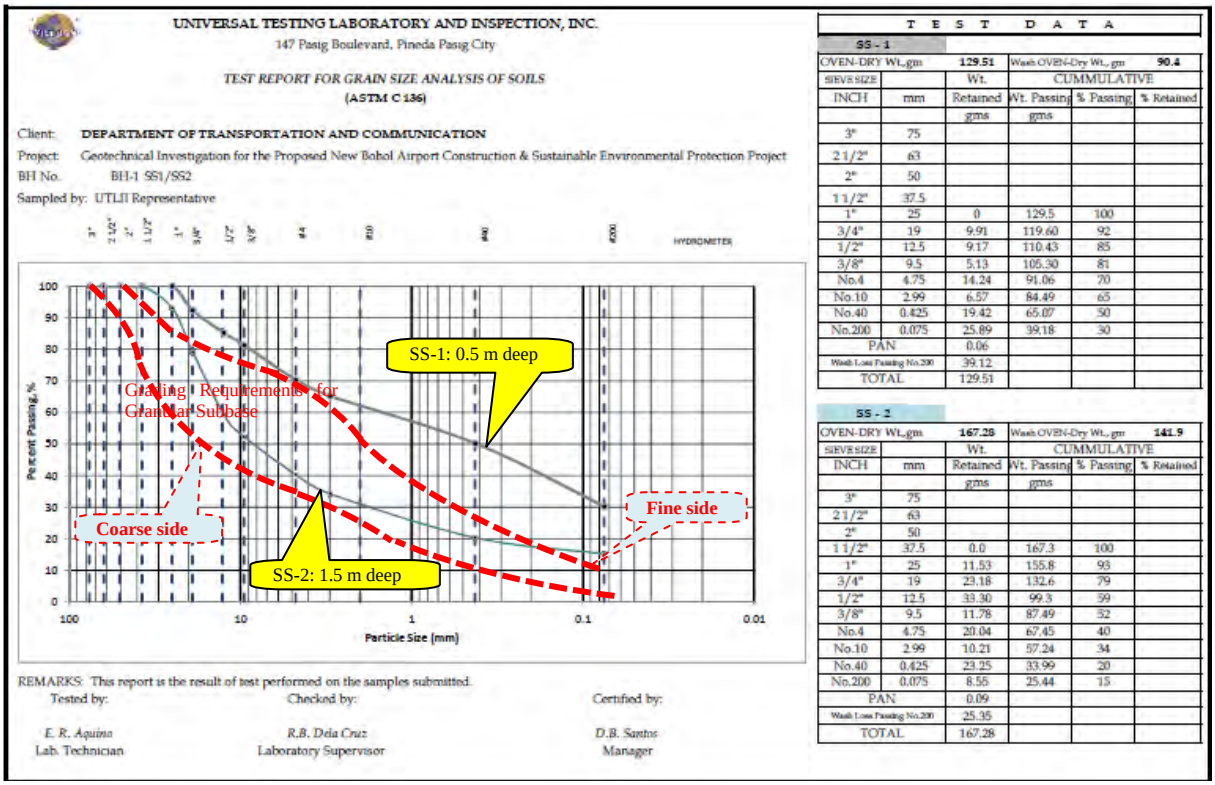
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	170.02	218.13	191.27	158.34	165.05
Weight of can & dry soil, g.	151.12	189.76	162.89	142.27	149.00
Weight of water, g.	18.90	28.37	28.38	16.07	16.05
Weight of can, g.	21.61	22.48	21.97	23.09	21.55
Weight of dry soil, g.	129.51	167.28	140.92	119.18	127.45
Moisture Content, %	14.59	16.96	20.14	13.48	12.59

Borehole BH-1 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

Fine topsoil exists. No large cavity exists.

Natural subgrade level (1.6 m deep) is dense (N-value > 40) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-1 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

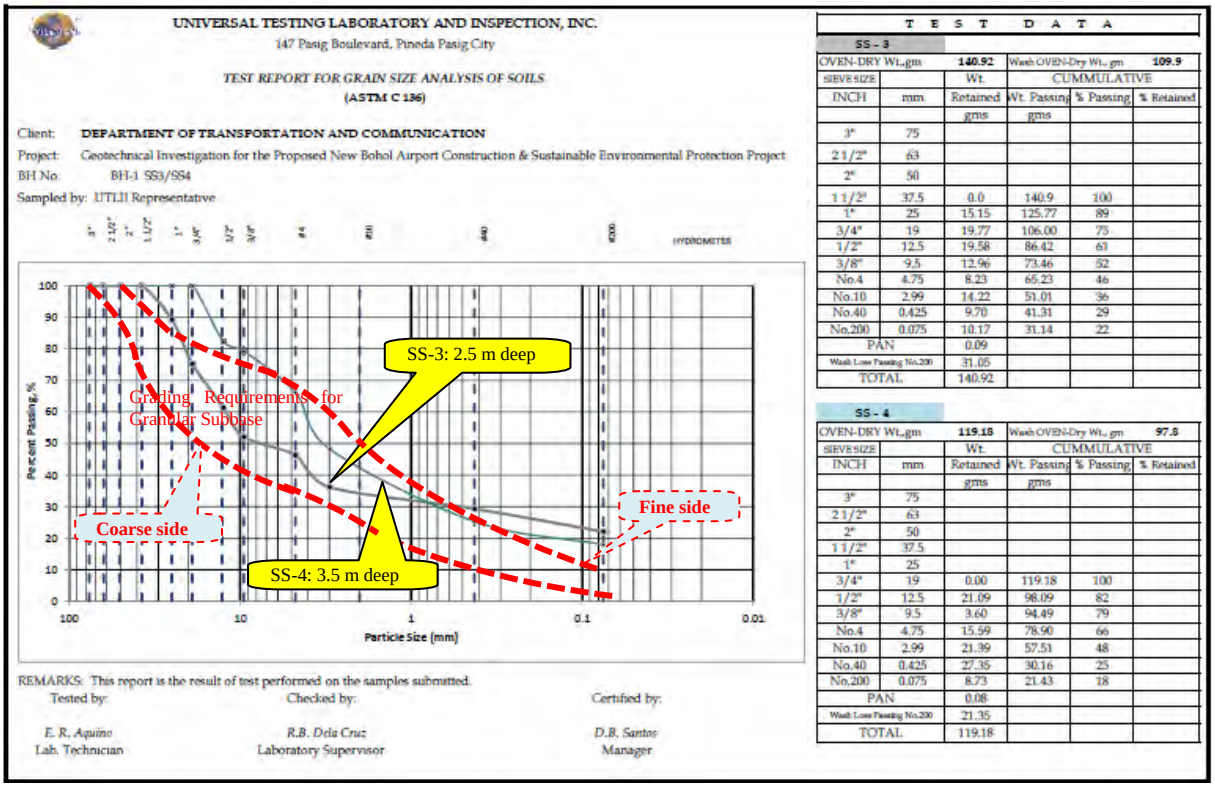
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		129.51	Wash OVEN-Dry Wt., gm		90.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	129.5	100	
3/4"	19	9.91	119.60	92	
1/2"	12.5	9.17	110.43	85	
3/8"	9.5	5.13	105.30	81	
No.4	4.75	14.24	91.06	70	
No.10	2.99	6.57	84.49	65	
No.40	0.425	19.42	65.07	50	
No.200	0.075	25.89	39.18	30	
PAN		0.06			
Wash Loss Passing No.200		39.12			
TOTAL		129.51			

SS - 2

OVEN-DRY Wt.,gm		167.28	Wash OVEN-Dry Wt., gm		141.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	167.3	100	
1"	25	11.53	155.8	93	
3/4"	19	23.18	132.6	79	
1/2"	12.5	33.30	99.3	59	
3/8"	9.5	11.78	87.49	52	
No.4	4.75	20.04	67.45	40	
No.10	2.99	10.21	57.24	34	
No.40	0.425	23.25	33.99	20	
No.200	0.075	8.55	25.44	15	
PAN		0.09			
Wash Loss Passing No.200		25.35			
TOTAL		167.28			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-1 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

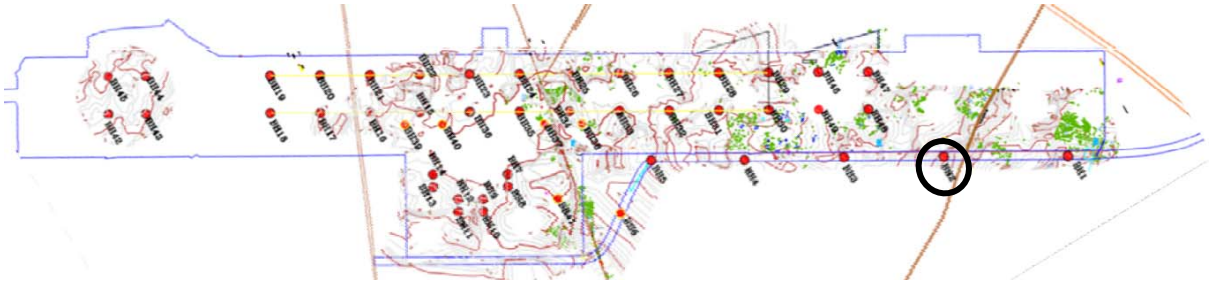
OVEN-DRY Wt.,gm		140.92	Wash OVEN-Dry Wt., gm		109.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	140.9	100	
1"	25	15.15	125.77	89	
3/4"	19	19.77	106.00	75	
1/2"	12.5	19.58	86.42	61	
3/8"	9.5	12.96	73.46	52	
No.4	4.75	8.23	65.23	46	
No.10	2.99	14.22	51.01	36	
No.40	0.425	9.70	41.31	29	
No.200	0.075	10.17	31.14	22	
PAN		0.09			
Wash Loss Passing No.200		31.05			
TOTAL		140.92			

SS - 4

OVEN-DRY Wt.,gm		119.18	Wash OVEN-Dry Wt., gm		97.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	119.18	100	
1/2"	12.5	21.09	98.09	82	
3/8"	9.5	3.60	94.49	79	
No.4	4.75	15.59	78.90	66	
No.10	2.99	21.39	57.51	48	
No.40	0.425	27.35	30.16	25	
No.200	0.075	8.73	21.43	18	
PAN		0.08			
Wash Loss Passing No.200		21.35			
TOTAL		119.18			

Borehole BH-2 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

Existing Grade: 14.0 m Finished Grade: 12.0 m Subgrade Elevation: 11.0 m Cut height: 3.0 m



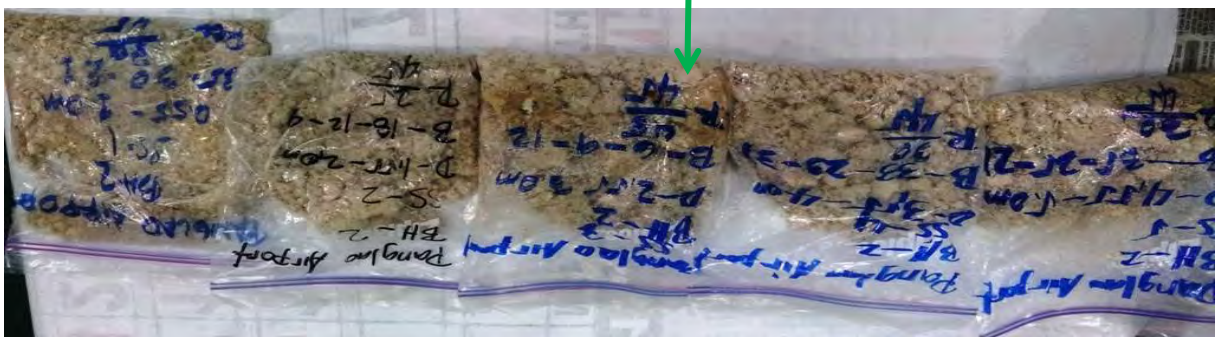
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-2
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/5/2013 DATE FINISHED: 2/5/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	67	-	SS		SP-SM	Light brown, very dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	35	30	21		9.10	NP	NP		100	87	77	67	52	38	22	12
2	2	56	-	SS		SM	Light brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	18	12	9		10.68	NP	NP			100	98	94	69	48	25	15
3	3	100	-	SS		SM	Light brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	6	9	12		12.82	NP	NP	100	88	84	74	66	52	41	27	18
4	4	67	-	SS		SM	Light brown,very dense silty sand with gravel (broken corals with limestone) of no plasticity	33	23	31		9.46	NP	NP			100	94	91	70	48	28	18
5	5	67	-	SS		SM	Light brown, dense silty sand with gravel (broken corals with limestone) of no plasticity	35	25	21		10.87	NP	NP	100	84	84	71	68	54	40	26	17
							END OF BOREHOLE																

Subgrade Cut 3.0m

Pictures of disturbed soil samples



Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	159.98	132.95	235.00	207.84	196.35
Weight of can & dry soil, g.	148.76	122.58	211.19	191.64	179.64
Weight of water, g.	11.22	10.37	23.81	16.20	16.71
Weight of can, g.	25.52	25.45	25.47	25.64	25.89
Weight of dry soil, g.	123.24	97.13	185.72	166.00	153.75
Moisture Content, %	9.10	10.68	12.82	9.76	10.87

Borehole BH-2 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

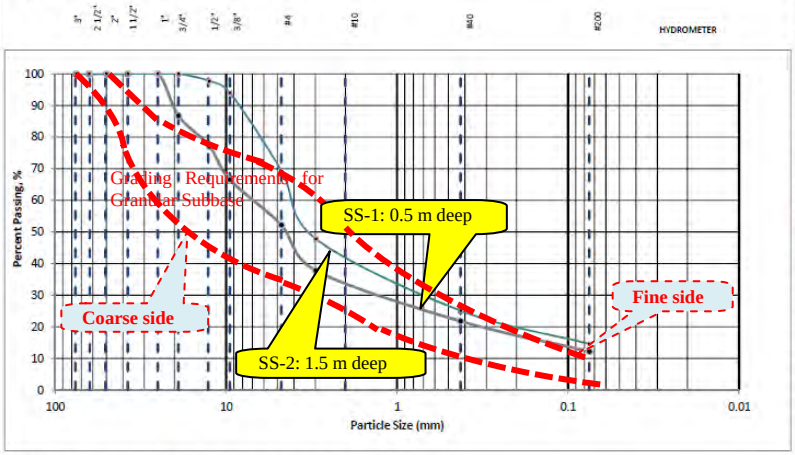
No fine topsoil exists. No large cavity exists.

Natural soil at subgrage level (3 m deep) is of the N-value of 15 to 20 and porous. It generally meets gradation of granular subbase course when blending with crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-2 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		123.24	Wash OVEN-Dry Wt., gm		108.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	123.2	100	
3/4"	19	16.28	107.0	87	
1/2"	12.5	11.95	95.0	77	
3/8"	9.5	12.97	82.0	67	
No.4	4.75	17.69	64.35	52	
No.10	2.99	17.76	46.59	38	
No.40	0.425	19.73	26.86	22	
No.200	0.075	11.78	15.08	12	
PAN		0.18			
Wash Loss Passing No.200		14.90			
TOTAL		123.24			

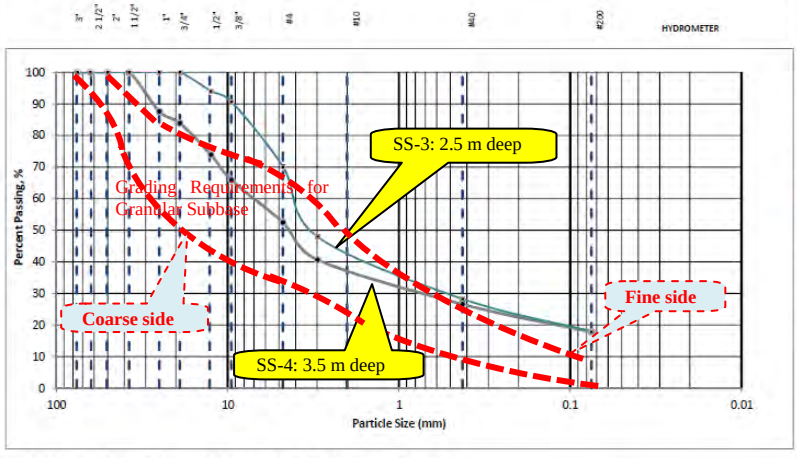
SS - 2

OVEN-DRY Wt.,gm		97.13	Wash OVEN-Dry Wt., gm		82.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	97.1	100	
3/4"	19	0.00	97.1	100	
1/2"	12.5	2.19	94.9	98	
3/8"	9.5	3.57	91.37	94	
No.4	4.75	23.98	67.39	69	
No.10	2.99	20.90	46.49	48	
No.40	0.425	22.08	24.41	25	
No.200	0.075	10.21	14.20	15	
PAN		0.01			
Wash Loss Passing No.200		14.19			
TOTAL		97.13			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-2 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

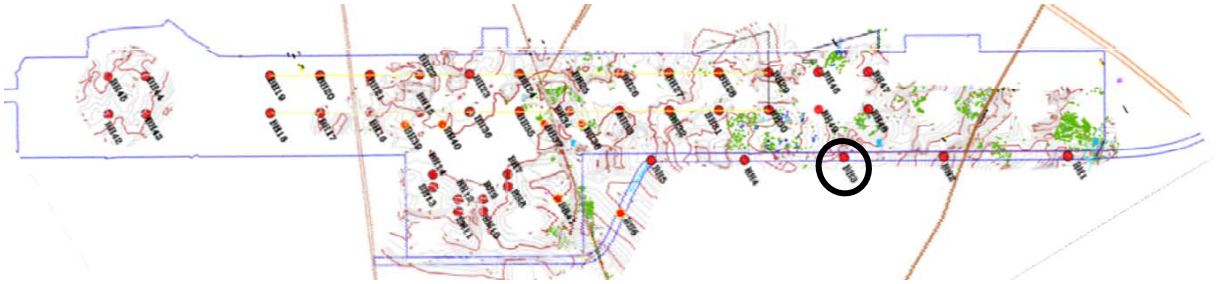
OVEN-DRY Wt.,gm		185.72	Wash OVEN-Dry Wt., gm		152.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	185.7	100	
1"	25	23.04	162.7	88	
3/4"	19	6.87	155.8	84	
1/2"	12.5	18.55	137.3	74	
3/8"	9.5	14.83	122.4	66	
No.4	4.75	25.04	97.39	52	
No.10	2.99	21.87	75.52	41	
No.40	0.425	26.18	49.34	27	
No.200	0.075	16.31	33.03	18	
PAN		0.10			
Wash Loss Passing No.200		32.93			
TOTAL		185.72			

SS - 4

OVEN-DRY Wt.,gm		166.00	Wash OVEN-Dry Wt., gm		136.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	166.0	100	
1/2"	12.5	9.82	156.2	94	
3/8"	9.5	5.64	150.54	91	
No.4	4.75	34.21	116.33	70	
No.10	2.99	36.71	79.62	48	
No.40	0.425	32.69	46.93	28	
No.200	0.075	17.10	29.83	18	
PAN		0.14			
Wash Loss Passing No.200		29.69			
TOTAL		166.00			

Borehole BH-3 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

Existing Grade: 8.3 m Finished Grade: 9.5m Subgrade Elevation: 8.5 m Fill height: 0.2 m



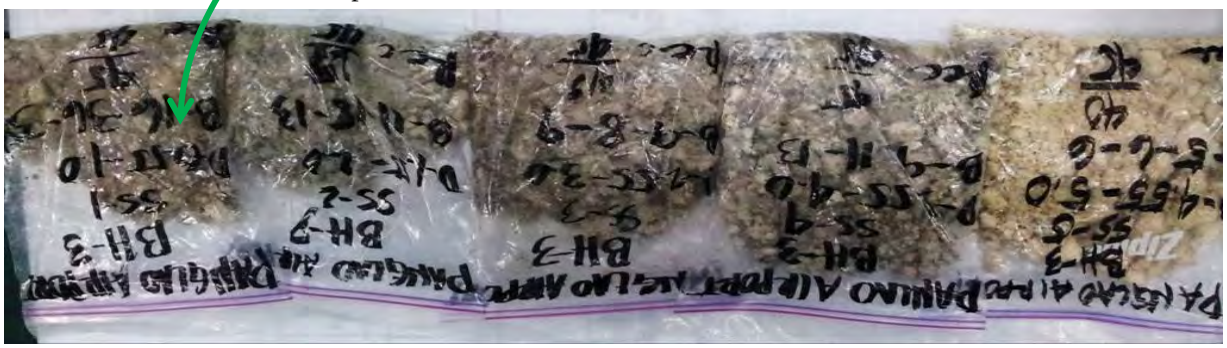
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-3
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 2/25/2013 DATE FINISHED: 2/25/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15cm	15cm	15cm	GRAPH Subgrade Fill 0.2m	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	16	36	38		10.95	NP	NP		100	87	81	78	65	44	31	18
2	2	51	-	SS		GW-GM	Light brown, dense well graded garvel with silt and sand (broken corals with limestone) of no plasticity	11	18	13		9.18	NP	NP	100	77	69	59	52	40	28	17	11
3	3	100	-	SS		SM	Brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	9	8	9		16.81	NP	NP			100	93	91	70	49	31	2
4	4	100	-	SS		SM	Brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	9	11	13		15.64	NP	NP		100	94	87	82	66	50	32	20
5	5	89	-	SS		SM	Light brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	5	6	6		19.38	NP	NP		100	89	80	73	59	45	30	18

END OF BOREHOLE

Pictures of disturbed soil samples



Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	216.72	197.03	203.09	198.11	148.84
Weight of can & dry soil, g.	197.88	182.63	176.33	174.79	128.86
Weight of water, g.	18.84	14.40	26.76	23.32	19.98
Weight of can, g.	25.78	25.75	17.12	25.69	25.78
Weight of dry soil, g.	172.10	156.88	159.21	149.10	103.08
Moisture Content, %	10.95	9.18	16.81	15.64	19.38

Borehole BH-3 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

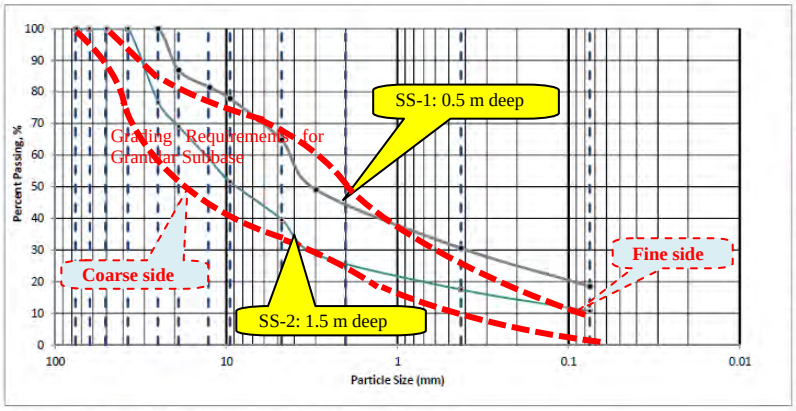
No fine topsoil exists. No large cavity exists. N-value drops to 10 at 5-m deep.

Natural soil at surface (subgrade level) generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-3 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		172.10	Wash OVEN-Dry Wt., gm		140.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	172.1	100	
3/4"	19	22.57	149.5	87	
1/2"	12.5	9.39	140.1	81	
3/8"	9.5	6.10	134.0	78	
No.4	4.75	22.51	111.53	65	
No.10	2.99	27.16	84.37	49	
No.40	0.425	31.74	52.63	31	
No.200	0.075	20.75	31.88	19	
PAN		0.15			
Wash Loss Passing No.200		31.73			
TOTAL		172.10			

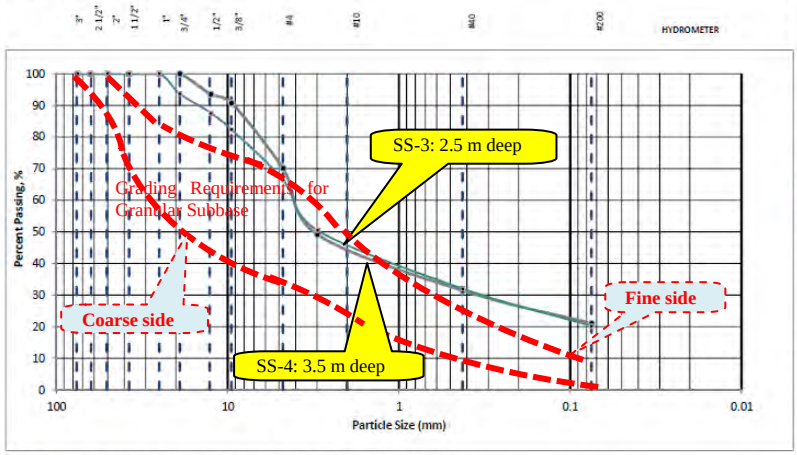
SS - 2

OVEN-DRY Wt.,gm		156.88	Wash OVEN-Dry Wt., gm		140.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	156.9	100	
1"	25	36.44	120.4	77	
3/4"	19	11.97	108.5	69	
1/2"	12.5	16.39	92.1	59	
3/8"	9.5	11.13	80.95	52	
No.4	4.75	18.73	62.22	40	
No.10	2.99	17.47	44.75	29	
No.40	0.425	17.28	27.47	18	
No.200	0.075	10.66	16.81	11	
PAN		0.25			
Wash Loss Passing No.200		16.56			
TOTAL		156.88			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-3 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

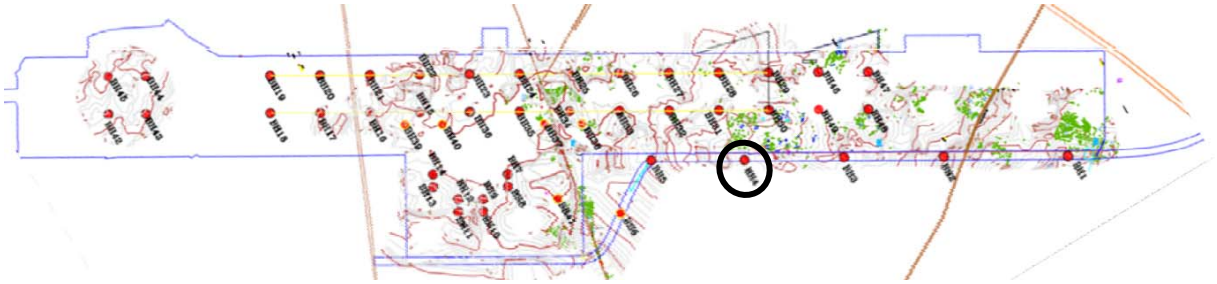
OVEN-DRY Wt.,gm		159.21	Wash OVEN-Dry Wt., gm		125.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	159.2	100	
1"	25	0.00	159.2	100	
3/4"	19	0.00	159.2	100	
1/2"	12.5	10.38	148.8	93	
3/8"	9.5	4.28	144.6	91	
No.4	4.75	33.01	111.54	70	
No.10	2.99	33.23	78.31	49	
No.40	0.425	28.29	50.02	31	
No.200	0.075	16.50	33.52	21	
PAN		0.18			
Wash Loss Passing No.200		33.34			
TOTAL		159.21			

SS - 4

OVEN-DRY Wt.,gm		149.10	Wash OVEN-Dry Wt., gm		119.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	149.1	100	
3/4"	19	9.38	139.7	94	
1/2"	12.5	9.19	130.5	88	
3/8"	9.5	7.68	122.85	82	
No.4	4.75	23.68	99.17	67	
No.10	2.99	23.92	75.25	50	
No.40	0.425	27.48	47.77	32	
No.200	0.075	17.65	30.12	20	
PAN		0.22			
Wash Loss Passing No.200		29.90			
TOTAL		149.10			

Borehole BH-4 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

Existing Grade: 8.3 m Finished Grade: 9.2 m Subgrade Elevation: 8.2 m Cut height: 0.1 m



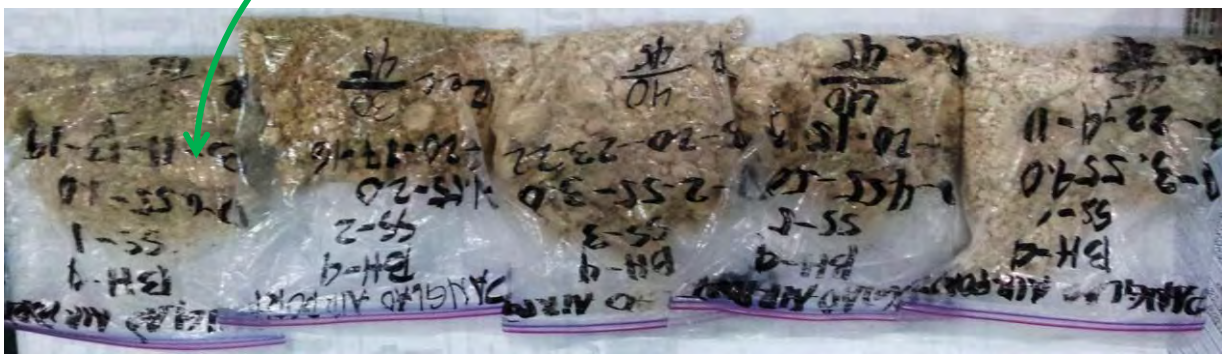
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-4
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 2/26/2013 DATE FINISHED: 2/26/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				Subgrade Cut 0.1m												
1	1	44	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	29	27	46		8.42	NP	NP			100	75	54	37	28	21	16
2	2	67	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	30	27	48		9.07	NP	NP		100	88	76	64	49	37	26	20
3	3	67	-	SS		GW	Light brown, very dense swell graded gravel with sand (broken corals with limestone) of no plasticity	31	28	33		10.05	NP	NP		100	74	49	42	34	27	14	5
4	4	44	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	25	31	29		10.72	NP	NP		100	94	81	62	46	35	19	7
5	5	67	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	29	38	46		10.47	NP	NP			100	75	62	46	36	20	7

END OF BOREHOLE

Pictures of disturbed soil samples



Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	230.81	203.75	186.92	185.08	184.13
Weight of can & dry soil, g.	211.12	188.29	175.05	177.59	167.65
Weight of water, g.	19.69	15.46	11.87	7.49	16.48
Weight of can, g.	25.44	25.82	25.56	25.71	17.29
Weight of dry soil, g.	185.68	162.47	149.49	151.88	150.36
Moisture Content, %	10.60	9.52	7.94	4.93	10.96

Borehole BH-4 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

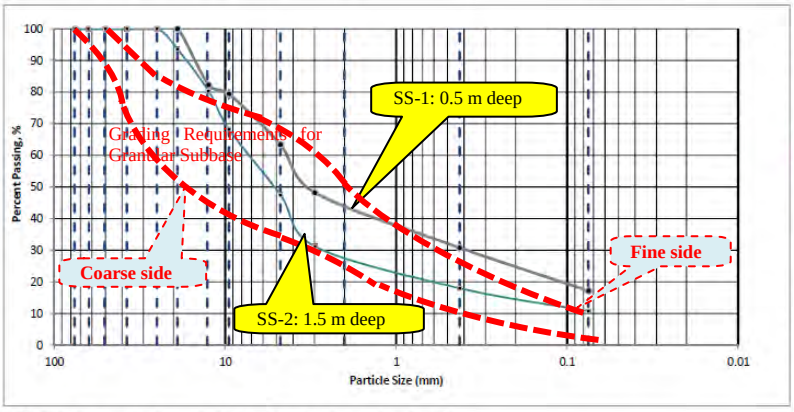
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-4 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		185.68	Wash OVEN-Dry Wt., gm		154.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	185.68	100	
1/2"	12.5	32.91	152.77	82	
3/8"	9.5	5.29	147.48	79	
No.4	4.75	29.76	117.72	63	
No.10	2.99	28.16	89.56	48	
No.40	0.425	32.35	57.21	31	
No.200	0.075	25.27	31.94	17	
PAN		0.29			
Wash Loss Passing No.200		31.65			
TOTAL		185.68			

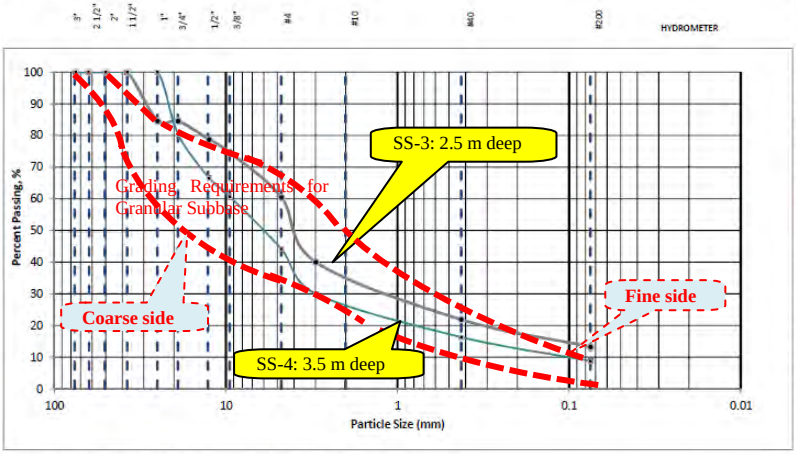
SS - 2

OVEN-DRY Wt.,gm		162.47	Wash OVEN-Dry Wt., gm		145.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	162.5	100	
3/4"	19	10.39	152.1	94	
1/2"	12.5	21.58	130.5	80	
3/8"	9.5	19.56	110.94	68	
No.4	4.75	33.74	77.20	48	
No.10	2.99	26.48	50.72	31	
No.40	0.425	21.49	29.23	18	
No.200	0.075	11.73	17.50	11	
PAN		0.08			
Wash Loss Passing No.200		17.42			
TOTAL		162.47			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-4 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		149.49	Wash OVEN-Dry Wt., gm		129.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	149.5	100	
1"	25	23.10	126.39	85	
3/4"	19	0.00	126.39	85	
1/2"	12.5	8.73	117.66	79	
3/8"	9.5	6.09	111.57	75	
No.4	4.75	21.11	90.46	61	
No.10	2.99	30.60	59.86	40	
No.40	0.425	27.14	32.72	22	
No.200	0.075	12.86	19.86	13	
PAN		0.13			
Wash Loss Passing No.200		19.73			
TOTAL		149.49			

SS - 4

OVEN-DRY Wt.,gm		151.88	Wash OVEN-Dry Wt., gm		138.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	151.88	100	
3/4"	19	29.64	122.24	80	
1/2"	12.5	21.17	101.07	67	
3/8"	9.5	8.74	92.33	61	
No.4	4.75	25.18	67.15	44	
No.10	2.99	21.60	45.55	30	
No.40	0.425	20.73	24.82	16	
No.200	0.075	11.41	13.41	9	
PAN		0.09			
Wash Loss Passing No.200		13.32			
TOTAL		151.88			

Borehole BH-5 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

Existing Grade: 9.0 m Finished Grade: 8.8 m Subgrade Elevation: 7.8 m Cut height: 1.2 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-5

LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 2/23/2013 DATE FINISHED: 2/23/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	19	30	28		25.93	NP	NP		100	92	90	84	78	61	54	48
2	2	78	-	SS		GP-GM	Light brown, dense poorly graded gravel with sand (broken corals with limestone) of no plasticity	12	15	17		9.49	NP	NP	100	86	70	61	42	27	16	9	7
3	3	56	-	SS		GP-GM	Light brown, dense poorly graded gravel with sand (broken corals with limestone) of no plasticity	25	17	18		7.98+	NP	NP	100	80	64	49	40	30	20	11	6
4	4	56	-	SS		GP-GM	Light brown, dense poorly graded gravel with sand (broken corals with limestone) of no plasticity	49	25	19		8.94	NP	NP	100	81	81	63	56	43	29	17	11
5	5	56	-	SS		GP-GM	Light brown, medium dense poorly graded gravel with sand (broken corals with limestone) of no plasticity	25	13	14		10.51	NP	NP	100	87	80	65	58	44	31	17	11
							END OF BOREHOLE																

Subgrade Cut 1.2m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	219.33	155.91	192.94	227.99	198.51
Weight of can & dry soil, g.	179.42	144.64	180.58	211.37	181.26
Weight of water, g.	39.91	11.27	12.36	16.62	17.25
Weight of can, g.	25.49	25.89	25.68	25.48	17.11
Weight of dry soil, g.	153.93	118.75	154.90	185.89	164.15
Moisture Content, %	25.93	9.49	7.98	8.94	10.51

Borehole BH-5 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

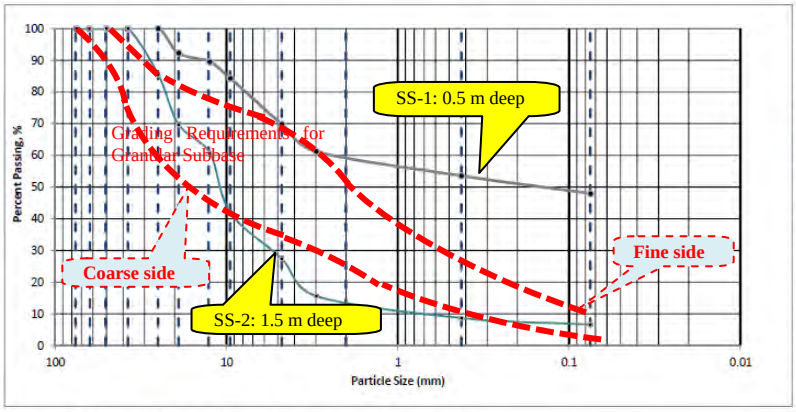
Fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.2 m deep) is dense (N-value > 30) but porous. It generally meets gradation of granular subbase course when blending with crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-5 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		153.93	Wash OVEN-Dry Wt., gm		80.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	153.9	100	
1"	25	0.00	153.9	100	
3/4"	19	11.92	142.01	92	
1/2"	12.5	4.23	137.78	90	
3/8"	9.5	7.98	129.80	84	
No.4	4.75	22.29	107.51	70	
No.10	2.99	13.26	94.25	61	
No.40	0.425	11.79	82.46	54	
No.200	0.075	8.63	73.83	48	
PAN		0.01			
Wash Loss Passing No.200		73.82			
TOTAL		153.93			

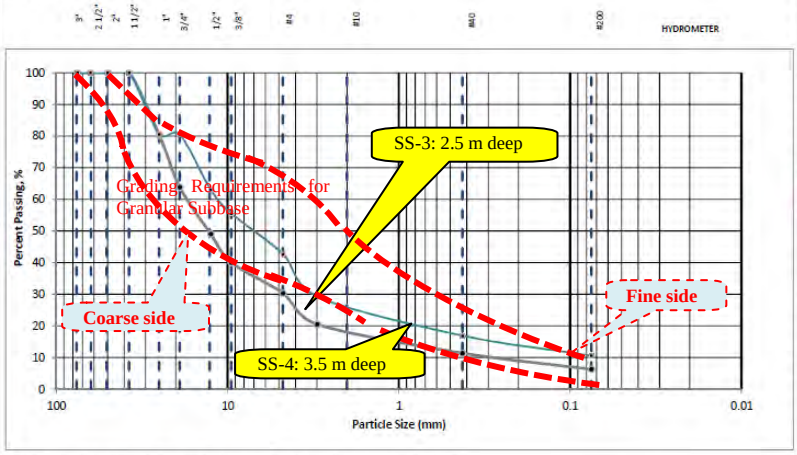
SS - 2

OVEN-DRY Wt.,gm		118.75	Wash OVEN-Dry Wt., gm		110.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	118.8	100	
1"	25	17.16	101.6	86	
3/4"	19	18.78	82.8	70	
1/2"	12.5	10.71	72.1	61	
3/8"	9.5	22.27	49.83	42	
No.4	4.75	17.27	32.56	27	
No.10	2.99	14.00	18.56	16	
No.40	0.425	8.23	10.33	9	
No.200	0.075	2.48	7.85	7	
PAN		0.02			
Wash Loss Passing No.200		7.83			
TOTAL		118.75			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-5 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

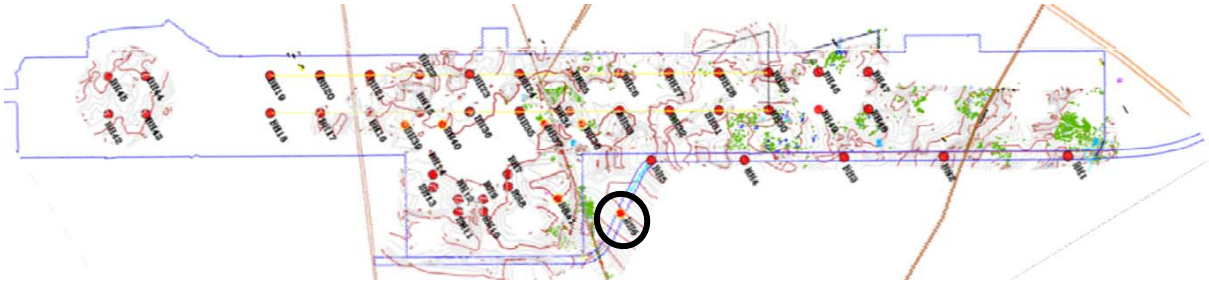
OVEN-DRY Wt.,gm		154.82	Wash OVEN-Dry Wt., gm		145.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	154.8	100	
1"	25	30.37	124.45	80	
3/4"	19	25.63	98.82	64	
1/2"	12.5	22.93	75.89	49	
3/8"	9.5	13.87	62.02	40	
No.4	4.75	15.03	46.99	30	
No.10	2.99	15.29	31.70	20	
No.40	0.425	14.05	17.65	11	
No.200	0.075	7.94	9.71	6	
PAN		0.01			
Wash Loss Passing No.200		9.70			
TOTAL		154.82			

SS - 4

OVEN-DRY Wt.,gm		185.89	Wash OVEN-Dry Wt., gm		166.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	185.9	100	
1"	25	36.14	149.75	81	
3/4"	19	0.00	149.75	81	
1/2"	12.5	32.62	117.13	63	
3/8"	9.5	13.90	103.23	56	
No.4	4.75	23.75	79.48	43	
No.10	2.99	25.05	54.43	29	
No.40	0.425	22.99	31.44	17	
No.200	0.075	11.74	19.70	11	
PAN		0.02			
Wash Loss Passing No.200		19.68			
TOTAL		185.89			

Borehole BH-6 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

Existing Grade: 7.4 m Finished Grade: 8.5 m Subgrade Elevation: 7.5 m Fill height: 0.1 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-6

LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 3/2/2013 DATE FINISHED: 3/2/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				Subgrade Fill 0.1m												
1	1	56	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	29	33	37		11.75	NP	NP			100	76	70	54	44	34	24
2	2	44	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	29	30	38		8.75	NP	NP			100	61	58	49	40	27	15
3	3	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	30	30	49		17.65	NP	NP	100	63	63	60	58	45	40	26	13
4	4	44	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	20	30	42		10.19	NP	NP	100	62	62	49	46	36	28	20	10
5	5	44	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	30	39	46		8.53	NP	NP	100	89	68	58	49	41	34	23	12
							END OF BOREHOLE																

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	168.84	122.82	142.75	120.77	136.57
Weight of can & dry soil, g.	152.89	114.46	124.13	111.17	127.22
Weight of water, g.	15.95	8.36	18.62	9.60	9.35
Weight of can, g.	17.10	18.88	18.62	16.95	17.56
Weight of dry soil, g.	135.79	95.58	105.51	94.22	109.66
Moisture Content, %	11.75	8.75	17.65	10.19	8.53

Borehole BH-6 – Access Road (Pavement Thickness: 0.5 m + Subgrade: 0.5 m)

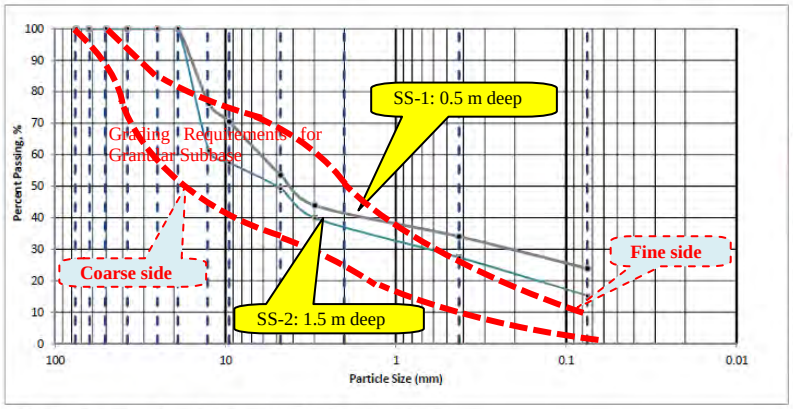
No fine topsoil exists. No large cavity exists.

Natural soil at surface generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-6 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		135.99	Wash OVEN-Dry Wt., gm		103.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	135.99	100	
1/2"	12.5	32.31	103.68	76	
3/8"	9.5	7.85	95.83	70	
No.4	4.75	23.01	72.82	54	
No.10	2.99	13.11	59.71	44	
No.40	0.425	13.45	46.26	34	
No.200	0.075	13.76	32.50	24	
PAN		0.00			
Wash Loss Passing No.200		32.50			
TOTAL		135.99			

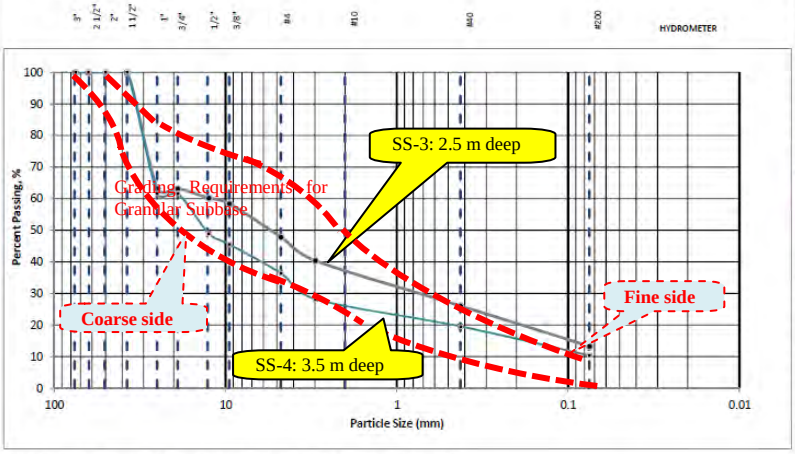
SS - 2

OVEN-DRY Wt.,gm		95.68	Wash OVEN-Dry Wt., gm		81.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	95.7	100	
1/2"	12.5	37.06	58.6	61	
3/8"	9.5	3.60	55.02	58	
No.4	4.75	7.85	47.17	49	
No.10	2.99	8.94	38.23	40	
No.40	0.425	12.00	26.23	27	
No.200	0.075	11.61	14.62	15	
PAN		0.00			
Wash Loss Passing No.200		14.62			
TOTAL		95.68			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-6 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

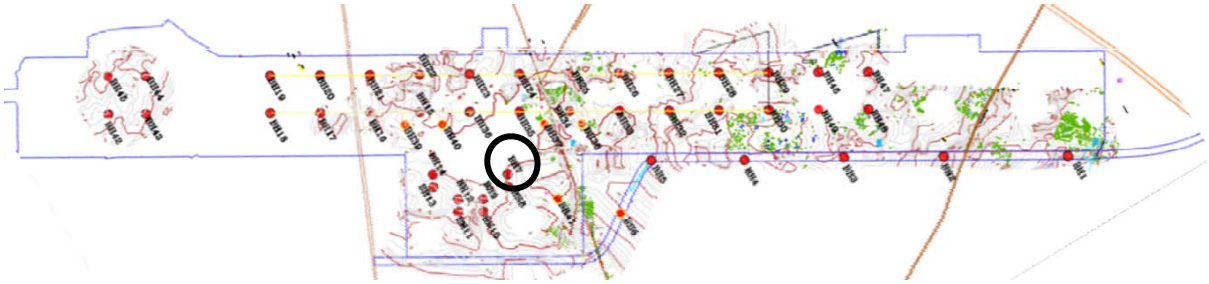
OVEN-DRY Wt.,gm		105.51	Wash OVEN-Dry Wt., gm		91.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	105.5	100	
1"	25	38.85	66.66	63	
3/4"	19	0.00	66.66	63	
1/2"	12.5	3.15	63.51	60	
3/8"	9.5	1.90	61.61	58	
No.4	4.75	11.13	50.48	48	
No.10	2.99	7.87	42.61	40	
No.40	0.425	15.11	27.50	26	
No.200	0.075	13.47	14.03	13	
PAN		0.03			
Wash Loss Passing No.200		14.00			
TOTAL		105.51			

SS - 4

OVEN-DRY Wt.,gm		94.22	Wash OVEN-Dry Wt., gm		84.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	94.2	100	
1"	25	36.08	58.14	62	
3/4"	19	0.00	58.14	62	
1/2"	12.5	12.01	46.13	49	
3/8"	9.5	3.18	42.95	46	
No.4	4.75	8.65	34.30	36	
No.10	2.99	7.72	26.58	28	
No.40	0.425	8.13	18.45	20	
No.200	0.075	8.67	9.78	10	
PAN		0.03			
Wash Loss Passing No.200		9.75			
TOTAL		94.22			

Borehole BH-7 - Apron (Pavement Thickness: 0.8 m + Subgrade: 0.5 m)

Existing Grade: 7.6 m Finished Grade: 7.4 m Subgrade Elevation: 6.1 m Cut height: 1.5 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-7
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/26/2013 DATE FINISHED: 2/26/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	38	41	47		9.18	NP	NP	100	83	77	67	59	41	29	17	8
2	2	81	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	45	48	46		8.58	NP	NP		100	89	68	56	42	34	19	10
3	3	78	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	46	54	61		8.00	NP	NP		100	95	83	68	47	32	16	7
4	4	56	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	69	58	43		6.32	NP	NP	100	83	72	60	47	36	24	13	6
5	5	67	-	SS		GP	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	56	41	38		8.35	NP	NP	100	88	56	51	41	26	19	11	4
							END OF BOREHOLE																

Subgrade Cut 1.5m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	257.99	172.98	240.77	166.48	182.60
Weight of can & dry soil, g.	238.43	160.63	224.86	157.61	170.50
Weight of water, g.	19.56	12.35	15.91	8.87	12.10
Weight of can, g.	25.44	16.76	25.93	17.33	25.54
Weight of dry soil, g.	212.99	143.87	198.93	140.28	144.96
Moisture Content, %	9.18	8.58	8.00	6.32	8.35

Borehole BH-7 - Apron (Pavement Thickness: 0.8 m + Subgrade: 0.5 m)

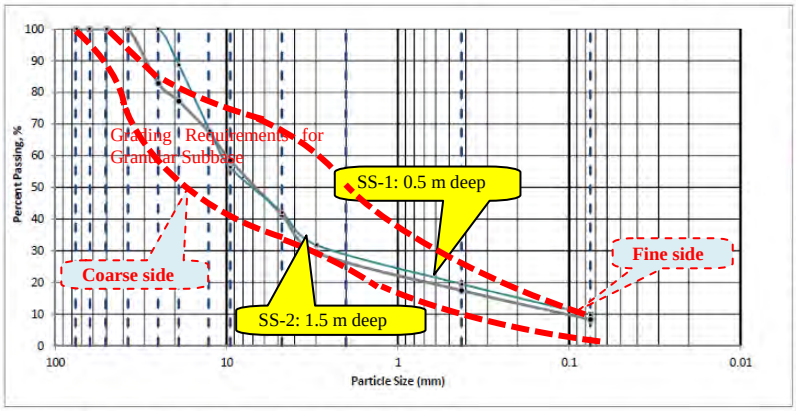
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.5 m deep) is dense (N-value >80) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-7 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		212.99	Wash OVEN-Dry Wt., gm		195.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	213.0	100	
1"	25	36.61	176.4	83	
3/4"	19	11.86	164.52	77	
1/2"	12.5	21.50	143.02	67	
3/8"	9.5	18.38	124.64	59	
No.4	4.75	36.51	88.13	41	
No.10	2.99	25.41	62.72	29	
No.40	0.425	25.52	37.20	17	
No.200	0.075	19.58	17.62	8	
PAN		0.22			
Wash Loss Passing No.200		17.40			
TOTAL		212.99			

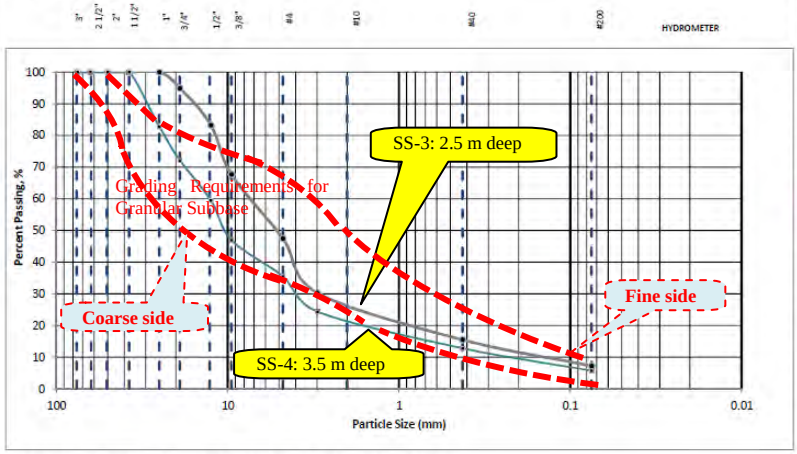
SS - 2

OVEN-DRY Wt.,gm		143.87	Wash OVEN-Dry Wt., gm		129.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	143.9	100	
3/4"	19	16.27	127.6	89	
1/2"	12.5	29.91	97.7	68	
3/8"	9.5	16.63	81.06	56	
No.4	4.75	20.45	60.61	42	
No.10	2.99	14.83	45.78	32	
No.40	0.425	17.74	28.04	19	
No.200	0.075	13.93	14.11	10	
PAN		0.16			
Wash Loss Passing No.200		13.95			
TOTAL		143.87			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-7 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		198.83	Wash OVEN-Dry Wt., gm		184.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	198.83	100	
3/4"	19	9.96	188.87	95	
1/2"	12.5	23.38	165.49	83	
3/8"	9.5	30.91	134.58	68	
No.4	4.75	40.23	94.35	47	
No.10	2.99	34.12	60.23	30	
No.40	0.425	29.40	30.83	16	
No.200	0.075	16.46	14.37	7	
PAN		0.20			
Wash Loss Passing No.200		14.17			
TOTAL		198.83			

SS - 4

OVEN-DRY Wt.,gm		140.28	Wash OVEN-Dry Wt., gm		133.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	140.3	100	
1"	25	24.24	116.04	83	
3/4"	19	14.80	101.24	72	
1/2"	12.5	17.77	83.47	60	
3/8"	9.5	17.58	65.89	47	
No.4	4.75	16.04	49.85	36	
No.10	2.99	15.64	34.21	24	
No.40	0.425	16.22	17.99	13	
No.200	0.075	9.93	8.06	6	
PAN		0.80			
Wash Loss Passing No.200		7.26			
TOTAL		140.28			

Borehole BH-8 - Apron (Pavement Thickness: 0.8 m + Subgrade:0.5 m)

Existing Grade: 7.2 m Finished Grade: 7.7 m Subgrade Elevation: 6.4 m Cut height: 1.8 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

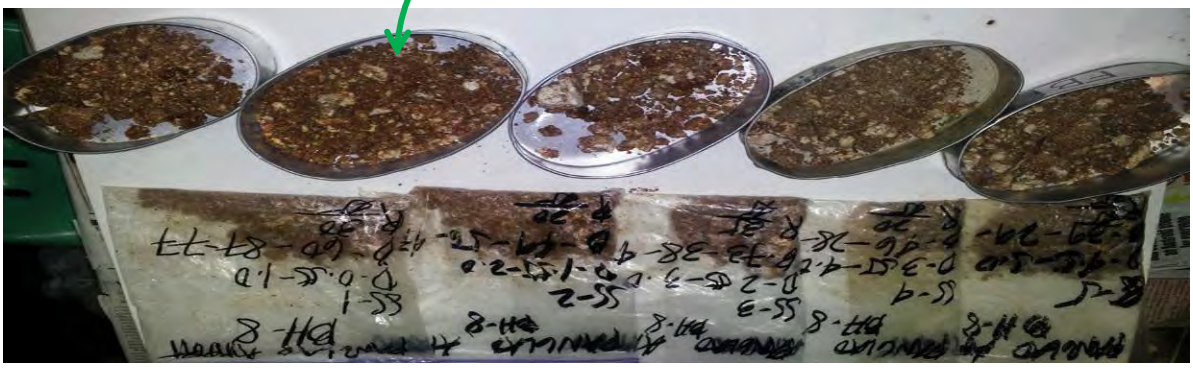
PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-8
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/2/2013 DATE FINISHED: 3/2/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	67	-	SS		GM	Dark brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	60	87	77		15.60	NP	NP		100	90	86	74	50	35	23	16
2	2	44	-	SS		GW	Dark brown, dense well graded gravel with sand (broken corals with limestone) of no plasticity	49	56	47		12.27	NP	NP	100	82	82	66	60	40	24	13	4
3	3	78	-	SS		GM	Dark brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	73	38	40		34.42	NP	NP	100	81	81	65	58	42	32	24	17
4	4	44	-	SS		GP-GM	Dark brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	46	28	27		11.58	NP	NP			100	96	83	55	37	20	10
5	5	78	-	SS		GP-GM	Dark brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	39	29	22		17.04	NP	NP			100	83	72	53	34	20	11

Subgrade Cut 1.8m

END OF BOREHOLE

Pictures of disturbed soil samples



Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	140.77	168.18	174.85	121.19	169.64
Weight of can & dry soil, g.	124.73	152.90	135.71	110.55	148.30
Weight of water, g.	16.04	15.28	39.14	10.64	21.34
Weight of can, g.	21.92	28.36	22.01	18.63	23.07
Weight of dry soil, g.	102.81	124.54	113.70	91.92	125.23
Moisture Content, %	15.60	12.27	34.42	11.58	17.04

Borehole BH-8 - Apron (Pavement Thickness: 0.8 m + Subgrade: 0.5 m)

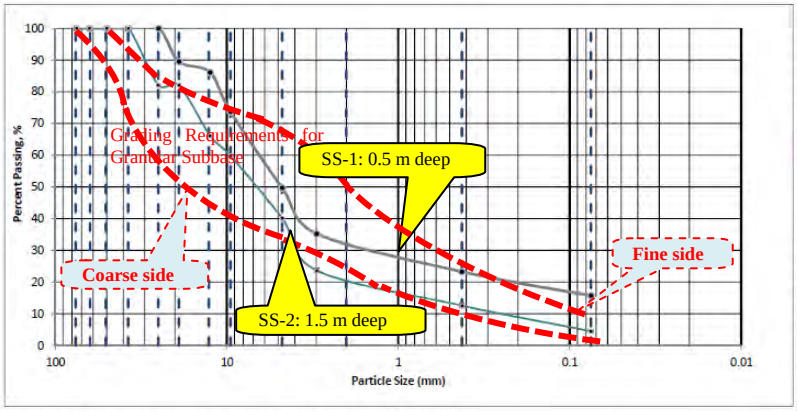
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.8 m deep) is dense (N-value >100) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-8 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		102.81	Wash OVEN-Dry Wt., gm		86.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	102.8	100	
3/4"	19	10.76	92.05	90	
1/2"	12.5	3.51	88.54	86	
3/8"	9.5	12.80	75.74	74	
No.4	4.75	24.66	51.08	50	
No.10	2.99	14.79	36.29	35	
No.40	0.425	12.37	23.92	23	
No.200	0.075	7.78	16.14	16	
PAN		0.00			
Wash Loss Passing No.200		16.14			
TOTAL		102.81			

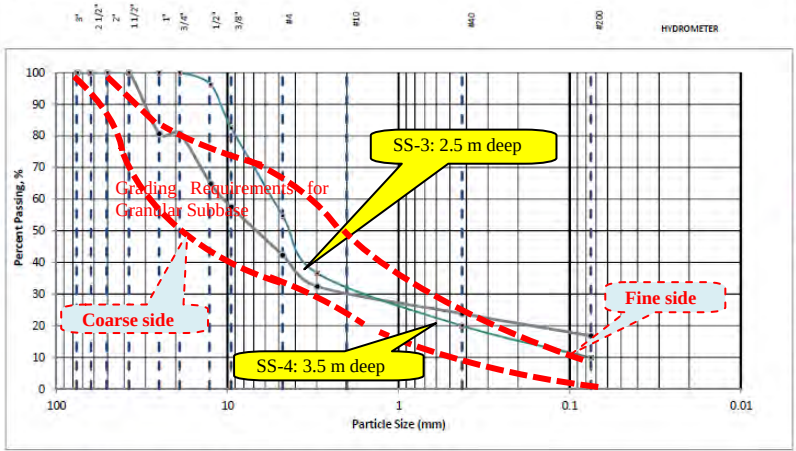
SS - 2

OVEN-DRY Wt.,gm		124.54	Wash OVEN-Dry Wt., gm		118.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	124.5	100	
1"	25	22.32	102.2	82	
3/4"	19	0.00	102.2	82	
1/2"	12.5	19.91	82.3	66	
3/8"	9.5	7.83	74.48	60	
No.4	4.75	24.54	49.94	40	
No.10	2.99	20.48	29.46	24	
No.40	0.425	13.78	15.68	13	
No.200	0.075	10.08	5.60	4	
PAN		0.00			
Wash Loss Passing No.200		5.60			
TOTAL		124.54			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-8 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

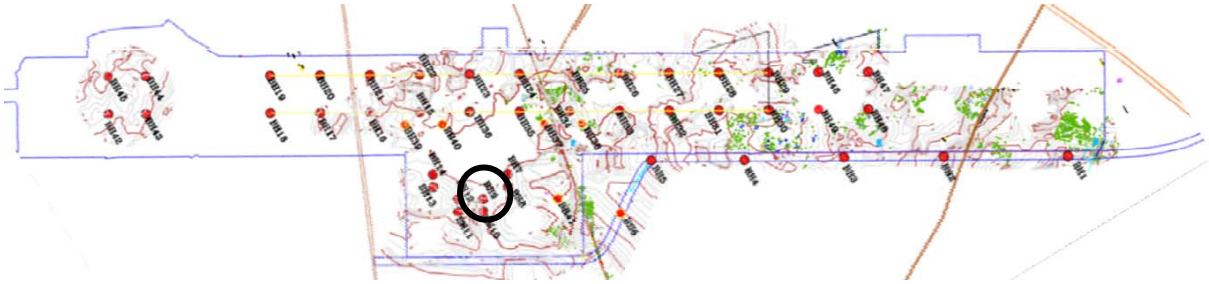
OVEN-DRY Wt.,gm		113.70	Wash OVEN-Dry Wt., gm		94.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	113.7	100	
1"	25	21.97	91.73	81	
3/4"	19	0.00	91.73	81	
1/2"	12.5	17.94	73.79	65	
3/8"	9.5	8.36	65.43	58	
No.4	4.75	17.31	48.12	42	
No.10	2.99	11.23	36.89	32	
No.40	0.425	9.81	27.08	24	
No.200	0.075	7.96	19.12	17	
PAN		0.00			
Wash Loss Passing No.200		19.12			
TOTAL		113.70			

SS - 4

OVEN-DRY Wt.,gm		91.92	Wash OVEN-Dry Wt., gm		82.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	91.92	100	
1/2"	12.5	3.55	88.37	96	
3/8"	9.5	12.44	75.93	83	
No.4	4.75	25.62	50.31	55	
No.10	2.99	16.66	33.65	37	
No.40	0.425	15.28	18.37	20	
No.200	0.075	9.27	9.10	10	
PAN		0.05			
Wash Loss Passing No.200		9.05			
TOTAL		91.92			

Borehole BH-9 - PTB

Existing Grade: 7.2 m Finished Grade: 8.5 m Footing Bottom: 4.0 m Cut height: 3.2 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-9
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 2/26/2013 DATE FINISHED: 2/26/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15cm	15cm	15cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
						Ground Surface																
1	1	100	-	SS	GM	Light brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	13	14	27		11.52	NP	NP		100	72	65	59	47	39	32	26
2	2	89	-	SS	GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	20	33	22		6.61	NP	NP		100	61	52	41	30	21	14	8
3	3	89	-	SS	GP-GM	Light brown, dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	13	16	17		6.90	NP	NP		100	95	66	59	43	31	19	9
4	4	100	-	SS	SP-SM	Light brown, medium dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	20	12	16		8.12	NP	NP			100	92	78	58	43	24	10
5	5	100	-	SS	GP-GM	Light brown, dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	19	19	16		6.14	NP	NP	100	88	82	67	58	42	32	18	9
						END OF BOREHOLE																

Footing Cut 3.2m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	170.75	218.58	221.16	171.29	161.36
Weight of can & dry soil, g.	155.19	206.62	208.55	160.37	153.02
Weight of water, g.	15.56	11.96	12.61	10.92	8.34
Weight of can, g.	20.17	25.64	25.76	25.88	17.22
Weight of dry soil, g.	135.02	180.98	182.79	134.49	135.80
Moisture Content, %	11.52	6.61	6.90	8.12	6.14

Borehole BH-9 - PTB

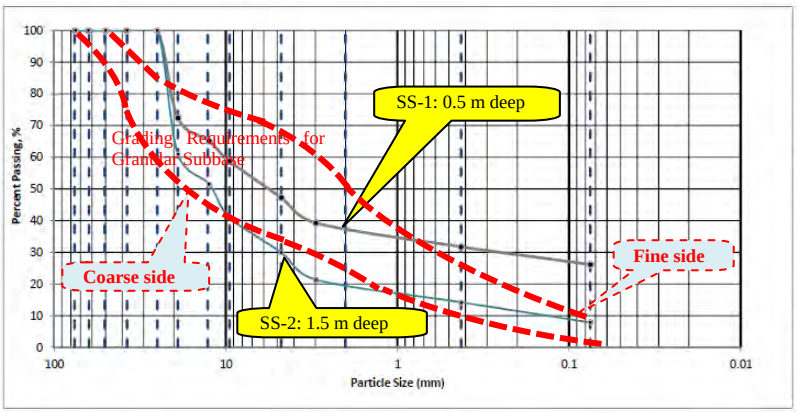
No fine topsoil exists. No large cavity exists.

Natural soil at footing bottom level (3.2 m deep) is N-value of 30 to 40.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-9 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		135.02	Wash OVEN-Dry Wt., gm		99.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	135.0	100	
1"	25	0.00	135.0	100	
3/4"	19	37.32	97.70	72	
1/2"	12.5	9.73	87.97	65	
3/8"	9.5	8.65	79.32	59	
No.4	4.75	15.55	63.77	47	
No.10	2.99	10.72	53.05	39	
No.40	0.425	10.17	42.88	32	
No.200	0.075	7.57	35.31	26	
PAN		0.20			
Wash Loss Passing No.200		35.11			
TOTAL		135.02			

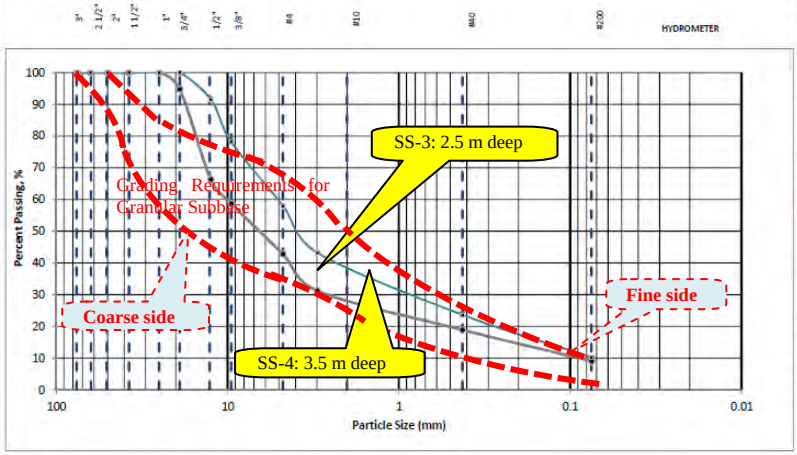
SS - 2

OVEN-DRY Wt.,gm		180.98	Wash OVEN-Dry Wt., gm		167.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	181.0	100	
3/4"	19	70.72	110.3	61	
1/2"	12.5	16.97	93.3	52	
3/8"	9.5	19.03	74.26	41	
No.4	4.75	19.95	54.31	30	
No.10	2.99	15.61	38.70	21	
No.40	0.425	12.90	25.80	14	
No.200	0.075	11.53	14.27	8	
PAN		0.25			
Wash Loss Passing No.200		14.02			
TOTAL		180.98			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-9 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		182.79	Wash OVEN-Dry Wt., gm		166.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	182.79	100	
3/4"	19	9.63	173.16	95	
1/2"	12.5	52.02	121.14	66	
3/8"	9.5	13.83	107.31	59	
No.4	4.75	29.11	78.20	43	
No.10	2.99	21.21	56.99	31	
No.40	0.425	22.44	34.55	19	
No.200	0.075	18.01	16.54	9	
PAN		0.14			
Wash Loss Passing No.200		16.40			
TOTAL		182.79			

SS - 4

OVEN-DRY Wt.,gm		134.49	Wash OVEN-Dry Wt., gm		120.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	134.49	100	
1/2"	12.5	11.42	123.07	92	
3/8"	9.5	17.96	105.11	78	
No.4	4.75	27.05	78.06	58	
No.10	2.99	19.90	58.16	43	
No.40	0.425	26.36	31.80	24	
No.200	0.075	17.98	13.82	10	
PAN		0.16			
Wash Loss Passing No.200		13.66			
TOTAL		134.49			

Borehole BH-10 - PTB

Existing Grade: 7.4 m Finished Grade: 8.5 m Footing Bottom: 4.0 m Cut height: 3.4 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project

HOLE NO.: BH-10

DEPTH: 5.0 m

LOCATION: Panglao, Bohol

DATE DRILLED: 2/26/2013 DATE FINISHED: 2/26/2013 WATER TABLE: DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	45	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	26	22	18		13.26	NP	NP		100	81	60	55	49	44	37	30
2	2	89	-	SS		GM	Dark brown, medium dense silty sa gravel with sand (broken corals with limestone) of no plasticity	6	7	7		19.46	NP	NP			100	87	74	69	63	57	49
3	3	100	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	21	33	80		14.38	NP	NP			100	72	66	59	53	44	35
4	4	44	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	43	59	71		7.57	NP	NP		100	71	55	46	36	28	20	15
5	5	44	-	SS		GW-GM	Light brown, very dense well graded gravel with silt and sand (broken corals with limestone) of no plasticity	25	39	51		2.09	NP	NP	100	84	60	26	17	10	4	1	1
							END OF BOREHOLE																

Footing Cut 3.4m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	153.30	230.73	283.27	232.81	145.75
Weight of can & dry soil, g.	137.40	195.89	249.81	218.29	143.12
Weight of water, g.	15.90	34.84	33.46	14.52	2.63
Weight of can, g.	17.45	16.85	17.09	26.53	17.31
Weight of dry soil, g.	119.95	179.04	232.72	191.76	125.81
Moisture Content, %	13.26	19.46	14.38	7.57	2.09

Borehole BH-10 – PTB

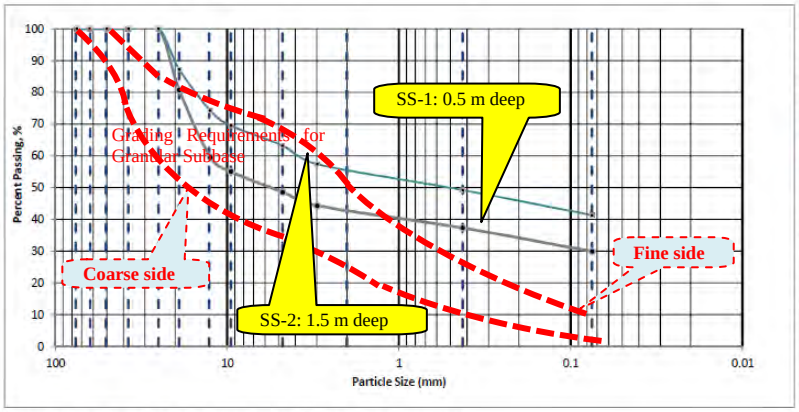
Fine topsoil exists. No large cavity exists. N-value drops to 13 at 2-m deep.

Natural soil at footing bottom level (3.4 m deep) is dense (N-value > 100).

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-10 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt. gm		119.95	Wash OVEN-Dry Wt., gm		84.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	120.0	100	
3/4"	19	23.07	96.9	81	
1/2"	12.5	25.43	71.5	60	
3/8"	9.5	5.44	66.0	55	
No.4	4.75	7.71	58.30	49	
No.10	2.99	5.12	53.18	44	
No.40	0.425	8.42	44.76	37	
No.200	0.075	8.88	35.88	30	
PAN		0.01			
Wash Loss Passing No.200		35.87			
TOTAL		119.95			

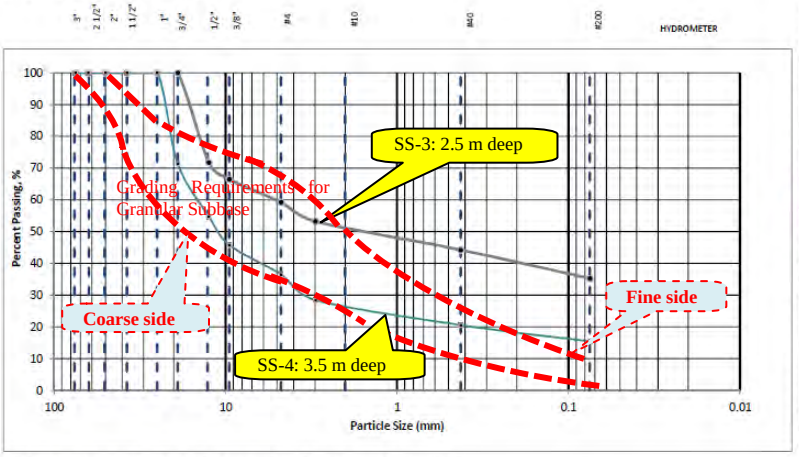
SS - 2

OVEN-DRY Wt. gm		179.04	Wash OVEN-Dry Wt., gm		105.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	179.0	100	
1"	25	0.00	179.0	100	
3/4"	19	22.84	156.2	87	
1/2"	12.5	23.26	132.9	74	
3/8"	9.5	8.44	124.50	70	
No.4	4.75	11.31	113.19	63	
No.10	2.99	10.43	102.76	57	
No.40	0.425	14.59	88.17	49	
No.200	0.075	14.18	73.99	41	
PAN		0.10			
Wash Loss Passing No.200		73.89			
TOTAL		179.04			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-10 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

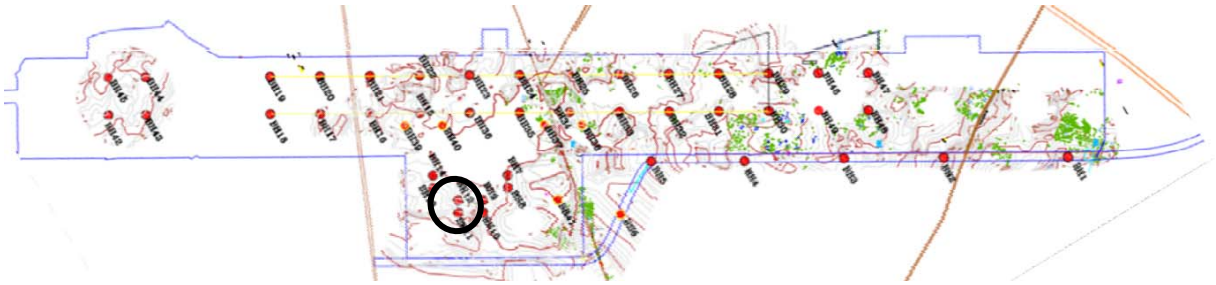
OVEN-DRY Wt. gm		232.72	Wash OVEN-Dry Wt., gm		150.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	232.7	100	
1"	25	0.00	232.7	100	
3/4"	19	0.00	232.7	100	
1/2"	12.5	65.80	166.9	72	
3/8"	9.5	12.16	154.8	67	
No.4	4.75	16.99	137.77	59	
No.10	2.99	13.91	123.86	53	
No.40	0.425	20.90	102.96	44	
No.200	0.075	20.93	82.03	35	
PAN		0.13			
Wash Loss Passing No.200		81.90			
TOTAL		232.72			

SS - 4

OVEN-DRY Wt. gm		191.76	Wash OVEN-Dry Wt., gm		162.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	191.8	100	
3/4"	19	54.77	137.0	71	
1/2"	12.5	32.00	105.0	55	
3/8"	9.5	17.16	87.83	46	
No.4	4.75	17.82	70.01	37	
No.10	2.99	15.43	54.58	28	
No.40	0.425	15.13	39.45	21	
No.200	0.075	9.89	29.56	15	
PAN		0.14			
Wash Loss Passing No.200		29.42			
TOTAL		191.76			

Borehole BH-11 – PTB

Existing Grade: 7.4 m Finished Grade: 8.5 m Footing Bottom: 4.0 m Cut height: 3.4 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-11
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 2/26/2013 DATE FINISHED: 2/26/2013 WATER TABLE: DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				10 20 30 40												
1	1	89	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	17	31	37		9.03	NP	NP			100	77	61	49	38	27	17
2	2	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	19	28	35		16.01	NP	NP		100	88	80	71	63	56	41	32
3	3	44	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	24	33	40		7.56	NP	NP		100	34	43	40	33	28	19	13
4	4	44	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	30	39	48		7.31	NP	NP	100	83	75	62	55	44	34	22	12
5	5	44	-	SS		GW	Brown, very dense well graded gravel with sand (broken corals with limestone) of no plasticity	42	53	65		11.48	NP	NP	100	87	72	36	29	18	16	7	3
							END OF BOREHOLE																

Footing Cut 3.4m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	128.05	241.96	187.19	187.93	232.53
Weight of can & dry soil, g.	119.03	211.03	175.44	176.49	211.21
Weight of water, g.	9.02	30.93	11.75	11.44	21.32
Weight of can, g.	19.11	17.83	19.96	20.09	25.43
Weight of dry soil, g.	99.92	193.20	155.48	156.40	185.78
Moisture Content, %	9.03	16.01	7.56	7.31	11.48

Borehole BH-11 – PTB

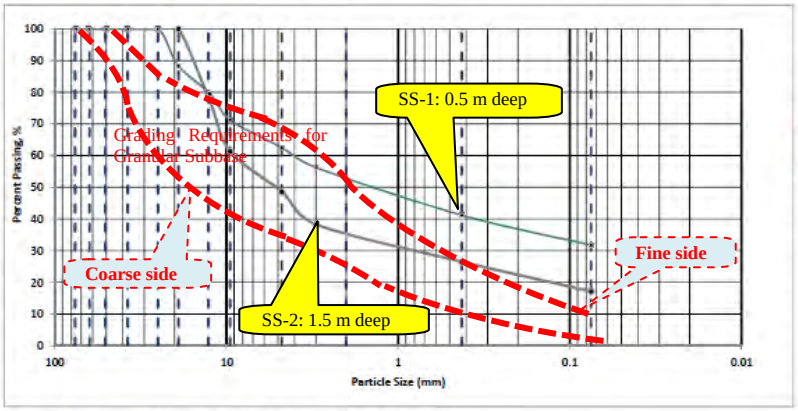
Fine topsoil exists. No large cavity exists.

Natural soil at footing bottom level (3.4 m deep) is dense (N-value > 70).

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-11 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		99.92	Wash OVEN-Dry Wt., gm		82.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	99.92	100	
1/2"	12.5	22.71	77.21	77	
3/8"	9.5	15.89	61.32	61	
No.4	4.75	12.74	48.58	49	
No.10	2.99	10.32	38.26	38	
No.40	0.425	11.75	26.51	27	
No.200	0.075	9.35	17.16	17	
PAN		0.11			
Wash Loss Passing No.200		17.05			
TOTAL		99.92			

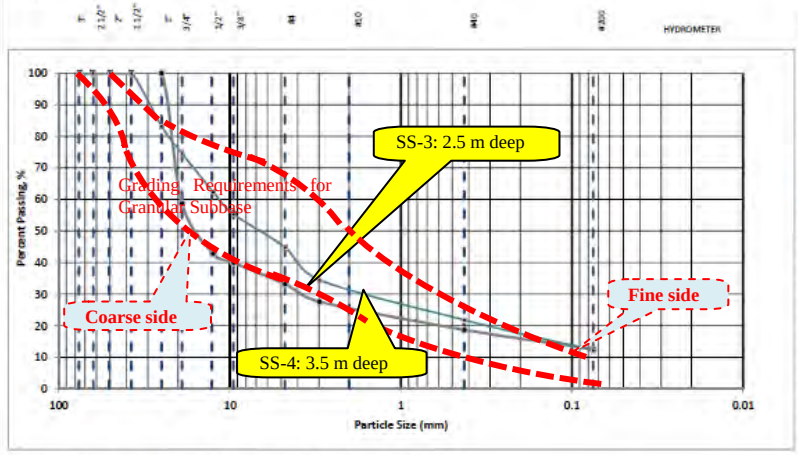
SS - 2

OVEN-DRY Wt.,gm		193.20	Wash OVEN-Dry Wt., gm		132.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	193.2	100	
3/4"	19	22.52	170.7	88	
1/2"	12.5	16.79	153.9	80	
3/8"	9.5	16.15	137.74	71	
No.4	4.75	16.98	120.76	63	
No.10	2.99	12.18	108.58	56	
No.40	0.425	28.95	79.63	41	
No.200	0.075	18.30	61.33	32	
PAN		0.17			
Wash Loss Passing No.200		61.16			
TOTAL		193.20			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-11 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

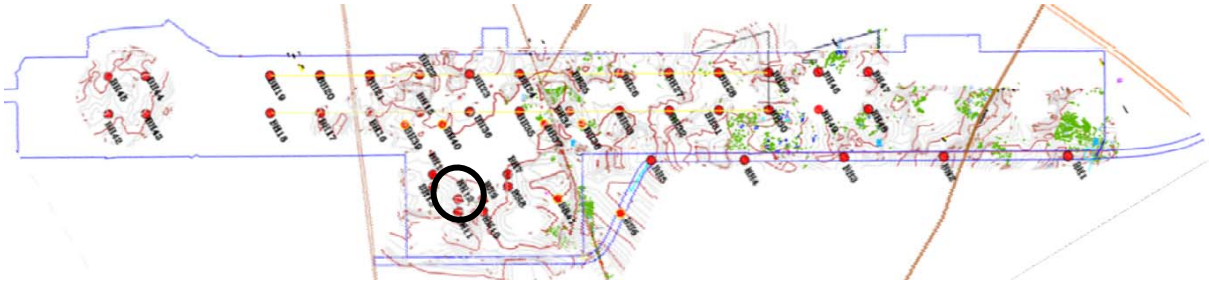
OVEN-DRY Wt.,gm		155.48	Wash OVEN-Dry Wt., gm		136.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	155.48	100	
3/4"	19	64.18	91.30	59	
1/2"	12.5	24.59	66.71	43	
3/8"	9.5	4.56	62.15	40	
No.4	4.75	10.47	51.68	33	
No.10	2.99	8.72	42.96	28	
No.40	0.425	13.85	29.11	19	
No.200	0.075	9.48	19.63	13	
PAN		0.10			
Wash Loss Passing No.200		19.53			
TOTAL		155.48			

SS - 4

OVEN-DRY Wt.,gm		156.40	Wash OVEN-Dry Wt., gm		137.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	156.4	100	
1"	25	26.31	130.09	83	
3/4"	19	13.42	116.67	75	
1/2"	12.5	19.03	97.64	62	
3/8"	9.5	11.05	86.59	55	
No.4	4.75	16.41	70.18	45	
No.10	2.99	16.23	53.95	34	
No.40	0.425	19.81	34.14	22	
No.200	0.075	15.02	19.12	12	
PAN		0.13			
Wash Loss Passing No.200		15.99			
TOTAL		156.40			

Borehole BH-12 – PTB

Existing Grade: 7.4 m Finished Grade: 8.5 m Footing Bottom: 4.0 m Cut height: 3.4 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

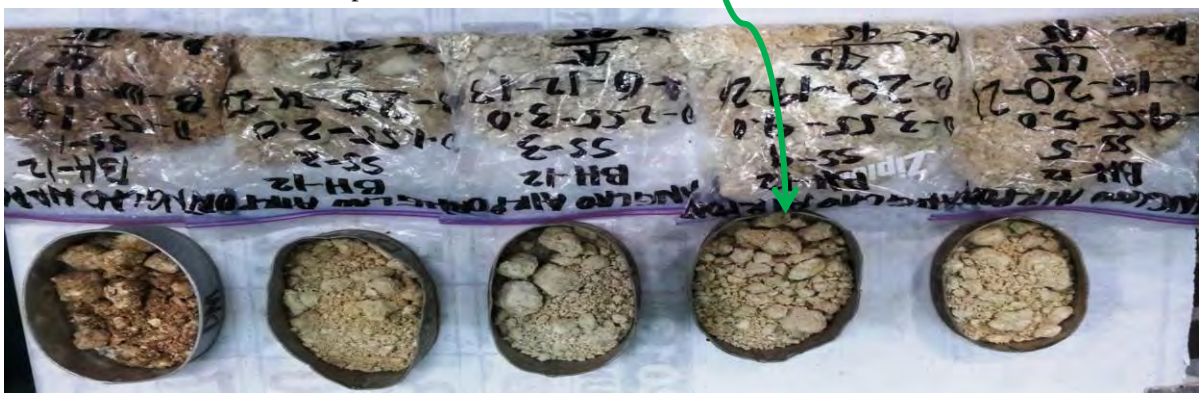
PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-12
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 2/26/2013 DATE FINISHED: 2/26/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				10 20 30 40												
1	1	100	-	SS		GP-GM	Light brown, medium dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	6	12	13		8.16	NP	NP		100	78	61	56	42	31	20	11
2	2	100	-	SS		GP-GM	Light brown, dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	15	20	22		8.09	NP	NP			100	74	68	54	42	24	11
3	3	100	-	SS		GM	Light brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	20	19	26		13.72	NP	NP	100	82	70	60	54	45	34	21	13
4	4	100	-	SS		SM	Light brown, dense silty sand with gravel (broken corals with limestone) of no plasticity	23	21	22		13.65	NP	NP			100	89	80	63	48	29	17
5	5	100	-	SS		GP-GM	Light brown, dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	16	17	27		10.25	NP	NP		100	88	76	61	45	36	21	10

END OF BOREHOLE

Footing Cut 3.4m

Pictures of disturbed soil samples



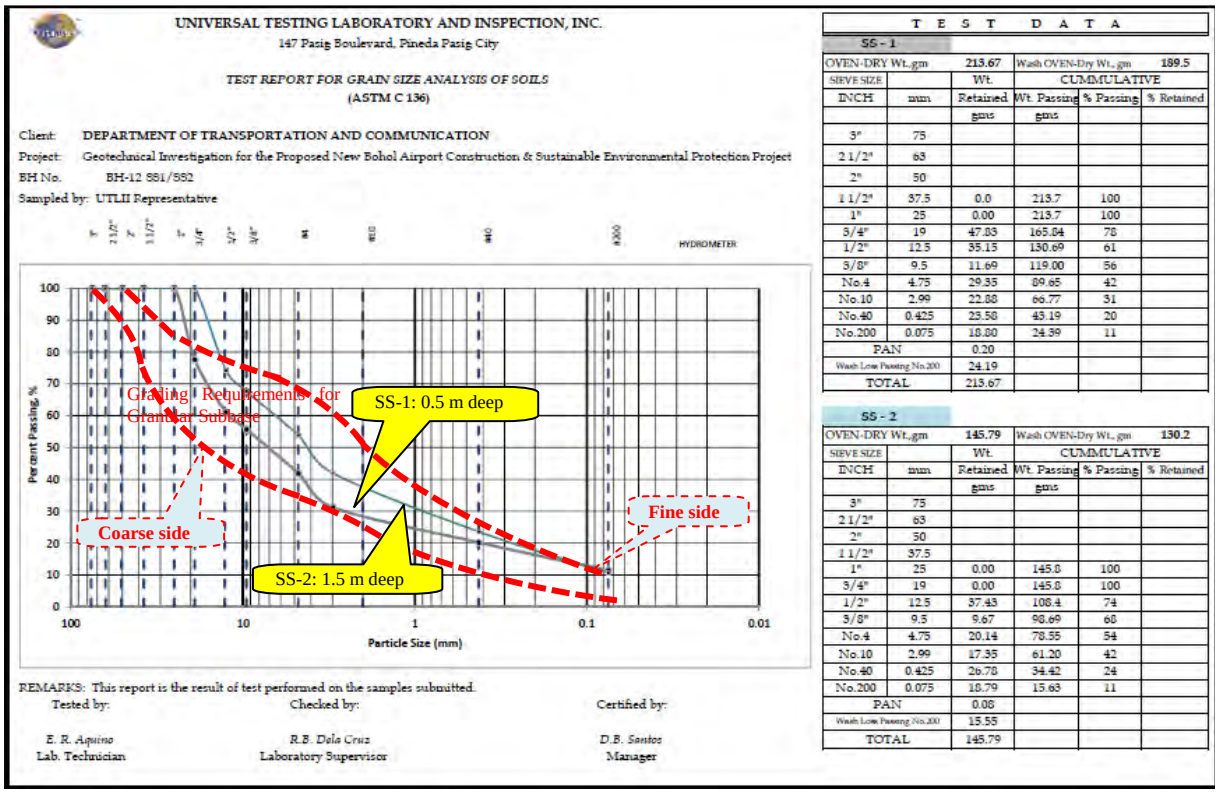
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	256.81	176.33	215.39	212.17	178.34
Weight of can & dry soil, g.	239.37	164.53	191.46	188.90	163.06
Weight of water, g.	17.44	11.80	23.93	23.27	15.28
Weight of can, g.	25.70	18.74	17.10	18.46	13.99
Weight of dry soil, g.	213.67	145.79	174.36	170.44	149.07
Moisture Content, %	8.16	8.09	13.72	13.65	10.25

Borehole BH-12 – PTB

No fine topsoil exists. No large cavity exists.

Natural soil at footing bottom level (3.4 m deep) is dense (N-value > 40).



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-12 SS1/SS2
Sampled by: UTLII Representative

T E S T D A T A

SS - 1

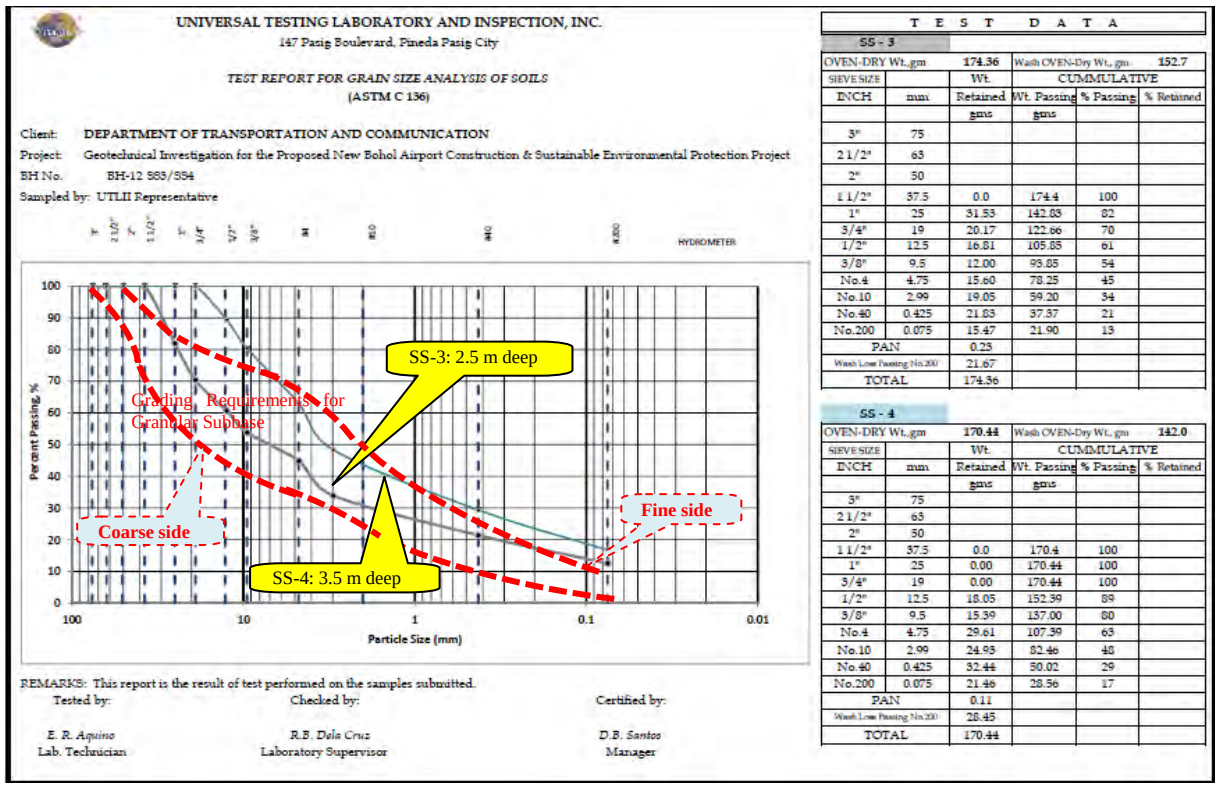
OVEN-DRY Wt.,gm		213.67	Wash OVEN-Dry Wt., gm		189.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	213.7	100	
1"	25	0.00	213.7	100	
3/4"	19	47.83	165.84	78	
1/2"	12.5	35.15	130.69	61	
3/8"	9.5	11.69	119.00	56	
No.4	4.75	29.35	89.65	42	
No.10	2.99	22.88	66.77	31	
No.40	0.425	23.58	43.19	20	
No.200	0.075	18.80	24.39	11	
PAN		0.20			
Wash Loss Passing No.200		24.19			
TOTAL		213.67			

SS - 2

OVEN-DRY Wt.,gm		145.79	Wash OVEN-Dry Wt., gm		130.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	145.8	100	
3/4"	19	0.00	145.8	100	
1/2"	12.5	37.43	108.4	74	
3/8"	9.5	9.67	98.69	68	
No.4	4.75	20.14	78.55	54	
No.10	2.99	17.35	61.20	42	
No.40	0.425	26.78	34.42	24	
No.200	0.075	18.79	15.63	11	
PAN		0.08			
Wash Loss Passing No.200		15.55			
TOTAL		145.79			

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-12 SS3/SS4
Sampled by: UTLII Representative

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		174.36	Wash OVEN-Dry Wt., gm		152.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	174.4	100	
1"	25	31.53	142.83	82	
3/4"	19	20.17	122.66	70	
1/2"	12.5	16.81	105.85	61	
3/8"	9.5	12.00	93.85	54	
No.4	4.75	15.60	78.25	45	
No.10	2.99	19.05	59.20	34	
No.40	0.425	21.83	37.37	21	
No.200	0.075	15.47	21.90	13	
PAN		0.23			
Wash Loss Passing No.200		21.67			
TOTAL		174.36			

SS - 4

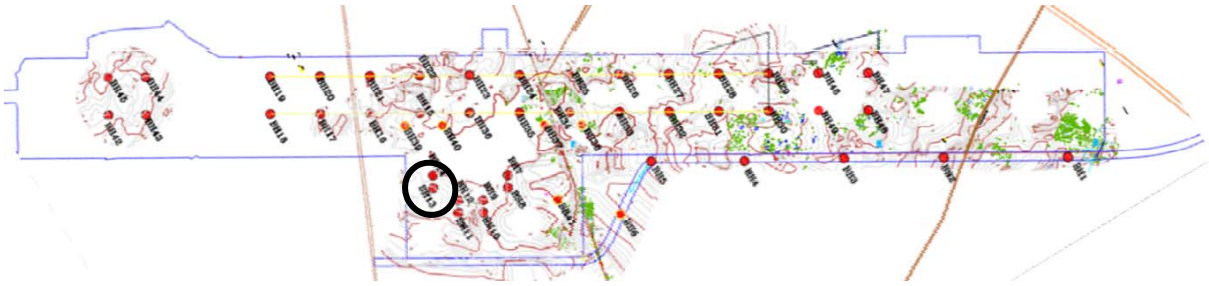
OVEN-DRY Wt.,gm		170.44	Wash OVEN-Dry Wt., gm		142.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	170.4	100	
1"	25	0.00	170.44	100	
3/4"	19	0.00	170.44	100	
1/2"	12.5	18.05	152.39	89	
3/8"	9.5	15.39	137.00	80	
No.4	4.75	29.61	107.39	63	
No.10	2.99	24.93	82.46	48	
No.40	0.425	32.44	50.02	29	
No.200	0.075	21.46	28.56	17	
PAN		0.11			
Wash Loss Passing No.200		28.45			
TOTAL		170.44			

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

Borehole BH-13 – Apron (Pavement Thickness: 0.8 m + Subgrade:0.5 m)

Existing Grade: 7.8 m Finished Grade: 7.4 m Subgrade Elevation: 6.1 m Cut height: 1.7 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-13

LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 2/26/2013 — DATE FINISHED: 2/26/2013 — WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	89	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	48	61	54		15.87	NP	NP			100	97	81	66	52	40	31
2	2	100	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	46	51	58		7.30	NP	NP		100	94	83	74	50	33	19	11
3	3	44	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	49	53	61		8.00	NP	NP			100	91	73	44	25	12	4
4	4	10	0	CS		-	Yellowish white, very poor corals	CORING				-	NO SAMPLE TESTED										
5	5	33	0	CS		-	Yellowish white, very poor corals	CORING				-	NO SAMPLE TESTED										
6							END OF BOREHOLE																

Subgrade Cut: 1.7m

Pictures of disturbed soil samples

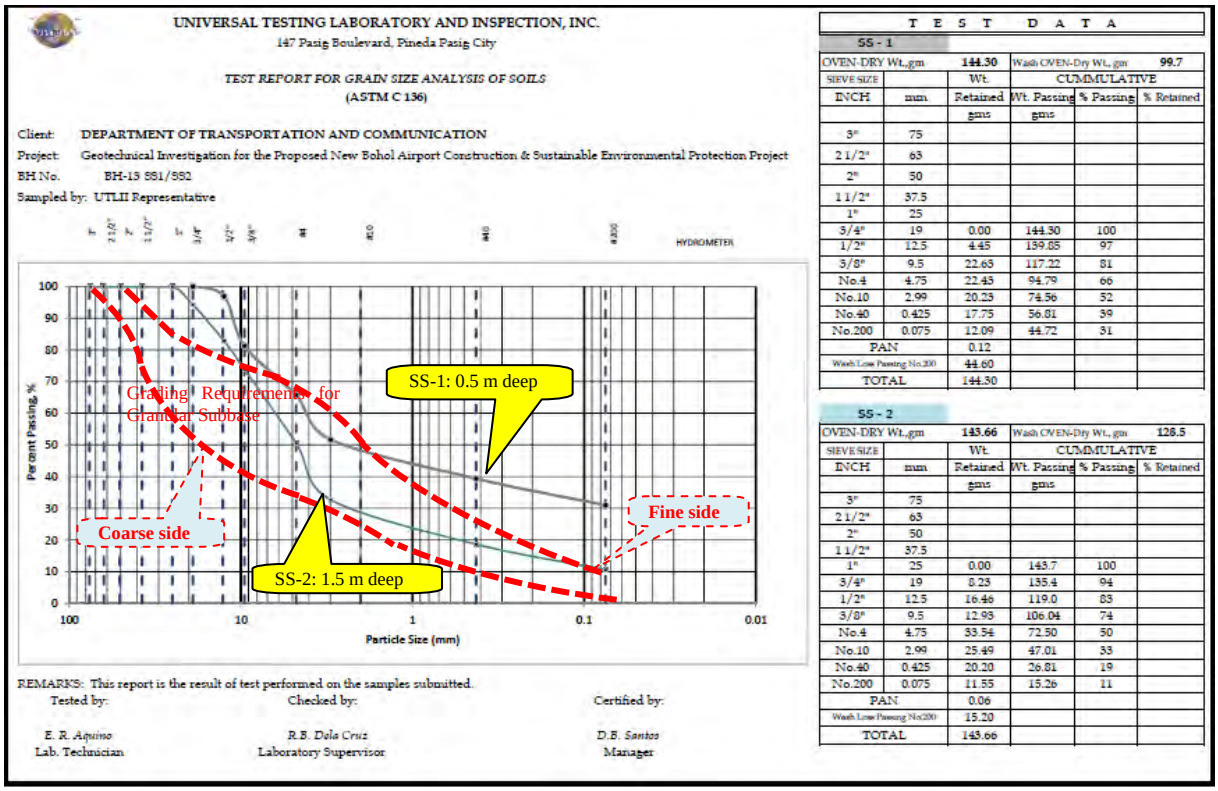
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	186.89	179.79	170.73		
Weight of can & dry soil, g.	163.99	169.30	159.33		
Weight of water, g.	22.90	10.49	11.40		
Weight of can, g.	19.69	25.64	16.89		
Weight of dry soil, g.	144.30	143.66	142.44		
Moisture Content, %	15.87	7.30	8.00		

Borehole BH-13 – Apron (Pavement Thickness: 0.8 m + Subgrade: 0.5 m)

Fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.7 m deep) is dense (N-value > 90) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-13 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

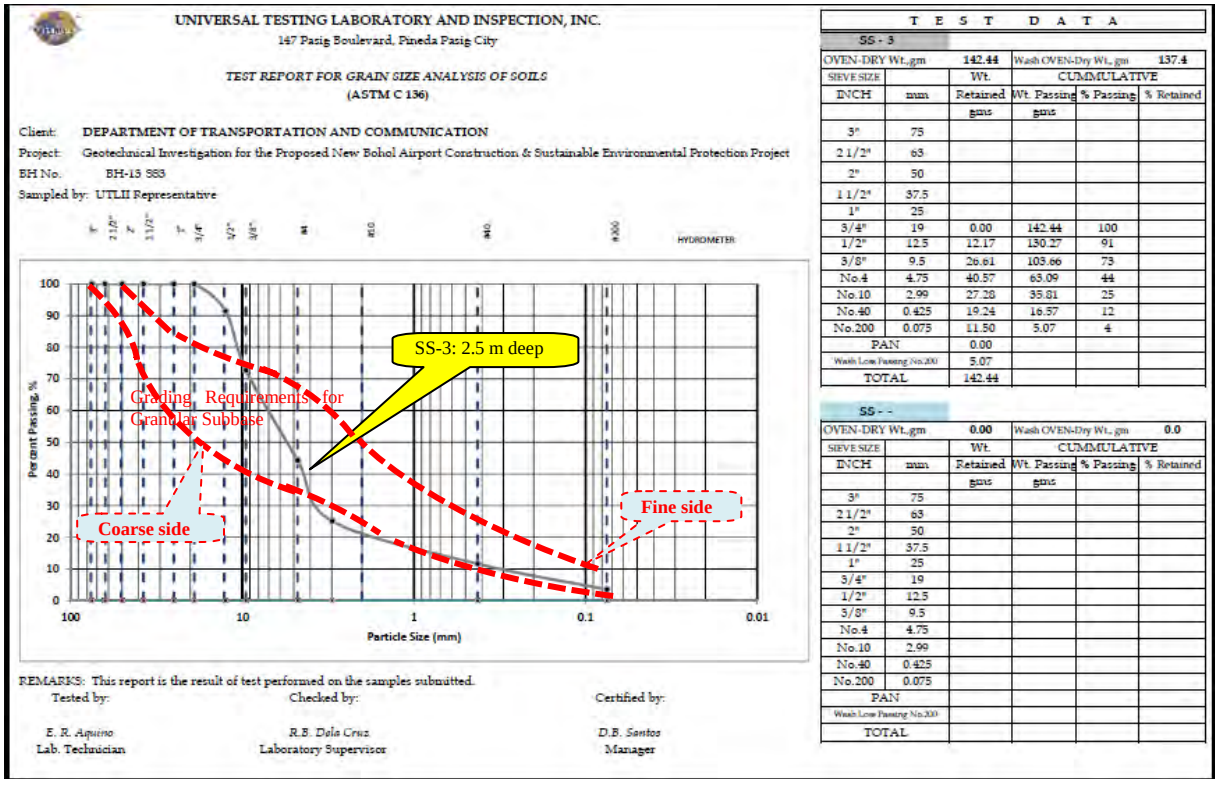
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		144.30	Wash OVEN-Dry Wt., gm		99.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	144.30	100	
1/2"	12.5	4.45	139.85	97	
3/8"	9.5	22.65	117.22	81	
No.4	4.75	22.43	94.79	66	
No.10	2.99	20.23	74.56	52	
No.40	0.425	17.75	56.81	39	
No.200	0.075	12.09	44.72	31	
PAN		0.12			
Wash Loss Passing No.200		44.60			
TOTAL		144.30			

SS - 2

OVEN-DRY Wt.,gm		143.66	Wash OVEN-Dry Wt., gm		128.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	143.7	100	
3/4"	19	8.23	135.4	94	
1/2"	12.5	16.46	119.0	83	
3/8"	9.5	12.98	106.04	74	
No.4	4.75	33.54	72.50	50	
No.10	2.99	25.49	47.01	33	
No.40	0.425	20.20	26.81	19	
No.200	0.075	11.55	15.26	11	
PAN		0.06			
Wash Loss Passing No.200		15.20			
TOTAL		143.66			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-13 SS3
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

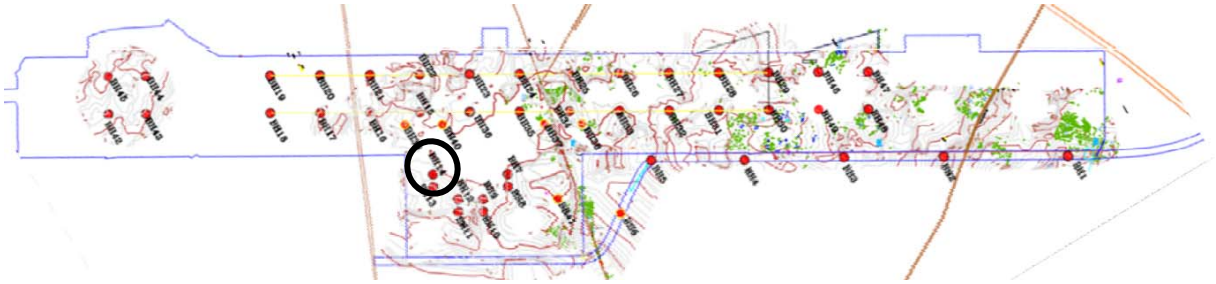
OVEN-DRY Wt.,gm		142.44	Wash OVEN-Dry Wt., gm		137.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	142.44	100	
1/2"	12.5	12.17	130.27	91	
3/8"	9.5	26.61	103.66	73	
No.4	4.75	40.57	63.09	44	
No.10	2.99	27.28	35.81	25	
No.40	0.425	19.24	16.57	12	
No.200	0.075	11.50	5.07	4	
PAN		0.00			
Wash Loss Passing No.200		5.07			
TOTAL		142.44			

SS - -

OVEN-DRY Wt.,gm		0.00	Wash OVEN-Dry Wt., gm		0.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19				
1/2"	12.5				
3/8"	9.5				
No.4	4.75				
No.10	2.99				
No.40	0.425				
No.200	0.075				
PAN					
Wash Loss Passing No.200					
TOTAL					

Borehole BH-14 – Apron (Pavement Thickness: 0.8 m + Subgrade:0.5 m)

Existing Grade: 7.6 m Finished Grade: 7.1 m Subgrade Elevation: 5.8 m Cut height: 1.8 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-14
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/1/2013 DATE FINISHED: 3/1/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15cm	15cm	15cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	67	-	SS		ML	Dark brown, medium stiff silt with sand and gravel (broken corals with limestone) of no plasticity	21	7	1		25.30	NP	NP			100	92	91	84	75	68	64
2	2	44	-	SS		GM	Dark brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	36	29	70		16.36	NP	NP		100	92	83	81	65	56	46	37
3	3	67	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	40	38	45		7.05	NP	NP	100	71	71	51	43	29	23	17	12
4	4	78	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	25	31	29		8.80	NP	NP		100	76	54	46	37	30	24	19
5	5	44	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	31	28	36		7.00	NP	NP				100	85	53	38	29	22

Subgrade Cut 1.8m

END OF BOREHOLE

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	149.76	137.11	144.82	157.72	151.58
Weight of can & dry soil, g.	123.03	120.47	136.50	146.69	142.75
Weight of water, g.	26.73	16.64	8.32	11.03	8.83
Weight of can, g.	17.38	18.78	18.53	21.41	16.99
Weight of dry soil, g.	105.65	101.69	117.97	125.28	125.76
Moisture Content, %	25.30	16.36	7.05	8.80	7.02

Borehole BH-14 – Apron (Pavement Thickness: 0.8 m + Subgrade: 0.5 m)

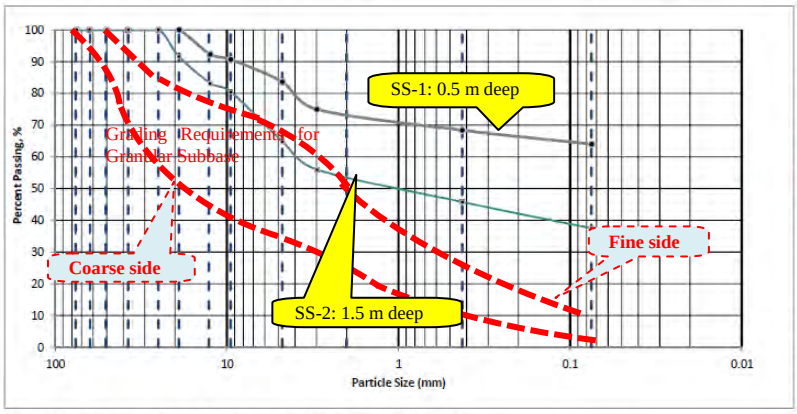
Fine topsoil exists. No large cavity exists. N-value is 13 at 1-m deep.

Natural soil at subgrade level (1.8 m deep) is dense (N-value > 50) but porous. It will require blending with crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-14 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		105.65	Wash OVEN-Dry Wt., gm		38.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	105.65	100	
1/2"	12.5	8.15	97.50	92	
3/8"	9.5	1.72	95.78	91	
No.4	4.75	7.42	88.36	84	
No.10	2.99	9.15	79.21	75	
No.40	0.425	6.95	72.26	68	
No.200	0.075	4.63	67.63	64	
PAN		0.00			
Wash Loss Passing No.200		67.63			
TOTAL		105.65			

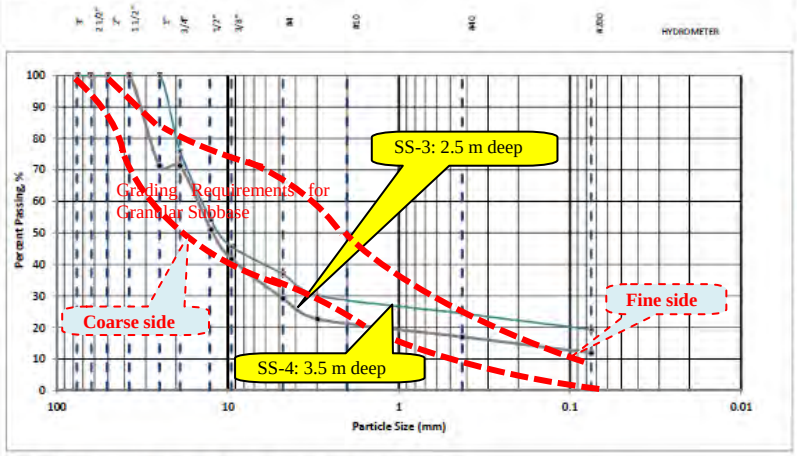
SS - 2

OVEN-DRY Wt.,gm		101.69	Wash OVEN-Dry Wt., gm		63.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	101.7	100	
3/4"	19	8.50	93.2	92	
1/2"	12.5	8.60	84.6	83	
3/8"	9.5	2.72	81.87	81	
No.4	4.75	15.87	66.00	65	
No.10	2.99	9.04	56.96	56	
No.40	0.425	10.38	46.58	46	
No.200	0.075	8.46	38.12	37	
PAN		0.00			
Wash Loss Passing No.200		38.12			
TOTAL		101.69			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-14 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

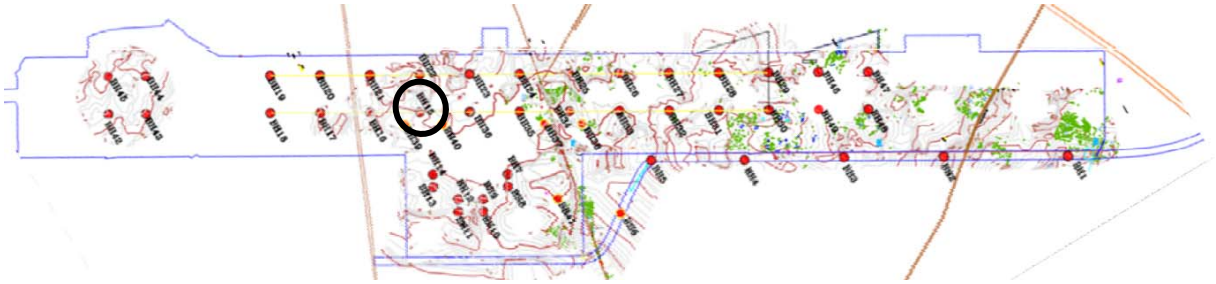
OVEN-DRY Wt.,gm		117.97	Wash OVEN-Dry Wt., gm		103.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	118.0	100	
1"	25	33.84	84.13	71	
3/4"	19	0.00	84.13	71	
1/2"	12.5	23.92	60.21	51	
3/8"	9.5	10.99	49.22	42	
No.4	4.75	14.75	34.47	29	
No.10	2.99	7.67	26.80	23	
No.40	0.425	6.72	20.08	17	
No.200	0.075	5.98	14.10	12	
PAN		0.03			
Wash Loss Passing No.200		14.07			
TOTAL		117.97			

SS - 4

OVEN-DRY Wt.,gm		125.28	Wash OVEN-Dry Wt., gm		101.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	125.28	100	
3/4"	19	29.93	95.35	76	
1/2"	12.5	27.58	67.77	54	
3/8"	9.5	10.50	57.27	46	
No.4	4.75	11.00	46.27	37	
No.10	2.99	8.49	37.78	30	
No.40	0.425	7.13	30.65	24	
No.200	0.075	6.44	24.21	19	
PAN		0.00			
Wash Loss Passing No.200		24.21			
TOTAL		125.28			

Borehole BH-15 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 7.2 m Finished Grade: 7.7 m Subgrade Elevation: 5.8 m Cut height: 1.4 m

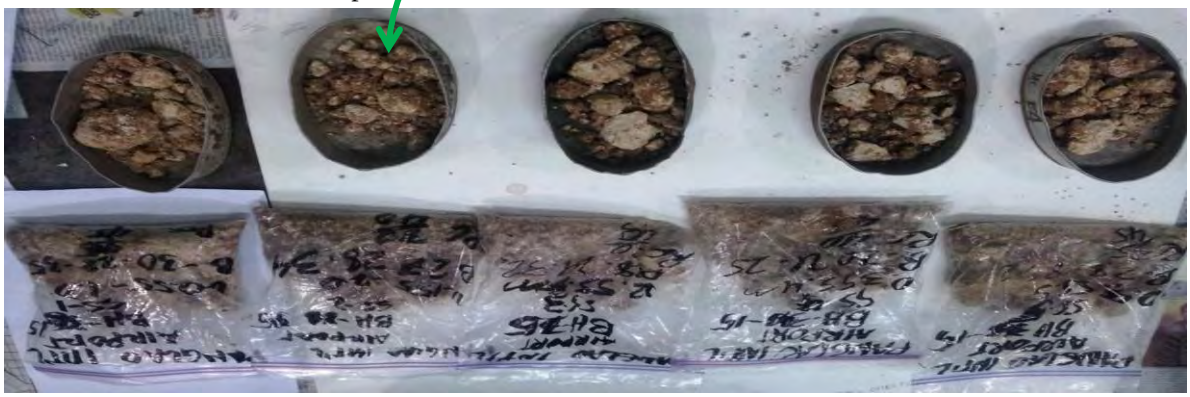


FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-15
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/28/2013 DATE FINISHED: 2/28/2013	WATER TABLE:	DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				10 20 30 40												
1	1	100	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	30	28	35	Subgrade Cut: 1.4m	15.55	NP	NP		100	95	87	81	68	56	43	31
2	2	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	27	28	34		11.16	NP	NP		100	89	76	70	57	43	36	26
3	3	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	28	29	32		9.91	NP	NP	100	72	60	49	45	37	32	26	20
4	4	81	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	20	21	35		10.08	NP	NP		100	75	49	45	38	34	28	22
5	5	78	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	28	28	32		5.36	NP	NP	100	85	42	32	21	14	12	10	7
							END OF BOREHOLE																

Pictures of disturbed soil samples



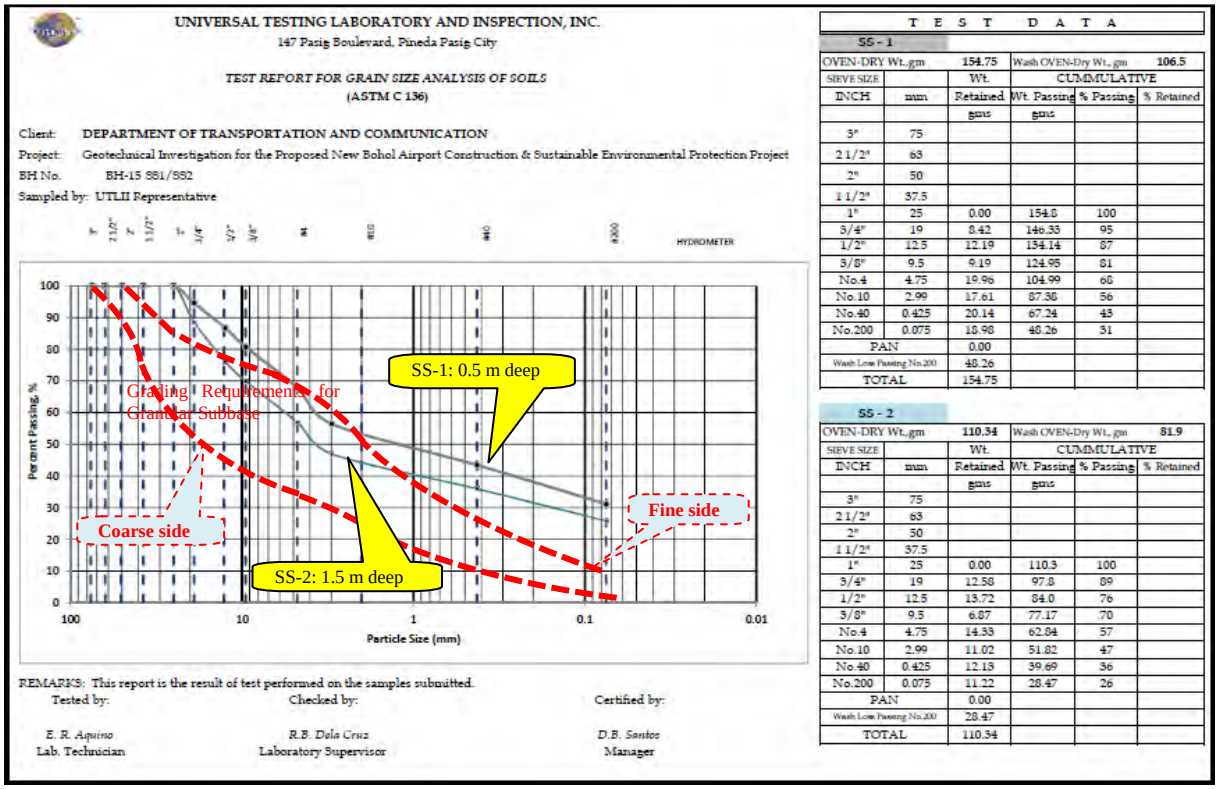
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	200.78	144.50	187.39	154.10	169.23
Weight of can & dry soil, g.	176.71	132.19	172.41	141.58	161.51
Weight of water, g.	24.07	12.31	14.98	12.52	7.72
Weight of can, g.	21.96	21.85	21.22	17.36	17.38
Weight of dry soil, g.	154.75	110.34	151.19	124.22	144.13
Moisture Content, %	15.55	11.16	9.91	10.08	5.36

Borehole BH-15 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.4 m deep) is dense (N-value > 50) but porous. It will require blending with crashed limestone fragment when used for granular subbase course.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-15 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

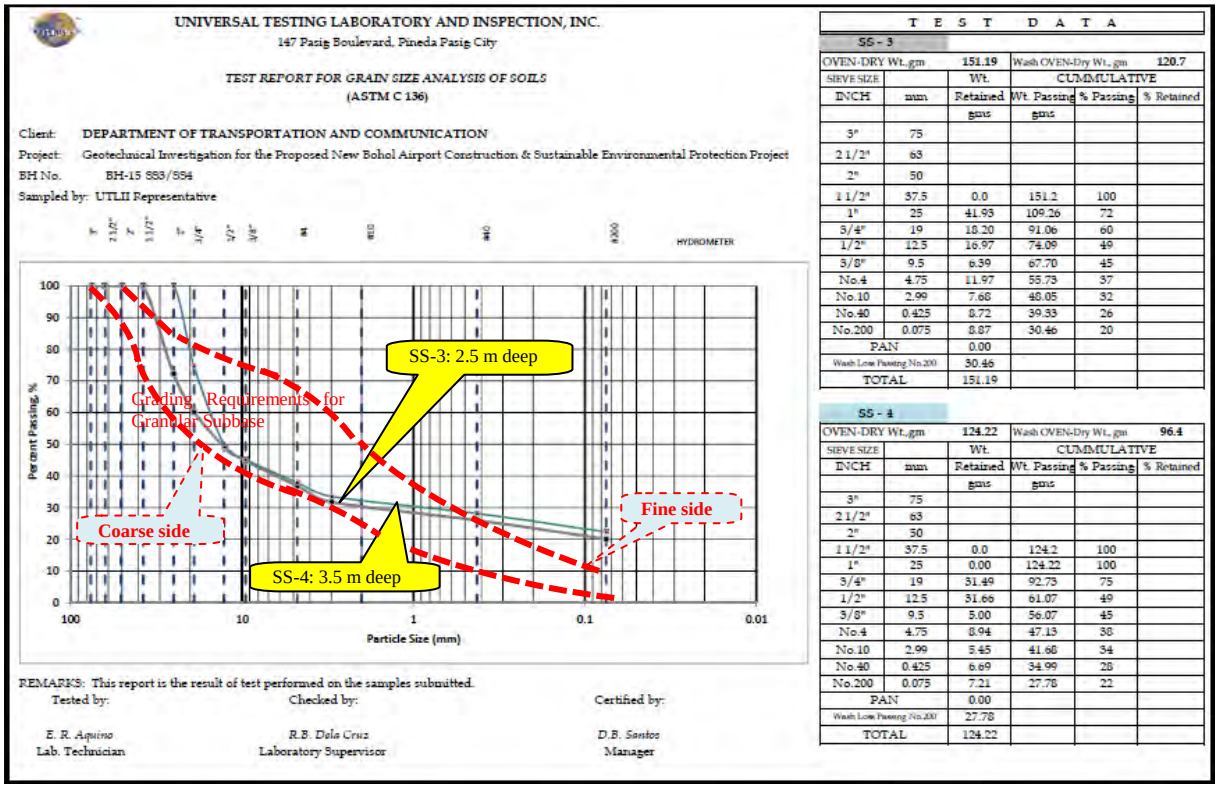
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		154.75	Wash OVEN-Dry Wt., gm		106.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	154.8	100	
3/4"	19	8.42	146.33	95	
1/2"	12.5	12.19	134.14	87	
3/8"	9.5	9.19	124.95	81	
No.4	4.75	19.96	104.99	68	
No.10	2.99	17.61	87.38	56	
No.40	0.425	20.14	67.24	43	
No.200	0.075	18.98	48.26	31	
PAN		0.00			
Wash Loss Passing No.200		48.26			
TOTAL		154.75			

SS - 2

OVEN-DRY Wt.,gm		110.34	Wash OVEN-Dry Wt., gm		81.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	110.3	100	
3/4"	19	12.58	97.8	89	
1/2"	12.5	13.72	84.0	76	
3/8"	9.5	6.87	77.17	70	
No.4	4.75	14.33	62.84	57	
No.10	2.99	11.02	51.82	47	
No.40	0.425	12.13	39.69	36	
No.200	0.075	11.22	28.47	26	
PAN		0.00			
Wash Loss Passing No.200		28.47			
TOTAL		110.34			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-15 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

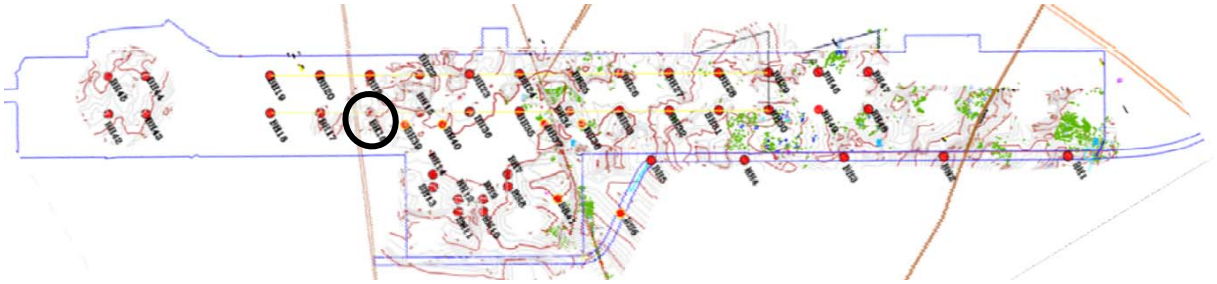
OVEN-DRY Wt.,gm		151.19	Wash OVEN-Dry Wt., gm		120.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	151.2	100	
1"	25	41.93	109.26	72	
3/4"	19	18.20	91.06	60	
1/2"	12.5	16.97	74.09	49	
3/8"	9.5	6.39	67.70	45	
No.4	4.75	11.97	55.73	37	
No.10	2.99	7.68	48.05	32	
No.40	0.425	8.72	39.33	26	
No.200	0.075	8.87	30.46	20	
PAN		0.00			
Wash Loss Passing No.200		30.46			
TOTAL		151.19			

SS - 4

OVEN-DRY Wt.,gm		124.22	Wash OVEN-Dry Wt., gm		96.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	124.2	100	
1"	25	0.00	124.22	100	
3/4"	19	31.49	92.73	75	
1/2"	12.5	31.66	61.07	49	
3/8"	9.5	5.00	56.07	45	
No.4	4.75	8.94	47.13	38	
No.10	2.99	5.45	41.68	34	
No.40	0.425	6.69	34.99	28	
No.200	0.075	7.21	27.78	22	
PAN		0.00			
Wash Loss Passing No.200		27.78			
TOTAL		124.22			

Borehole BH-16 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.2 m Finished Grade: 7.5 m Subgrade Elevation: 5.6 m Cut height: 0.6 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-16
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/1/2013 DATE FINISHED: 3/1/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	38	42	40		8.31	NP	NP		100	93	70	61	48	37	26	17
2	2	78	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	40	30	24		7.01	NP	NP		100	84	63	53	40	29	17	9
3	3	78	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	20	21	21		10.24	NP	NP			100	75	63	50	35	24	13
4	4	100	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	26	27	25		13.17	NP	NP			100	95	79	57	42	26	14
5	5	78	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	12	23	28		9.55	NP	NP		100	73	65	54	36	25	14	8
							END OF BOREHOLE																

Subgrade Cut 0.6m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	187.04	141.64	114.15	126.36	131.82
Weight of can & dry soil, g.	174.66	133.49	105.24	113.98	121.98
Weight of water, g.	12.38	8.15	8.91	12.38	9.84
Weight of can, g.	25.72	17.15	18.26	19.95	18.92
Weight of dry soil, g.	148.94	116.34	86.98	94.03	103.06
Moisture Content, %	8.31	7.01	10.24	13.17	9.55

Borehole BH-16 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

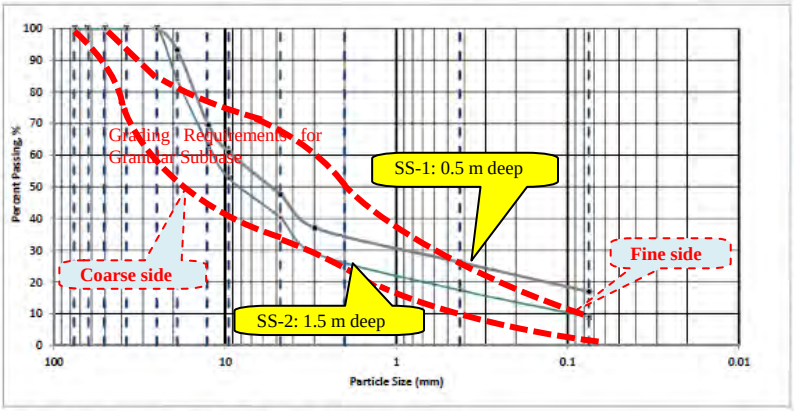
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (0.6 m deep) is dense (N-value > 70) but porous. It will require blending with crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-16 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		148.94	Wash OVEN-Dry Wt., gm		123.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	148.9	100	
3/4"	19	10.11	138.83	93	
1/2"	12.5	35.09	103.74	70	
3/8"	9.5	12.98	90.76	61	
No.4	4.75	19.84	70.92	48	
No.10	2.99	15.66	55.26	37	
No.40	0.425	16.18	39.08	26	
No.200	0.075	13.84	25.24	17	
PAN		0.00			
Wash Loss Passing No.200		25.24			
TOTAL		148.94			

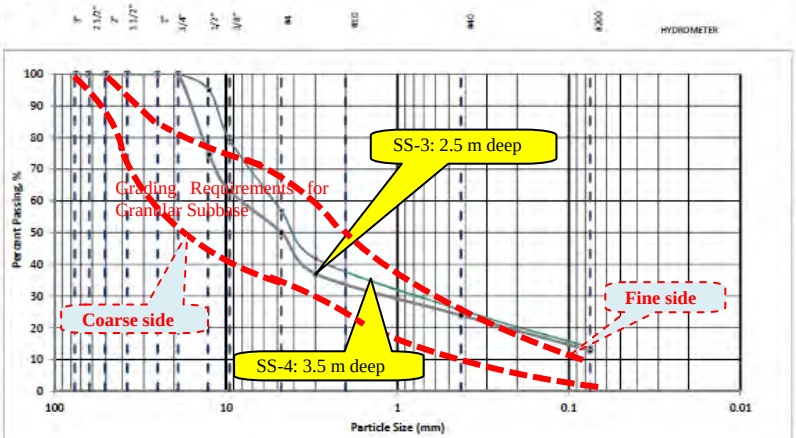
SS - 2

OVEN-DRY Wt.,gm		116.34	Wash OVEN-Dry Wt., gm		105.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	116.3	100	
3/4"	19	18.87	97.5	84	
1/2"	12.5	23.86	73.6	63	
3/8"	9.5	12.19	61.42	53	
No.4	4.75	14.58	46.84	40	
No.10	2.99	13.08	33.76	29	
No.40	0.425	13.50	20.26	17	
No.200	0.075	9.73	10.53	9	
PAN		0.00			
Wash Loss Passing No.200		10.53			
TOTAL		116.34			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-16 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

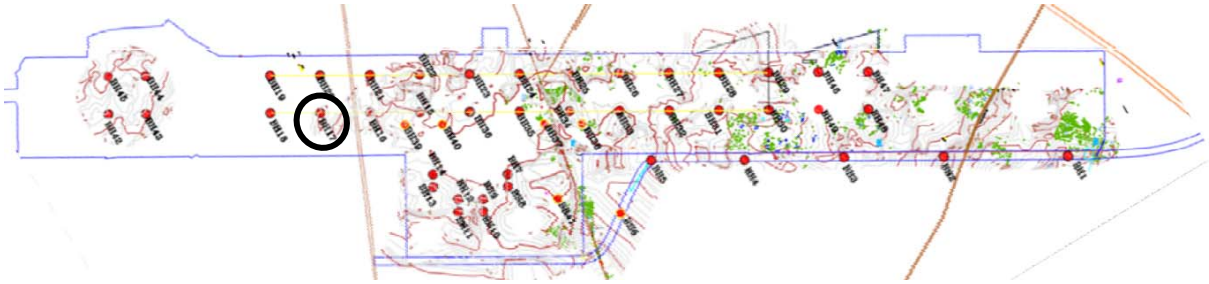
OVEN-DRY Wt.,gm		86.98	Wash OVEN-Dry Wt., gm		75.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	86.98	100	
1/2"	12.5	22.06	64.92	75	
3/8"	9.5	9.98	54.94	63	
No.4	4.75	11.40	43.54	50	
No.10	2.99	11.35	32.19	37	
No.40	0.425	11.35	20.84	24	
No.200	0.075	9.64	11.20	13	
PAN		0.00			
Wash Loss Passing No.200		11.20			
TOTAL		86.98			

SS - 4

OVEN-DRY Wt.,gm		94.03	Wash OVEN-Dry Wt., gm		81.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	94.03	100	
1/2"	12.5	4.78	89.25	95	
3/8"	9.5	14.68	74.57	79	
No.4	4.75	21.04	53.53	57	
No.10	2.99	14.21	39.32	42	
No.40	0.425	15.22	24.10	26	
No.200	0.075	11.09	13.01	14	
PAN		0.00			
Wash Loss Passing No.200		13.01			
TOTAL		94.03			

Borehole BH-17 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.0 m Finished Grade: 7.2 m Subgrade Elevation: 5.3 m Cut height: 0.7 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-17

LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 3/2/2013 DATE FINISHED: 3/2/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GW	Dark brown, dense well graded gravel (broken corals with limestone) of no plasticity	63	22	15		6.56	NP	NP	100	52	22	15	10	7	6	5	3
2	2	78	-	SS		GM	Dark brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	23	27	35		10.32	NP	NP		100	87	68	56	39	30	21	14
3	3	100	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	17	23	20		11.02	NP	NP			100	86	79	58	42	24	11
4	4	100	-	SS		GP-GM	Light brown, dense poorly graded gravel with sand (broken corals with limestone) of no plasticity	20	21	23		10.36	NP	NP		100	83	70	55	37	26	14	7
5	5	100	-	SS		GP-GM	Light brown, very dense poorly graded gravel with sand (broken corals with limestone) of no plasticity	36	40	44		7.51	NP	NP		100	89	74	63	42	28	15	8
							END OF BOREHOLE																

Subgrade Cut: 0.7m

Pictures of disturbed soil samples

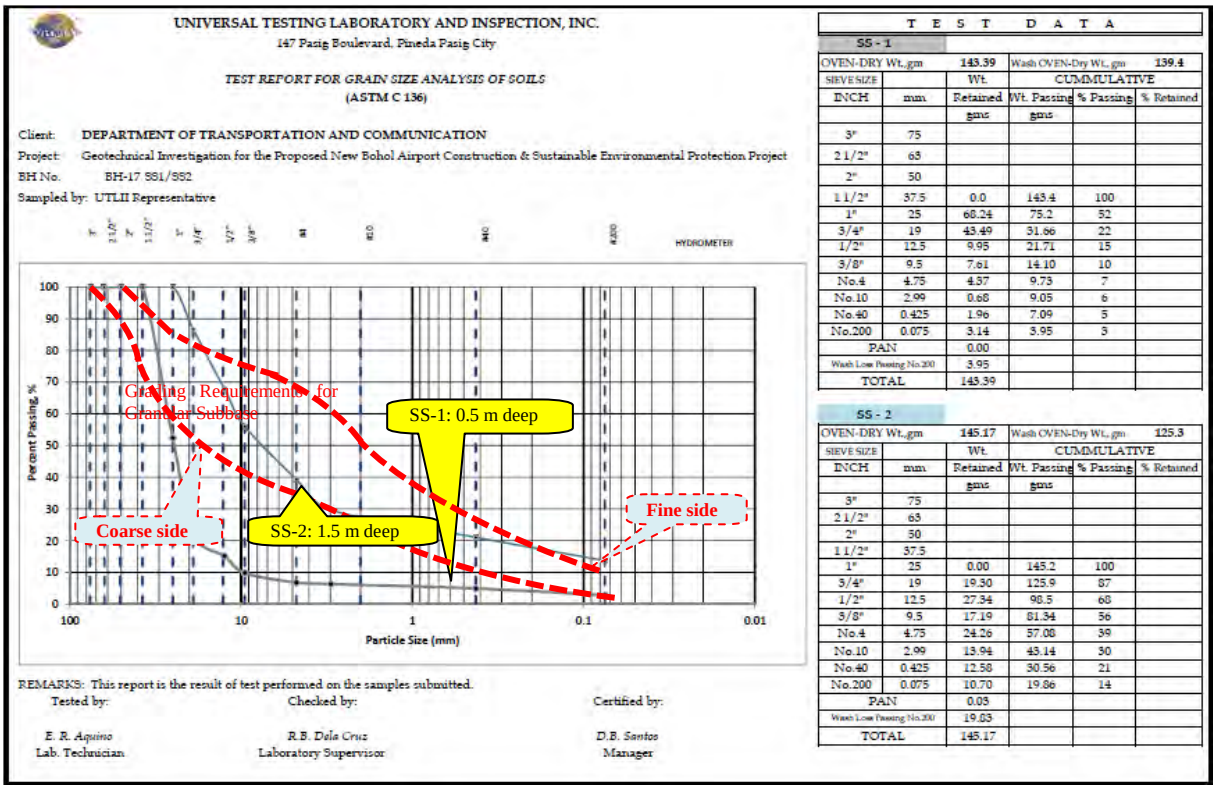
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	172.87	177.44	156.89	167.11	191.02
Weight of can & dry soil, g.	163.46	162.50	143.36	153.00	176.65
Weight of water, g.	9.41	14.94	13.53	14.11	14.37
Weight of can, g.	20.07	17.73	20.63	16.84	25.49
Weight of dry soil, g.	143.39	144.77	122.73	136.16	151.16
Moisture Content, %	6.56	10.32	11.02	10.36	9.51

Borehole BH-17 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (0.7 m deep) is dense (N-value > 30) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-17 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

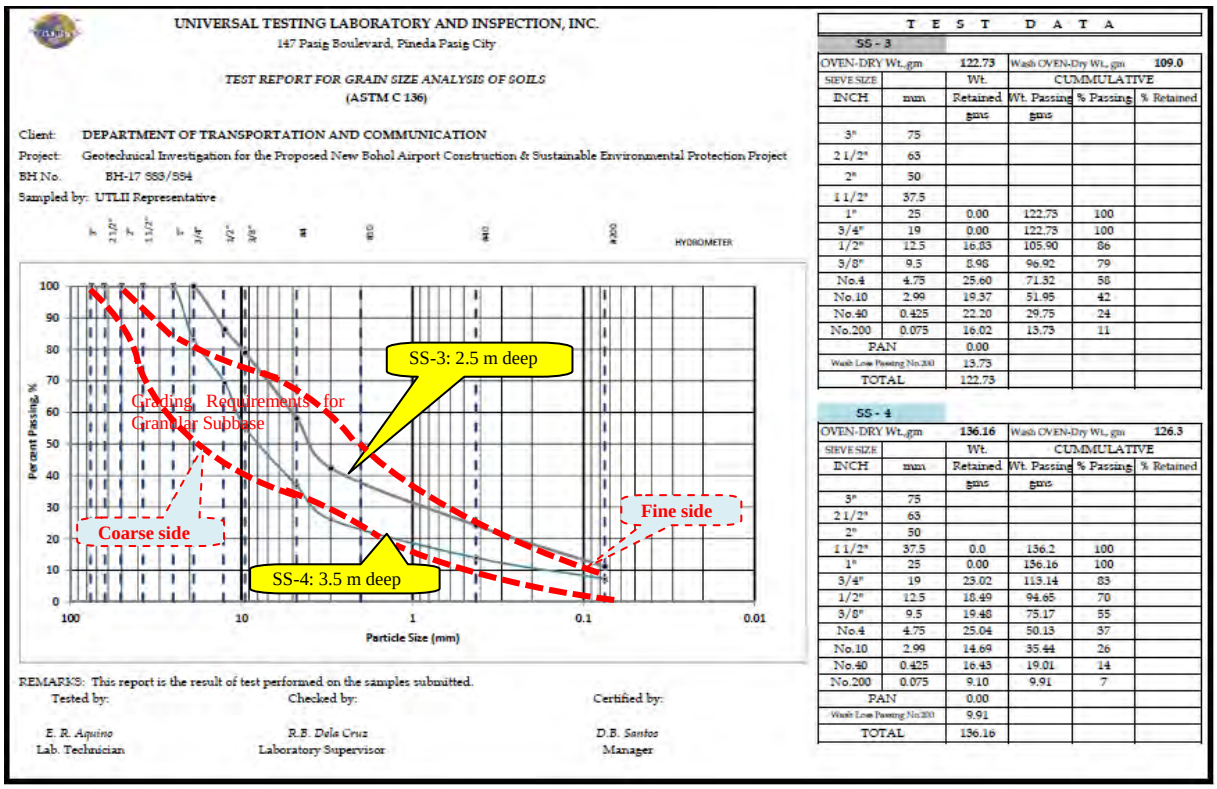
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		143.39	Wash OVEN-Dry Wt., gm		139.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	143.4	100	
1"	25	68.24	75.2	52	
3/4"	19	43.49	31.66	22	
1/2"	12.5	9.95	21.71	15	
3/8"	9.5	7.61	14.10	10	
No.4	4.75	4.37	9.73	7	
No.10	2.99	0.68	9.05	6	
No.40	0.425	1.96	7.09	5	
No.200	0.075	3.14	3.95	3	
PAN		0.00			
Wash Loss Passing No.200		3.95			
TOTAL		143.39			

SS - 2

OVEN-DRY Wt.,gm		145.17	Wash OVEN-Dry Wt., gm		125.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	145.2	100	
3/4"	19	19.30	125.9	87	
1/2"	12.5	27.34	98.5	68	
3/8"	9.5	17.19	81.34	56	
No.4	4.75	24.26	57.08	39	
No.10	2.99	13.94	43.14	30	
No.40	0.425	12.58	30.56	21	
No.200	0.075	10.70	19.86	14	
PAN		0.03			
Wash Loss Passing No.200		19.83			
TOTAL		145.17			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-17 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

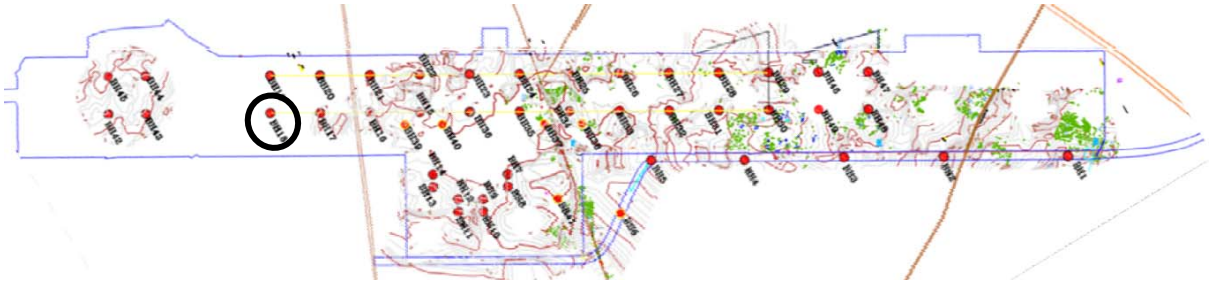
OVEN-DRY Wt.,gm		122.73	Wash OVEN-Dry Wt., gm		109.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	122.73	100	
3/4"	19	0.00	122.73	100	
1/2"	12.5	16.83	105.90	86	
3/8"	9.5	8.98	96.92	79	
No.4	4.75	25.60	71.32	58	
No.10	2.99	19.37	51.95	42	
No.40	0.425	22.20	29.75	24	
No.200	0.075	16.02	13.73	11	
PAN		0.00			
Wash Loss Passing No.200		13.73			
TOTAL		122.73			

SS - 4

OVEN-DRY Wt.,gm		136.16	Wash OVEN-Dry Wt., gm		126.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	136.2	100	
1"	25	0.00	136.16	100	
3/4"	19	23.02	113.14	83	
1/2"	12.5	18.49	94.65	70	
3/8"	9.5	19.48	75.17	55	
No.4	4.75	25.04	50.13	37	
No.10	2.99	14.69	35.44	26	
No.40	0.425	16.43	19.01	14	
No.200	0.075	9.10	9.91	7	
PAN		0.00			
Wash Loss Passing No.200		9.91			
TOTAL		136.16			

Borehole BH-18 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.2 m Finished Grade: 6.9 m Subgrade Elevation: 5.0 m Cut height: 1.2 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-18
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/2/2013 DATE FINISHED: 3/2/2013 WATER TABLE: DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO.
							Ground Surface								
1	1	44				GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	29	37	46		8.42	NP	NP	100 75 54 37 28 21 16
2	2	67				GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	30	27	48		9.07	NP	NP	100 88 76 64 49 37 29 20
3	3	67				GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	31	28	33		10.05	NP	NP	100 74 49 42 34 27 14 5
4	4	44				GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	25	31	29		10.72	NP	NP	100 94 81 62 46 35 19 7
5	5	67				GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	29	38	46		10.47	NP	NP	100 75 62 46 36 20 7
							END OF BOREHOLE								

Subgrade Cut 1.2m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	182.21	197.98	193.22	178.82	176.41
Weight of can & dry soil, g.	170.03	183.64	177.95	164.01	162.11
Weight of water, g.	12.18	14.34	15.27	14.81	14.30
Weight of can, g.	25.40	25.52	26.03	25.91	25.48
Weight of dry soil, g.	144.63	158.12	151.92	138.10	136.63
Moisture Content, %	8.42	9.07	10.05	10.72	10.47

Borehole BH-18 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

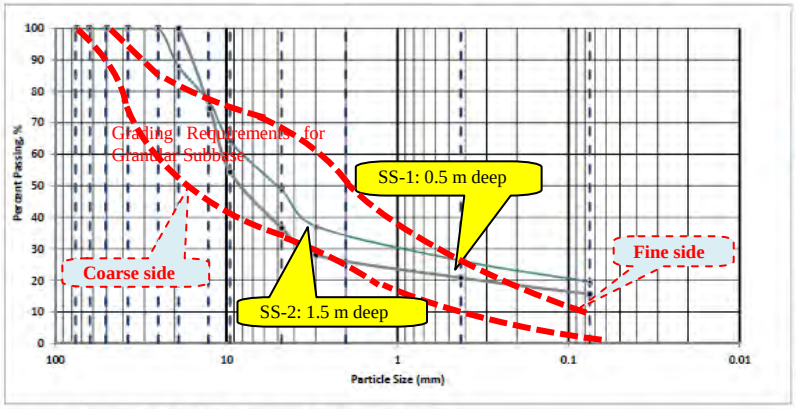
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.2 m deep) is dense (N-value > 50) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-18 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

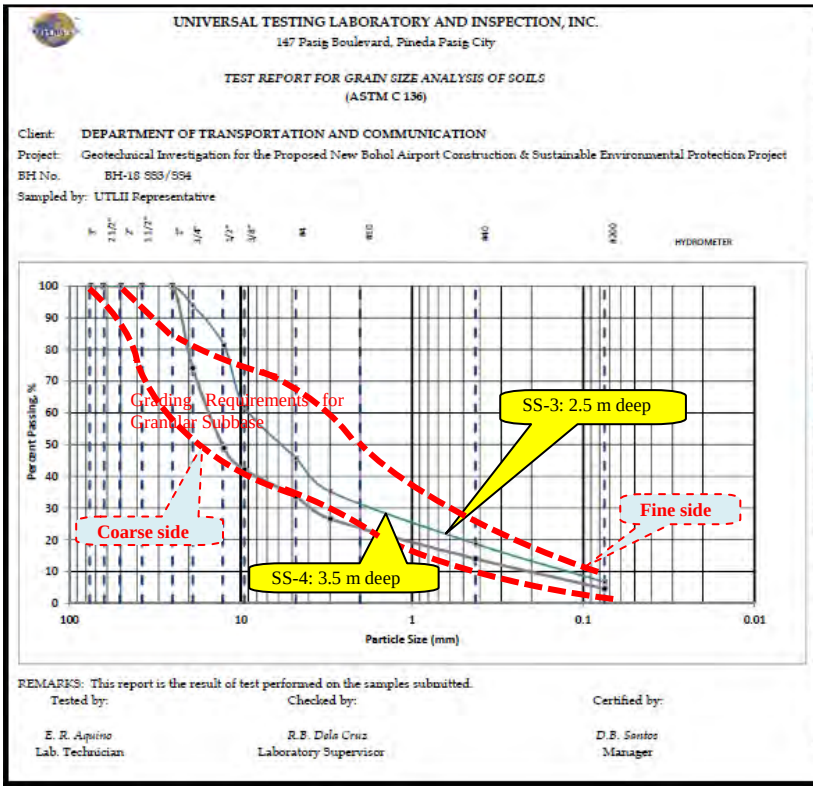
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		144.63	Wash OVEN-Dry Wt., gm		122.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	144.63	100	
1/2"	12.5	36.73	107.90	75	
3/8"	9.5	29.19	78.71	54	
No.4	4.75	25.73	52.98	37	
No.10	2.99	12.42	40.56	28	
No.40	0.425	10.45	30.11	21	
No.200	0.075	7.50	22.61	16	
PAN		0.05			
Wash Loss Passing No.200		22.56			
TOTAL		144.63			

SS - 2

OVEN-DRY Wt.,gm		158.12	Wash OVEN-Dry Wt., gm		127.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	158.1	100	
3/4"	19	19.18	138.9	88	
1/2"	12.5	18.22	120.7	76	
3/8"	9.5	19.44	101.28	64	
No.4	4.75	24.27	77.01	49	
No.10	2.99	18.22	58.79	37	
No.40	0.425	17.27	41.52	26	
No.200	0.075	10.67	30.85	20	
PAN		0.07			
Wash Loss Passing No.200		30.78			
TOTAL		158.12			



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Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

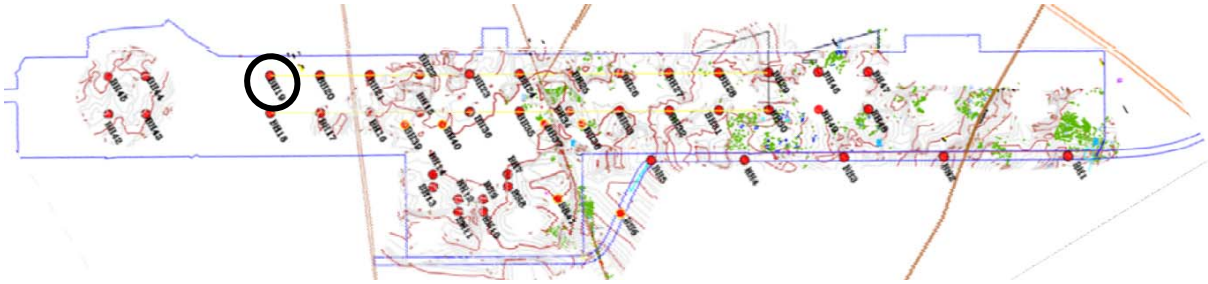
OVEN-DRY Wt.,gm		151.42	Wash OVEN-Dry Wt., gm		144.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	151.42	100	
3/4"	19	39.14	112.28	74	
1/2"	12.5	38.18	74.10	49	
3/8"	9.5	10.28	63.82	42	
No.4	4.75	12.91	50.91	34	
No.10	2.99	10.64	40.27	27	
No.40	0.425	18.98	21.29	14	
No.200	0.075	14.32	6.97	5	
PAN		0.20			
Wash Loss Passing No.200		6.77			
TOTAL		151.42			

SS - 4

OVEN-DRY Wt.,gm		136.10	Wash OVEN-Dry Wt., gm		126.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	136.10	100	
3/4"	19	6.35	129.75	94	
1/2"	12.5	17.39	112.36	81	
3/8"	9.5	26.61	85.75	62	
No.4	4.75	22.60	63.15	46	
No.10	2.99	14.57	48.58	35	
No.40	0.425	22.69	25.89	19	
No.200	0.075	16.69	9.20	7	
PAN		0.03			
Wash Loss Passing No.200		9.17			
TOTAL		136.10			

Borehole BH-19 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.2 m Finished Grade: 6.9 m Subgrade Elevation: 5.0 m Cut height: 1.2 m



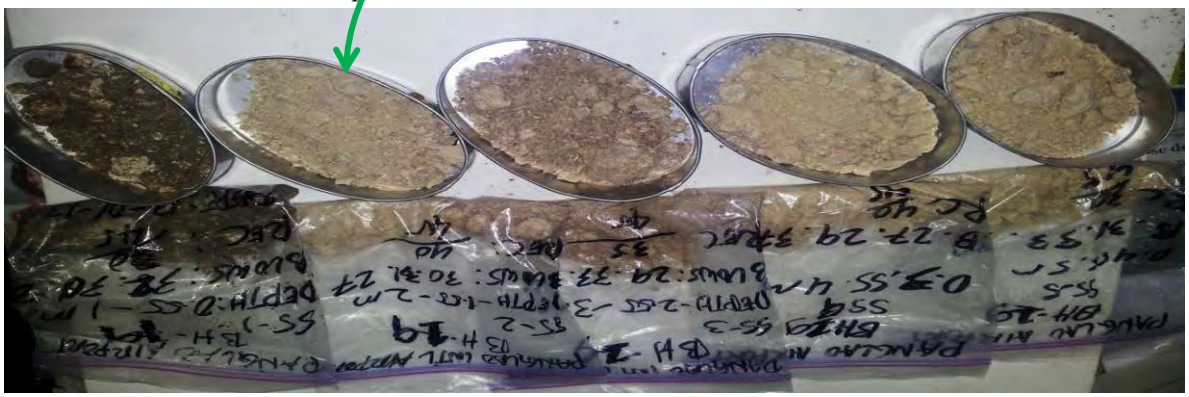
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-19
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/1/2013 DATE FINISHED: 3/1/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				10 20 30 40												
1	1	67	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	32	30	20	Subgrade Cut 1.2m	15.24	NP	NP		100	70	66	58	47	53	23	16
2	2	89	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	30	31	27		8.56	NP	NP		10	91	82	72	52	33	18	7
3	3	78	-	SS		GW	Light brown, very dense well graded gravel with sand (broken corals with limestone) of no plasticity	29	33	34		14.76	NP	NP	100	70	64	52	41	27	16	6	2
4	4	89	-	SS		GW	Light brown, very dense well graded gravel with sand (broken corals with limestone) of no plasticity	27	29	37		7.50	NP	NP		100	82	57	50	32	21	10	1
5	5	67	-	SS		GW	Light brown, very dense well graded gravel with sand (broken corals with limestone) of no plasticity	30	33	39		6.52	NP	NP		100	84	54	47	32	20	9	2

END OF BOREHOLE

Pictures of disturbed soil samples



Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	134.93	153.10	179.88	173.61	180.45
Weight of can & dry soil, g.	119.97	142.75	159.94	163.23	170.73
Weight of water, g.	14.96	10.35	19.94	10.38	9.72
Weight of can, g.	21.83	21.88	24.68	24.86	21.70
Weight of dry soil, g.	98.14	120.87	135.26	138.37	149.03
Moisture Content, %	15.24	8.56	14.74	7.50	6.52

Borehole BH-19 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

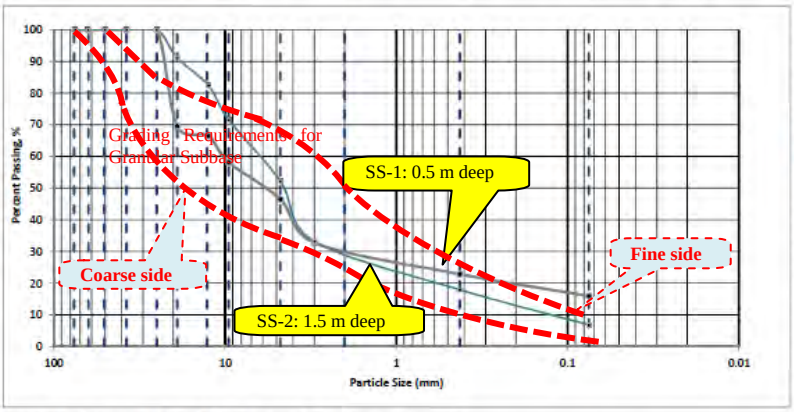
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.2 m deep) is dense (N-value > 60) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-19 SS1/SS2
Sampled by: UTLII Representative



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E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		98.14	Wash OVEN-Dry Wt., gm		82.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	98.1	100	
3/4"	19	29.91	68.23	70	
1/2"	12.5	3.02	65.21	66	
3/8"	9.5	8.18	57.03	58	
No.4	4.75	11.37	45.66	47	
No.10	2.99	13.54	32.12	33	
No.40	0.425	9.70	22.42	23	
No.200	0.075	6.80	15.62	16	
PAN		0.00			
Wash Loss Passing No.200		15.62			
TOTAL		98.14			

SS - 2

OVEN-DRY Wt.,gm		120.87	Wash OVEN-Dry Wt., gm		112.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	120.9	100	
3/4"	19	10.76	110.1	91	
1/2"	12.5	10.45	99.7	82	
3/8"	9.5	15.15	86.51	72	
No.4	4.75	23.36	63.15	52	
No.10	2.99	23.07	40.08	33	
No.40	0.425	18.40	21.68	18	
No.200	0.075	13.42	8.26	7	
PAN		0.00			
Wash Loss Passing No.200		8.26			
TOTAL		120.87			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
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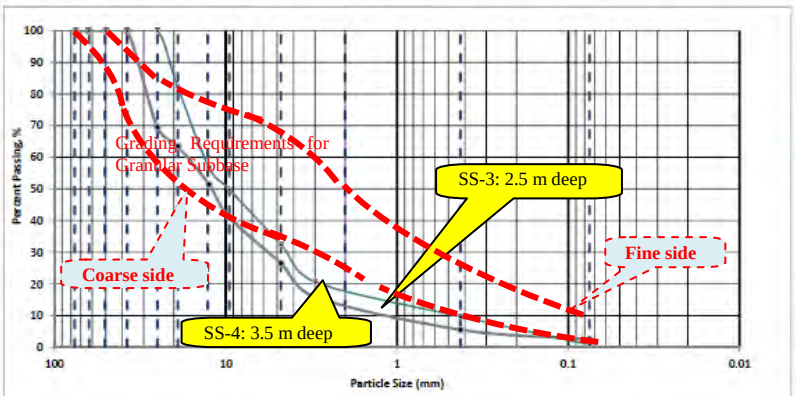
TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-19 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

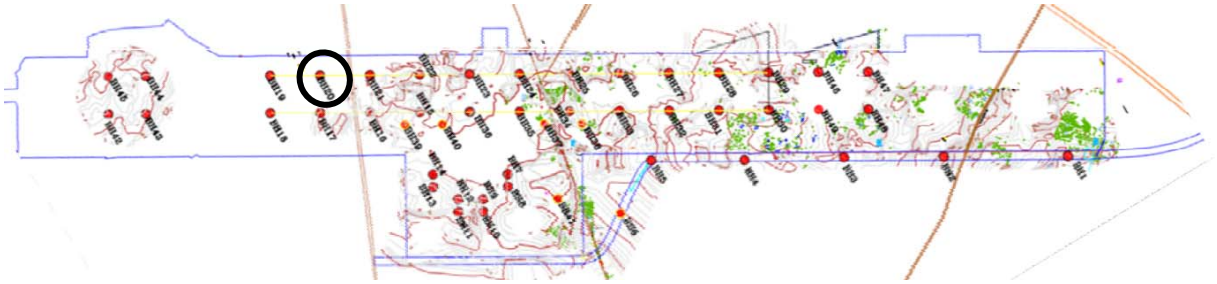
OVEN-DRY Wt.,gm		135.26	Wash OVEN-Dry Wt., gm		132.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	135.3	100	
1"	25	41.24	94.02	70	
3/4"	19	8.11	85.91	64	
1/2"	12.5	16.28	69.63	51	
3/8"	9.5	14.15	55.46	41	
No.4	4.75	19.62	35.86	27	
No.10	2.99	14.41	21.45	16	
No.40	0.425	13.93	7.52	6	
No.200	0.075	4.17	3.35	2	
PAN		0.06			
Wash Loss Passing No.200		3.29			
TOTAL		135.26			

SS - 4

OVEN-DRY Wt.,gm		136.37	Wash OVEN-Dry Wt., gm		137.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	136.4	100	
1"	25	0.00	136.37	100	
3/4"	19	24.80	113.57	82	
1/2"	12.5	34.94	78.63	57	
3/8"	9.5	9.68	68.95	50	
No.4	4.75	24.03	44.92	32	
No.10	2.99	16.40	28.52	21	
No.40	0.425	15.08	13.44	10	
No.200	0.075	12.19	1.25	1	
PAN		0.04			
Wash Loss Passing No.200		1.21			
TOTAL		136.37			

Borehole BH-20 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.2 m Finished Grade: 7.2 m Subgrade Elevation: 5.3 m Cut height: 0.9 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-20
		DEPTH:	5.0 m
LOCATION:	Panglao, Bohol		
DATE DRILLED:	3/2/2013 DATE FINISHED: 3/2/2013	WATER TABLE:	DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	94	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	55	38	52		10.50	NP	NP			100	80	68	49	31	17	9
2	2	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	28	42	39		8.13	NP	NP	100	80	80	64	56	43	32	23	14
3	3	44	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	33	39	42		6.52	NP	NP	100	87	81	68	62	47	34	23	14
4	4	44	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	40	47	51		6.32	NP	NP			100	94	92	72	52	30	13
5	5	44	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	38	51	45		2.39	NP	NP				100	96	74	53	29	14
							END OF BOREHOLE																

Subgrade Cut 0.9 m

Pictures of disturbed soil samples

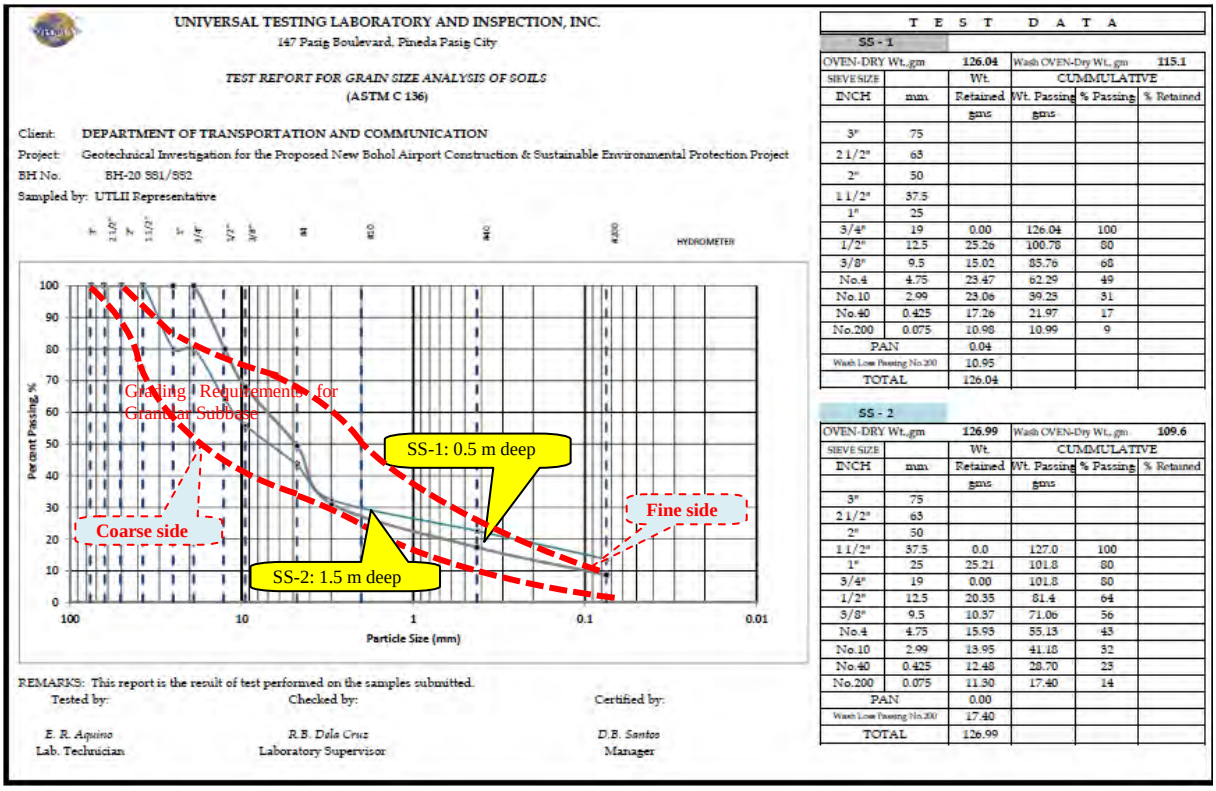
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	165.24	151.48	161.11	145.08	161.64
Weight of can & dry soil, g.	152.00	141.15	152.25	137.69	158.47
Weight of water, g.	13.24	10.33	8.86	7.39	3.17
Weight of can, g.	25.96	14.16	16.30	20.67	25.86
Weight of dry soil, g.	126.04	126.99	135.95	117.02	132.61
Moisture Content, %	10.50	8.13	6.52	6.32	2.39

Borehole BH-20 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (0.9 m deep) is dense (N-value > 70) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.



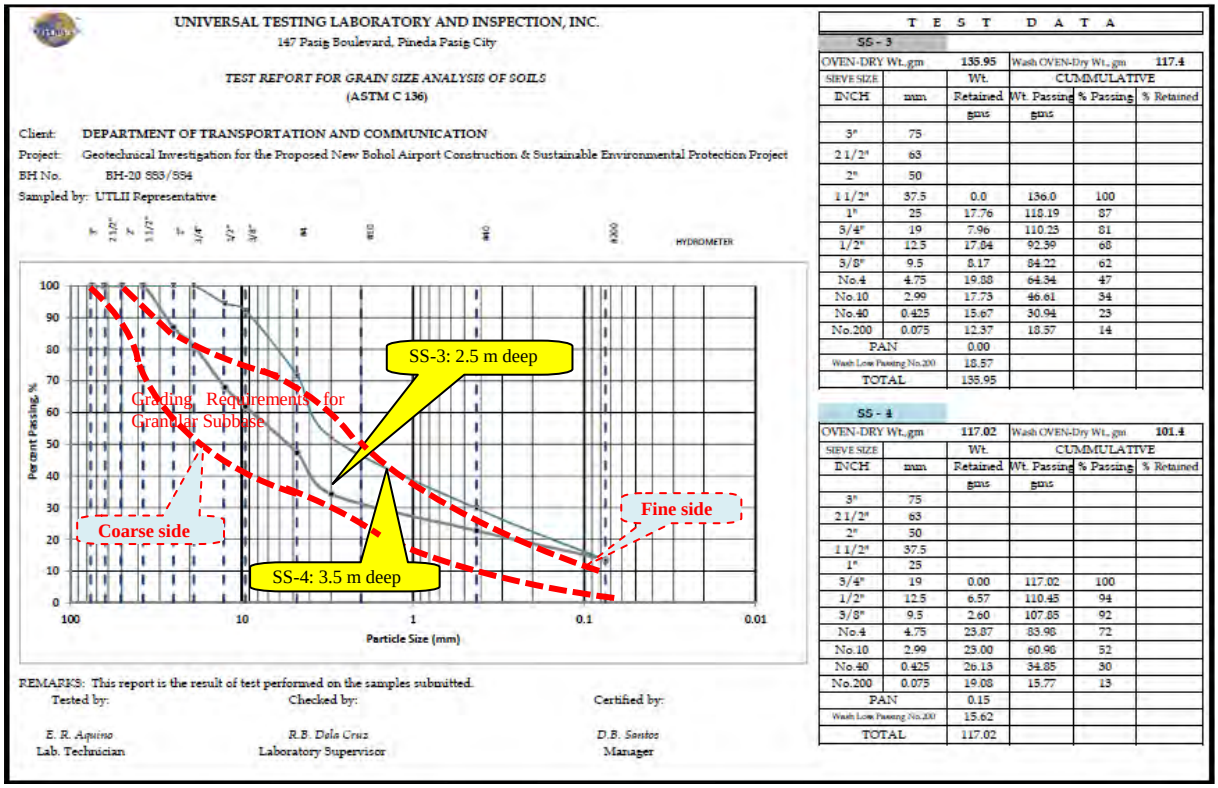
TEST DATA

SS - 1

OVEN-DRY Wt.,gm		126.04	Wash OVEN-Dry Wt., gm		115.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	126.04	100	
1/2"	12.5	25.26	100.78	80	
3/8"	9.5	15.02	85.76	68	
No.4	4.75	23.47	62.29	49	
No.10	2.99	23.06	39.23	31	
No.40	0.425	17.26	21.97	17	
No.200	0.075	10.98	10.99	9	
PAN		0.04			
Wash Loss Passing No.200		10.95			
TOTAL		126.04			

SS - 2

OVEN-DRY Wt.,gm		126.99	Wash OVEN-Dry Wt., gm		109.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	127.0	100	
1"	25	25.21	101.8	80	
3/4"	19	0.00	101.8	80	
1/2"	12.5	20.35	81.4	64	
3/8"	9.5	10.37	71.06	56	
No.4	4.75	15.93	55.13	43	
No.10	2.99	13.95	41.18	32	
No.40	0.425	12.48	28.70	23	
No.200	0.075	11.30	17.40	14	
PAN		0.00			
Wash Loss Passing No.200		17.40			
TOTAL		126.99			



TEST DATA

SS - 3

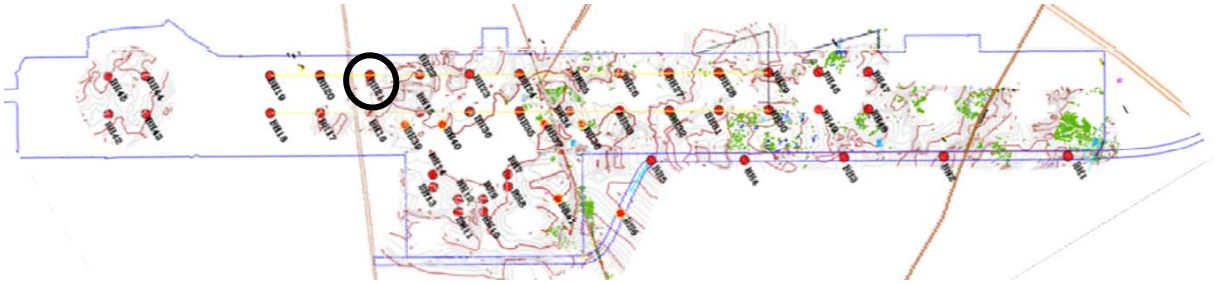
OVEN-DRY Wt.,gm		135.95	Wash OVEN-Dry Wt., gm		117.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	136.0	100	
1"	25	17.76	118.19	87	
3/4"	19	7.96	110.23	81	
1/2"	12.5	17.84	92.39	68	
3/8"	9.5	8.17	84.22	62	
No.4	4.75	19.88	64.34	47	
No.10	2.99	17.73	46.61	34	
No.40	0.425	15.67	30.94	23	
No.200	0.075	12.37	18.57	14	
PAN		0.00			
Wash Loss Passing No.200		18.57			
TOTAL		135.95			

SS - 4

OVEN-DRY Wt.,gm		117.02	Wash OVEN-Dry Wt., gm		101.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	117.02	100	
1/2"	12.5	6.57	110.45	94	
3/8"	9.5	2.60	107.85	92	
No.4	4.75	23.87	83.98	72	
No.10	2.99	23.00	60.98	52	
No.40	0.425	26.13	34.85	30	
No.200	0.075	19.08	15.77	13	
PAN		0.15			
Wash Loss Passing No.200		15.62			
TOTAL		117.02			

Borehole BH-21 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.0 m Finished Grade: 7.5 m Subgrade Elevation: 5.6 m Cut height: 0.4 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-21
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 2/28/2013 DATE FINISHED: 2/28/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	89	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	29	31	32		6.97	NP	NP		100	95	89	72	57	44	29	22
2	2	78	-	SS		SP-SM	Light brown, very dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	26	29	24		5.84	NP	NP		100	90	82	69	53	36	16	5
3	3	44	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	33	36	29		5.70	NP	NP			100	86	75	53	23	17	14
4	4	56	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	28	33	30		5.38	NP	NP		100	89	80	73	55	38	19	12
5	5	44	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	31	25	36		4.30	NP	NP			100	85	75	58	46	27	14
							END OF BOREHOLE																

Subgrade Cut 0.4 m

Pictures of disturbed soil samples

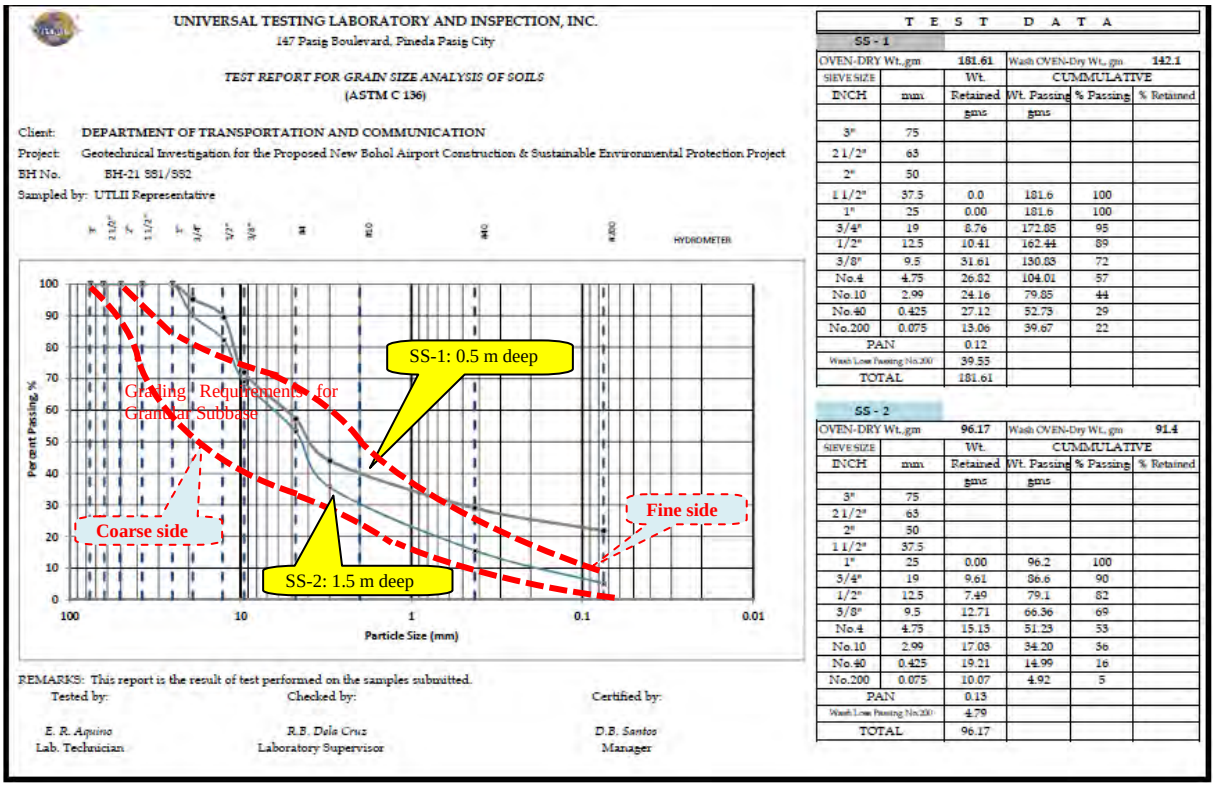
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	220.05	127.57	112.42	148.56	115.33
Weight of can & dry soil, g.	207.39	121.95	107.28	142.29	111.64
Weight of water, g.	12.66	5.62	5.14	6.27	3.69
Weight of can, g.	25.78	25.78	17.12	25.69	25.75
Weight of dry soil, g.	181.61	96.17	90.16	116.60	85.89
Moisture Content, %	6.97	5.84	5.70	5.38	4.30

Borehole BH-21 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (0.4 m deep) is dense (N-value > 60) but porous. It generally meets gradation of granular subbase course when blending with crashed limestone fragment.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-21 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

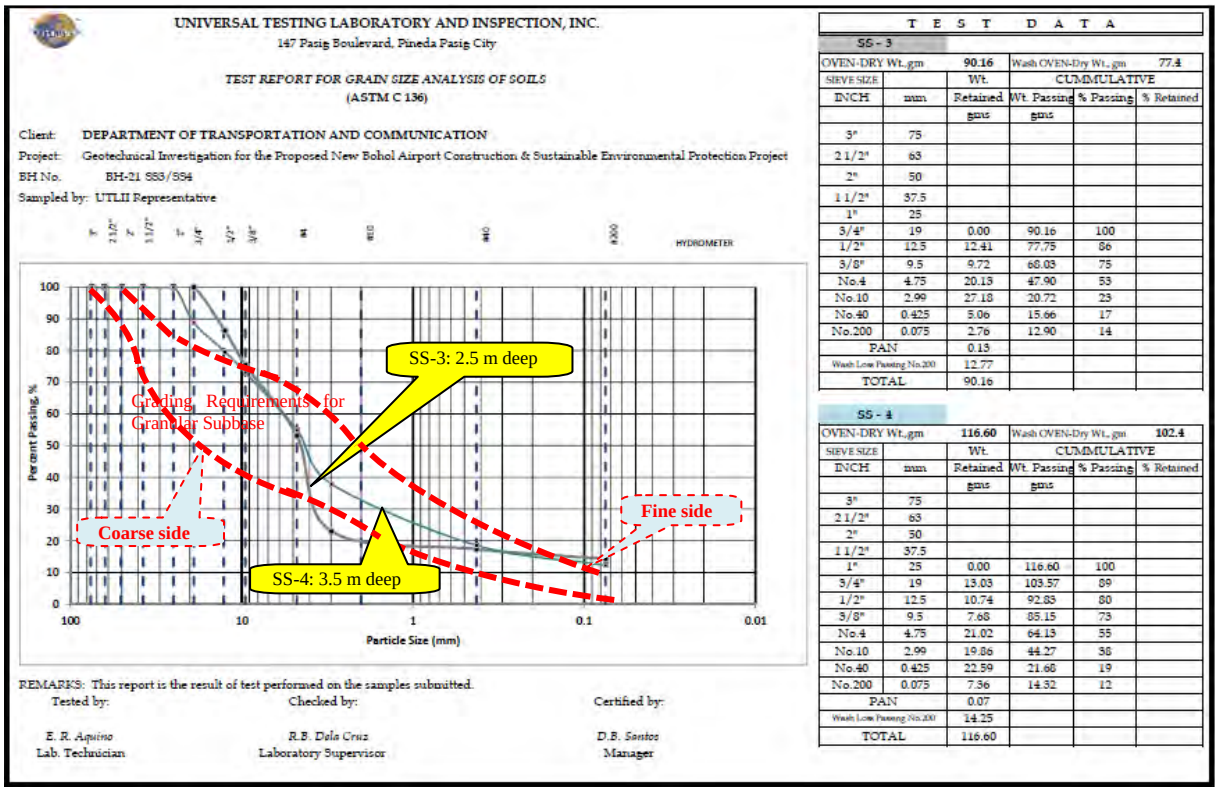
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		181.61	Wash OVEN-Dry Wt., gm		142.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	181.6	100	
1"	25	0.00	181.6	100	
3/4"	19	8.76	172.85	95	
1/2"	12.5	10.41	162.44	89	
3/8"	9.5	31.61	130.83	72	
No.4	4.75	26.82	104.01	57	
No.10	2.99	24.16	79.85	44	
No.40	0.425	27.12	52.73	29	
No.200	0.075	13.06	39.67	22	
PAN		0.12			
Wash Loss Passing No.200		39.55			
TOTAL		181.61			

SS - 2

OVEN-DRY Wt.,gm		96.17	Wash OVEN-Dry Wt., gm		91.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	96.2	100	
3/4"	19	9.61	86.6	90	
1/2"	12.5	7.49	79.1	82	
3/8"	9.5	12.71	66.36	69	
No.4	4.75	15.15	51.23	53	
No.10	2.99	17.03	34.20	36	
No.40	0.425	19.21	14.99	16	
No.200	0.075	10.07	4.92	5	
PAN		0.13			
Wash Loss Passing No.200		4.79			
TOTAL		96.17			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-21 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

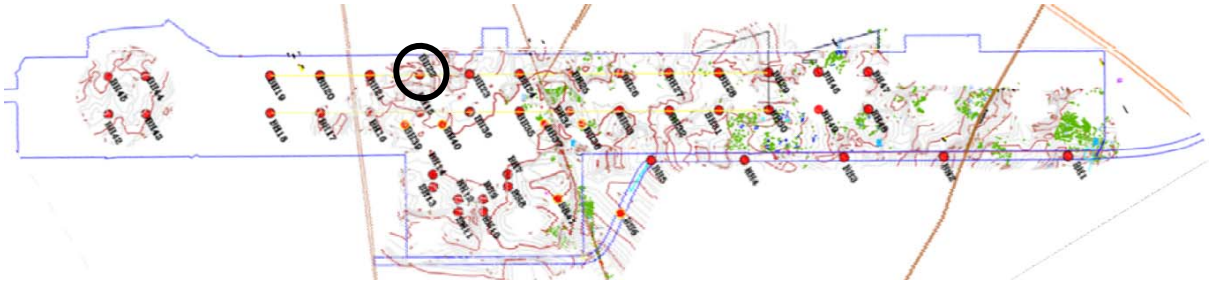
OVEN-DRY Wt.,gm		90.16	Wash OVEN-Dry Wt., gm		77.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	90.16	100	
1/2"	12.5	12.41	77.75	86	
3/8"	9.5	9.72	68.03	75	
No.4	4.75	20.13	47.90	53	
No.10	2.99	27.18	20.72	23	
No.40	0.425	5.06	15.66	17	
No.200	0.075	2.76	12.90	14	
PAN		0.13			
Wash Loss Passing No.200		12.77			
TOTAL		90.16			

SS - 4

OVEN-DRY Wt.,gm		116.60	Wash OVEN-Dry Wt., gm		102.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	116.60	100	
3/4"	19	13.03	103.57	89	
1/2"	12.5	10.74	92.83	80	
3/8"	9.5	7.68	85.15	73	
No.4	4.75	21.02	64.13	55	
No.10	2.99	19.86	44.27	38	
No.40	0.425	22.59	21.68	19	
No.200	0.075	7.36	14.32	12	
PAN		0.07			
Wash Loss Passing No.200		14.25			
TOTAL		116.60			

Borehole BH-22 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.8 m Finished Grade: 7.7 m Subgrade Elevation: 5.8 m Cut height: 1.0 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-22
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/27/2013 DATE FINISHED: 2/27/2013	WATER TABLE:	DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	67	-	SS		GM	Yellowish brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	36	67	7		6.07	NP	NP	100	84	84	56	49	39	30	22	14
2	2	78	-	SS		SM	Yellowish brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	12	15	19		8.52	NP	NP			100	86	76	60	47	30	14
3	3	100	-	SS		GM	Yellowish brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	14	16	20		8.56	NP	NP		100	88	64	52	40	31	21	10
4	4	100	-	SS		SM	Yellowish brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	12	12	16		10.75	NP	NP		100	93	93	86	67	51	32	16
5	5	78	-	SS		SM	Yellowish brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	14	14	18		10.53	NP	NP			100	90	86	66	50	32	16
							END OF BOREHOLE																

Pictures of disturbed soil samples

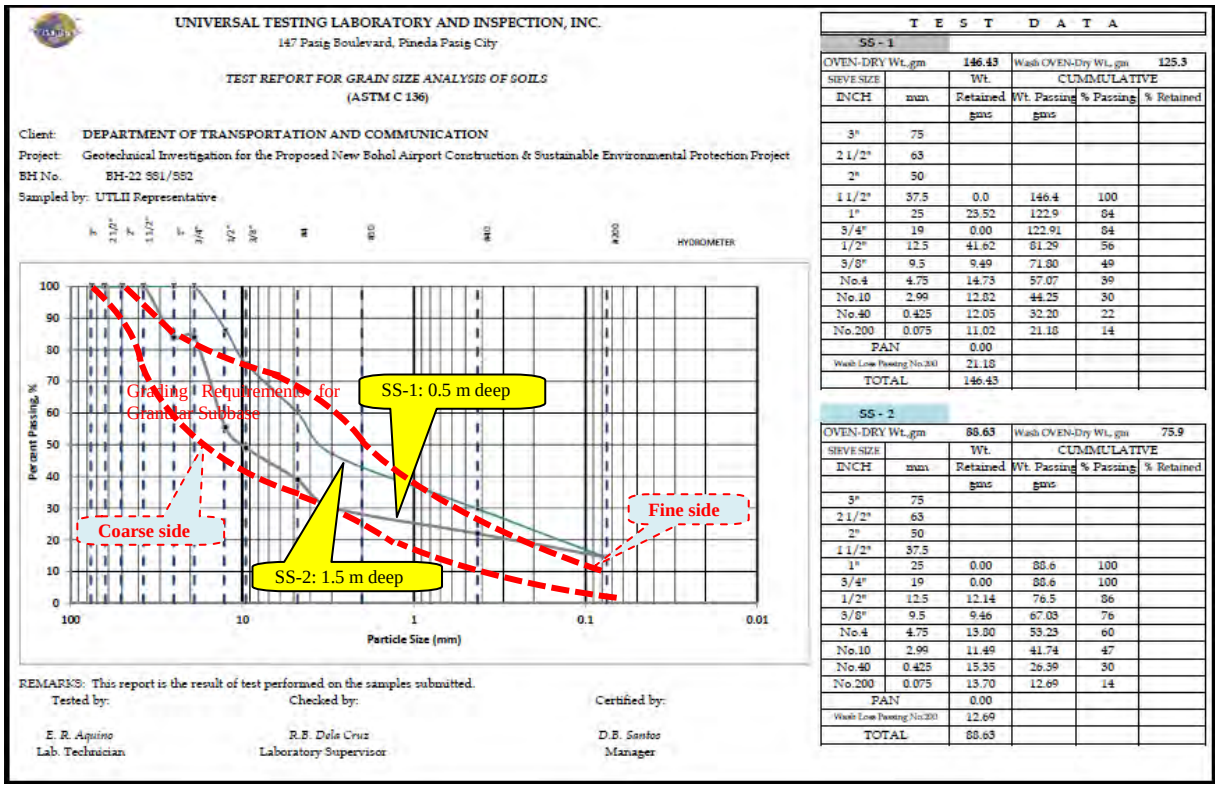
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	170.67	113.50	195.75	124.34	138.49
Weight of can & dry soil, g.	161.78	105.95	181.66	114.27	126.91
Weight of water, g.	8.89	7.55	14.09	10.07	11.58
Weight of can, g.	15.35	17.32	17.11	20.55	16.91
Weight of dry soil, g.	146.43	88.63	164.55	93.72	110.00
Moisture Content, %	6.07	8.52	8.56	10.74	10.53

Borehole BH-22 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.0 m deep) is dense (N-value > 30) but porous. It generally meets gradation of granular subbase course when blending with crashed limestone fragment.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-22 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

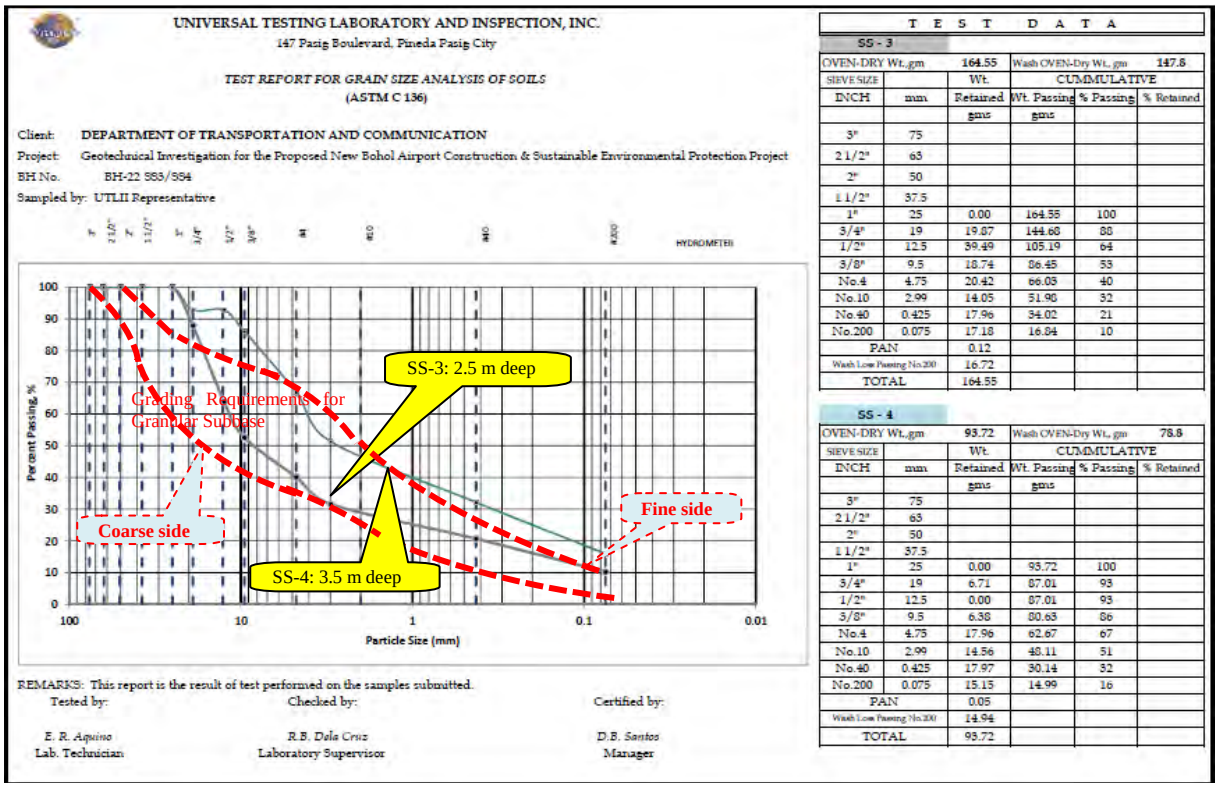
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		146.43	Wash OVEN-Dry Wt., gm		125.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	146.4	100	
1"	25	23.52	122.9	84	
3/4"	19	0.00	122.91	84	
1/2"	12.5	41.62	81.29	56	
3/8"	9.5	9.49	71.80	49	
No.4	4.75	14.73	57.07	39	
No.10	2.99	12.82	44.25	30	
No.40	0.425	12.05	32.20	22	
No.200	0.075	11.02	21.18	14	
PAN		0.00			
Wash Loss Passing No.200		21.18			
TOTAL		146.43			

SS - 2

OVEN-DRY Wt.,gm		88.63	Wash OVEN-Dry Wt., gm		75.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	88.6	100	
3/4"	19	0.00	88.6	100	
1/2"	12.5	12.14	76.5	86	
3/8"	9.5	9.46	67.03	76	
No.4	4.75	13.80	53.23	60	
No.10	2.99	11.49	41.74	47	
No.40	0.425	15.35	26.39	30	
No.200	0.075	13.70	12.69	14	
PAN		0.00			
Wash Loss Passing No.200		12.69			
TOTAL		88.63			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-22 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		164.55	Wash OVEN-Dry Wt., gm		147.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	164.55	100	
3/4"	19	19.87	144.68	88	
1/2"	12.5	39.49	105.19	64	
3/8"	9.5	18.74	86.45	53	
No.4	4.75	20.42	66.03	40	
No.10	2.99	14.05	51.98	32	
No.40	0.425	17.96	34.02	21	
No.200	0.075	17.18	16.84	10	
PAN		0.12			
Wash Loss Passing No.200		16.72			
TOTAL		164.55			

SS - 4

OVEN-DRY Wt.,gm		93.72	Wash OVEN-Dry Wt., gm		78.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	93.72	100	
3/4"	19	6.71	87.01	93	
1/2"	12.5	0.00	87.01	93	
3/8"	9.5	6.38	80.63	86	
No.4	4.75	17.96	62.67	67	
No.10	2.99	14.56	48.11	51	
No.40	0.425	17.97	30.14	32	
No.200	0.075	15.15	14.99	16	
PAN		0.05			
Wash Loss Passing No.200		14.94			
TOTAL		93.72			

Borehole BH-23 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 7.2 m Finished Grade: 7.9 m Subgrade Elevation: 6.0 m Cut height: 1.2 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-23
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/1/2013 DATE FINISHED: 3/1/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	67	-	SS		SM	Dark brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	19	27	34		8.95	NP	NP			100	95	86	65	46	28	18
2	2	44	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	20	25	55		6.60	NP	NP		100	90	82	70	53	37	21	11
3	3	44	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	27	33	57		6.01	NP	NP		100	82	75	64	51	36	20	10
4	4	44	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	29	30	53		5.93	NP	NP	100	87	73	60	53	37	26	15	7
5	5	44	-	SS		GW	Yellowish brown, medium dense well graded gravel with sand (broken corals with limestone) of no plasticity	61	54	63		8.11	NP	NP	100	68	63	41	30	20	13	8	6
							END OF BOREHOLE																

Subgrade Cut 1.2m

Pictures of disturbed soil samples

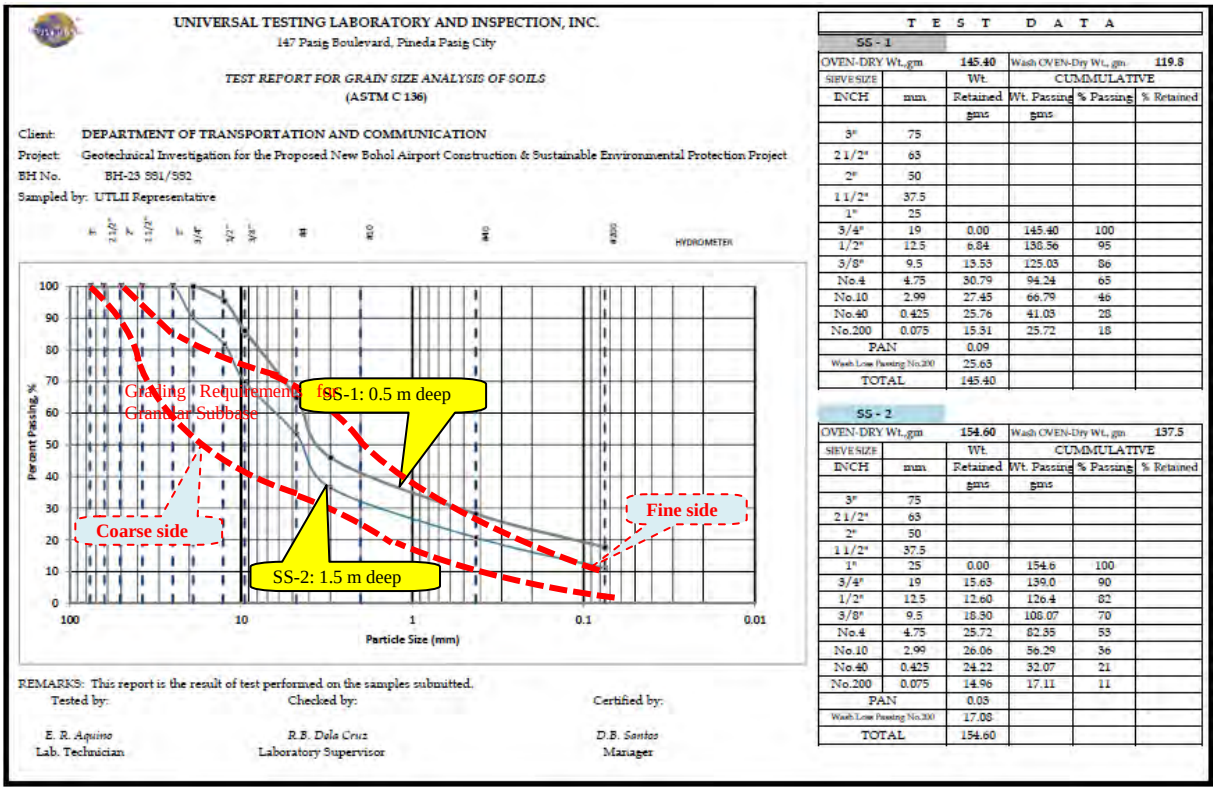
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	183.83	185.15	206.46	193.45	191.32
Weight of can & dry soil, g.	170.81	174.95	196.21	184.08	178.89
Weight of water, g.	13.02	10.20	10.25	9.37	12.43
Weight of can, g.	25.41	20.35	25.69	26.07	25.69
Weight of dry soil, g.	145.40	154.60	170.52	158.01	153.20
Moisture Content, %	8.95	6.60	6.01	5.93	8.11

Borehole BH-23 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.2 m deep) is dense (N-value > 40) but porous. It generally meets gradation of granular subbase course when blending with crashed limestone fragment.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-23 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

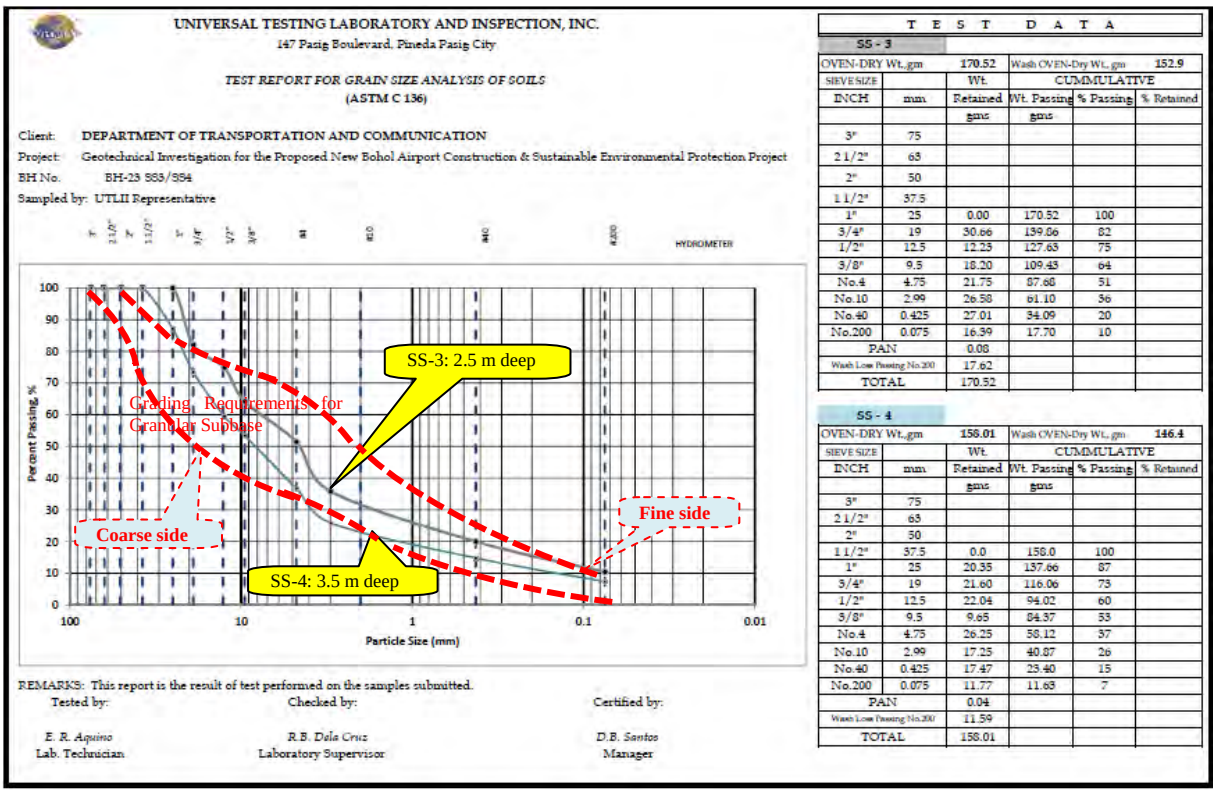
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		145.40	Wash OVEN-Dry Wt., gm		119.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	145.40	100	
1/2"	12.5	6.84	138.56	95	
3/8"	9.5	13.53	125.03	86	
No.4	4.75	30.79	94.24	65	
No.10	2.99	27.45	66.79	46	
No.40	0.425	25.76	41.03	28	
No.200	0.075	15.31	25.72	18	
PAN		0.09			
Wash Loss Passing No.200		25.65			
TOTAL		145.40			

SS - 2

OVEN-DRY Wt.,gm		154.60	Wash OVEN-Dry Wt., gm		137.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	154.6	100	
3/4"	19	15.63	139.0	90	
1/2"	12.5	12.60	126.4	82	
3/8"	9.5	18.30	108.07	70	
No.4	4.75	25.72	82.35	53	
No.10	2.99	26.06	56.29	36	
No.40	0.425	24.22	32.07	21	
No.200	0.075	14.96	17.11	11	
PAN		0.03			
Wash Loss Passing No.200		17.08			
TOTAL		154.60			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-23 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		170.52	Wash OVEN-Dry Wt., gm		152.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	170.52	100	
3/4"	19	30.86	139.66	82	
1/2"	12.5	12.25	127.63	75	
3/8"	9.5	18.20	109.43	64	
No.4	4.75	21.75	87.68	51	
No.10	2.99	26.58	61.10	36	
No.40	0.425	27.01	34.09	20	
No.200	0.075	16.39	17.70	10	
PAN		0.08			
Wash Loss Passing No.200		17.62			
TOTAL		170.52			

SS - 4

OVEN-DRY Wt.,gm		158.01	Wash OVEN-Dry Wt., gm		146.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	158.0	100	
1"	25	20.35	137.66	87	
3/4"	19	21.60	116.06	73	
1/2"	12.5	22.04	94.02	60	
3/8"	9.5	9.65	84.37	53	
No.4	4.75	26.25	58.12	37	
No.10	2.99	17.25	40.87	26	
No.40	0.425	17.47	23.40	15	
No.200	0.075	11.77	11.63	7	
PAN		0.04			
Wash Loss Passing No.200		11.59			
TOTAL		158.01			

Borehole BH-24 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.4 m Finished Grade: 8.1 m Subgrade Elevation: 6.2 m Cut height: 0.2 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-24

LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 3/2/2013 DATE FINISHED: 3/2/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	15	26	35		15.80	NP	NP	100	86	86	78	67	56	48	35	21
2	2	78	-	SS		GM	Light brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	17	18	16		13.75	NP	NP	100	86	81	74	58	46	37	24	13
3	3	44	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	16	32	24		13.80	NP	NP	100	85	73	62	46	34	21	16	5
4	4	78	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	40	39	22		9.45	NP	NP	100	88	70	51	46	38	29	18	9
5	5	67	-	SS		SP-SM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	50	39	27		14.79	NP	NP		100	93	84	70	57	45	25	11
							END OF BOREHOLE																

Pictures of disturbed soil samples

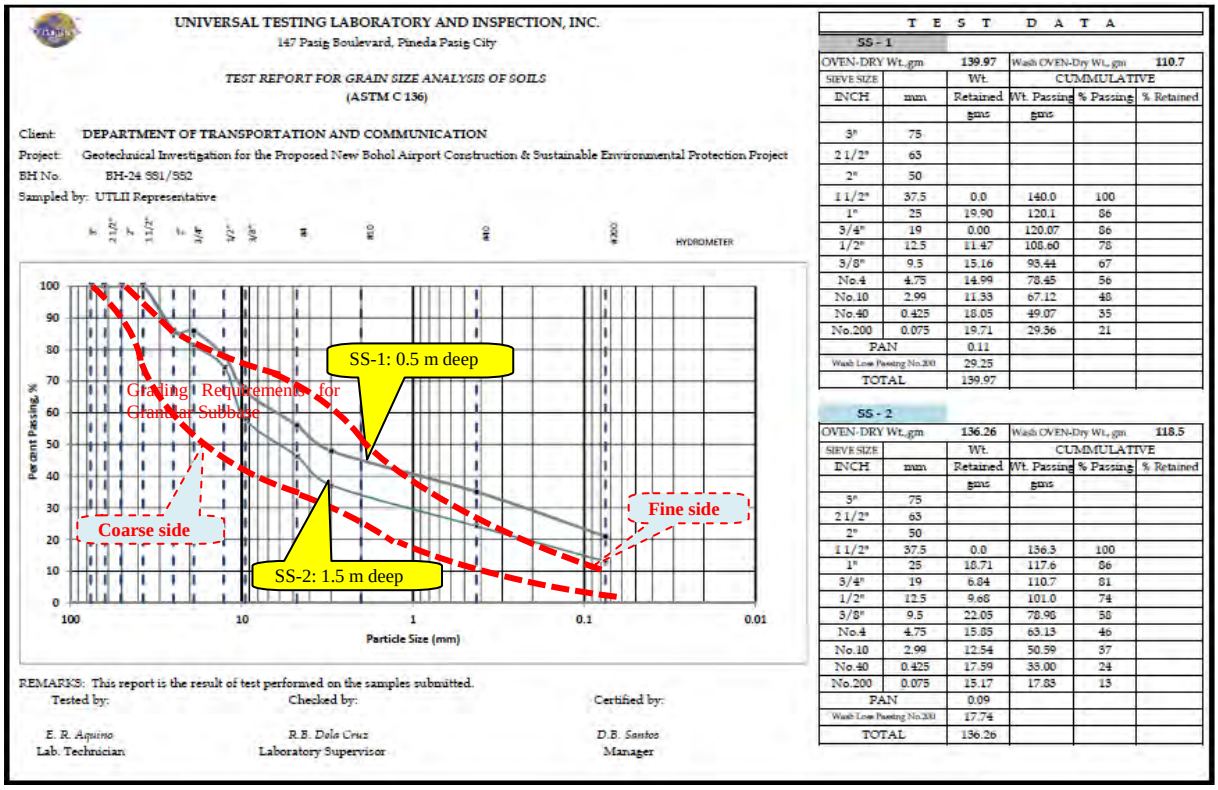
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	181.28	173.74	189.27	230.61	176.18
Weight of can & dry soil, g.	159.17	155.00	168.80	212.28	156.07
Weight of water, g.	22.11	18.74	20.47	18.33	20.11
Weight of can, g.	19.20	18.74	20.47	18.33	20.11
Weight of dry soil, g.	139.97	136.26	148.33	193.95	135.96
Moisture Content, %	15.80	13.75	13.80	9.45	14.79

Borehole BH-24 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists.

Natural soil at surface (subgrade level) is dense (N-value > 40) but porous. It will require blending with crashed limestone fragment when used for granular subbase course.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-24 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

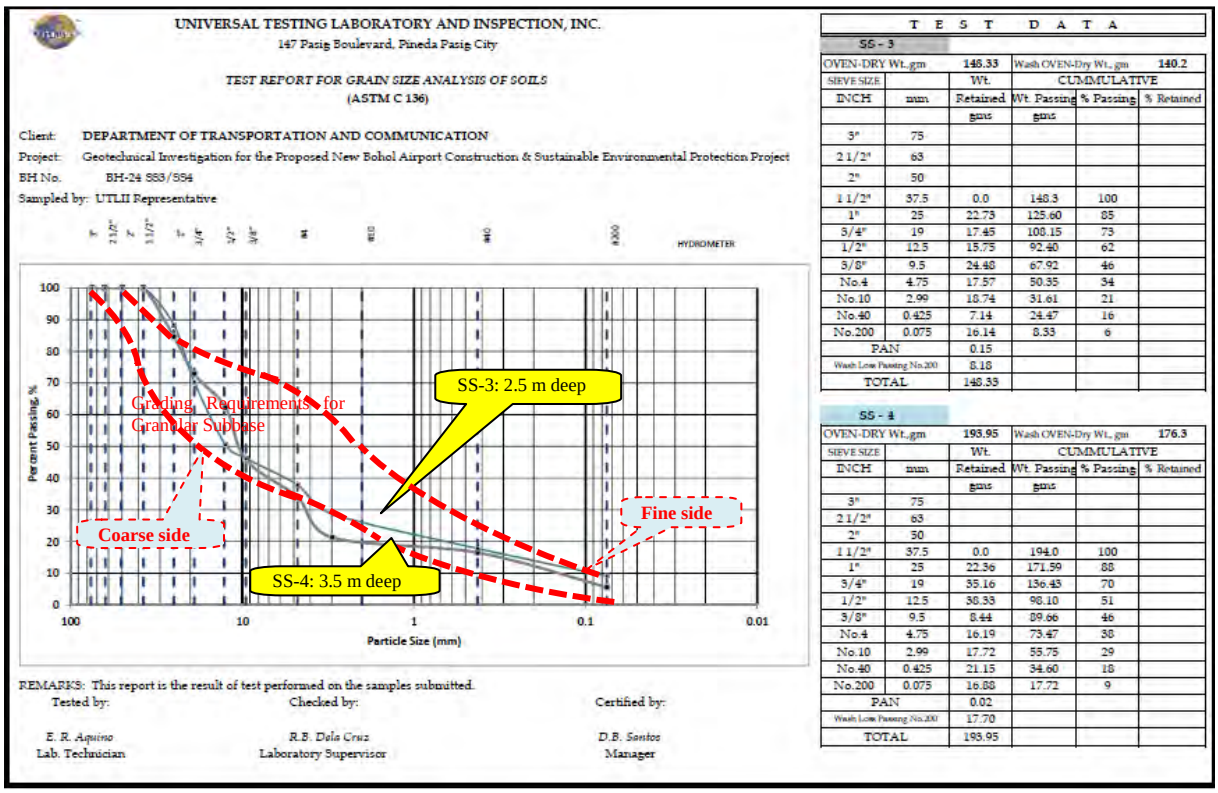
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		139.97	Wash OVEN-Dry Wt., gm		110.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	140.0	100	
1"	25	19.90	120.1	86	
3/4"	19	0.00	120.07	86	
1/2"	12.5	11.47	108.60	78	
3/8"	9.5	15.16	93.44	67	
No.4	4.75	14.99	78.45	56	
No.10	2.99	11.33	67.12	48	
No.40	0.425	18.05	49.07	35	
No.200	0.075	19.71	29.36	21	
PAN		0.11			
Wash Loss Passing No.200		29.25			
TOTAL		139.97			

SS - 2

OVEN-DRY Wt.,gm		136.26	Wash OVEN-Dry Wt., gm		118.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	136.3	100	
1"	25	18.71	117.6	86	
3/4"	19	6.84	110.7	81	
1/2"	12.5	9.68	101.0	74	
3/8"	9.5	22.05	78.96	58	
No.4	4.75	15.85	63.13	46	
No.10	2.99	12.54	50.59	37	
No.40	0.425	17.59	33.00	24	
No.200	0.075	15.17	17.83	13	
PAN		0.09			
Wash Loss Passing No.200		17.74			
TOTAL		136.26			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-24 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		148.33	Wash OVEN-Dry Wt., gm		140.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	148.3	100	
1"	25	22.73	125.60	85	
3/4"	19	17.45	108.15	73	
1/2"	12.5	15.75	92.40	62	
3/8"	9.5	24.48	67.92	46	
No.4	4.75	17.57	50.35	34	
No.10	2.99	18.74	31.61	21	
No.40	0.425	7.14	24.47	16	
No.200	0.075	16.14	8.33	6	
PAN		0.15			
Wash Loss Passing No.200		8.18			
TOTAL		148.33			

SS - 4

OVEN-DRY Wt.,gm		193.95	Wash OVEN-Dry Wt., gm		176.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	194.0	100	
1"	25	22.36	171.59	88	
3/4"	19	35.16	136.43	70	
1/2"	12.5	38.33	98.10	51	
3/8"	9.5	8.44	89.66	46	
No.4	4.75	16.19	73.47	38	
No.10	2.99	17.72	55.75	29	
No.40	0.425	21.15	34.60	18	
No.200	0.075	16.88	17.72	9	
PAN		0.02			
Wash Loss Passing No.200		17.70			
TOTAL		193.95			

Borehole BH-25 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.6 m Finished Grade: 8.3 m Subgrade Elevation: 6.4 m Cut height: 0.2 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-25
		DEPTH:	5.0 m
LOCATION:	Panglao, Bohol		
DATE DRILLED:	2/22/2013 DATE FINISHED: 2/22/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				Subgrade Cut=0.2m												
1	1	100	-	SS		SM	Light brown, dense silty sand with gravel a(broken corals with limestone) of no plasticity	16	21	26		21.20	NP	NP			100	84	76	63	54	40	29
2	2	56	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	28	36	25		7.41	NP	NP			100	93	81	64	50	31	14
3	3	44	-	SS		SP-SM	Light brown, very dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	22	40	52		6.90	NP	NP	100	83	83	71	69	57	46	27	12
4	4	67	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	86	58	89		5.22	NP	NP			100	73	67	51	39	25	13
5	5	67	-	SS		SM	Light brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	5	6	9		16.18	NP	NP	100	80	73	68	62	52	42	29	20
							END OF BOREHOLE																

Pictures of disturbed soil samples

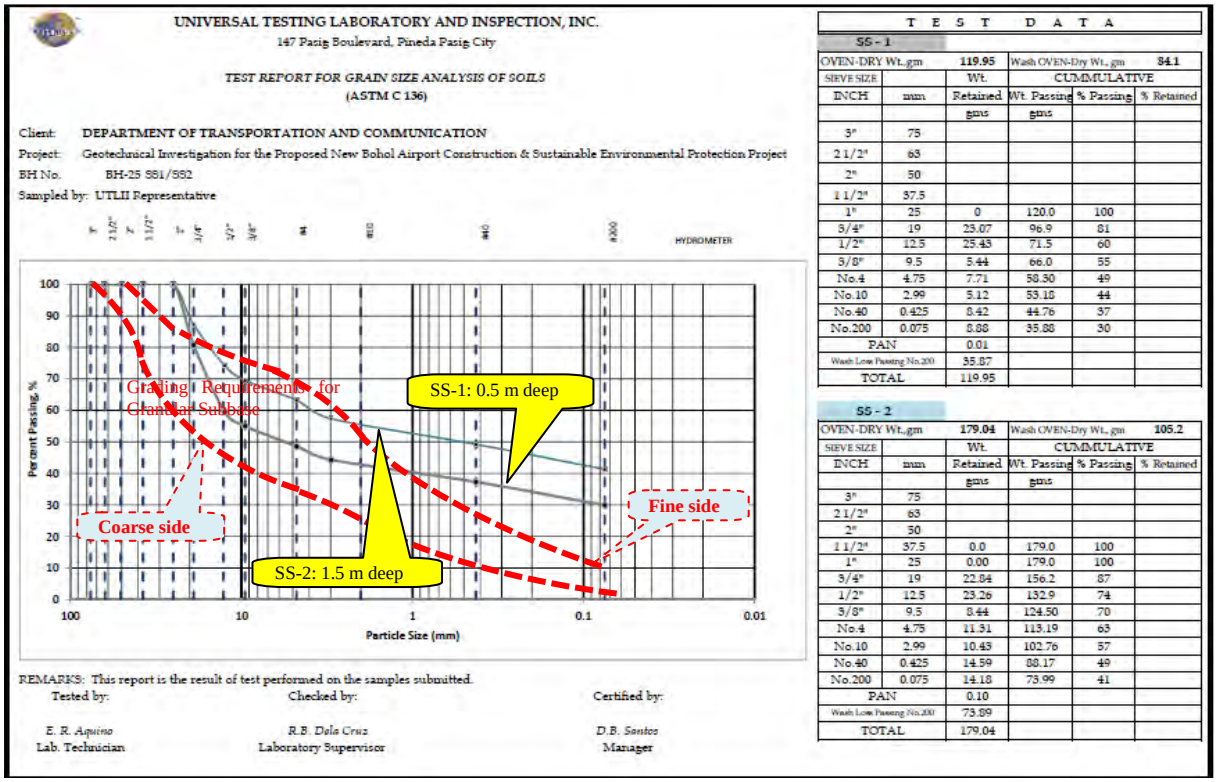
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	161.55	169.59	148.46	115.77	260.81
Weight of can & dry soil, g.	136.45	159.19	139.99	110.97	227.11
Weight of water, g.	25.10	10.40	8.47	4.80	33.70
Weight of can, g.	18.05	18.87	17.24	19.05	18.86
Weight of dry soil, g.	118.40	140.32	122.75	91.92	208.25
Moisture Content, %	21.20	7.41	6.90	5.22	16.18

Borehole BH-25 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Fine topsoil exists. No large cavity exists. N-value drops to 13 at 5-m deep.

Natural soil at surface (subgrade level) is dense (N-value > 40) but porous. It will require blending with large amount of crashed limestone fragment when used for granular subbase course.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-25 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

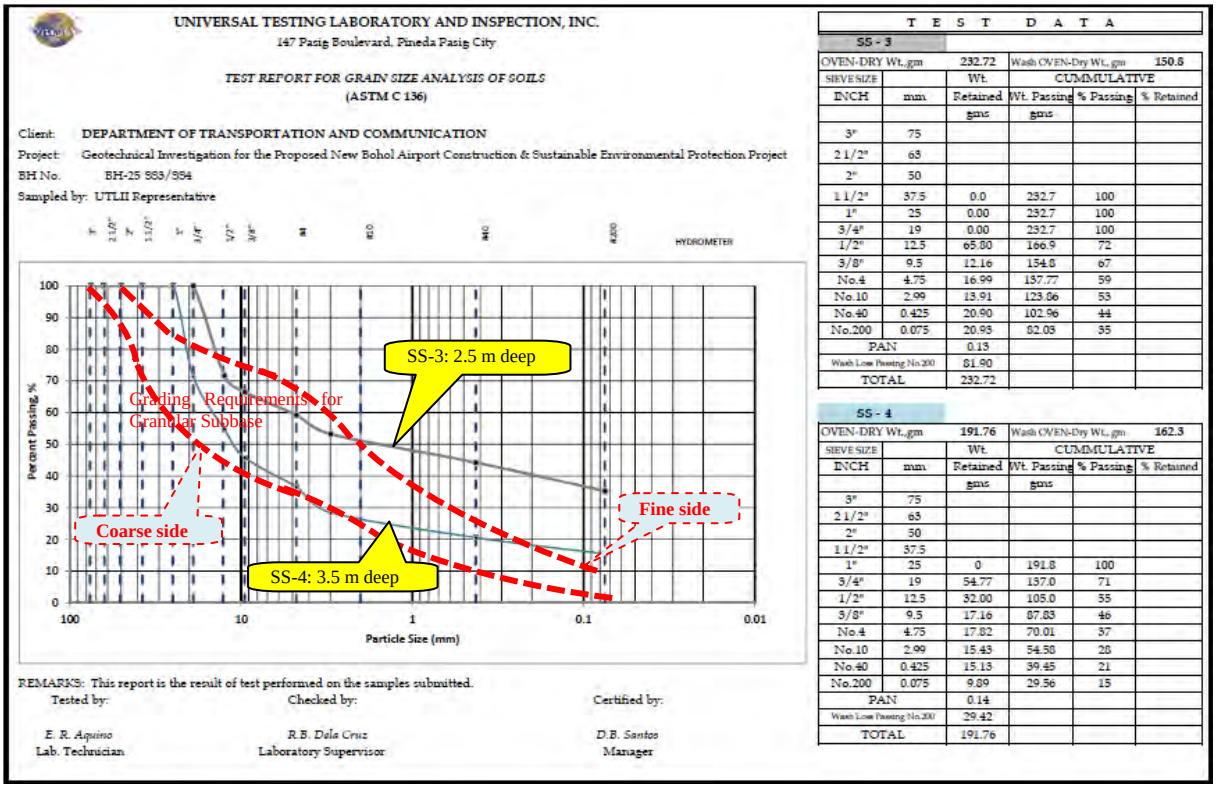
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		119.95	Wash OVEN-Dry Wt., gm		84.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	120.0	100	
3/4"	19	23.07	96.9	81	
1/2"	12.5	25.43	71.5	60	
3/8"	9.5	5.44	66.0	55	
No.4	4.75	7.71	58.30	49	
No.10	2.99	5.12	53.18	44	
No.40	0.425	8.42	44.76	37	
No.200	0.075	8.88	35.88	30	
PAN		0.01			
Wash Loss Passing No.200		35.87			
TOTAL		119.95			

SS - 2

OVEN-DRY Wt.,gm		179.04	Wash OVEN-Dry Wt., gm		105.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	179.0	100	
1"	25	0.00	179.0	100	
3/4"	19	22.84	156.2	87	
1/2"	12.5	23.26	132.9	74	
3/8"	9.5	8.44	124.50	70	
No.4	4.75	11.31	113.19	63	
No.10	2.99	10.43	102.76	57	
No.40	0.425	14.59	88.17	49	
No.200	0.075	14.18	73.99	41	
PAN		0.10			
Wash Loss Passing No.200		73.89			
TOTAL		179.04			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-25 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		232.72	Wash OVEN-Dry Wt., gm		150.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	232.7	100	
1"	25	0.00	232.7	100	
3/4"	19	0.00	232.7	100	
1/2"	12.5	65.80	166.9	72	
3/8"	9.5	12.16	154.8	67	
No.4	4.75	16.99	137.77	59	
No.10	2.99	13.91	123.86	53	
No.40	0.425	20.90	102.96	44	
No.200	0.075	20.93	82.03	35	
PAN		0.13			
Wash Loss Passing No.200		81.90			
TOTAL		232.72			

SS - 4

OVEN-DRY Wt.,gm		191.76	Wash OVEN-Dry Wt., gm		162.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	191.8	100	
3/4"	19	54.77	137.0	71	
1/2"	12.5	32.00	105.0	55	
3/8"	9.5	17.16	87.83	46	
No.4	4.75	17.82	70.01	37	
No.10	2.99	15.43	54.58	28	
No.40	0.425	15.13	39.45	21	
No.200	0.075	9.89	29.56	15	
PAN		0.14			
Wash Loss Passing No.200		29.42			
TOTAL		191.76			

Borehole BH-26 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 7.2 m Finished Grade: 8.5 m Subgrade Elevation: 6.6 m Cut height: 0.6 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-26
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/24/2013 DATE FINISHED: 2/24/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	67	-	SS		GM	Light brown, medium dense silty gravel with sand (broken corals with limestone) of no plasticity	27	12	16		13.23	NP	NP	100	78	78	74	66	53	44	30	15
2	2	100	-	SS		GM	Light brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	12	17	17		13.74	NP	NP			100	86	81	72	60	44	30
3	3	78	-	SS		GM	Light brown, medium dense silty gravel with sand (broken corals with limestone) of no plasticity	12	11	13		15.04	NP	NP	100	86	86	75	67	50	38	26	16
4	4	67	-	SS		GM	Light brown, medium dense silty gravel with sand (broken corals with limestone) of no plasticity	12	7			16.60	NP	NP	100	85	65	58	47	39	33	26	21
5	5	89	-	SS		SP	Light brown, medium dense poorly graded sand (broken corals with limestone) of no plasticity		9	10		23.38	NP	NP					100	98	91	71	57
							END OF BOREHOLE																

Subgrade Cut 0.6 m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	241.99	167.67	167.18	135.62	108.98
Weight of can & dry soil, g.	216.67	149.60	147.86	118.72	91.62
Weight of water, g.	25.32	18.07	19.32	16.90	17.36
Weight of can, g.	25.32	18.08	19.32	16.90	17.36
Weight of dry soil, g.	191.35	131.52	128.54	101.82	74.26
Moisture Content, %	13.23	13.74	15.03	16.60	23.38

Borehole BH-26 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

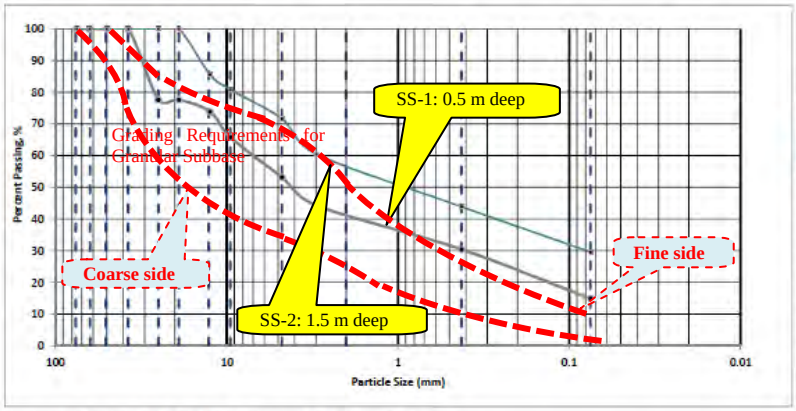
Fine topsoil exists. No large cavity exists. N-value drops to 15 at 4-m deep.

Natural soil at subgrade level (0.6 m deep) is dense (N-value > 30) but porous. It will require blending with large amount of crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-26 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		191.35	Wash OVEN-Dry Wt., gm		163.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	191.4	100	
1"	25	42.77	148.6	78	
3/4"	19	0.00	148.58	78	
1/2"	12.5	7.17	141.41	74	
3/8"	9.5	15.42	125.99	66	
No.4	4.75	24.26	101.73	53	
No.10	2.99	16.99	84.74	44	
No.40	0.425	26.49	58.25	30	
No.200	0.075	29.84	28.41	15	
PAN		0.16			
Wash Loss Passing No.200		28.25			
TOTAL		191.35			

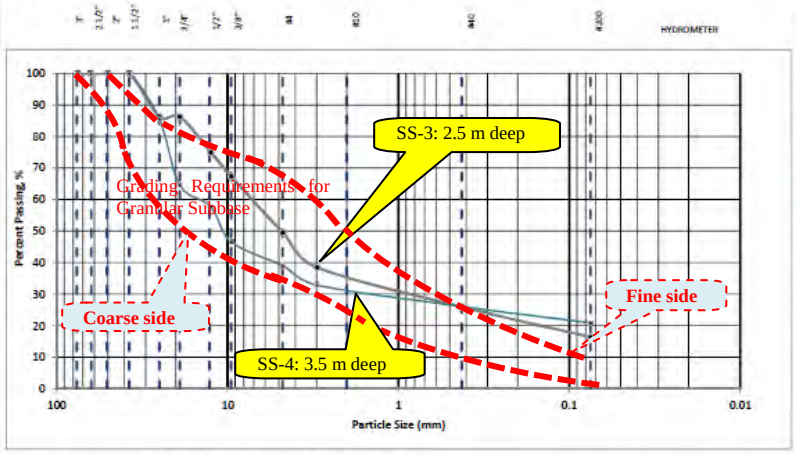
SS - 2

OVEN-DRY Wt.,gm		131.52	Wash OVEN-Dry Wt., gm		92.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	131.5	100	
1/2"	12.5	18.90	112.6	86	
3/8"	9.5	6.35	106.27	81	
No.4	4.75	12.00	94.27	72	
No.10	2.99	14.73	79.54	60	
No.40	0.425	21.80	57.74	44	
No.200	0.075	18.85	38.89	30	
PAN		0.13			
Wash Loss Passing No.200		38.76			
TOTAL		131.52			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-26 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		128.54	Wash OVEN-Dry Wt., gm		107.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	128.5	100	
1"	25	17.66	110.88	86	
3/4"	19	0.00	110.88	86	
1/2"	12.5	14.55	96.33	75	
3/8"	9.5	9.76	86.57	67	
No.4	4.75	22.89	63.68	50	
No.10	2.99	14.24	49.44	38	
No.40	0.425	16.10	33.34	26	
No.200	0.075	12.21	21.13	16	
PAN		0.02			
Wash Loss Passing No.200		21.11			
TOTAL		128.54			

SS - 4

OVEN-DRY Wt.,gm		101.82	Wash OVEN-Dry Wt., gm		80.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	101.8	100	
1"	25	14.79	87.03	85	
3/4"	19	21.24	65.79	65	
1/2"	12.5	7.04	58.75	58	
3/8"	9.5	11.28	47.47	47	
No.4	4.75	7.77	39.70	39	
No.10	2.99	6.25	33.45	33	
No.40	0.425	6.88	26.57	26	
No.200	0.075	5.34	21.23	21	
PAN		0.04			
Wash Loss Passing No.200		21.19			
TOTAL		101.82			

Borehole BH-27 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 7.6 m Finished Grade: 8.7 m Subgrade Elevation: 6.8 m Cut height: 0.8 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-27
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/24/2013 DATE FINISHED: 2/24/2013	WATER TABLE:	DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		SM	Light brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	6	7	6		19.94	NP	NP			100	93	75	60	46	36	31
2	2	89	-	SS		SM	Brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	7	6	10		16.87	NP	NP		100	89	79	68	54	40	25	17
3	3	44	-	SS		SP-SM	Light brown, very dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	21	44	61		9.77	NP	NP	100	87	70	40	36	27	22	14	9
4	4	67	-	SS		SP-SM	Light brown, dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	35	31	1[illegible]		6.27	NP	NP		100	63	39	23	14	13	9	7
5	5	78	-	SS		SP	Light brown, dense poorly graded sand sand with gravel (broken corals with limestone) of no plasticity	28	16	17		22.13	NP	NP		100	77	68	62	53	46	39	34
							END OF BOREHOLE																

Subgrade Cut 0.8m

Pictures of disturbed soil samples

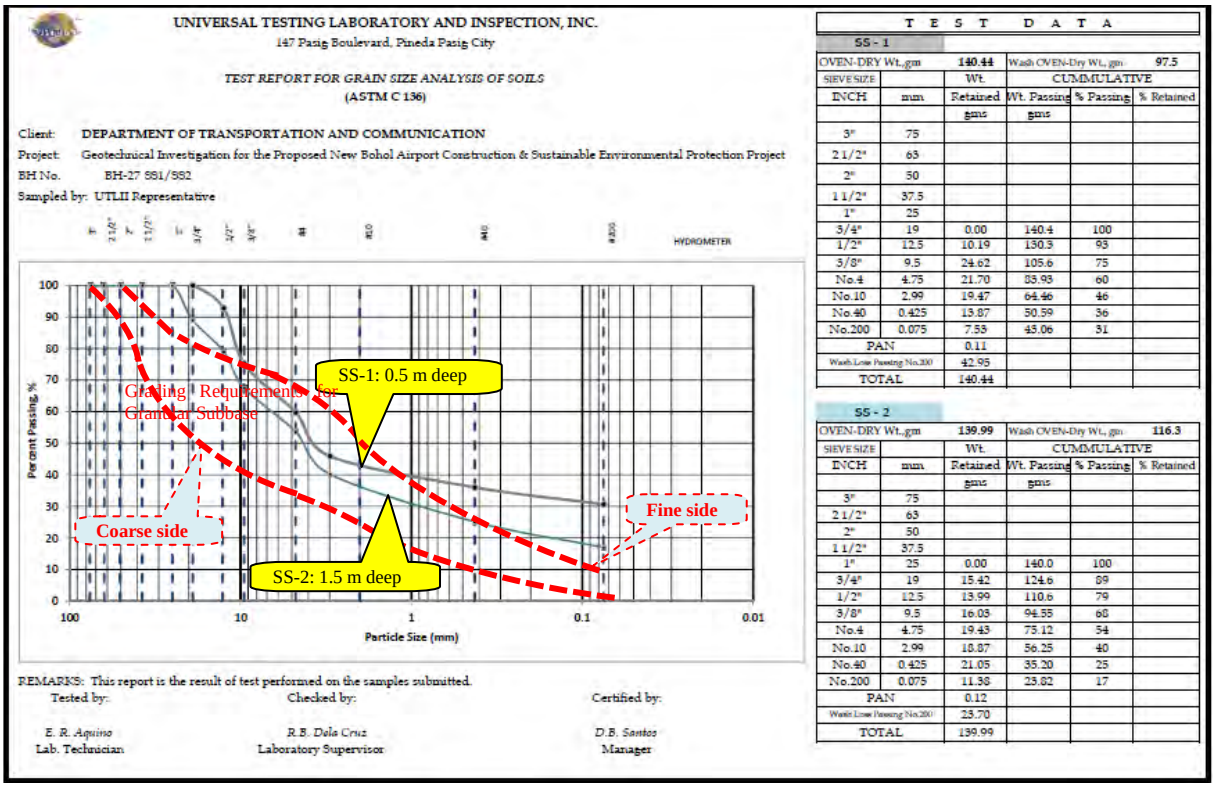
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	186.80	181.99	160.52	151.93	261.45
Weight of can & dry soil, g.	158.80	158.38	147.74	144.07	236.85
Weight of water, g.	28.00	23.61	12.78	7.86	24.60
Weight of can, g.	18.36	18.39	16.87	18.67	25.69
Weight of dry soil, g.	140.44	139.99	130.87	125.40	211.16
Moisture Content, %	19.94	16.87	9.77	6.27	11.65

Borehole BH-27 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists. N-value is 13 at 1 to 2-m deep.

Natural soil at subgrade level (0.6 m deep) is not much durable (N-value of 13), and will require blending with large amount of crashed limestone fragment when used for granular subbase course.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-27 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

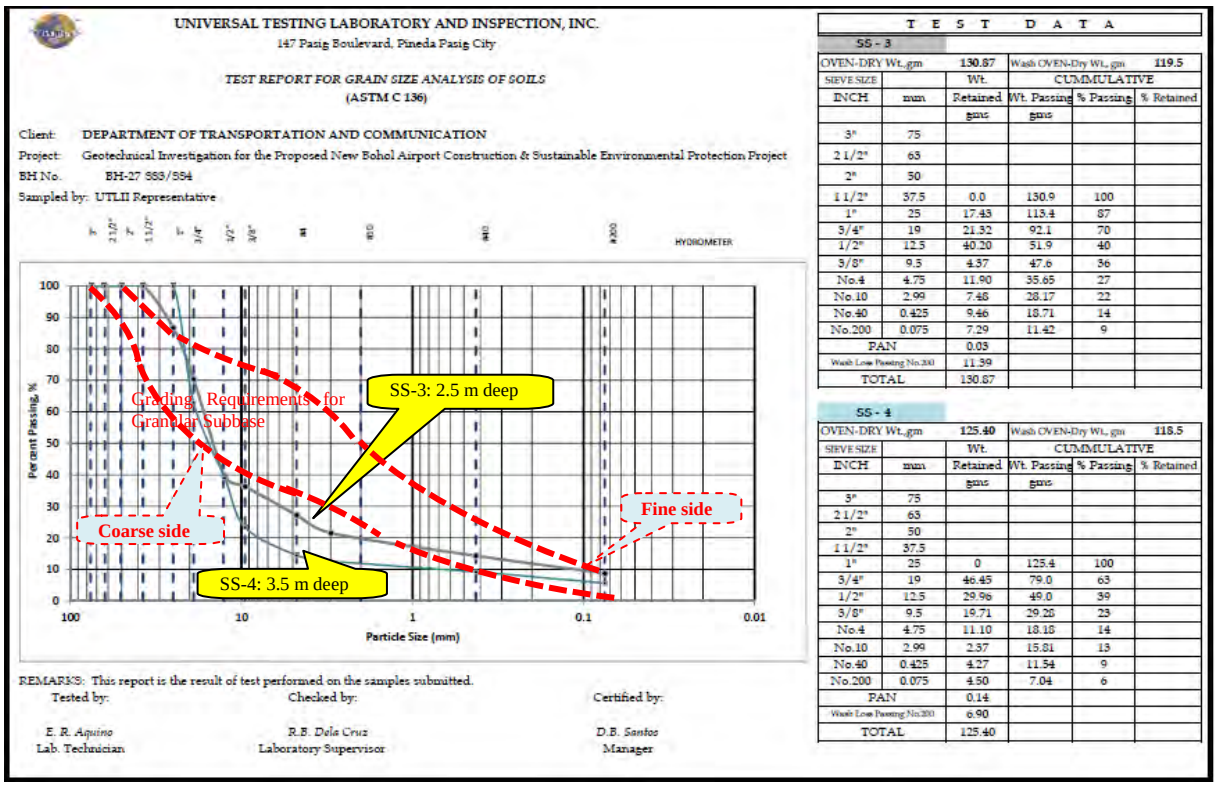
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		140.44	Wash OVEN-Dry Wt., gm		97.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	140.4	100	
1/2"	12.5	10.19	130.3	93	
3/8"	9.5	24.62	105.6	75	
No.4	4.75	21.70	83.93	60	
No.10	2.99	19.47	64.46	46	
No.40	0.425	13.87	50.59	36	
No.200	0.075	7.53	43.06	31	
PAN		0.11			
Wash Loss Passing No.200		42.95			
TOTAL		140.44			

SS - 2

OVEN-DRY Wt.,gm		139.99	Wash OVEN-Dry Wt., gm		116.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	140.0	100	
3/4"	19	15.42	124.6	89	
1/2"	12.5	13.99	110.6	79	
3/8"	9.5	16.03	94.55	68	
No.4	4.75	19.43	75.12	54	
No.10	2.99	18.87	56.25	40	
No.40	0.425	21.05	35.20	25	
No.200	0.075	11.38	23.82	17	
PAN		0.12			
Wash Loss Passing No.200		23.70			
TOTAL		139.99			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-27 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		130.87	Wash OVEN-Dry Wt., gm		119.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	130.9	100	
1"	25	17.43	113.4	87	
3/4"	19	21.32	92.1	70	
1/2"	12.5	40.20	51.9	40	
3/8"	9.5	4.37	47.6	36	
No.4	4.75	11.90	35.65	27	
No.10	2.99	7.48	28.17	22	
No.40	0.425	9.46	18.71	14	
No.200	0.075	7.29	11.42	9	
PAN		0.03			
Wash Loss Passing No.200		11.39			
TOTAL		130.87			

SS - 4

OVEN-DRY Wt.,gm		125.40	Wash OVEN-Dry Wt., gm		118.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	125.4	100	
3/4"	19	46.45	79.0	63	
1/2"	12.5	29.96	49.0	39	
3/8"	9.5	19.71	29.26	23	
No.4	4.75	11.10	18.18	14	
No.10	2.99	2.37	15.81	13	
No.40	0.425	4.27	11.54	9	
No.200	0.075	4.50	7.04	6	
PAN		0.14			
Wash Loss Passing No.200		6.90			
TOTAL		125.40			

Borehole BH-28 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 8.2 m Finished Grade: 8.9 m Subgrade Elevation: 7.0 m Cut height: 1.2 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-28
		DEPTH:	5.0 m
LOCATION:	Panglao, Bohol		
DATE DRILLED:	2/24/2013 DATE FINISHED: 2/24/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	25	28	19		16.32	NP	NP		100	82	66	62	48	37	18	13
2	2	89	-	SS		GM	Brown, medium dense silty gravel with sand (broken corals with limestone) of no plasticity	27	14	15		13.92	NP	NP		100	77	59	54	34	26	16	100
3	3	100	-	SS		GM	Brown, medium dense silty gravel with sand (broken corals with limestone) of no plasticity	17	10	11		8.55	NP	NP	100	76	68	46	40	26	18	11	6
4	4	44	-	SS		GM	Brown, medium dense silty gravel with sand (broken corals with limestone) of no plasticity	9	7	21		6.77	NP	NP	100	85	71	43	29	19	14	8	14
5	5	56	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	18	27	24		8.37	NP	NP			100	92	83	39	37	13	10

Subgrade Cut 1.2m

END OF BOREHOLE

Pictures of disturbed soil samples

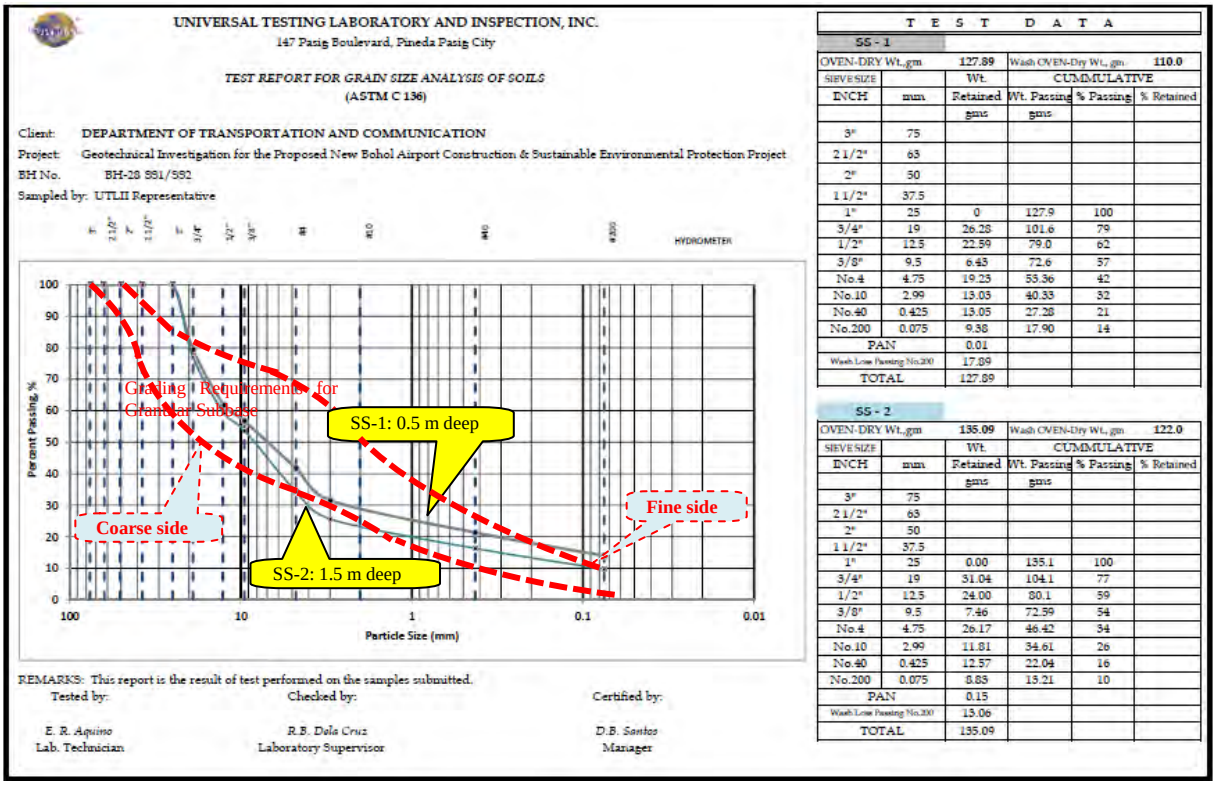
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	185.90	173.07	230.26	163.00	120.85
Weight of can & dry soil, g.	162.65	154.26	213.70	154.81	112.95
Weight of water, g.	23.25	18.81	16.56	8.19	7.90
Weight of can, g.	20.17	19.17	19.96	22.03	18.56
Weight of dry soil, g.	142.48	135.09	193.74	132.78	94.39
Moisture Content, %	16.32	13.92	8.55	6.17	8.37

Borehole BH-28 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.2 m deep) is dense (N-value > 30) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-28 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

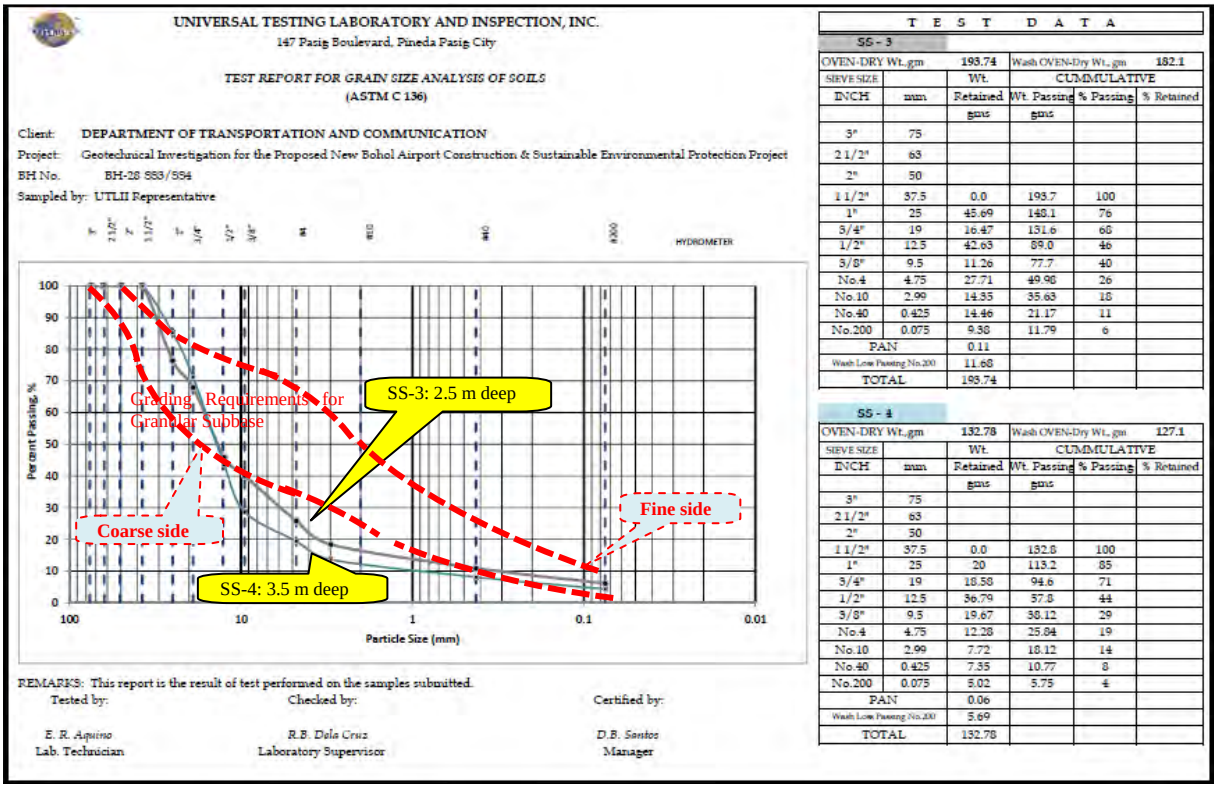
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		127.89	Wash OVEN-Dry Wt., gm.		110.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	127.9	100	
3/4"	19	26.28	101.6	79	
1/2"	12.5	22.59	79.0	62	
3/8"	9.5	6.43	72.6	57	
No.4	4.75	19.23	53.36	42	
No.10	2.99	13.03	40.33	32	
No.40	0.425	13.05	27.28	21	
No.200	0.075	9.38	17.90	14	
PAN		0.01			
Wash Loss Passing No.200		17.89			
TOTAL		127.89			

SS - 2

OVEN-DRY Wt.,gm		135.09	Wash OVEN-Dry Wt., gm		122.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	135.1	100	
3/4"	19	31.04	104.1	77	
1/2"	12.5	24.00	80.1	59	
3/8"	9.5	7.46	72.59	54	
No.4	4.75	26.17	46.42	34	
No.10	2.99	11.81	34.61	26	
No.40	0.425	12.57	22.04	16	
No.200	0.075	6.83	15.21	10	
PAN		0.15			
Wash Loss Passing No.200		15.06			
TOTAL		135.09			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-28 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

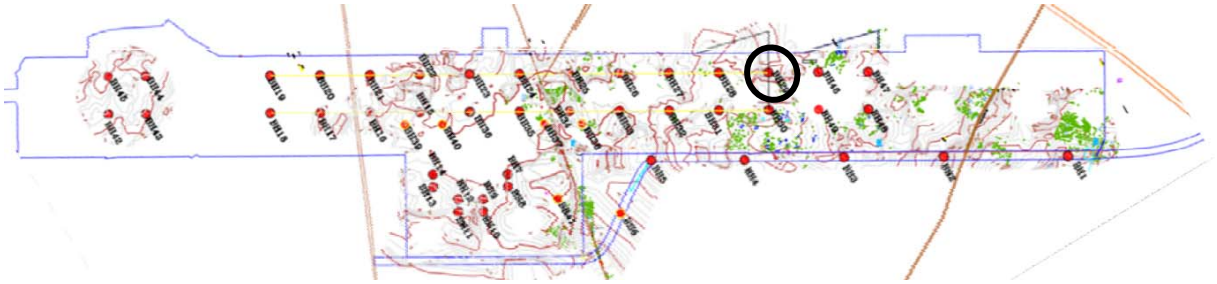
OVEN-DRY Wt.,gm		193.74	Wash OVEN-Dry Wt., gm		182.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	193.7	100	
1"	25	45.69	148.1	76	
3/4"	19	16.47	131.6	68	
1/2"	12.5	42.63	89.0	46	
3/8"	9.5	11.26	77.7	40	
No.4	4.75	27.71	49.96	26	
No.10	2.99	14.35	35.63	18	
No.40	0.425	14.46	21.17	11	
No.200	0.075	9.38	11.79	6	
PAN		0.11			
Wash Loss Passing No.200		11.68			
TOTAL		193.74			

SS - 4

OVEN-DRY Wt.,gm		132.78	Wash OVEN-Dry Wt., gm		127.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	132.8	100	
1"	25	20	113.2	85	
3/4"	19	18.58	94.6	71	
1/2"	12.5	36.79	57.8	44	
3/8"	9.5	19.67	38.12	29	
No.4	4.75	12.28	25.84	19	
No.10	2.99	7.72	18.12	14	
No.40	0.425	7.35	10.77	8	
No.200	0.075	5.02	5.75	4	
PAN		0.06			
Wash Loss Passing No.200		5.69			
TOTAL		132.78			

Borehole BH-29 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 7.0 m Finished Grade: 9.1 m Subgrade Elevation: 7.2 m Fill height: 0.2 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-29

LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 2/25/2013 DATE FINISHED: 2/25/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface															
1	1	100	-	SS		SM	Light brown, dense silty sand with gravel (broken corals with limestone) of no plasticity	10	13	20	19.03	NP	NP		100	90	86	80	72	64	51	36
2	2	67	-	SS		GP-GM	Light brown, very dense poorly graded gravel silt and sand (broken corals with limestone) of no plasticity	24	40	57	6.72	NP	NP	100	81	75	56	49	38	31	21	12
3	3	78	-	SS		GM	Light brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	40	19	19	12.31	NP	NP	100	88	77	60	54	44	37	28	21
4	4	44	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	53	72	75	7.69	NP	NP			100	81	78	65	47	26	15
5	5	44	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	60	57	65	7.69	NP	NP		100	94	75	67	47	35	23	15

GRAPH: Subgrade Cut 0.2m

END OF BOREHOLE

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	151.87	159.89	215.66	161.16	174.92
Weight of can & dry soil, g.	130.61	150.81	194.11	150.99	163.88
Weight of water, g.	21.26	9.08	21.55	10.17	11.04
Weight of can, g.	18.90	15.76	19.05	18.80	20.36
Weight of dry soil, g.	111.71	135.05	175.06	132.19	143.52
Moisture Content, %	19.03	6.72	12.31	7.69	7.69

Borehole BH-29 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

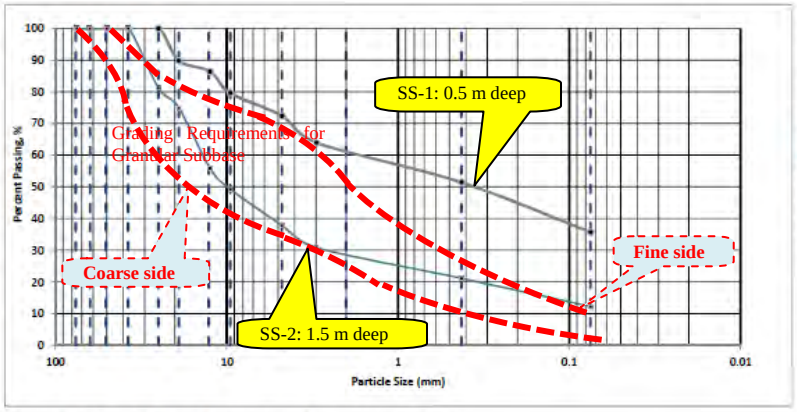
Fine topsoil exists. No large cavity exists.

Natural soil at surface (subgrade level of 0.2 m deep) is not much dense (N-value of 20 to 30), and may require replacement of subgrade to 1 m deep.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-29 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		111.71	Wash OVEN-Dry Wt., gm		71.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	111.7	100	
3/4"	19	11.37	100.3	90	
1/2"	12.5	3.88	96.5	86	
3/8"	9.5	7.57	88.9	80	
No.4	4.75	8.03	80.86	72	
No.10	2.99	9.44	71.42	64	
No.40	0.425	14.01	57.41	51	
No.200	0.075	17.51	39.90	36	
PAN		0.08			
Wash Loss Passing No.200		39.82			
TOTAL		111.71			

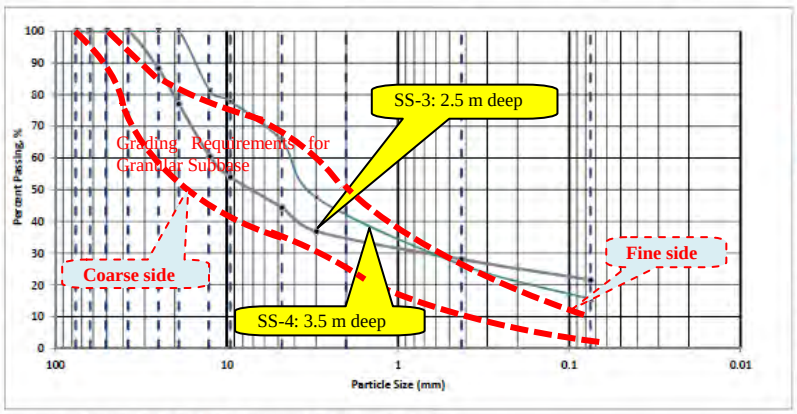
SS - 2

OVEN-DRY Wt.,gm		135.05	Wash OVEN-Dry Wt., gm		118.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	135.1	100	
1"	25	25.28	109.8	81	
3/4"	19	8.65	101.1	75	
1/2"	12.5	25.59	75.5	56	
3/8"	9.5	8.97	66.56	49	
No.4	4.75	15.46	51.10	38	
No.10	2.99	9.47	41.63	31	
No.40	0.425	13.09	28.57	21	
No.200	0.075	12.03	16.54	12	
PAN		0.14			
Wash Loss Passing No.200		16.40			
TOTAL		135.05			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-29 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

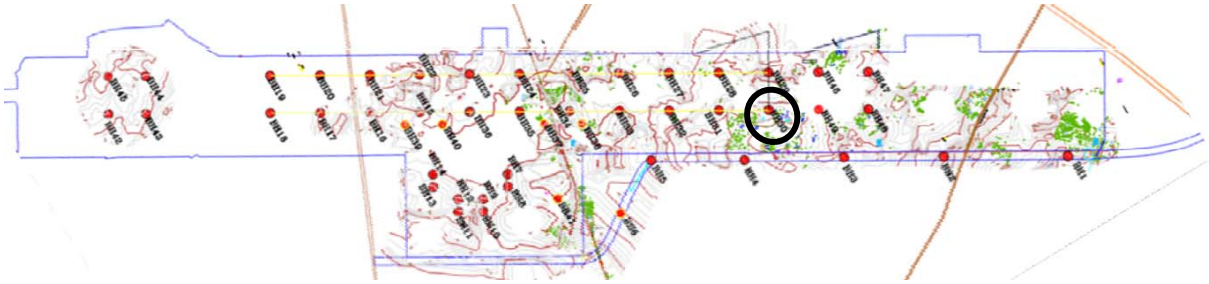
OVEN-DRY Wt.,gm		175.05	Wash OVEN-Dry Wt., gm		137.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	175.1	100	
1"	25	20.53	154.5	88	
3/4"	19	19.68	134.8	77	
1/2"	12.5	28.93	105.9	61	
3/8"	9.5	11.34	94.6	54	
No.4	4.75	16.91	77.66	44	
No.10	2.99	13.09	64.57	37	
No.40	0.425	15.42	49.15	28	
No.200	0.075	11.39	37.76	22	
PAN		0.10			
Wash Loss Passing No.200		37.66			
TOTAL		175.05			

SS - 4

OVEN-DRY Wt.,gm		132.19	Wash OVEN-Dry Wt., gm		111.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	132.2	100	
1/2"	12.5	24.83	107.4	81	
3/8"	9.5	4.43	102.93	78	
No.4	4.75	16.49	86.44	65	
No.10	2.99	23.59	62.85	48	
No.40	0.425	27.95	34.90	26	
No.200	0.075	14.36	20.54	16	
PAN		0.01			
Wash Loss Passing No.200		20.53			
TOTAL		132.19			

Borehole BH-30 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 7.0 m Finished Grade: 9.1 m Subgrade Elevation: 7.2 m Fill height: 0.2 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-30
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/25/2013 DATE FINISHED: 2/25/2013	WATER TABLE:	DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				Subgrade Fill 0.2m												
1	1	67	-	SS		SM	Light brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	10	11	12		18.98	NP	NP			100	85	72	52	40	31	19
2	2	44	-	SS		SP-SM	Light brown, medium poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	7	10	14		7.49	NP	NP		100	93	64	51	28	20	12	7
3	3	67	-	SS		SP-SM	Light brown, medium poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	18	18	24		9.60	NP	NP		100	89	69	56	38	26	18	11
4	4	78	-	SS		SM	Light brown, dense silty sand with gravel (broken corals with limestone) of no plasticity	24	26			11.39	NP	NP			100	78	70	52	36	23	14
5	5	67	-	SS		SM	Light brown, dense silty sand with gravel (broken corals with limestone) of no plasticity		24	19		10.15	NP	NP			100	71	62	43	35	25	17

END OF BOREHOLE

Pictures of disturbed soil samples

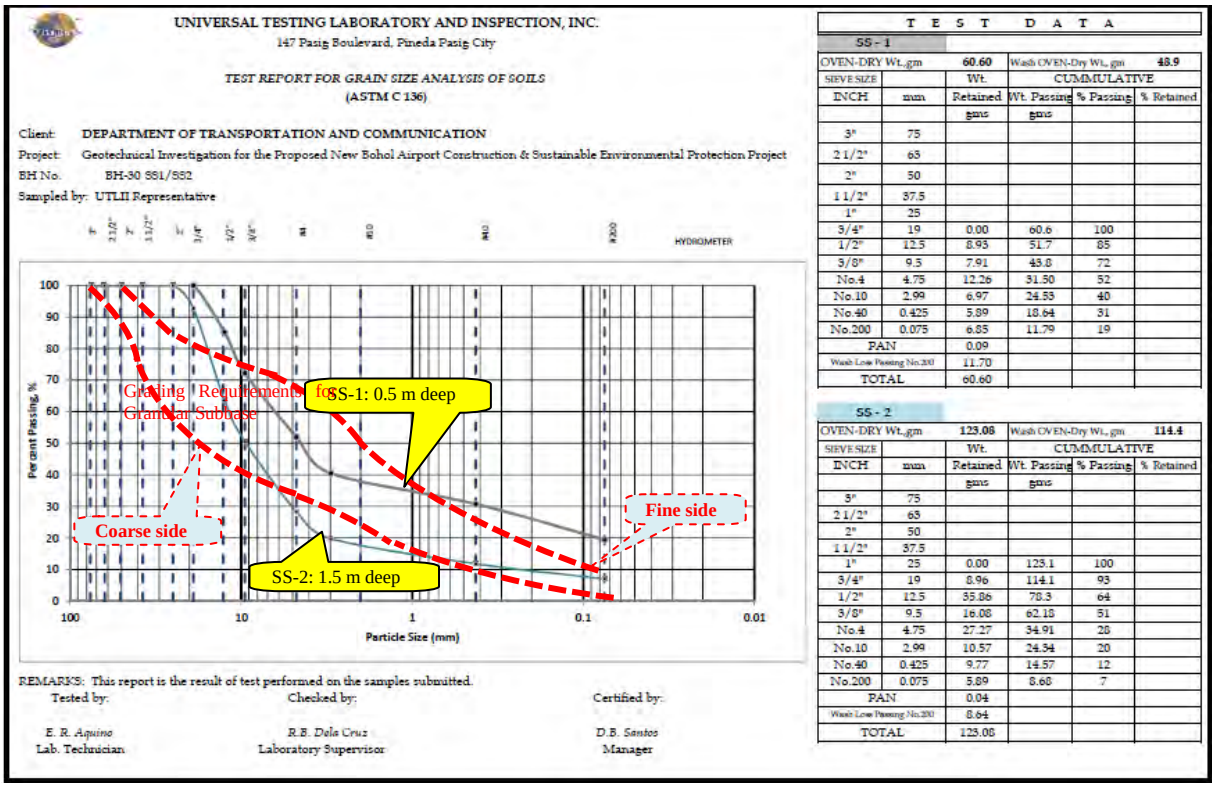
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	87.46	149.67	200.49	151.12	207.10
Weight of can & dry soil, g.	75.96	140.45	184.42	137.78	189.57
Weight of water, g.	11.50	9.22	16.07	13.34	17.53
Weight of can, g.	15.36	17.37	17.11	20.62	16.87
Weight of dry soil, g.	60.60	123.08	167.31	117.16	172.70
Moisture Content, %	18.98	7.49	9.60	11.39	10.15

Borehole BH-30 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Fine topsoil exists. No large cavity exists.

Natural soil at surface (subgrade level) is not much dense (N-value of 20), and may require replacement of subgrade to 1 m deep.



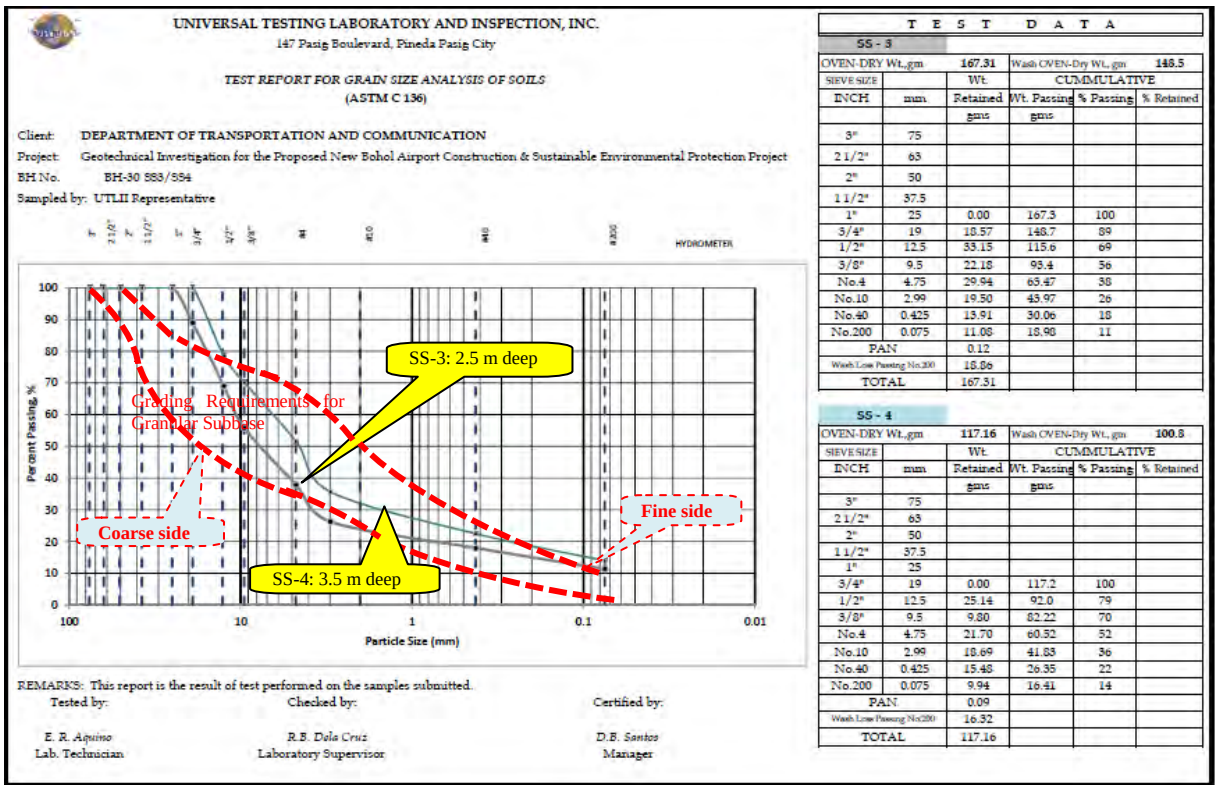
TEST DATA

SS - 1

OVEN-DRY Wt.,gm		60.60	Wash OVEN-Dry Wt., gm		48.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	60.6	100	
1/2"	12.5	8.93	51.7	85	
3/8"	9.5	7.91	43.8	72	
No.4	4.75	12.26	31.50	52	
No.10	2.99	6.97	24.53	40	
No.40	0.425	5.89	18.64	31	
No.200	0.075	6.85	11.79	19	
PAN		0.09			
Wash Loss Passing No.200		11.70			
TOTAL		60.60			

SS - 2

OVEN-DRY Wt.,gm		123.08	Wash OVEN-Dry Wt., gm		114.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	123.1	100	
3/4"	19	8.96	114.1	93	
1/2"	12.5	35.86	78.3	64	
3/8"	9.5	16.08	62.18	51	
No.4	4.75	27.27	34.91	28	
No.10	2.99	10.57	24.34	20	
No.40	0.425	9.77	14.57	12	
No.200	0.075	5.89	8.68	7	
PAN		0.04			
Wash Loss Passing No.200		8.64			
TOTAL		123.08			



TEST DATA

SS - 3

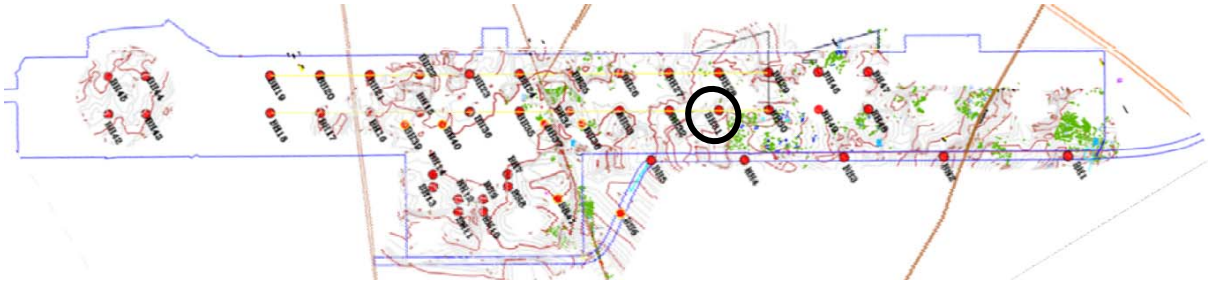
OVEN-DRY Wt.,gm		167.31	Wash OVEN-Dry Wt., gm		148.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	167.3	100	
3/4"	19	18.57	148.7	89	
1/2"	12.5	33.15	115.6	69	
3/8"	9.5	22.18	93.4	56	
No.4	4.75	29.94	63.47	38	
No.10	2.99	19.50	43.97	26	
No.40	0.425	13.91	30.06	18	
No.200	0.075	11.06	18.98	11	
PAN		0.12			
Wash Loss Passing No.200		18.86			
TOTAL		167.31			

SS - 4

OVEN-DRY Wt.,gm		117.16	Wash OVEN-Dry Wt., gm		100.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	117.2	100	
1/2"	12.5	25.14	92.0	79	
3/8"	9.5	9.80	82.22	70	
No.4	4.75	21.70	60.52	52	
No.10	2.99	18.69	41.83	36	
No.40	0.425	15.48	26.35	22	
No.200	0.075	9.94	16.41	14	
PAN		0.09			
Wash Loss Passing No.200		16.32			
TOTAL		117.16			

Borehole BH-31 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 8.6 m Finished Grade: 8.9 m Subgrade Elevation: 7.0 m Cut height: 1.6 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-31

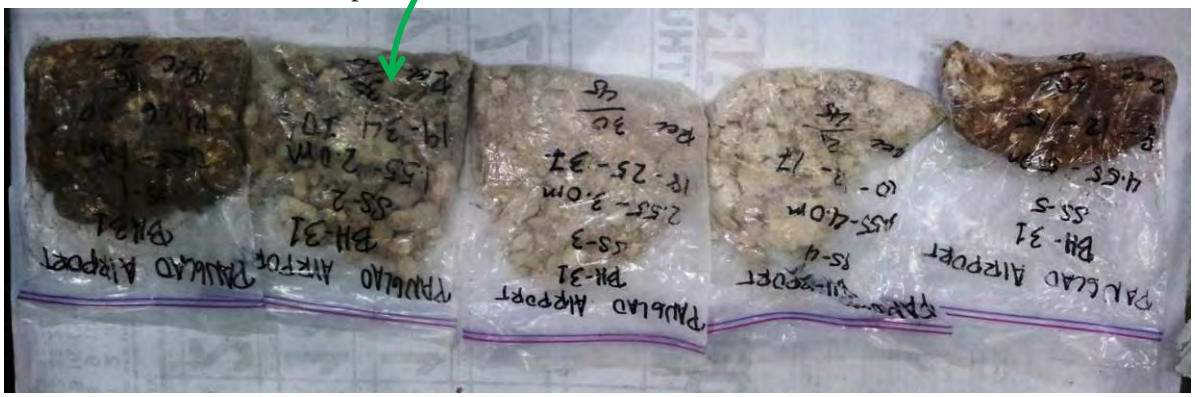
LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 2/24/2013 DATE FINISHED: 2/24/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				10 20 30 40												
1	1	100	-	SS		SM	Light brown, dense silty sand with gravel (broken corals with limestone) of no plasticity	14	26	20	Subgrade Cut 1.6m	11.65	NP	NP	100	88	83	58	52	44	36	26	17
2	2	78	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	19	34	70		13.04	NP	NP		100	71	64	58	50	44	31	17
3	3	67	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	18	25	37		16.05	NP	NP		100	91	73	60	44	35	24	16
4	4	67	-	SS		SM	Light brown, dense silty sand with gravel (broken corals with limestone) of no plasticity	10	13	17		17.06	NP	NP			100	97	91	80	69	53	35
5	5	67	-	SS		SM	Light brown, medium dense silty sand with gravel (broken corals with limestone) of no plasticity	8	12	15		17.50	NP	NP				100	92	83	72	55	37

END OF BOREHOLE

Pictures of disturbed soil samples



Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	221.94	166.83	170.29	131.04	183.41
Weight of can & dry soil, g.	201.35	149.87	149.06	114.59	159.14
Weight of water, g.	20.59	16.96	21.23	16.45	24.27
Weight of can, g.	24.67	19.84	16.80	18.19	20.49
Weight of dry soil, g.	176.68	130.03	132.26	96.40	138.65
Moisture Content, %	11.65	13.04	16.05	17.06	17.50

Borehole BH-31 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

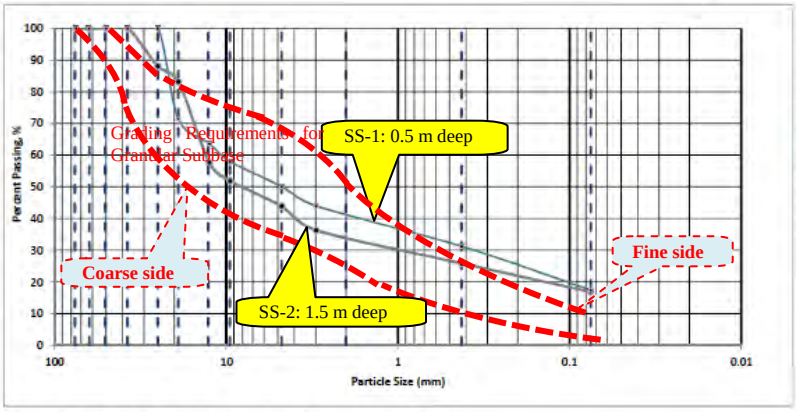
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.6 m deep) is dense (N-value > 30) but porous. It generally meets gradation of granular subbase course when blending with crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-31 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		176.68	Wash OVEN-Dry Wt., gm		147.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	176.7	100	
1"	25	21	155.6	88	
3/4"	19	8.79	146.8	83	
1/2"	12.5	44.97	101.8	58	
3/8"	9.5	10.05	91.8	52	
No.4	4.75	14.28	77.51	44	
No.10	2.99	13.35	64.16	36	
No.40	0.425	18.46	45.70	26	
No.200	0.075	15.91	29.79	17	
PAN		0.19			
Wash Loss Passing No.200		29.60			
TOTAL		176.68			

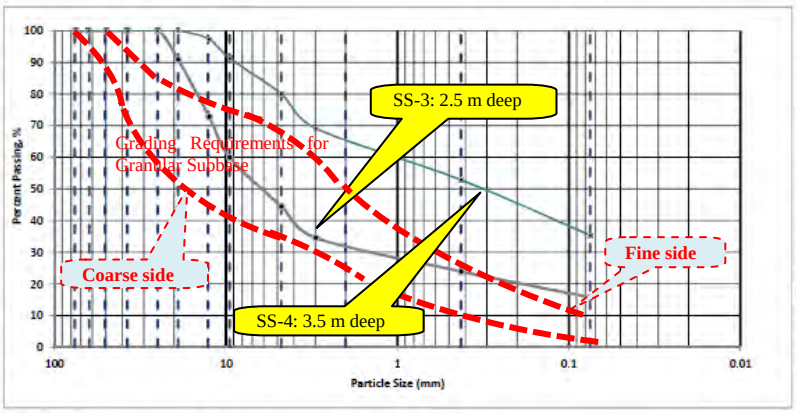
SS - 2

OVEN-DRY Wt.,gm		130.03	Wash OVEN-Dry Wt., gm		107.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	130.0	100	
1"	25	0.00	130.0	100	
3/4"	19	37.01	93.0	72	
1/2"	12.5	10.33	82.7	64	
3/8"	9.5	7.22	75.47	58	
No.4	4.75	10.32	65.15	50	
No.10	2.99	7.96	57.19	44	
No.40	0.425	16.56	40.63	31	
No.200	0.075	17.97	22.66	17	
PAN		0.26			
Wash Loss Passing No.200		22.40			
TOTAL		130.03			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-31 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

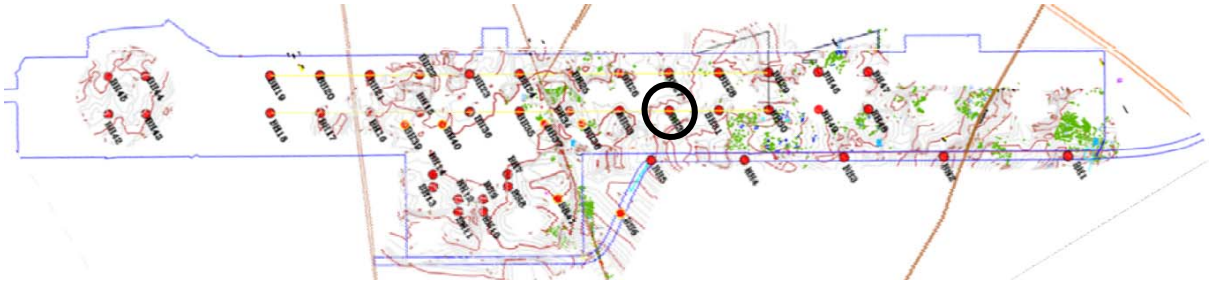
OVEN-DRY Wt.,gm		132.26	Wash OVEN-Dry Wt., gm		111.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	132.3	100	
3/4"	19	12.01	120.3	91	
1/2"	12.5	23.94	96.3	73	
3/8"	9.5	17.00	79.3	60	
No.4	4.75	20.47	58.84	44	
No.10	2.99	13.13	45.71	35	
No.40	0.425	14.04	31.67	24	
No.200	0.075	10.04	20.83	16	
PAN		0.25			
Wash Loss Passing No.200		20.58			
TOTAL		132.26			

SS - 4

OVEN-DRY Wt.,gm		96.40	Wash OVEN-Dry Wt., gm		62.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	96.4	100	
1/2"	12.5	2.61	93.8	97	
3/8"	9.5	5.80	87.99	91	
No.4	4.75	10.86	77.13	80	
No.10	2.99	10.46	66.67	69	
No.40	0.425	15.72	50.95	53	
No.200	0.075	16.83	34.12	35	
PAN		0.17			
Wash Loss Passing No.200		33.95			
TOTAL		96.40			

Borehole BH-32 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 8.2 m Finished Grade: 8.7 m Subgrade Elevation: 6.8 m Cut height: 1.4 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-32
		DEPTH:	5.0 m
LOCATION:	Panglao, Bohol		
DATE DRILLED:	2/24/2013 DATE FINISHED: 2/24/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	12	29	14		16.09	NP	NP	100	74	74	64	58	43	34	23	16
2	2	88	-	SS		GP-GM	Light brown, medium dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	14	33	35		12.01	NP	NP		100	84	64	59	74	35	21	12
3	3	78	-	SS		GP-GM	Light brown, medium dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	6	7	12		7.20	NP	NP	100	61	61	42	37	30	22	14	8
4	4	88	-	SS		GP-GM	Light brown, medium dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	14	15	13		7.51	NP	NP	100	88	68	68	58	41	26	13	7
5	5	88	-	SS		GP-GM	Light brown, medium dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	6	9	14		7.40	NP	NP		100	94	81	61	44	28	15	8

END OF BOREHOLE

Subgrade Cut 1.4m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	196.66	171.96	185.12	195.88	176.26
Weight of can & dry soil, g.	172.92	156.29	174.39	183.96	165.85
Weight of water, g.	23.74	15.67	10.73	11.92	10.41
Weight of can, g.	25.39	25.84	25.40	25.26	25.26
Weight of dry soil, g.	147.53	130.45	148.99	158.70	140.59
Moisture Content, %	16.09	12.01	7.20	7.51	7.40

Borehole BH-32 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

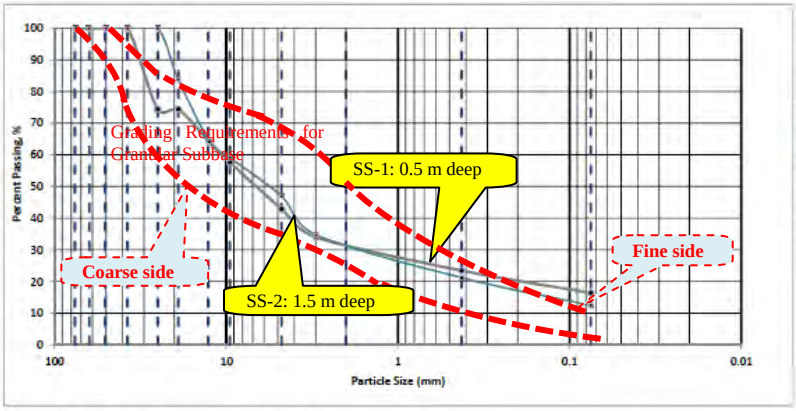
No fine topsoil exists. No large cavity exists. N-value drops to 13 at 3-m deep.

Natural soil at subgrade level (1.4 m deep) is dense (N-value > 50) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-32 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		147.53	Wash OVEN-Dry Wt., gm		123.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	147.5	100	
1"	25	37.84	109.7	74	
3/4"	19	0.00	109.69	74	
1/2"	12.5	15.20	94.49	64	
3/8"	9.5	9.48	85.01	58	
No.4	4.75	21.73	63.28	43	
No.10	2.99	13.11	50.17	34	
No.40	0.425	15.55	34.62	23	
No.200	0.075	10.46	24.16	16	
PAN		0.03			
Wash Loss Passing No.200		24.13			
TOTAL		147.53			

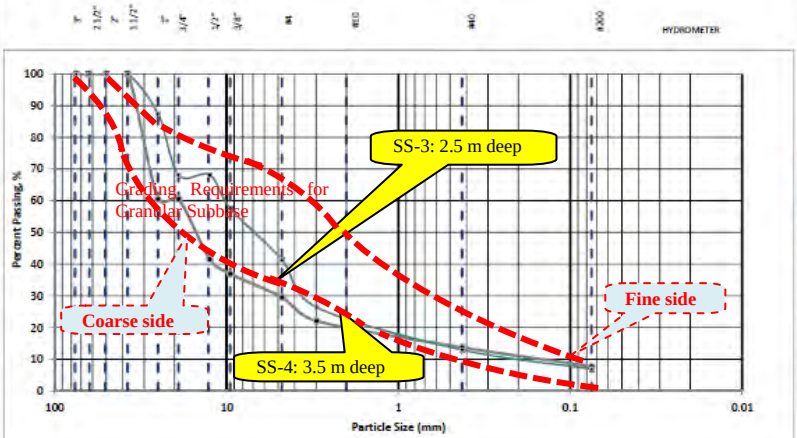
SS - 2

OVEN-DRY Wt.,gm		130.45	Wash OVEN-Dry Wt., gm		114.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	130.5	100	
3/4"	19	21.08	109.4	84	
1/2"	12.5	25.62	83.8	64	
3/8"	9.5	6.62	77.13	59	
No.4	4.75	15.91	61.22	47	
No.10	2.99	15.95	45.27	35	
No.40	0.425	17.59	27.68	21	
No.200	0.075	11.38	16.30	12	
PAN		0.03			
Wash Loss Passing No.200		16.27			
TOTAL		130.45			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-32 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

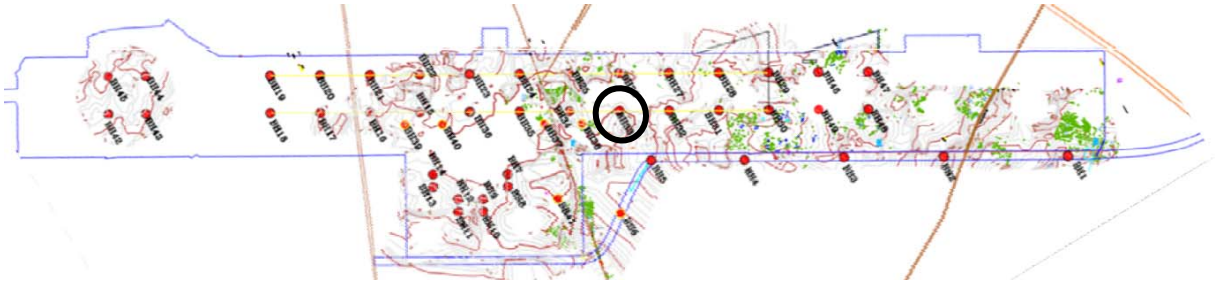
OVEN-DRY Wt.,gm		148.99	Wash OVEN-Dry Wt., gm		137.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	149.0	100	
1"	25	58.76	90.23	61	
3/4"	19	0.00	90.23	61	
1/2"	12.5	28.15	62.08	42	
3/8"	9.5	6.96	55.12	37	
No.4	4.75	11.10	44.02	30	
No.10	2.99	11.10	32.92	22	
No.40	0.425	12.43	20.49	14	
No.200	0.075	8.91	11.58	8	
PAN		0.04			
Wash Loss Passing No.200		11.54			
TOTAL		148.99			

SS - 4

OVEN-DRY Wt.,gm		158.70	Wash OVEN-Dry Wt., gm		147.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	158.7	100	
1"	25	19.81	138.89	88	
3/4"	19	30.74	108.15	68	
1/2"	12.5	0.00	108.15	68	
3/8"	9.5	16.65	91.50	58	
No.4	4.75	25.88	65.62	41	
No.10	2.99	23.71	41.91	26	
No.40	0.425	21.30	20.61	13	
No.200	0.075	9.68	10.93	7	
PAN		0.00			
Wash Loss Passing No.200		10.93			
TOTAL		158.70			

Borehole BH-33 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 8.2 m Finished Grade: 8.5 m Subgrade Elevation: 6.6 m Cut height: 1.6 m



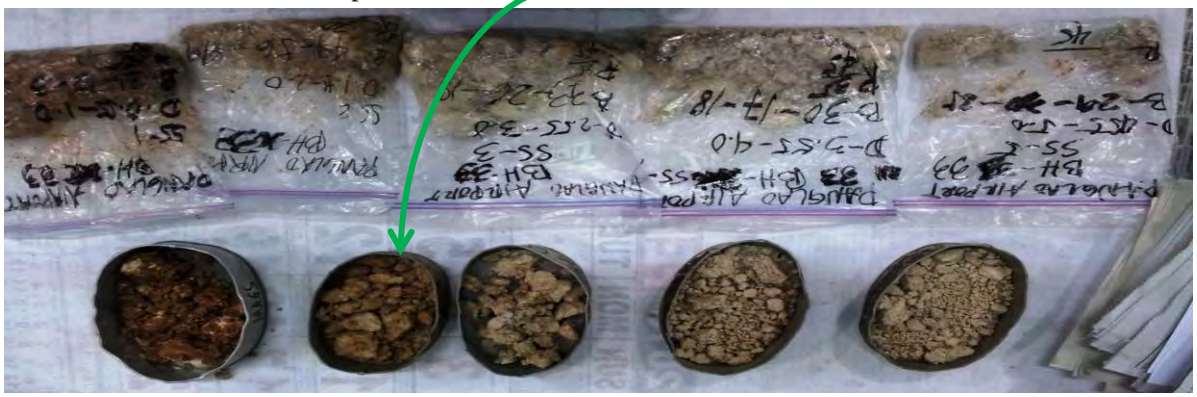
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-33
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/24/2013 DATE FINISHED: 2/24/2013	WATER TABLE:	DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GM	Light brown, medium dense silty gravel with sand (broken corals with limestone) of no plasticity	31	12	13		13.62	NP	NP			100	88	82	58	42	29	20
2	2	44	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	47	56	49		14.99	NP	NP		100	90	80	64	47	33	21	14
3	3	78	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	33	26	18		8.20	NP	NP		100	95	72	60	37	24	13	8
4	4	78	-	SS		GP-GM	Light brown, dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	30	17	18		7.75	NP	NP		100	90	84	73	46	30	16	8
5	5	44	-	SS		SP-SM	Light brown, very dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	29	30	25		8.56	NP	NP			100	85	79	56	35	18	10
							END OF BOREHOLE																

Subgrade Cut: 1.6m

Pictures of disturbed soil samples



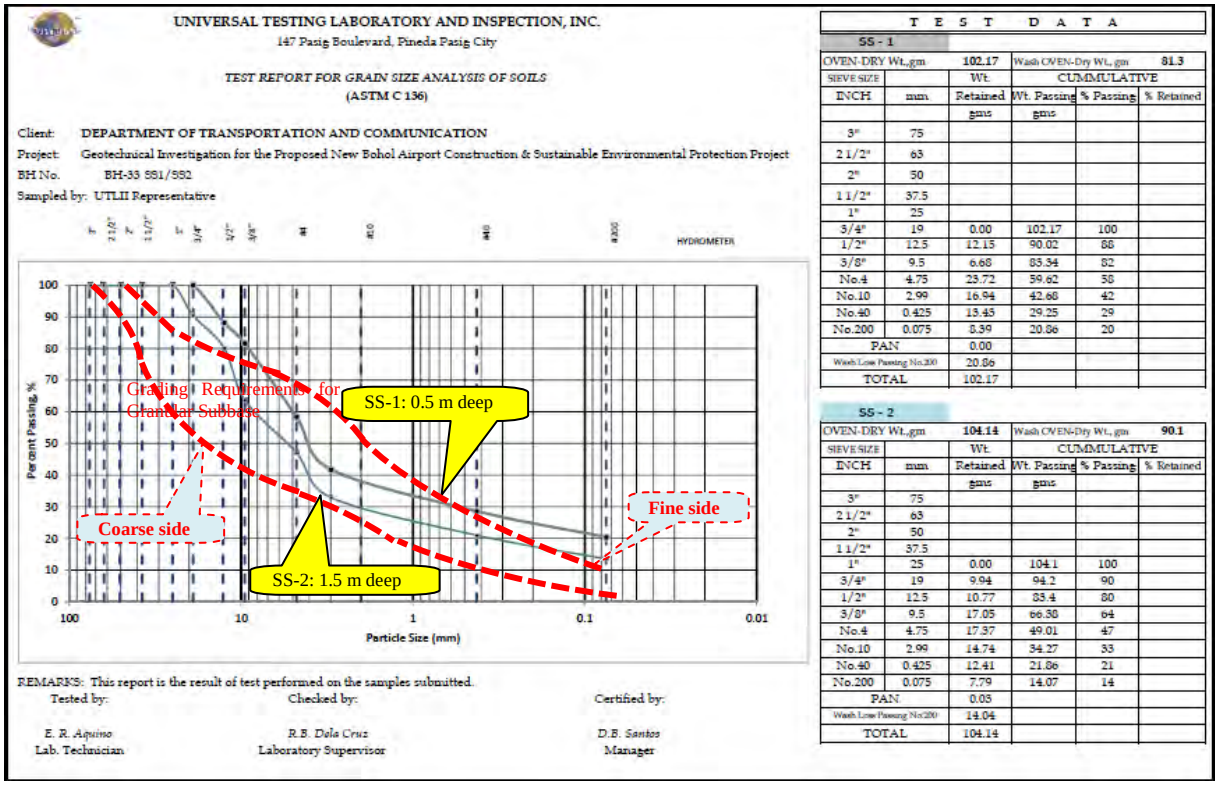
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	133.05	136.76	184.46	133.99	115.56
Weight of can & dry soil, g.	119.53	121.15	171.95	125.69	108.03
Weight of water, g.	13.52	15.61	12.51	8.30	7.53
Weight of can, g.	17.36	17.01	19.32	18.65	20.04
Weight of dry soil, g.	102.17	104.14	152.63	107.04	87.99
Moisture Content, %	13.23	14.99	8.20	7.75	8.56

Borehole BH-33 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.6 m deep) is dense (N-value > 50) but porous. It generally meets gradation of granular subbase course when blending with crashed limestone fragment.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-33 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

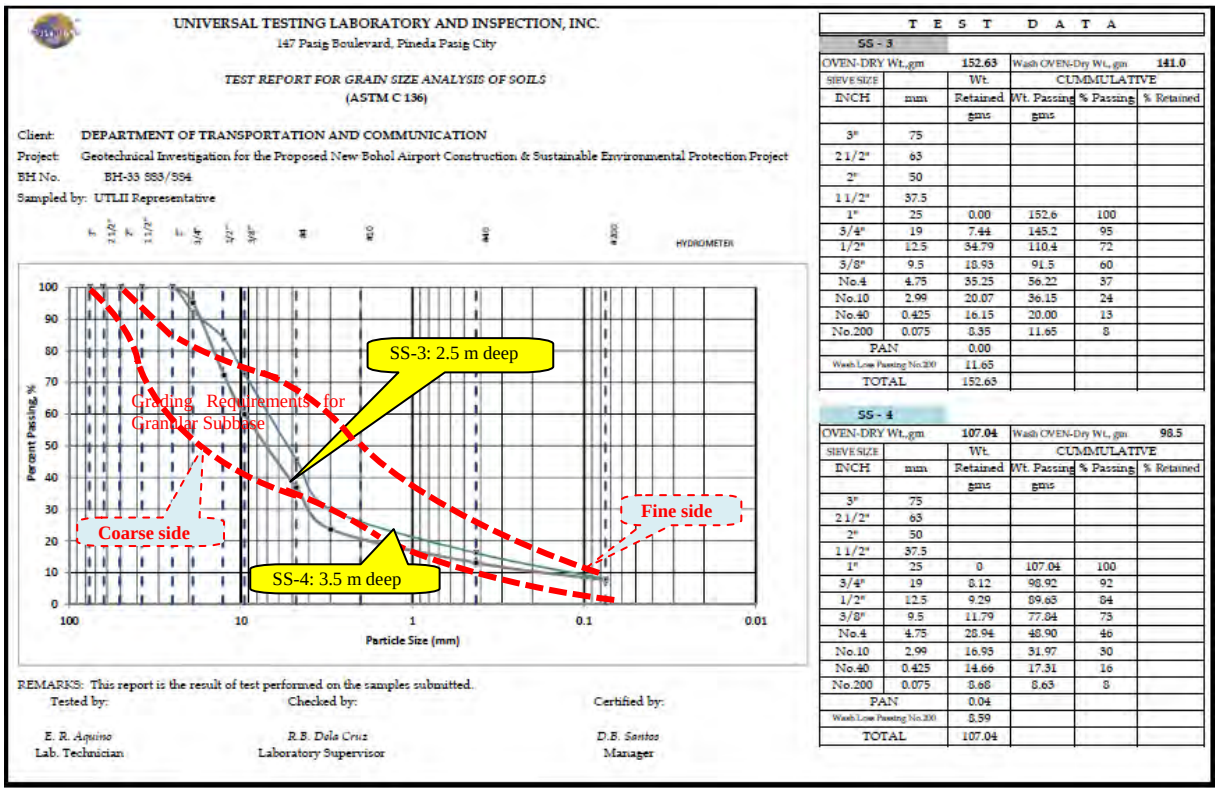
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		102.17	Wash OVEN-Dry Wt., gm		81.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	102.17	100	
1/2"	12.5	12.15	90.02	88	
3/8"	9.5	6.68	83.34	82	
No.4	4.75	23.72	59.62	58	
No.10	2.99	16.94	42.68	42	
No.40	0.425	13.43	29.25	29	
No.200	0.075	8.39	20.86	20	
PAN		0.00			
Wash Loss Passing No.200		20.86			
TOTAL		102.17			

SS - 2

OVEN-DRY Wt.,gm		104.14	Wash OVEN-Dry Wt., gm		90.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	104.1	100	
3/4"	19	9.94	94.2	90	
1/2"	12.5	10.77	83.4	80	
3/8"	9.5	17.05	66.30	64	
No.4	4.75	17.37	49.01	47	
No.10	2.99	14.74	34.27	33	
No.40	0.425	12.41	21.86	21	
No.200	0.075	7.79	14.07	14	
PAN		0.03			
Wash Loss Passing No.200		14.04			
TOTAL		104.14			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-33 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

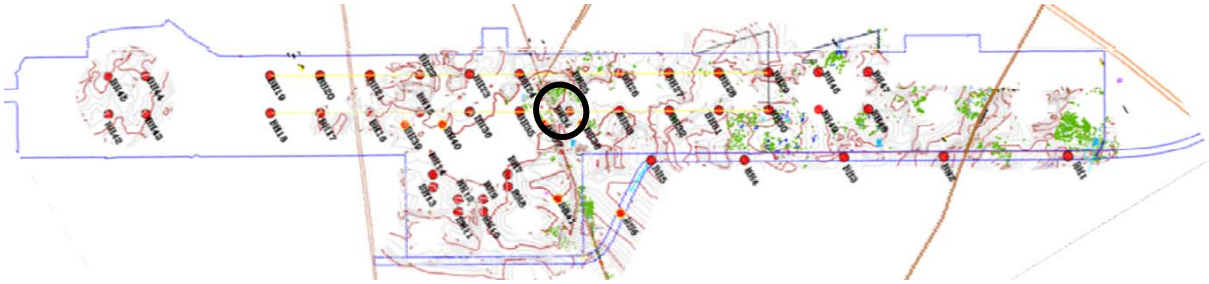
OVEN-DRY Wt.,gm		152.63	Wash OVEN-Dry Wt., gm		141.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	152.6	100	
3/4"	19	7.44	145.2	95	
1/2"	12.5	34.79	110.4	72	
3/8"	9.5	18.93	91.5	60	
No.4	4.75	35.25	56.22	37	
No.10	2.99	20.07	36.15	24	
No.40	0.425	16.15	20.00	13	
No.200	0.075	8.35	11.65	8	
PAN		0.00			
Wash Loss Passing No.200		11.65			
TOTAL		152.63			

SS - 4

OVEN-DRY Wt.,gm		107.04	Wash OVEN-Dry Wt., gm		98.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	107.04	100	
3/4"	19	8.12	98.92	92	
1/2"	12.5	9.29	89.63	84	
3/8"	9.5	11.79	77.84	73	
No.4	4.75	28.94	48.90	46	
No.10	2.99	16.93	31.97	30	
No.40	0.425	14.66	17.31	16	
No.200	0.075	8.68	8.63	8	
PAN		0.04			
Wash Loss Passing No.200		8.59			
TOTAL		107.04			

Borehole BH-34 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 7.4 m Finished Grade: 8.3 m Subgrade Elevation: 6.4 m Cut height: 1.0 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-34
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 2/23/2013 DATE FINISHED: 2/23/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	41	47	57		9.27	NP	NP			100	98	89	68	52	34	19
2	2	67	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	31	34	41		4.74	NP	NP		100	92	84	76	61	50	31	15
3	3	44	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	61	64	70		5.71	NP	NP		100	94	78	69	51	39	25	12
4	4	67	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	46	39	57		7.84	NP	NP				100	99	90	80	60	38
5	5	78	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	40	54	69		7.76	NP	NP				100	99	94	84	62	40
							END OF BOREHOLE																

Subgrade Cut 1.0m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	197.25	188.89	184.94	189.41	162.86
Weight of can & dry soil, g.	182.69	181.51	176.33	177.48	152.97
Weight of water, g.	14.56	7.38	8.61	11.93	9.89
Weight of can, g.	25.61	25.88	25.54	25.40	25.50
Weight of dry soil, g.	157.08	155.63	150.79	152.08	127.47
Moisture Content, %	9.27	4.74	5.71	7.84	7.76

Borehole BH-34 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

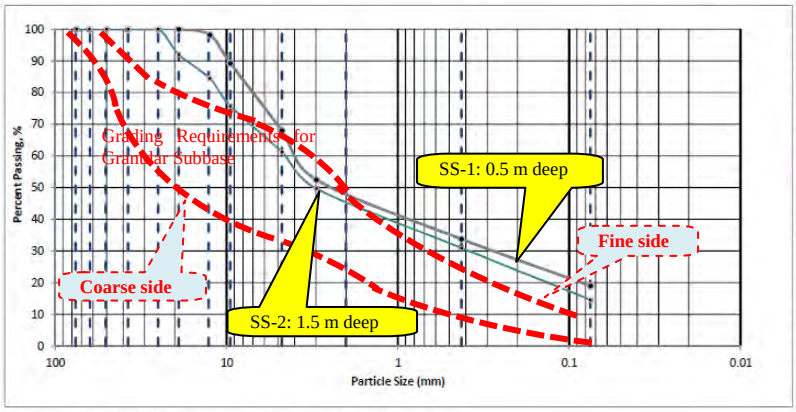
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.0 m deep) is dense (N-value > 60) but porous. It will require blending with large amount of crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-34 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

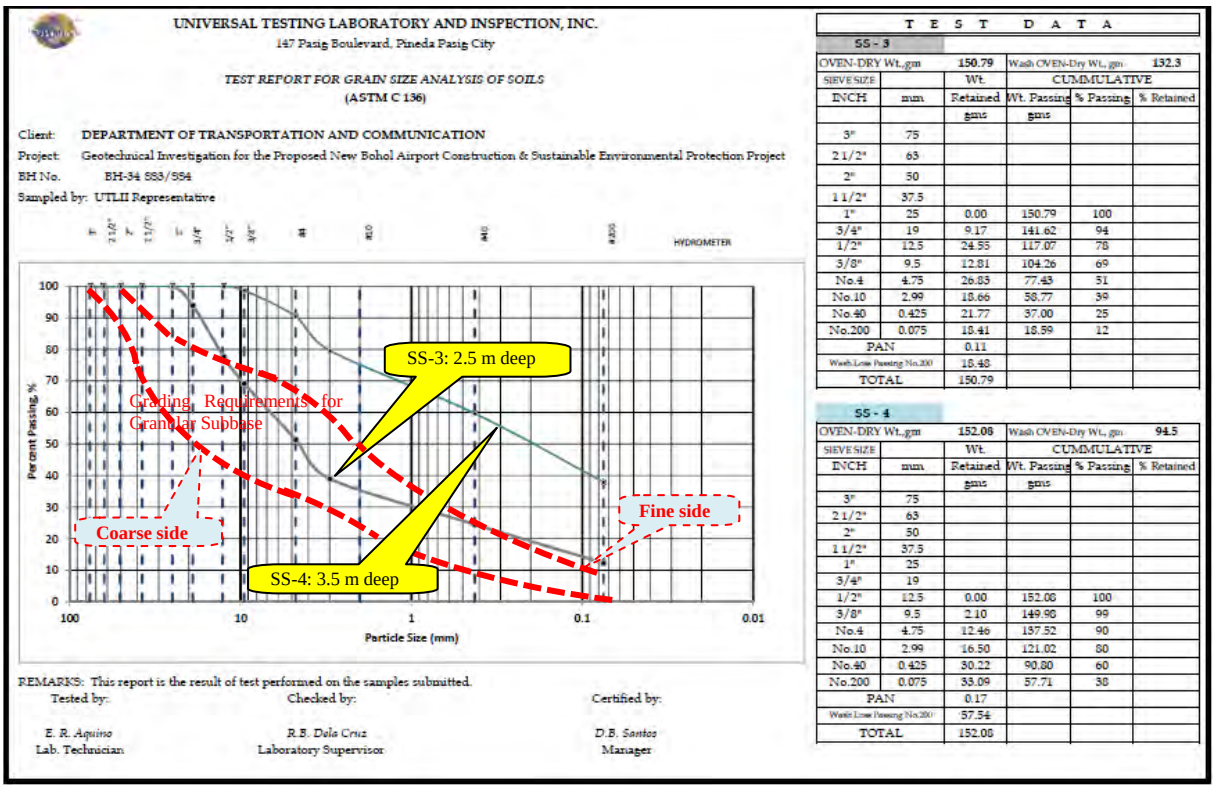
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		157.08	Wash OVEN-Dry Wt., gm		127.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	157.08	100	
1/2"	12.5	2.83	154.25	98	
3/8"	9.5	14.05	140.20	89	
No.4	4.75	33.36	106.84	68	
No.10	2.99	24.40	82.44	52	
No.40	0.425	29.40	53.04	34	
No.200	0.075	23.21	29.83	19	
PAN		0.15			
Wash Loss Passing No.200		29.68			
TOTAL		157.08			

SS - 2

OVEN-DRY Wt.,gm		155.63	Wash OVEN-Dry Wt., gm		133.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	155.6	100	
3/4"	19	12.43	143.2	92	
1/2"	12.5	11.79	131.4	84	
3/8"	9.5	13.51	117.90	76	
No.4	4.75	22.63	95.27	61	
No.10	2.99	17.94	77.33	50	
No.40	0.425	29.15	48.18	31	
No.200	0.075	25.46	22.72	15	
PAN		0.15			
Wash Loss Passing No.200		22.57			
TOTAL		155.63			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-34 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

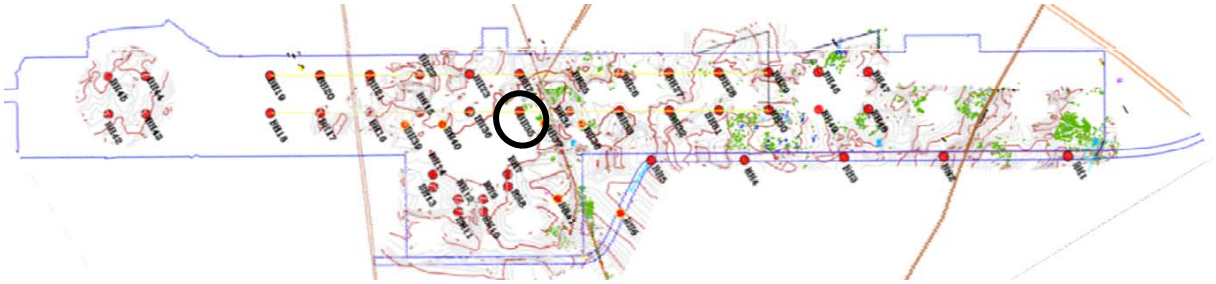
OVEN-DRY Wt.,gm		150.79	Wash OVEN-Dry Wt., gm		132.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	150.79	100	
3/4"	19	9.17	141.62	94	
1/2"	12.5	24.55	117.07	78	
3/8"	9.5	12.81	104.26	69	
No.4	4.75	26.83	77.43	51	
No.10	2.99	18.66	58.77	39	
No.40	0.425	21.77	37.00	25	
No.200	0.075	18.41	18.59	12	
PAN		0.11			
Wash Loss Passing No.200		18.48			
TOTAL		150.79			

SS - 4

OVEN-DRY Wt.,gm		152.08	Wash OVEN-Dry Wt., gm		94.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19				
1/2"	12.5	0.00	152.08	100	
3/8"	9.5	2.10	149.98	99	
No.4	4.75	12.46	137.52	90	
No.10	2.99	16.50	121.02	80	
No.40	0.425	30.22	90.80	60	
No.200	0.075	33.09	57.71	38	
PAN		0.17			
Wash Loss Passing No.200		57.54			
TOTAL		152.08			

Borehole BH-35 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 7.0 m Finished Grade: 8.1 m Subgrade Elevation: 6.2 m Cut height: 0.8 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-35
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/23/2013 DATE FINISHED: 2/23/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	28	36	53		8.51	NP	NP		100	88	80	68	49	35	25	16
2	2	100	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	17	28	36		7.86	NP	NP		100	95	87	75	55	41	28	16
3	3	100	-	SS		GM	Light brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	20	30	16		7.76	NP	NP		100	78	73	64	52	40	25	13
4	4	67	-	SS		GP-GM	Light brown, medium dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	12	18	10		6.90	NP	NP	100	88	77	71	64	49	34	20	10
5	5	78	-	SS		GP-GM	Light brown, medium dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	12	8	13		3.39	NP	NP	100	58	58	40	33	23	16	10	5
							END OF BOREHOLE																

Subgrade Cut 0.8m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	176.13	186.89	198.15	181.29	179.72
Weight of can & dry soil, g.	164.32	175.14	185.73	171.22	174.69
Weight of water, g.	11.81	11.75	12.42	10.07	5.03
Weight of can, g.	25.56	25.64	25.61	25.29	26.15
Weight of dry soil, g.	138.76	149.50	160.12	145.93	148.54
Moisture Content, %	8.51	7.86	7.76	6.90	3.39

Borehole BH-35 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

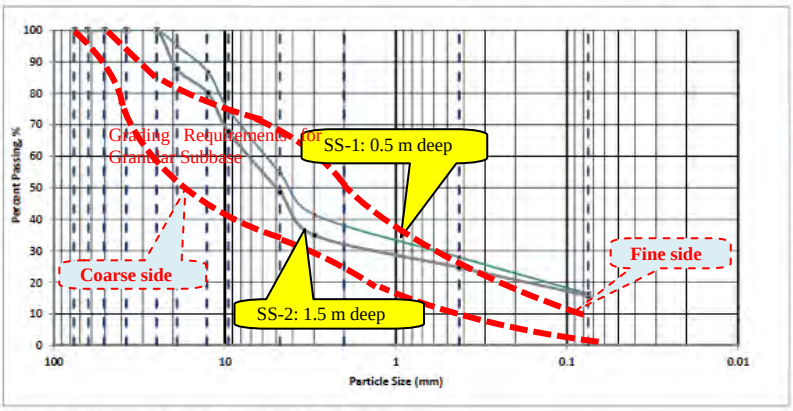
No fine topsoil exists. No large cavity exists. N-value drops to 20 at 5-m deep.

Natural soil at subgrade level (0.8 m deep) is dense (N-value > 40) but porous. It generally meets gradation of granular subbase course when blending with small amount of crashed limestone fragment.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-35 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		136.76	Wash OVEN-Dry Wt., gm		117.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	136.8	100	
3/4"	19	17.11	121.65	88	
1/2"	12.5	10.55	111.10	80	
3/8"	9.5	16.94	94.16	68	
No.4	4.75	26.78	67.36	49	
No.10	2.99	18.88	48.50	35	
No.40	0.425	14.18	34.32	25	
No.200	0.075	12.46	21.86	16	
PAN		0.13			
Wash Loss Passing No.200		21.73			
TOTAL		136.76			

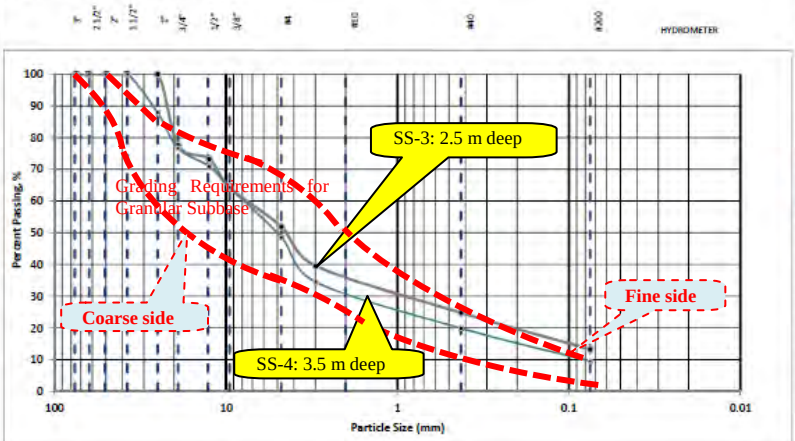
SS - 2

OVEN-DRY Wt.,gm		149.50	Wash OVEN-Dry Wt., gm		125.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	149.5	100	
3/4"	19	7.37	142.1	95	
1/2"	12.5	12.49	129.6	87	
3/8"	9.5	17.72	111.92	75	
No.4	4.75	30.22	81.70	55	
No.10	2.99	19.67	62.03	41	
No.40	0.425	20.18	41.85	28	
No.200	0.075	17.37	24.48	16	
PAN		0.08			
Wash Loss Passing No.200		24.40			
TOTAL		149.50			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-35 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		160.12	Wash OVEN-Dry Wt., gm		139.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	160.12	100	
3/4"	19	35.90	124.22	78	
1/2"	12.5	6.92	117.30	73	
3/8"	9.5	14.36	102.94	64	
No.4	4.75	19.80	83.14	52	
No.10	2.99	19.80	63.34	40	
No.40	0.425	23.61	39.73	25	
No.200	0.075	18.51	21.22	13	
PAN		0.06			
Wash Loss Passing No.200		21.16			
TOTAL		160.12			

SS - 4

OVEN-DRY Wt.,gm		145.93	Wash OVEN-Dry Wt., gm		132.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	145.9	100	
1"	25	17.71	128.22	88	
3/4"	19	16.41	111.81	77	
1/2"	12.5	8.27	103.54	71	
3/8"	9.5	9.75	93.79	64	
No.4	4.75	22.84	70.95	49	
No.10	2.99	20.63	50.32	34	
No.40	0.425	21.26	29.06	20	
No.200	0.075	15.11	13.95	10	
PAN		0.07			
Wash Loss Passing No.200		13.88			
TOTAL		145.93			

Borehole BH-36 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 6.8 m Finished Grade: 7.9 m Subgrade Elevation: 6.0 m Cut height: 0.8 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-36
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	3/1/2013 DATE FINISHED: 3/1/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	15	30	34		18.09	NP	NP			100	92	78	54	39	28	21
2	2	67	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	30	34	44		13.49	NP	NP				100	90	72	57	45	36
3	3	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	20	31	32		8.48	NP	NP		100	95	85	71	51	34	24	23
4	4	44	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	30	34	38		11.81	NP	NP	100	84	84	62	58	46	37	30	22
5	5	44	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	30	39	46		7.74	NP	NP	100	88	59	56	49	38	28	21	14
							END OF BOREHOLE																

Subgrade Cut 0.8m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	162.91	170.60	177.38	194.70	200.81
Weight of can & dry soil, g.	141.27	153.39	165.46	176.87	188.21
Weight of water, g.	21.64	17.21	11.92	17.83	12.60
Weight of can, g.	21.64	25.86	24.96	25.85	25.49
Weight of dry soil, g.	119.63	127.53	140.50	151.02	162.72
Moisture Content, %	18.09	13.49	8.48	11.81	7.74

Borehole BH-36 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

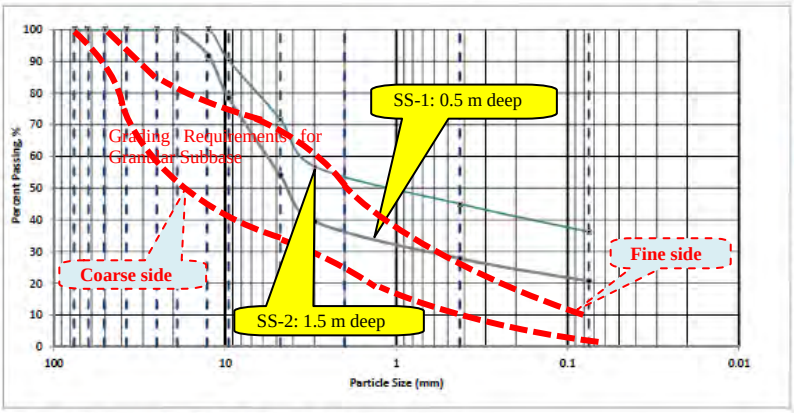
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (0.8 m deep) is dense (N-value of 45 to 60) but porous. It will require blending with large amount of crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-36 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		119.63	Wash OVEN-Dry Wt., gm		94.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	119.63	100	
1/2"	12.5	9.89	109.74	92	
3/8"	9.5	15.89	93.85	78	
No.4	4.75	29.22	64.63	54	
No.10	2.99	17.38	47.25	39	
No.40	0.425	13.99	33.26	28	
No.200	0.075	8.54	24.72	21	
PAN		0.00			
Wash Lose Passing No.200		24.72			
TOTAL		119.63			

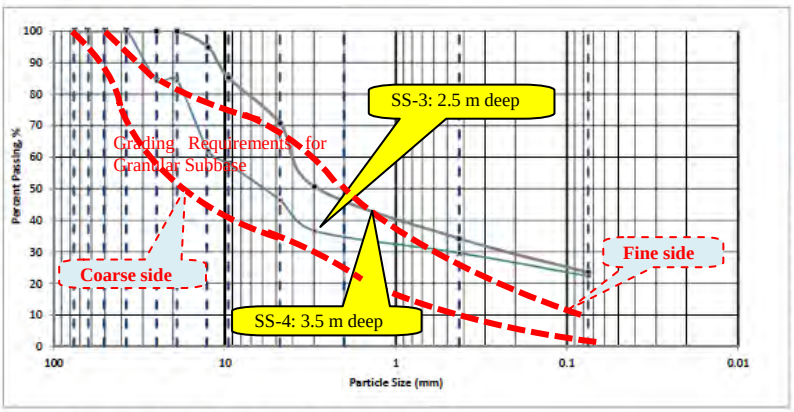
SS - 2

OVEN-DRY Wt.,gm		127.53	Wash OVEN-Dry Wt., gm		81.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19				
1/2"	12.5	0.00	127.5	100	
3/8"	9.5	12.44	115.09	90	
No.4	4.75	23.63	91.46	72	
No.10	2.99	19.00	72.46	57	
No.40	0.425	15.02	57.44	45	
No.200	0.075	11.21	46.23	36	
PAN		0.00			
Wash Lose Passing No.200		46.23			
TOTAL		127.53			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-36 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

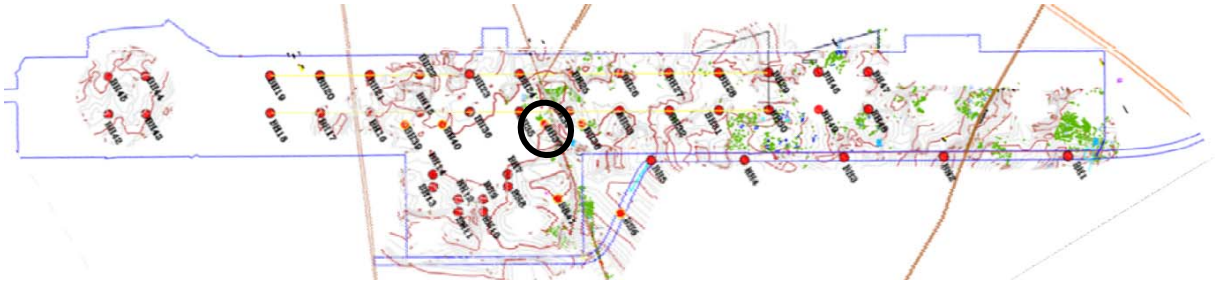
OVEN-DRY Wt.,gm		140.50	Wash OVEN-Dry Wt., gm		107.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	140.50	100	
1/2"	12.5	7.21	133.29	95	
3/8"	9.5	13.48	119.81	85	
No.4	4.75	20.45	99.36	71	
No.10	2.99	28.17	71.19	51	
No.40	0.425	23.08	48.11	34	
No.200	0.075	15.08	33.03	24	
PAN		0.06			
Wash Lose Passing No.200		32.97			
TOTAL		140.50			

SS - 4

OVEN-DRY Wt.,gm		151.02	Wash OVEN-Dry Wt., gm		117.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	151.0	100	
1"	25	23.73	127.29	84	
3/4"	19	0.00	127.29	84	
1/2"	12.5	33.36	93.93	62	
3/8"	9.5	6.52	87.41	58	
No.4	4.75	17.31	70.10	46	
No.10	2.99	14.68	55.42	37	
No.40	0.425	10.60	44.82	30	
No.200	0.075	11.08	33.74	22	
PAN		0.06			
Wash Lose Passing No.200		33.68			
TOTAL		151.02			

Borehole BH-37 – Taxiway (Pavement Thickness: 0.9 m + Subgrade/Slope: 0.8 m)

Existing Grade: 7.8 m Finished Grade: 8.1 m Subgrade Elevation: 6.4 m Cut height: 1.4 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-37
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/2/2013 DATE FINISHED: 3/2/2013 WATER TABLE: DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		SP-SM	Light brown, very dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	27	33	38	Subgrade Cut 1.4m	33.18	NP	NP			100	85	75	59	43	30	9
2	2	81	-	SS		SP-SM	Light brown, very dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	33	34	33		12.16	NP	NP			100	93	87	70	52	28	8
3	3	78	-	SS		SP-SM	Light brown, very dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	29	33	18		11.79	NP	NP		100	90	85	76	59	44	26	7
4	4	56	-	SS		GW	Light brown, very dense well graded gravel (broken corals with limestone) of no plasticity	38	43	51		42.86	NP	NP	100	76	76	65	57	43	29	21	4
5	5	67	-	SS		SP-SM	Light brown, very dense poorly graded sand with silt and gravel (broken corals with limestone) of no plasticity	61	42	41		26.69	NP	NP			100	82	98	62	45	20	11
							END OF BOREHOLE																

Pictures of disturbed soil samples

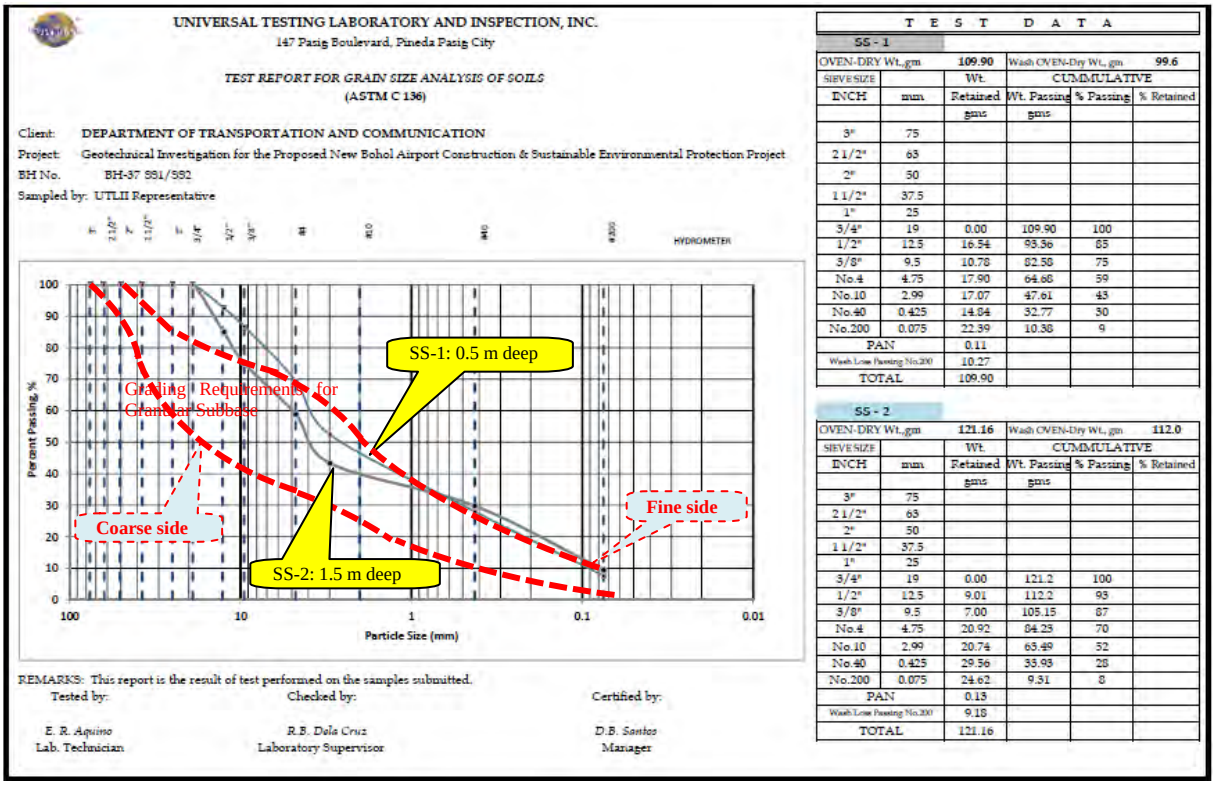
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	172.02	155.50	154.40	160.29	132.27
Weight of can & dry soil, g.	135.56	140.77	140.50	119.94	108.91
Weight of water, g.	36.46	14.73	13.90	40.35	23.36
Weight of can, g.	25.66	19.61	22.61	25.80	21.40
Weight of dry soil, g.	109.90	121.16	117.89	94.14	87.51
Moisture Content, %	33.18	12.16	11.79	42.86	26.69

Borehole BH-37 –

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.4 m deep) is dense (N-value of 45 to 60) but porous. It will require blending with amount of crashed limestone fragment when used for granular subbase course.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-37 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

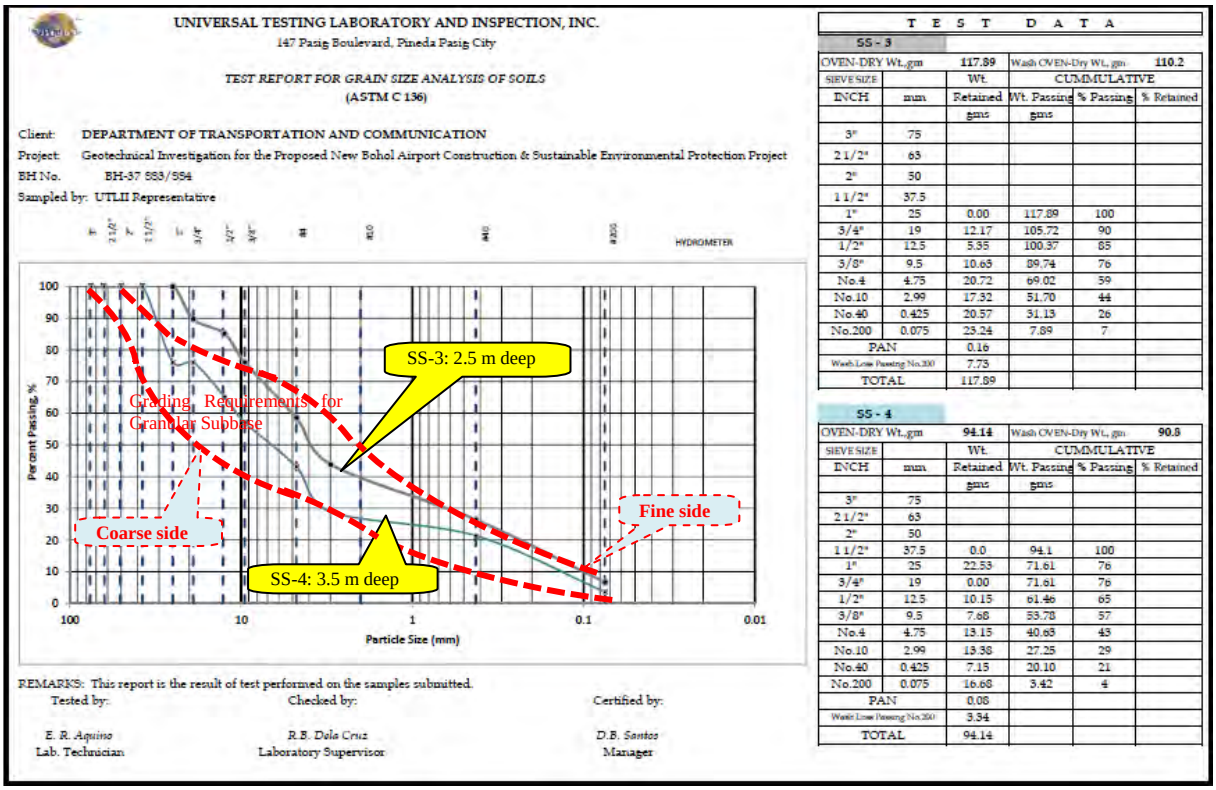
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		109.90	Wash OVEN-Dry Wt., gm		99.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	109.90	100	
1/2"	12.5	16.54	93.36	85	
3/8"	9.5	10.78	82.58	75	
No.4	4.75	17.90	64.68	59	
No.10	2.99	17.07	47.61	43	
No.40	0.425	14.84	32.77	30	
No.200	0.075	22.39	10.38	9	
PAN		0.11			
Wash Loss Passing No.200		10.27			
TOTAL		109.90			

SS - 2

OVEN-DRY Wt.,gm		121.16	Wash OVEN-Dry Wt., gm		112.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	121.2	100	
1/2"	12.5	9.01	112.2	93	
3/8"	9.5	7.00	105.15	87	
No.4	4.75	20.92	84.23	70	
No.10	2.99	20.74	63.49	52	
No.40	0.425	29.56	33.93	28	
No.200	0.075	24.62	9.31	8	
PAN		0.13			
Wash Loss Passing No.200		9.18			
TOTAL		121.16			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-37 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		117.89	Wash OVEN-Dry Wt., gm		110.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	117.89	100	
3/4"	19	12.17	105.72	90	
1/2"	12.5	5.35	100.37	85	
3/8"	9.5	10.65	89.74	76	
No.4	4.75	20.72	69.02	59	
No.10	2.99	17.32	51.70	44	
No.40	0.425	20.57	31.13	26	
No.200	0.075	23.24	7.89	7	
PAN		0.16			
Wash Loss Passing No.200		7.73			
TOTAL		117.89			

SS - 4

OVEN-DRY Wt.,gm		94.14	Wash OVEN-Dry Wt., gm		90.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	94.1	100	
1"	25	22.53	71.61	76	
3/4"	19	0.00	71.61	76	
1/2"	12.5	10.15	61.46	65	
3/8"	9.5	7.68	53.78	57	
No.4	4.75	13.15	40.63	43	
No.10	2.99	13.38	27.25	29	
No.40	0.425	7.15	20.10	21	
No.200	0.075	16.68	3.42	4	
PAN		0.08			
Wash Loss Passing No.200		3.34			
TOTAL		94.14			

Borehole BH-38 – Taxiway (Pavement Thickness: 0.9 m + Subgrade/Slope: 0.8 m)

Existing Grade: 7.6 m Finished Grade: 8.1 m Subgrade Elevation: 6.4 m Cut height: 1.2 m

FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-38
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/2/2013 DATE FINISHED: 3/2/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	89	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	24	54	40		30.47	NP	NP			100	65	53	39	28	17	7
2	2	100	-	SS		GW	Brown, dense well graded gravel with sand (broken corals with limestone) of no plasticity	35	23	25		9.42	NP	NP		100	93	76	69	45	27	16	3
3	3	89	-	SS		GW	Brown, dense well graded gravel with sand (broken corals with limestone) of no plasticity	26	30	38		10.52	NP	NP		100	76	63	51	34	23	11	2
4	4	67	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	39	24	28		13.58	NP	NP			100	78	73	50	35	17	7
5	5	89	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	33	28	25		5.81	NP	NP		100	92	77	68	52	36	20	9
							END OF BOREHOLE																

Subgrade Cut 1.2m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	190.29	164.39	156.17	195.18	180.97
Weight of can & dry soil, g.	150.97	152.43	143.50	174.39	172.40
Weight of water, g.	39.32	11.96	12.67	20.79	8.57
Weight of can, g.	21.91	25.53	23.01	21.29	24.95
Weight of dry soil, g.	129.06	126.90	120.49	153.10	147.45
Moisture Content, %	30.47	9.42	10.52	13.58	5.81

Borehole BH-38 – Taxiway (Pavement Thickness: 0.9 m + Subgrade/Slope: 0.8 m)

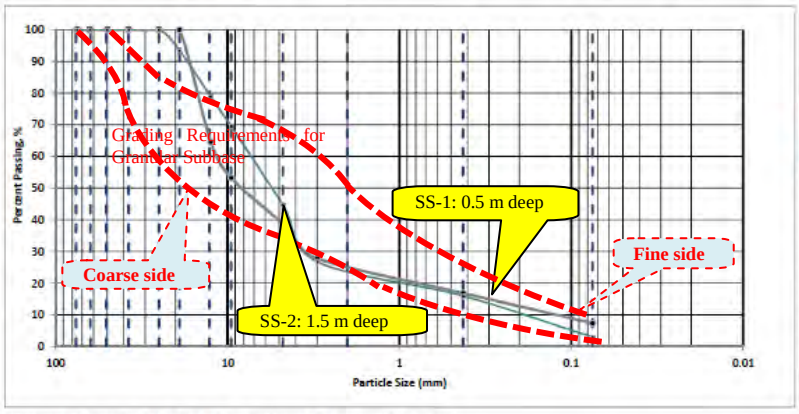
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.2 m deep) is dense (N-value of 40 to 60) but porous. It will require blending with small amount of crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-38 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		129.06	Wash OVEN-Dry Wt., gm		119.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	129.06	100	
1/2"	12.5	45.77	83.29	65	
3/8"	9.5	14.60	68.69	53	
No.4	4.75	18.79	49.90	39	
No.10	2.99	13.96	35.94	28	
No.40	0.425	14.18	21.76	17	
No.200	0.075	12.29	9.47	7	
PAN		0.04			
Wash Loss Passing No.200		9.43			
TOTAL		129.06			

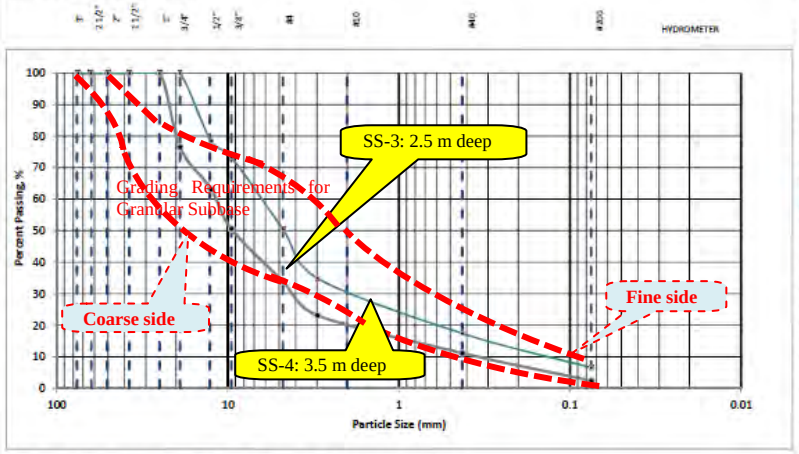
SS - 2

OVEN-DRY Wt.,gm		126.90	Wash OVEN-Dry Wt., gm		123.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	126.9	100	
3/4"	19	8.31	118.6	93	
1/2"	12.5	18.46	100.1	79	
3/8"	9.5	11.95	88.18	69	
No.4	4.75	31.51	56.67	45	
No.10	2.99	22.72	33.95	27	
No.40	0.425	13.69	20.26	16	
No.200	0.075	16.49	3.77	3	
PAN		0.00			
Wash Loss Passing No.200		3.77			
TOTAL		126.90			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-38 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

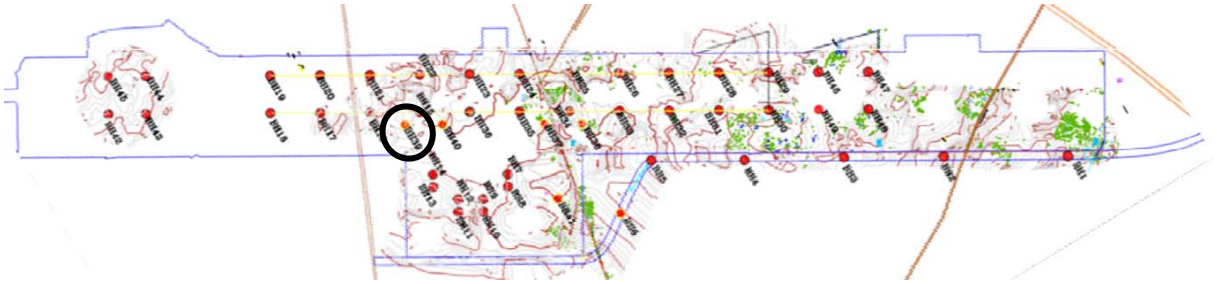
OVEN-DRY Wt.,gm		120.49	Wash OVEN-Dry Wt., gm		117.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	120.49	100	
3/4"	19	28.35	92.14	76	
1/2"	12.5	16.06	76.08	63	
3/8"	9.5	15.15	60.93	51	
No.4	4.75	20.08	40.85	34	
No.10	2.99	12.93	27.92	23	
No.40	0.425	14.45	13.47	11	
No.200	0.075	10.65	2.84	2	
PAN		0.00			
Wash Loss Passing No.200		2.84			
TOTAL		120.49			

SS - 4

OVEN-DRY Wt.,gm		153.10	Wash OVEN-Dry Wt., gm		143.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	153.10	100	
1/2"	12.5	33.01	120.09	78	
3/8"	9.5	7.88	112.21	73	
No.4	4.75	34.96	77.25	50	
No.10	2.99	23.77	53.48	35	
No.40	0.425	26.81	26.67	17	
No.200	0.075	16.55	10.12	7	
PAN		0.07			
Wash Loss Passing No.200		10.05			
TOTAL		153.10			

Borehole BH-39 – Taxiway (Pavement Thickness: 0.9 m + Subgrade/Slope: 0.8 m)

Existing Grade: 7.4 m Finished Grade: 7.5 m Subgrade Elevation: 5.8 m Cut height: 1.6 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-39

LOCATION: Panglao, Bohol — DEPTH: 5.0 m

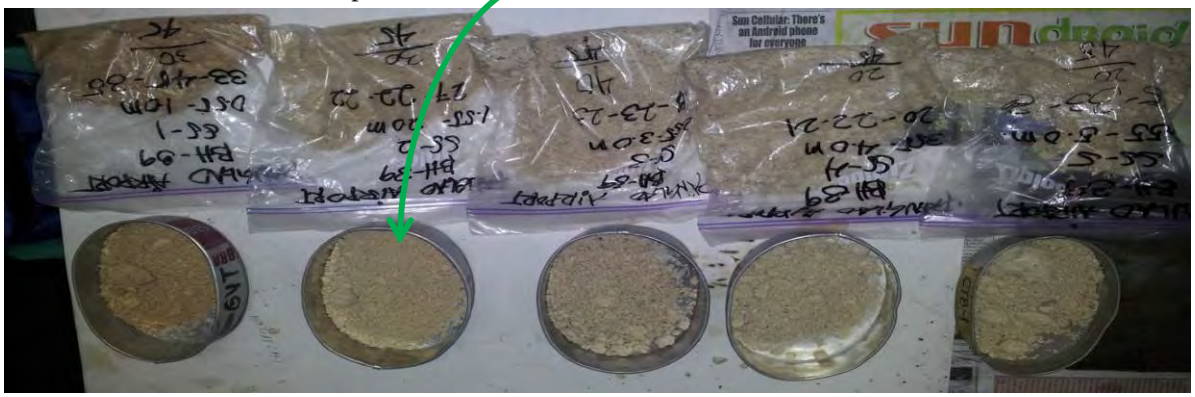
DATE DRILLED: 3/3/2013 DATE FINISHED: 3/3/2013 WATER TABLE: DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	67	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	33	45	35		7.53	NP	NP		100	87	85	77	65	51	32	16
2	2	67	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	27	22	22		12.05	NP	NP			100	94	94	83	65	39	20
3	3	89	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	18	23	23		14.47	NP	NP			100	98	94	80	64	41	22
4	4	44	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	20	22	21		11.42	NP	NP			100	98	89	69	53	34	18
5	5	44	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	25	33	3		10.81	NP	NP	100	73	73	63	60	50	37	24	14

END OF BOREHOLE

Subgrade Cut 1.6m

Pictures of disturbed soil samples



Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	142.43	129.22	140.85	148.14	127.13
Weight of can & dry soil, g.	134.24	118.10	126.27	135.59	116.41
Weight of water, g.	8.19	11.12	14.58	12.55	10.72
Weight of can, g.	25.46	25.81	25.54	25.68	17.25
Weight of dry soil, g.	108.78	92.29	100.73	109.91	99.16
Moisture Content, %	7.53	12.05	14.47	11.42	10.81

Borehole BH-39 – Taxiway (Pavement Thickness: 0.9 m + Subgrade/Slope: 0.8 m)

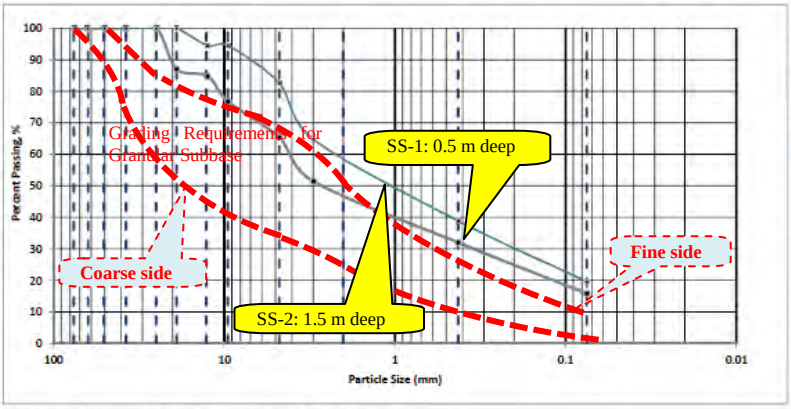
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.6 m deep) is dense (N-value of 40 to 50) but porous. It will require blending with large amount of crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-39 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		106.78	Wash OVEN-Dry Wt., gm		91.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	106.8	100	
3/4"	19	14.09	94.69	87	
1/2"	12.5	2.45	92.24	85	
3/8"	9.5	8.71	83.53	77	
No.4	4.75	12.48	71.05	65	
No.10	2.99	15.14	55.91	51	
No.40	0.425	21.09	34.82	32	
No.200	0.075	17.58	17.24	16	
PAN		0.13			
Wash Loss Passing No.200		17.11			
TOTAL		106.78			

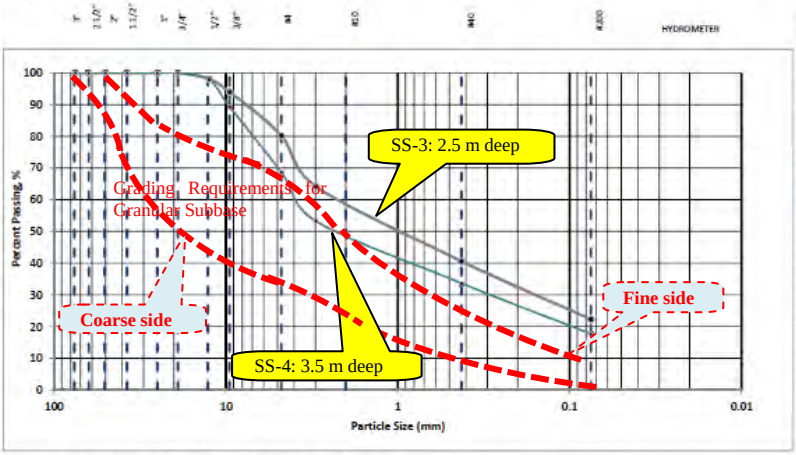
SS - 2

OVEN-DRY Wt.,gm		92.29	Wash OVEN-Dry Wt., gm		74.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	92.3	100	
1/2"	12.5	5.10	87.2	94	
3/8"	9.5	0.00	87.19	94	
No.4	4.75	10.99	76.20	83	
No.10	2.99	16.47	59.73	65	
No.40	0.425	23.84	35.89	39	
No.200	0.075	17.78	18.11	20	
PAN		0.18			
Wash Loss Passing No.200		17.93			
TOTAL		92.29			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-39 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

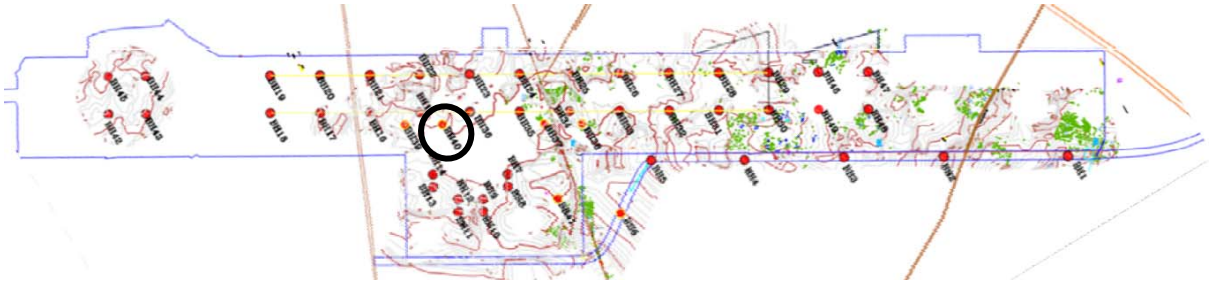
OVEN-DRY Wt.,gm		100.73	Wash OVEN-Dry Wt., gm		78.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	100.73	100	
1/2"	12.5	1.94	98.79	98	
3/8"	9.5	4.08	94.71	94	
No.4	4.75	13.90	80.81	80	
No.10	2.99	16.14	64.67	64	
No.40	0.425	23.75	40.92	41	
No.200	0.075	18.49	22.43	22	
PAN		0.18			
Wash Loss Passing No.200		22.25			
TOTAL		100.73			

SS - 4

OVEN-DRY Wt.,gm		109.91	Wash OVEN-Dry Wt., gm		90.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	109.91	100	
1/2"	12.5	2.34	107.57	98	
3/8"	9.5	9.34	98.23	89	
No.4	4.75	22.74	75.49	69	
No.10	2.99	16.93	58.56	53	
No.40	0.425	21.55	37.01	34	
No.200	0.075	17.59	19.42	18	
PAN		0.13			
Wash Loss Passing No.200		19.29			
TOTAL		109.91			

Borehole BH-40 – Taxiway (Pavement Thickness: 0.9 m + Subgrade/Slope: 0.8 m)

Existing Grade: 7.0 m Finished Grade: 7.5 m Subgrade Elevation: 5.8 m Cut height: 1.2 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-40
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
DATE DRILLED:	2/22/2013 DATE FINISHED: 2/22/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface															
1	1	100	-	SS		GM	Dark brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	8	20	29	14.71	NP	NP		100	71	65	55	44	39	32	26
2	2	67	-	SS		GM	Dark brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	57	50	49	9.62	NP	NP	100	80	80	62	54	36	28	20	12
3	3	67	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	38	29	32	9.80	NP	NP			100	91	88	66	50	33	21
4	4	56	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	60	31	35	9.03	NP	NP				100	85	65	49	30	16
5	5	56	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	29	24	29	7.92	NP	NP			100	95	88	63	46	27	14

GRAPH (10 20 30 40) — Subgrade Cut 1.2m

END OF BOREHOLE

Pictures of disturbed soil samples

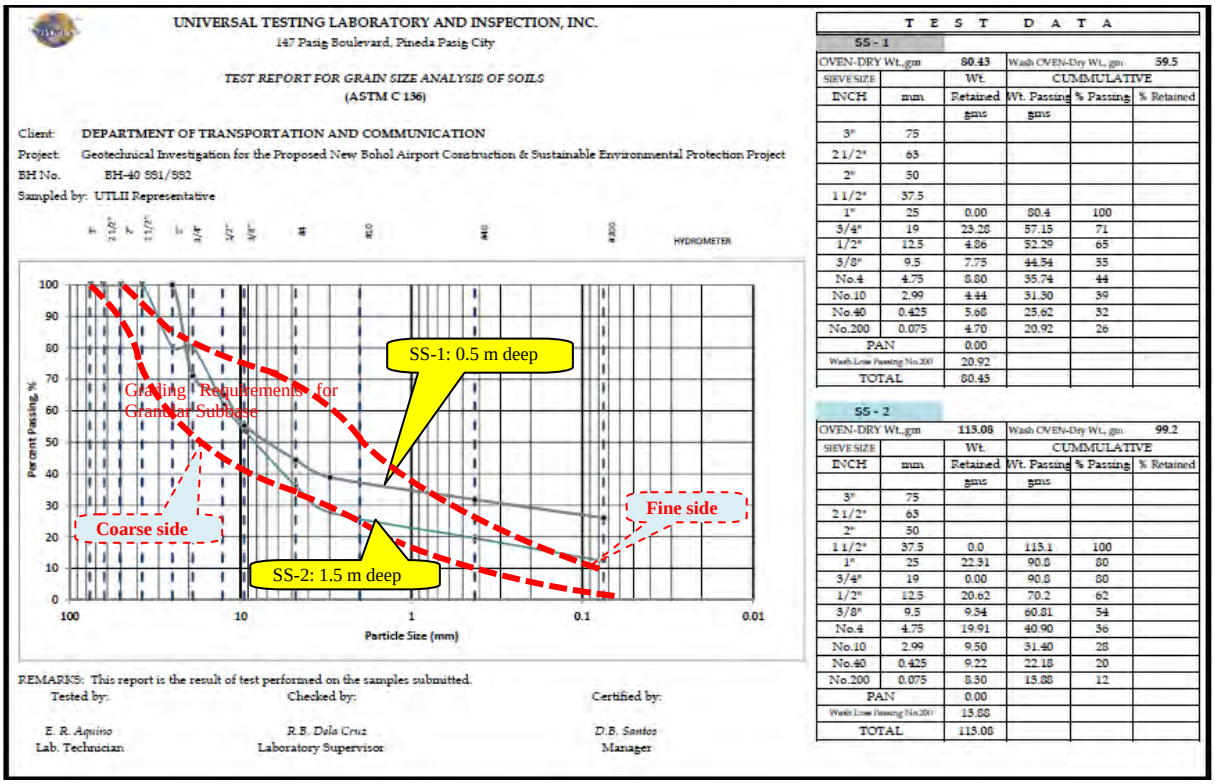
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	110.31	142.77	108.65	113.41	141.84
Weight of can & dry soil, g.	98.48	131.89	100.49	105.59	132.81
Weight of water, g.	11.83	10.88	8.16	7.82	9.03
Weight of can, g.	18.05	18.81	17.25	19.02	18.78
Weight of dry soil, g.	80.43	113.08	83.24	86.57	114.03
Moisture Content, %	14.71	9.62	9.80	9.03	7.92

Borehole BH-40 – Taxiway (Pavement Thickness: 0.9 m + Subgrade/Slope: 0.8 m)

No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.2 m deep) is dense (N-value of 90 to 100) but porous. It will require blending with large amount of crashed limestone fragment when used for granular subbase course.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-40 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

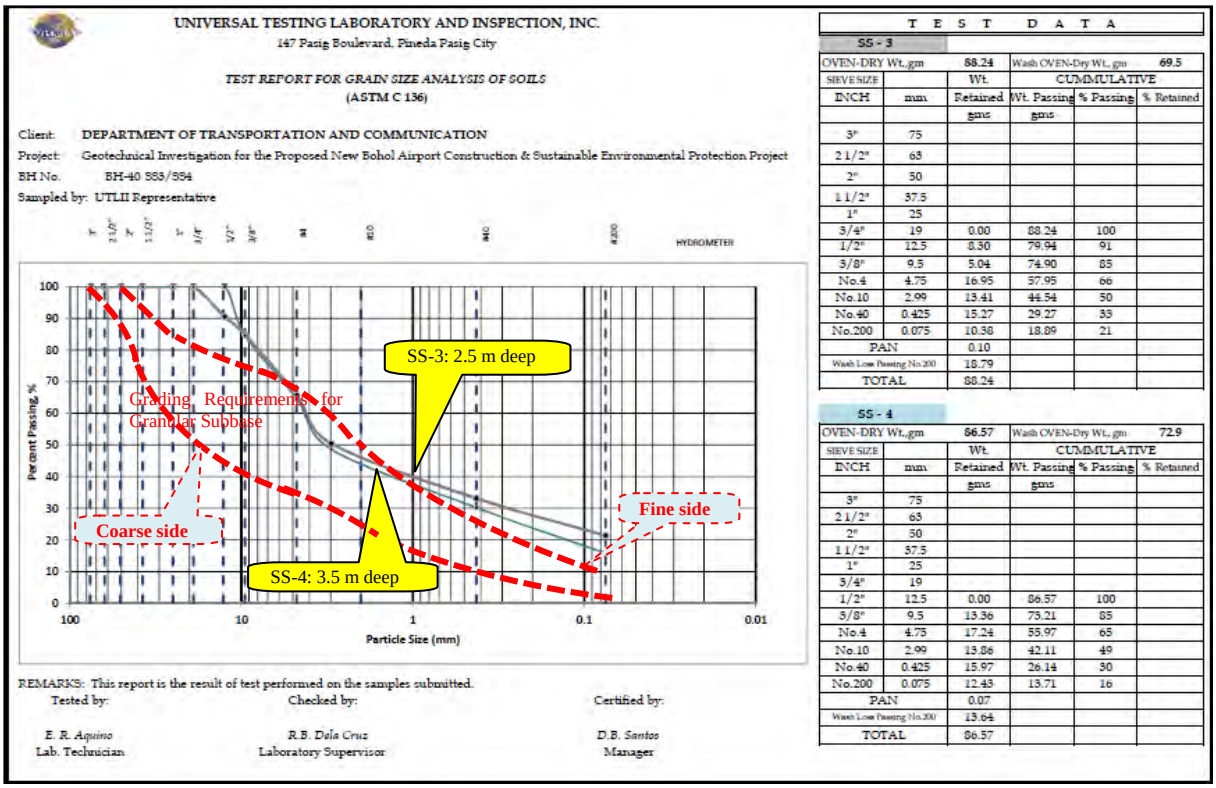
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		80.43	Wash OVEN-Dry Wt., gm		59.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	80.4	100	
3/4"	19	23.28	57.15	71	
1/2"	12.5	4.86	52.29	65	
3/8"	9.5	7.75	44.54	55	
No.4	4.75	8.80	35.74	44	
No.10	2.99	4.44	31.30	39	
No.40	0.425	5.68	25.62	32	
No.200	0.075	4.70	20.92	26	
PAN		0.00			
Wash Lose Passing No.200		20.92			
TOTAL		80.43			

SS - 2

OVEN-DRY Wt.,gm		113.08	Wash OVEN-Dry Wt., gm		99.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	113.1	100	
1"	25	22.31	90.8	80	
3/4"	19	0.00	90.8	80	
1/2"	12.5	20.62	70.2	62	
3/8"	9.5	9.34	60.81	54	
No.4	4.75	19.91	40.90	36	
No.10	2.99	9.50	31.40	28	
No.40	0.425	9.22	22.18	20	
No.200	0.075	8.30	13.88	12	
PAN		0.00			
Wash Lose Passing No.200		13.88			
TOTAL		113.08			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-40 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

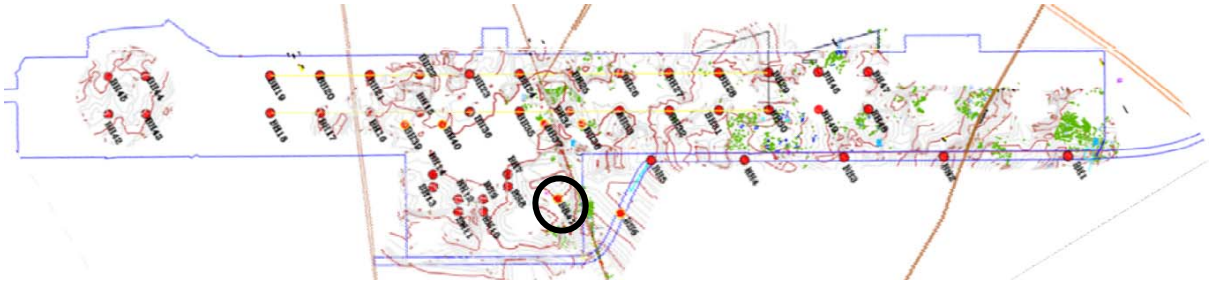
OVEN-DRY Wt.,gm		88.24	Wash OVEN-Dry Wt., gm		69.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	88.24	100	
1/2"	12.5	8.30	79.94	91	
3/8"	9.5	5.04	74.90	85	
No.4	4.75	16.95	57.95	66	
No.10	2.99	13.41	44.54	50	
No.40	0.425	15.27	29.27	33	
No.200	0.075	10.38	18.89	21	
PAN		0.10			
Wash Lose Passing No.200		18.79			
TOTAL		88.24			

SS - 4

OVEN-DRY Wt.,gm		86.57	Wash OVEN-Dry Wt., gm		72.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19				
1/2"	12.5	0.00	86.57	100	
3/8"	9.5	13.36	73.21	85	
No.4	4.75	17.24	55.97	65	
No.10	2.99	13.86	42.11	49	
No.40	0.425	15.97	26.14	30	
No.200	0.075	12.43	13.71	16	
PAN		0.07			
Wash Lose Passing No.200		13.64			
TOTAL		86.57			

Borehole BH-41 – Control Tower

Existing Grade: 6.0 m Finished Grade: 8.0 m Footing Bottom: 3.5 m Cut height: 2.5 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-41

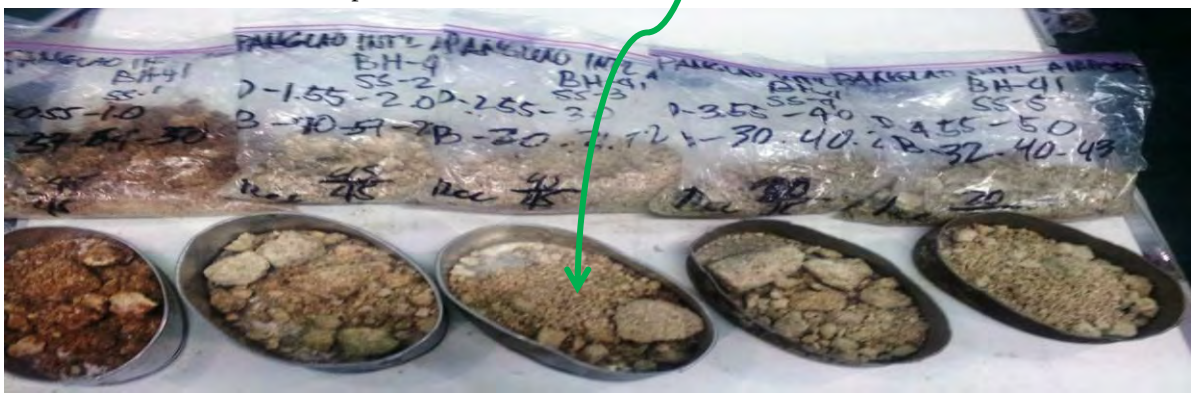
LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 3/2/2013 DATE FINISHED: 3/2/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				10 20 30 40												
1	1	100	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	57	64	50	Footing Cut: 2.5 m	10.39	NP	NP		100	94	84	74	58	45	32	22
2	2	100	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	70	57	22		16.69	NP	NP	100	70	63	47	39	29	24	16	8
3	3	100	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	70	25	32		12.44	NP	NP		100	97	90	86	72	58	37	19
4	4	44	-	SS		GP-GM	Light brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	30	40	25		12.12	NP	NP	100	57	57	41	36	29	24	17	9
5	5	44	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	32	40	43		9.75	NP	NP	100	91	91	82	72	60	50	34	19

END OF BOREHOLE

Pictures of disturbed soil samples



Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	199.29	202.65	186.76	185.58	170.58
Weight of can & dry soil, g.	182.61	177.29	168.97	167.48	157.24
Weight of water, g.	16.68	25.36	17.79	18.10	13.34
Weight of can, g.	22.03	25.36	25.92	18.10	20.47
Weight of dry soil, g.	160.58	151.93	143.05	149.38	136.77
Moisture Content, %	10.39	16.69	12.44	12.12	9.75

Borehole BH-41 – Control Tower

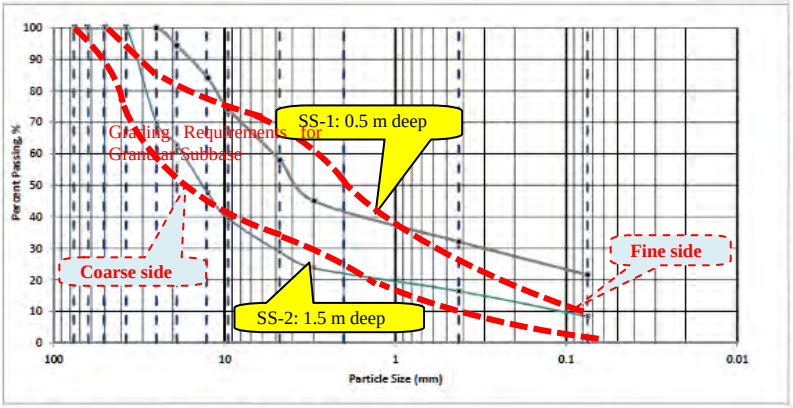
No fine topsoil exists. No large cavity exists.

Natural soil at footing bottom level (2.5 m deep) is N-value of more than 50.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-41 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		160.58	Wash OVEN-Dry Wt., gm		125.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	160.6	100	
3/4"	19	9.00	151.58	94	
1/2"	12.5	16.53	135.05	84	
3/8"	9.5	15.73	119.32	74	
No.4	4.75	26.12	93.20	58	
No.10	2.99	20.88	72.32	45	
No.40	0.425	20.72	51.60	32	
No.200	0.075	16.92	34.68	22	
PAN		0.00			
Wash Loss Passing No.200		34.68			
TOTAL		160.58			

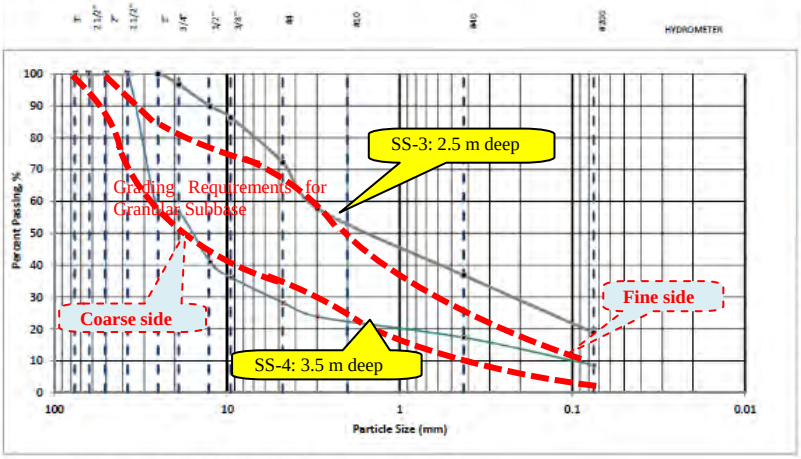
SS - 2

OVEN-DRY Wt.,gm		151.93	Wash OVEN-Dry Wt., gm		139.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	151.9	100	
1"	25	45.61	106.3	70	
3/4"	19	10.81	95.5	63	
1/2"	12.5	23.39	72.1	47	
3/8"	9.5	12.17	59.95	39	
No.4	4.75	16.07	43.88	29	
No.10	2.99	7.86	36.02	24	
No.40	0.425	11.09	24.93	16	
No.200	0.075	12.21	12.72	8	
PAN		0.09			
Wash Loss Passing No.200		12.63			
TOTAL		151.93			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-41 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

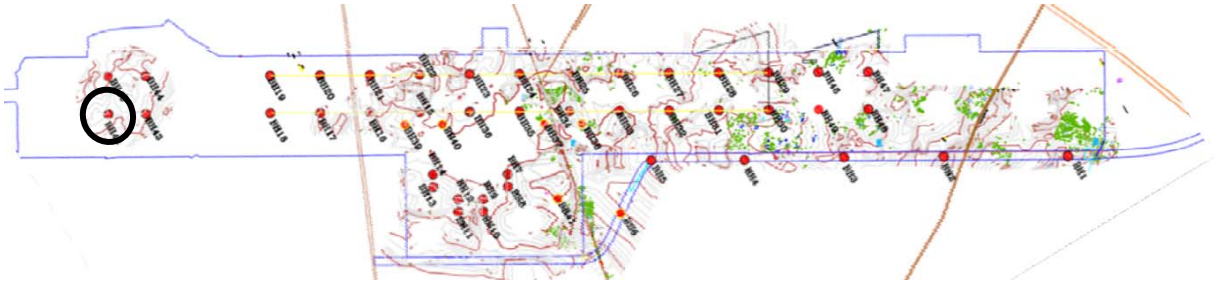
OVEN-DRY Wt.,gm		143.05	Wash OVEN-Dry Wt., gm		116.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	143.05	100	
3/4"	19	4.81	138.24	97	
1/2"	12.5	9.74	128.50	90	
3/8"	9.5	5.04	123.46	86	
No.4	4.75	20.14	103.32	72	
No.10	2.99	20.71	82.61	58	
No.40	0.425	29.89	52.72	37	
No.200	0.075	25.84	26.88	19	
PAN		0.12			
Wash Loss Passing No.200		26.76			
TOTAL		143.05			

SS - 4

OVEN-DRY Wt.,gm		149.36	Wash OVEN-Dry Wt., gm		136.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	149.4	100	
1"	25	64.77	84.61	57	
3/4"	19	0.00	84.61	57	
1/2"	12.5	23.33	61.28	41	
3/8"	9.5	7.22	54.06	36	
No.4	4.75	11.71	42.35	28	
No.10	2.99	6.75	35.60	24	
No.40	0.425	9.77	25.83	17	
No.200	0.075	12.87	12.96	9	
PAN		0.04			
Wash Loss Passing No.200		12.92			
TOTAL		149.36			

Borehole BH-42 – Soaking Yard

Existing Grade: 2.6 m Finished Grade: 2.0 m Cut height: 0.6 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-42
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/4/2013 DATE FINISHED: 3/4/2013 WATER TABLE: DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				10 20 30 40												
1	1	67	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	80	83	88	Cut 0.6m	10.62	NP	NP		100	86	78	72	54	45	30	17
2	2	56	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	88	80	39		8.85	NP	NP		100	91	86	67	50	42	31	22
3	3	56	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	30	29	26		3.36	NP	NP		100	75	67	64	52	38	33	13
4	4	67	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	30	30	2[illegible]		13.99	NP	NP				100	95	80	63	41	22
5	5	56	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	20	[illegible]7	33		11.21	NP	NP			10	90	82	70	58	42	25
							END OF BOREHOLE																

Pictures of disturbed soil samples

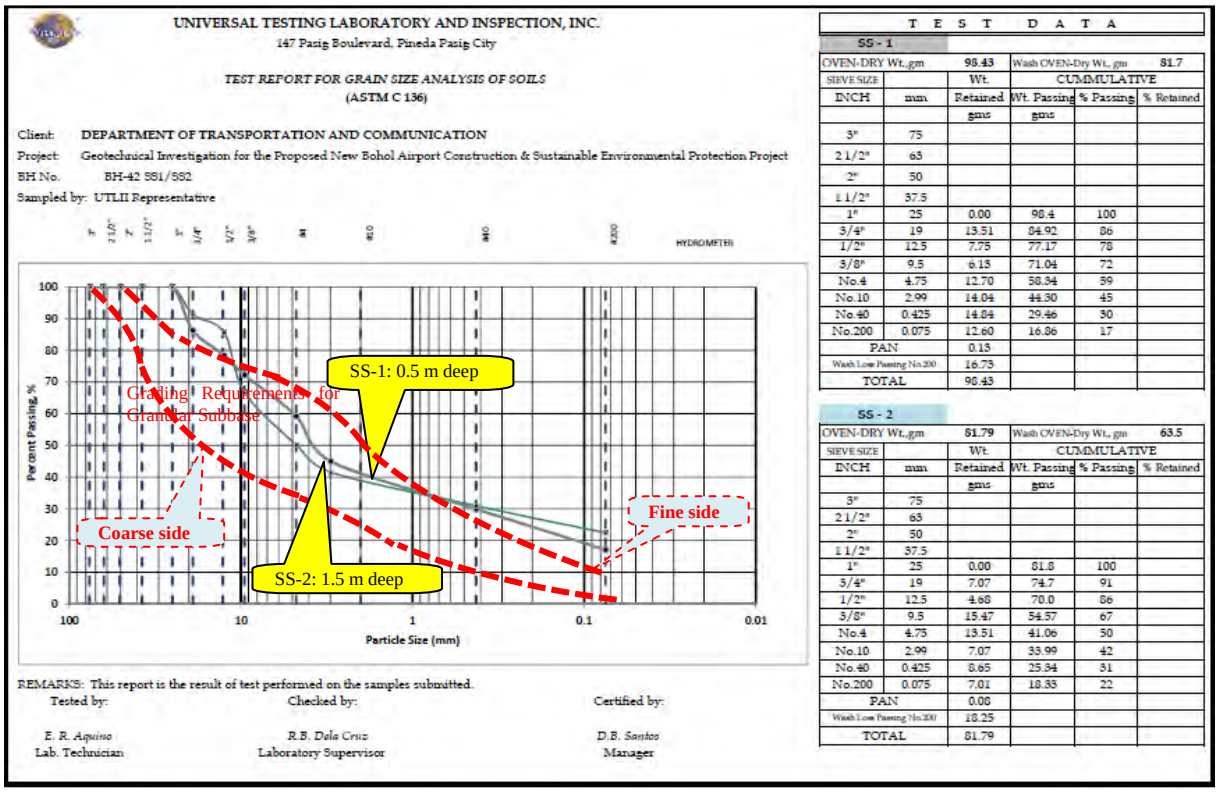
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	133.70	108.84	120.00	90.63	137.62
Weight of can & dry soil, g.	123.25	101.60	116.65	81.74	125.81
Weight of water, g.	10.45	7.24	3.35	8.89	11.81
Weight of can, g.	24.82	19.81	16.81	18.18	20.46
Weight of dry soil, g.	98.43	81.79	99.84	63.56	105.35
Moisture Content, %	10.62	8.85	3.36	13.99	11.21

Borehole BH-42 – Soaking Yard

No fine topsoil exists. No large cavity exists.

Natural soil at bottom of soaking yard (0.6 m deep) is dense (N-value > 100) but porous.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-42 SS1/SS2
Sampled by: UTLII Representative

T E S T D A T A

SS - 1

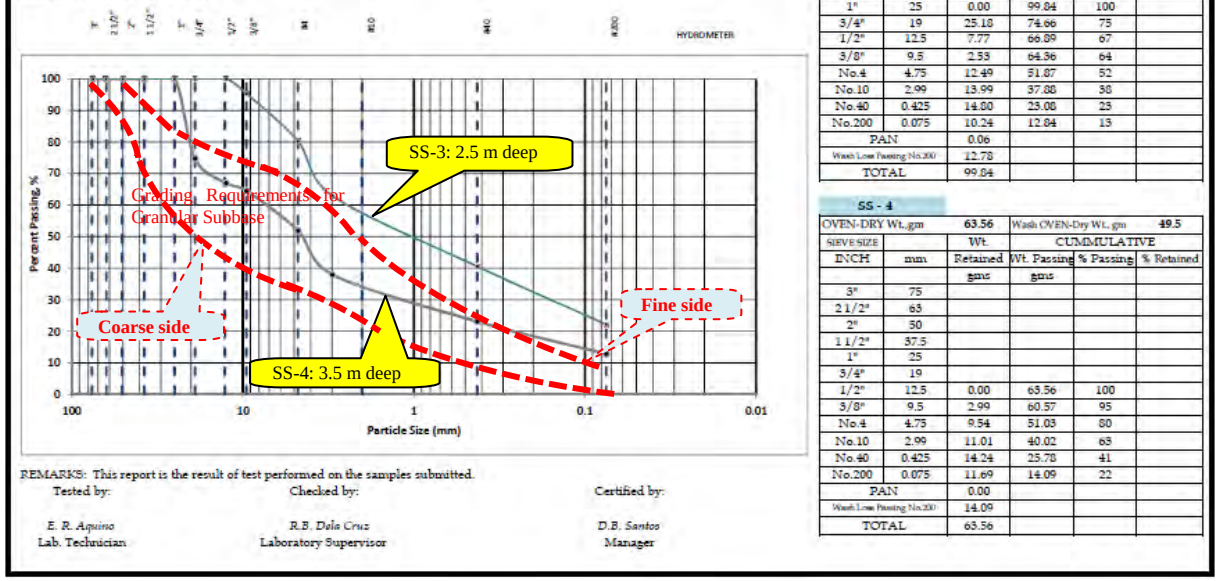
OVEN-DRY Wt.,gm		98.43	Wash OVEN-Dry Wt., gm		81.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	98.4	100	
3/4"	19	13.51	84.92	86	
1/2"	12.5	7.75	77.17	78	
3/8"	9.5	6.13	71.04	72	
No.4	4.75	12.70	58.34	59	
No.10	2.99	14.04	44.30	45	
No.40	0.425	14.84	29.46	30	
No.200	0.075	12.60	16.86	17	
PAN		0.13			
Wash Loss Passing No.200		16.73			
TOTAL		98.43			

SS - 2

OVEN-DRY Wt.,gm		81.79	Wash OVEN-Dry Wt., gm		63.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	81.8	100	
3/4"	19	7.07	74.7	91	
1/2"	12.5	4.68	70.0	86	
3/8"	9.5	15.47	54.57	67	
No.4	4.75	13.51	41.06	50	
No.10	2.99	7.07	33.99	42	
No.40	0.425	8.65	25.34	31	
No.200	0.075	7.01	18.33	22	
PAN		0.08			
Wash Loss Passing No.200		18.25			
TOTAL		81.79			

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-42 SS3/SS4
Sampled by: UTLII Representative

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		99.84	Wash OVEN-Dry Wt., gm		87.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	99.84	100	
3/4"	19	25.18	74.66	75	
1/2"	12.5	7.77	66.89	67	
3/8"	9.5	2.53	64.36	64	
No.4	4.75	12.49	51.87	52	
No.10	2.99	13.99	37.88	38	
No.40	0.425	14.80	23.08	23	
No.200	0.075	10.24	12.84	13	
PAN		0.06			
Wash Loss Passing No.200		12.78			
TOTAL		99.84			

SS - 4

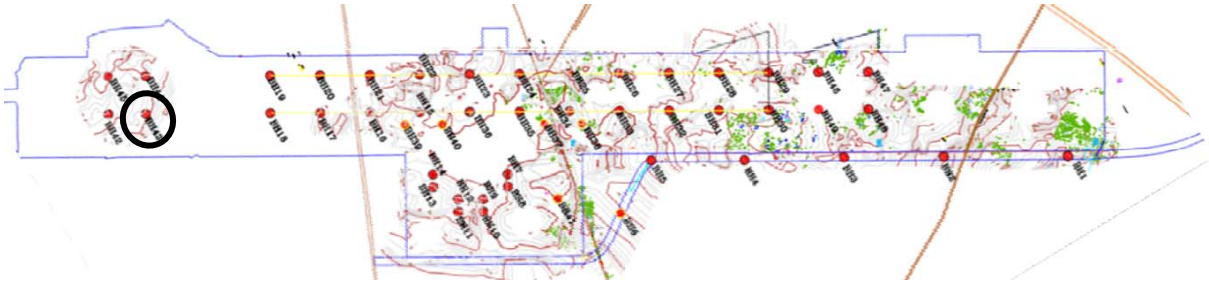
OVEN-DRY Wt.,gm		63.56	Wash OVEN-Dry Wt., gm		49.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19				
1/2"	12.5	0.00	63.56	100	
3/8"	9.5	2.99	60.57	95	
No.4	4.75	9.54	51.03	80	
No.10	2.99	11.01	40.02	63	
No.40	0.425	14.24	25.78	41	
No.200	0.075	11.69	14.09	22	
PAN		0.00			
Wash Loss Passing No.200		14.09			
TOTAL		63.56			

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

Borehole BH-43 – Soaking Yard

Existing Grade: 2.6 m Finished Grade: 2.0 m Cut height: 0.6 m



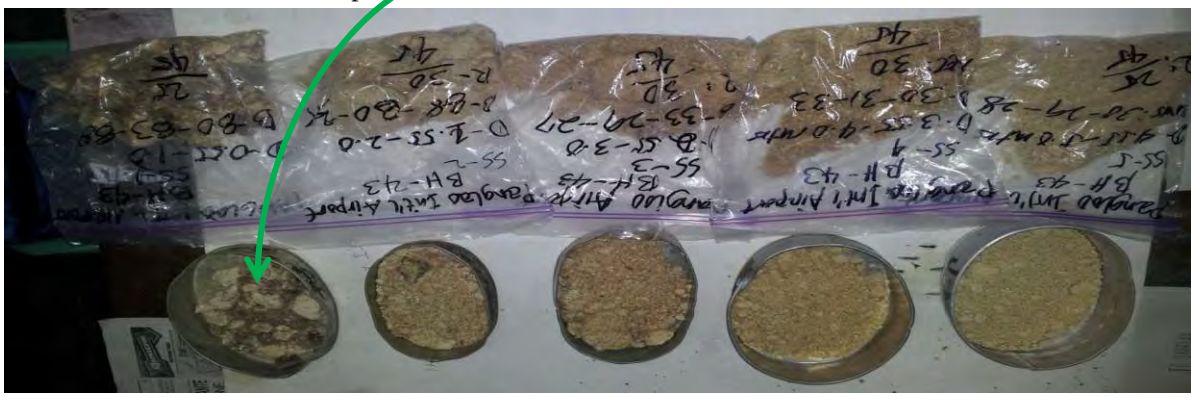
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-43
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/4/2013 DATE FINISHED: 3/4/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	56	-	SS		GW-GM	Brown, very dense well graded gravel with silt and sand (broken corals with limestone) of no plasticity	80	80	59		11.23	NP	NP			100	55	49	36	32	28	24
2	2	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	53	68	36		7.18	NP	NP			100	88	78	55	42	28	17
3	3	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	33	29	27		10.70	NP	NP	100	77	77	64	60	50	41	30	20
4	4	67	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	30	31	3		7.50	NP	NP		100	92	81	74	59	45	29	14
5	5	56	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	30	28	28		11.01	NP	NP			100	87	84	66	53	34	17
							END OF BOREHOLE																

Cut 0.6m

Pictures of disturbed soil samples



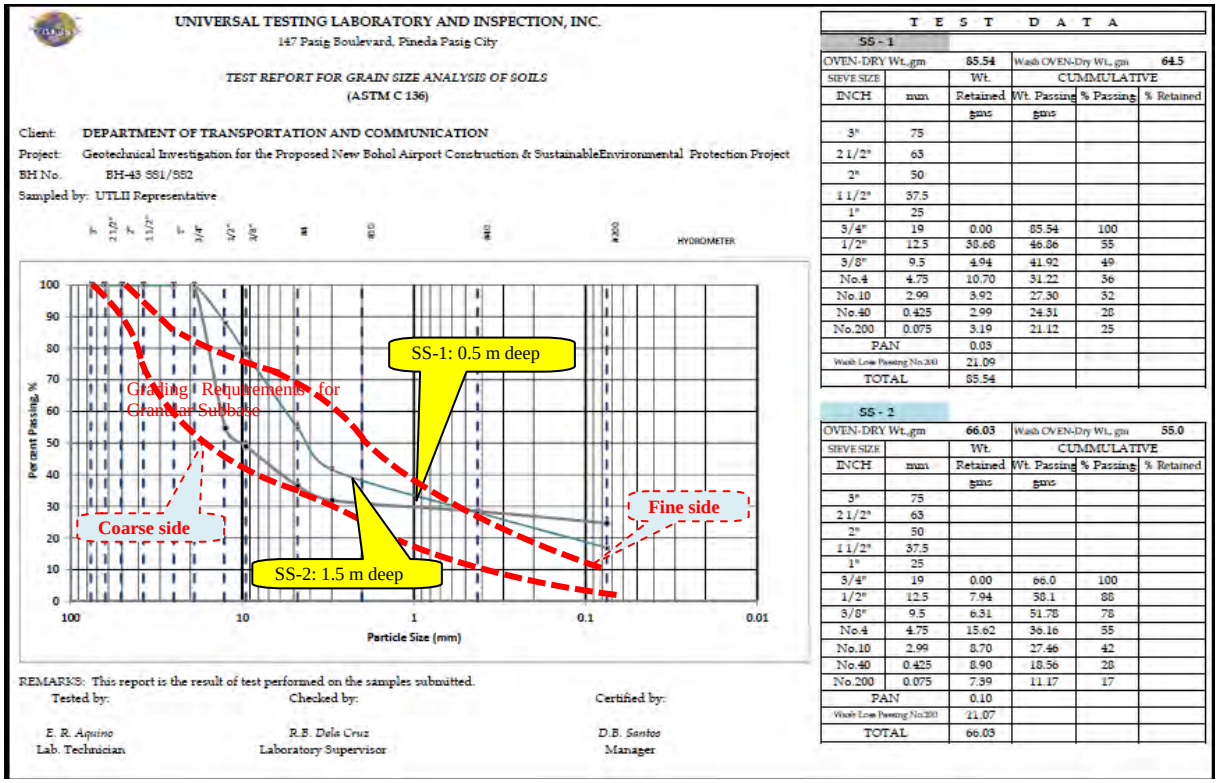
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	112.32	86.40	146.48	162.99	137.91
Weight of can & dry soil, g.	102.71	81.66	134.65	153.43	126.90
Weight of water, g.	9.61	4.74	11.83	9.56	11.01
Weight of can, g.	17.17	15.63	17.22	25.91	26.86
Weight of dry soil, g.	85.54	66.03	117.43	127.52	100.04
Moisture Content, %	11.23	7.18	10.07	7.50	11.01

Borehole BH-43 – Soaking Yard

No fine topsoil exists. No large cavity exists.

Natural soil at bottom of soaking yard (0.6 m deep) is dense (N-value > 100) but porous.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & SustainableEnvironmental Protection Project
BH No. BH-43 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.
Tested by: E. R. Aquino, Lab. Technician
Checked by: R.B. Dela Cruz, Laboratory Supervisor
Certified by: D.B. Santos, Manager

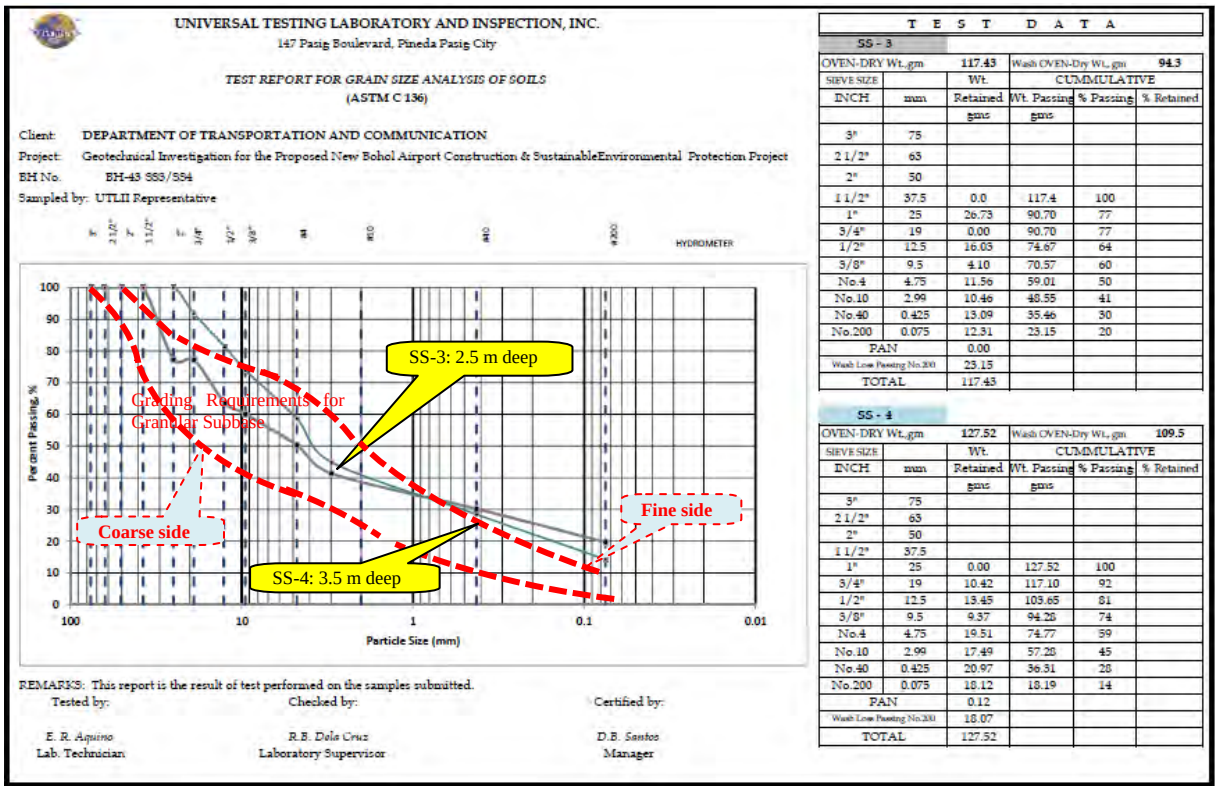
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		85.54	Wash OVEN-Dry Wt., gm		64.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	85.54	100	
1/2"	12.5	38.68	46.86	55	
3/8"	9.5	4.94	41.92	49	
No.4	4.75	10.70	31.22	36	
No.10	2.99	3.92	27.30	32	
No.40	0.425	2.99	24.31	28	
No.200	0.075	3.19	21.12	25	
PAN		0.03			
Wash Loss Passing No.200		21.09			
TOTAL		85.54			

SS - 2

OVEN-DRY Wt.,gm		66.03	Wash OVEN-Dry Wt., gm		55.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	66.0	100	
1/2"	12.5	7.94	58.1	88	
3/8"	9.5	6.31	51.78	78	
No.4	4.75	15.62	36.16	55	
No.10	2.99	8.70	27.46	42	
No.40	0.425	8.90	18.56	28	
No.200	0.075	7.39	11.17	17	
PAN		0.10			
Wash Loss Passing No.200		11.07			
TOTAL		66.03			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & SustainableEnvironmental Protection Project
BH No. BH-43 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.
Tested by: E. R. Aquino, Lab. Technician
Checked by: R.B. Dela Cruz, Laboratory Supervisor
Certified by: D.B. Santos, Manager

T E S T D A T A

SS - 3

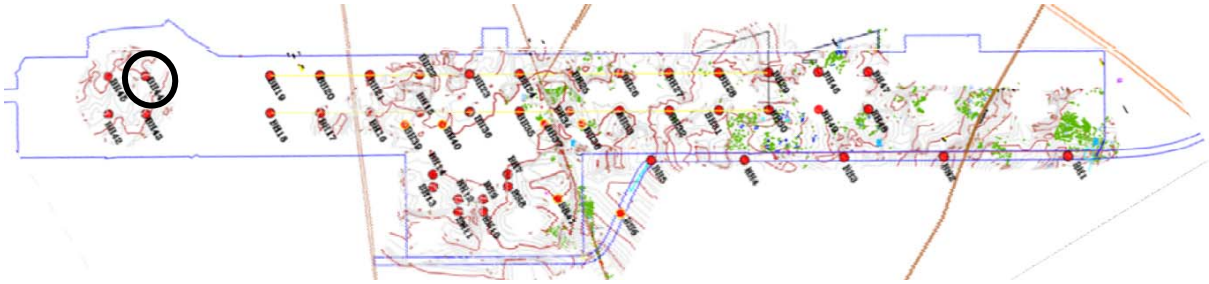
OVEN-DRY Wt.,gm		117.43	Wash OVEN-Dry Wt., gm		94.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	117.4	100	
1"	25	26.73	90.70	77	
3/4"	19	0.00	90.70	77	
1/2"	12.5	16.03	74.67	64	
3/8"	9.5	4.10	70.57	60	
No.4	4.75	11.56	59.01	50	
No.10	2.99	10.46	48.55	41	
No.40	0.425	13.09	35.46	30	
No.200	0.075	12.31	23.15	20	
PAN		0.00			
Wash Loss Passing No.200		23.15			
TOTAL		117.43			

SS - 4

OVEN-DRY Wt.,gm		127.52	Wash OVEN-Dry Wt., gm		109.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	127.52	100	
3/4"	19	10.42	117.10	92	
1/2"	12.5	13.45	103.65	81	
3/8"	9.5	9.37	94.28	74	
No.4	4.75	19.51	74.77	59	
No.10	2.99	17.49	57.28	45	
No.40	0.425	20.97	36.31	28	
No.200	0.075	18.12	18.19	14	
PAN		0.12			
Wash Loss Passing No.200		18.07			
TOTAL		127.52			

Borehole BH-44 – Soaking Yard

Existing Grade: 2.2 m Finished Grade: 2.0 m Cut height: 0.2 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-44

LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 3/4/2013 DATE FINISHED: 3/4/2013 WATER TABLE: DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	89	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	18	18	17		13.41	NP	NP		100	92	86	80	68	62	50	38
2	2	44	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	38	42	56		16.70	NP	NP		100	82	67	57	46	40	29	18
3	3	67	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	22	28	3[illegible]		10.47	NP	NP		100	77	59	51	40	34	26	18
4	4	67	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	25	27	35		13.85	NP	NP		100	60	44	36	27	21	16	11
5	5	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	35	26	31		3.27	NP	NP			100	88	73	53	38	12	13
							END OF BOREHOLE																

Cut 0.2m

Pictures of disturbed soil samples

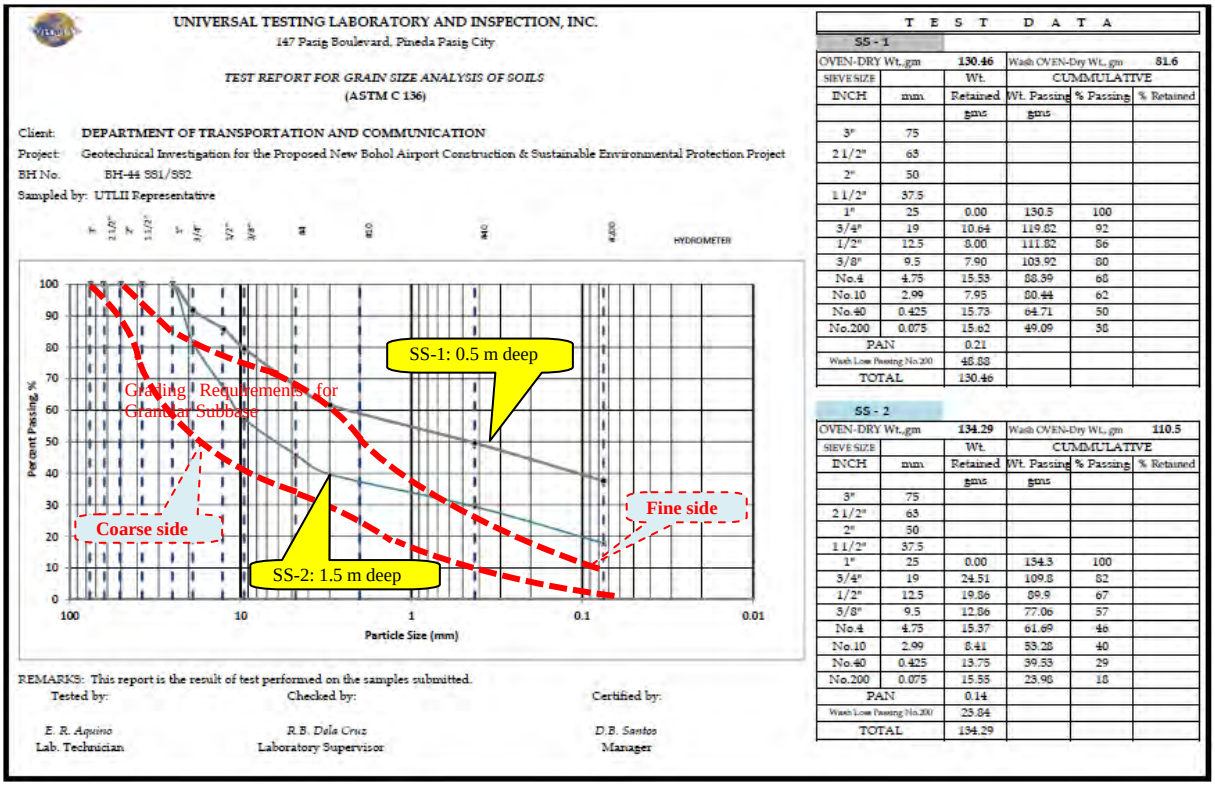
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	165.45	176.59	177.80	167.66	180.17
Weight of can & dry soil, g.	147.96	154.17	163.41	149.35	175.06
Weight of water, g.	17.49	22.42	14.39	18.31	5.11
Weight of can, g.	17.50	19.88	25.93	17.16	18.60
Weight of dry soil, g.	130.46	134.29	137.48	132.19	156.46
Moisture Content, %	13.41	16.70	10.47	13.85	3.27

Borehole BH-44 – Soaking Yard

No fine topsoil exists. No large cavity exists.

Natural soil at bottom of soaking yard (0.2 m deep) is not much dense.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-44 SS1/SS2
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

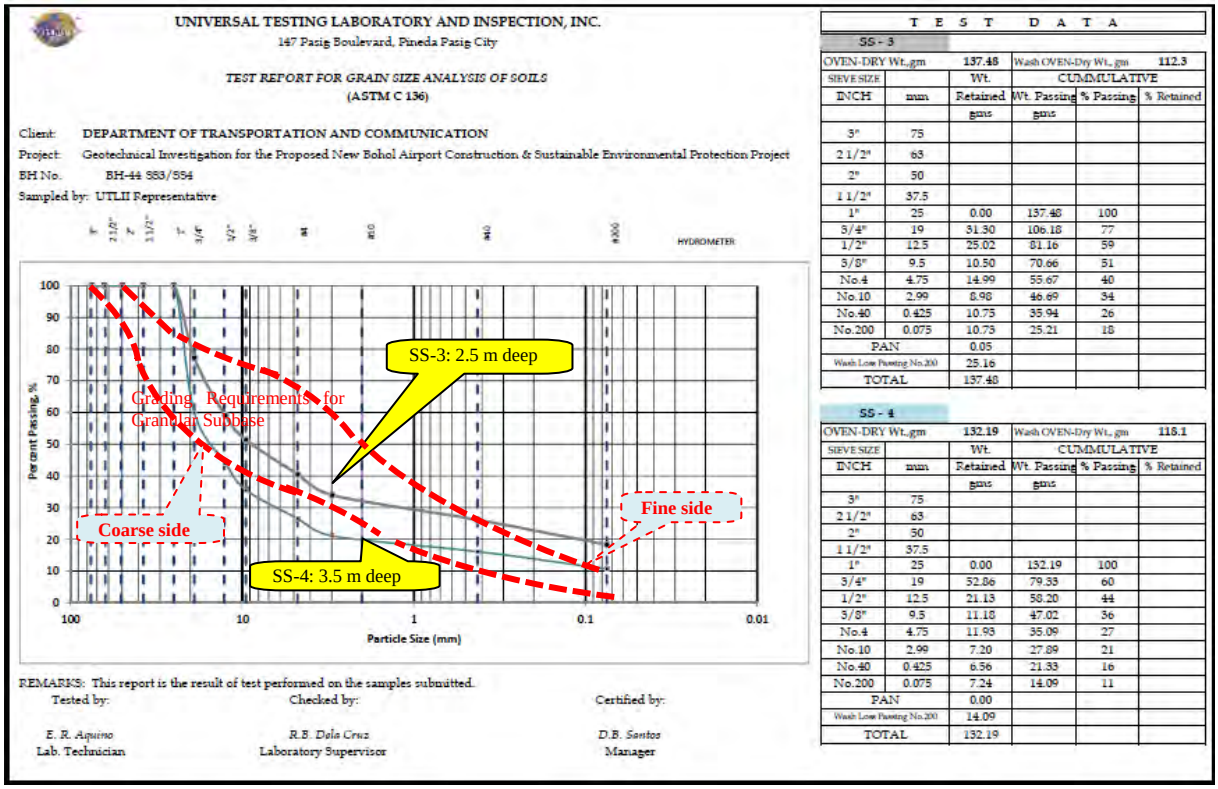
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		130.46	Wash OVEN-Dry Wt., gm		81.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	130.5	100	
3/4"	19	10.64	119.82	92	
1/2"	12.5	8.00	111.82	86	
3/8"	9.5	7.90	103.92	80	
No.4	4.75	15.53	88.39	68	
No.10	2.99	7.95	80.44	62	
No.40	0.425	15.73	64.71	50	
No.200	0.075	15.62	49.09	38	
PAN		0.21			
Wash Loss Passing No.200		48.88			
TOTAL		130.46			

SS - 2

OVEN-DRY Wt.,gm		134.29	Wash OVEN-Dry Wt., gm		110.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	134.3	100	
3/4"	19	24.51	109.8	82	
1/2"	12.5	19.86	89.9	67	
3/8"	9.5	12.86	77.06	57	
No.4	4.75	15.37	61.69	46	
No.10	2.99	8.41	53.28	40	
No.40	0.425	13.75	39.53	29	
No.200	0.075	15.55	23.98	18	
PAN		0.14			
Wash Loss Passing No.200		23.84			
TOTAL		134.29			



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-44 SS3/SS4
Sampled by: UTLII Representative

REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

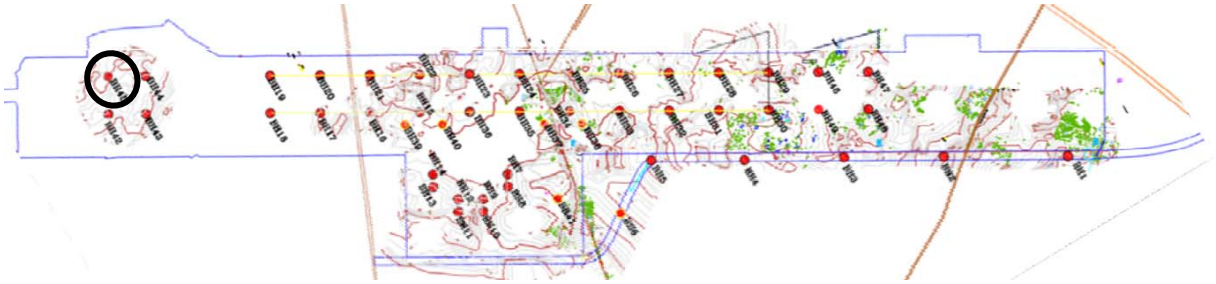
OVEN-DRY Wt.,gm		137.48	Wash OVEN-Dry Wt., gm		112.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	137.48	100	
3/4"	19	31.30	106.18	77	
1/2"	12.5	25.02	81.16	59	
3/8"	9.5	10.50	70.66	51	
No.4	4.75	14.99	55.67	40	
No.10	2.99	8.98	46.69	34	
No.40	0.425	10.75	35.94	26	
No.200	0.075	10.73	25.21	18	
PAN		0.05			
Wash Loss Passing No.200		25.16			
TOTAL		137.48			

SS - 4

OVEN-DRY Wt.,gm		132.19	Wash OVEN-Dry Wt., gm		116.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	132.19	100	
3/4"	19	52.86	79.33	60	
1/2"	12.5	21.13	58.20	44	
3/8"	9.5	11.18	47.02	36	
No.4	4.75	11.93	35.09	27	
No.10	2.99	7.20	27.89	21	
No.40	0.425	6.56	21.33	16	
No.200	0.075	7.24	14.09	11	
PAN		0.00			
Wash Loss Passing No.200		14.09			
TOTAL		132.19			

Borehole BH-45 – Soaking Yard

Existing Grade: 2.0 m Finished Grade: 2.0 m Cut height: 0 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project — HOLE NO.: BH-45

LOCATION: Panglao, Bohol — DEPTH: 5.0 m

DATE DRILLED: 3/4/2013 DATE FINISHED: 3/4/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	44	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	40	63	57		8.73	NP	NP	100	81	81	78	64	45	36	28	23
2	2	78	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	37	43	29		9.00	NP	NP		100	77	62	51	39	31	25	21
3	3	56	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	28	31	2[illegible]		6.54	NP	NP	100	83	75	61	53	37	29	22	18
4	4	67	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	33	2[illegible]	26		3.73	NP	NP			100	97	86	61	42	26	16
5	5	67	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	32	23	25		4.49	NP	NP		100	90	62	40	19	13	11	9

END OF BOREHOLE

Pictures of disturbed soil samples

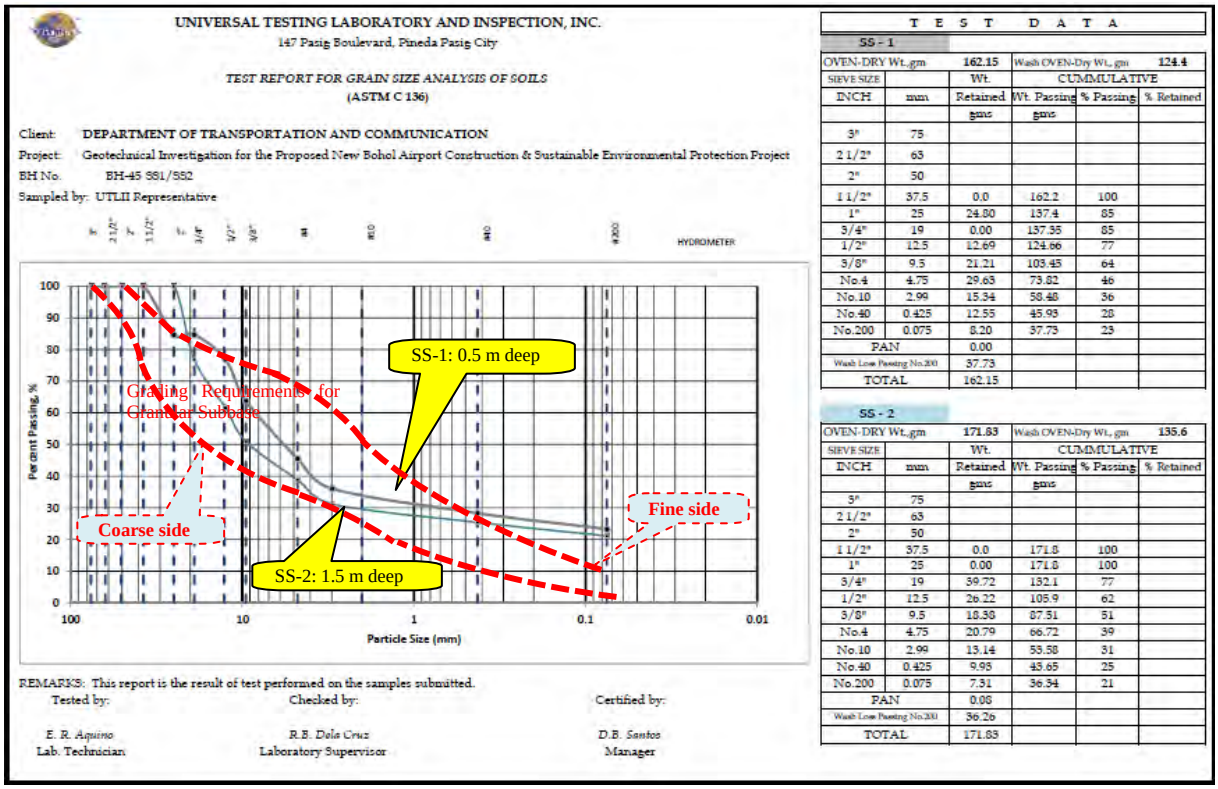
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	200.92	208.80	187.66	172.70	187.43
Weight of can & dry soil, g.	186.85	193.33	177.71	167.21	180.49
Weight of water, g.	14.07	15.47	9.95	5.49	6.94
Weight of can, g.	25.70	21.50	25.66	20.08	26.05
Weight of dry soil, g.	161.15	171.83	152.05	147.13	154.44
Moisture Content, %	8.73	9.00	6.54	3.73	4.49

Borehole BH-45 – Soaking Yard

No fine topsoil exists. No large cavity exists.

Natural soil at bottom of soaking yard (0 m deep) is dense (N-value > 100) but porous.



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-45 SS1/SS2
Sampled by: UTLII Representative

T E S T D A T A

SS - 1

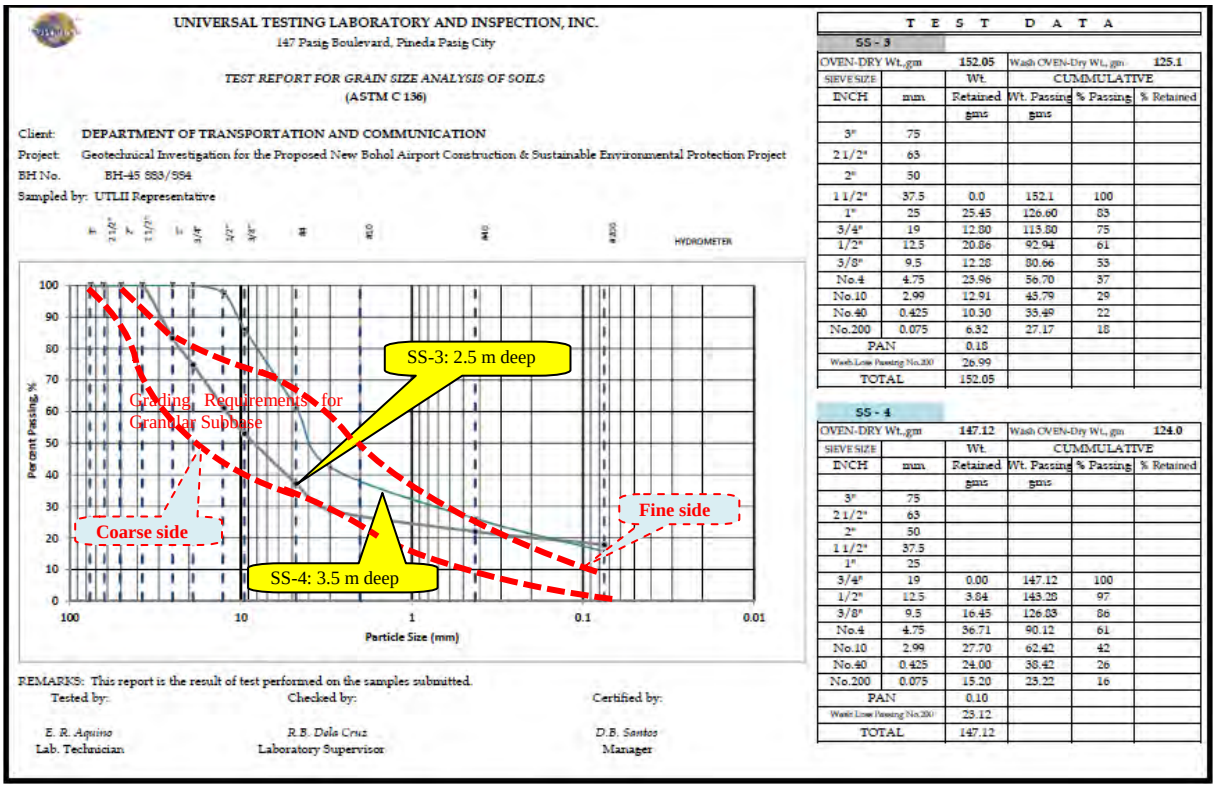
OVEN-DRY Wt.,gm		162.15	Wash OVEN-Dry Wt., gm		124.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	162.2	100	
1"	25	24.80	137.4	85	
3/4"	19	0.00	137.35	85	
1/2"	12.5	12.69	124.66	77	
3/8"	9.5	21.21	103.45	64	
No.4	4.75	29.63	73.82	46	
No.10	2.99	15.34	58.48	36	
No.40	0.425	12.55	45.93	28	
No.200	0.075	8.20	37.73	23	
PAN		0.00			
Wash Loss Passing No.200		37.73			
TOTAL		162.15			

SS - 2

OVEN-DRY Wt.,gm		171.83	Wash OVEN-Dry Wt., gm		135.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	171.8	100	
1"	25	0.00	171.8	100	
3/4"	19	39.72	132.1	77	
1/2"	12.5	26.22	105.9	62	
3/8"	9.5	18.38	87.51	51	
No.4	4.75	20.79	66.72	39	
No.10	2.99	13.14	53.58	31	
No.40	0.425	9.93	43.65	25	
No.200	0.075	7.31	36.34	21	
PAN		0.08			
Wash Loss Passing No.200		36.26			
TOTAL		171.83			

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager



UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-45 SS3/SS4
Sampled by: UTLII Representative

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		152.05	Wash OVEN-Dry Wt., gm		125.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	152.1	100	
1"	25	25.45	126.60	83	
3/4"	19	12.80	113.80	75	
1/2"	12.5	20.86	92.94	61	
3/8"	9.5	12.28	80.66	53	
No.4	4.75	23.96	56.70	37	
No.10	2.99	12.91	43.79	29	
No.40	0.425	10.30	33.49	22	
No.200	0.075	6.32	27.17	18	
PAN		0.18			
Wash Loss Passing No.200		26.99			
TOTAL		152.05			

SS - 4

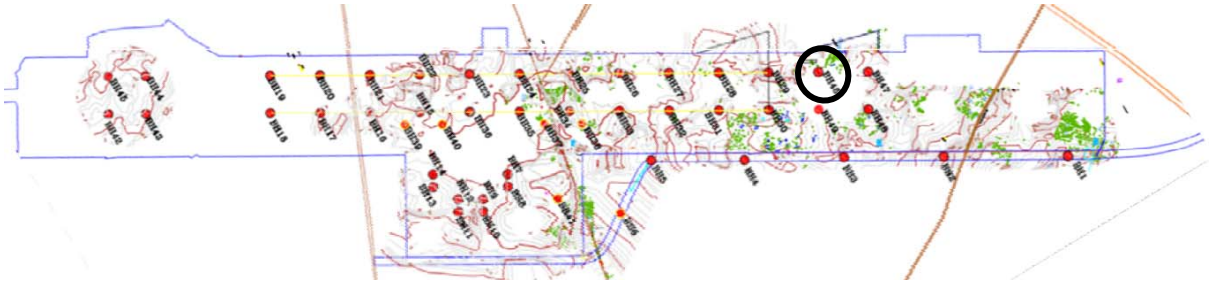
OVEN-DRY Wt.,gm		147.12	Wash OVEN-Dry Wt., gm		124.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	147.12	100	
1/2"	12.5	3.84	143.28	97	
3/8"	9.5	16.45	126.83	86	
No.4	4.75	36.71	90.12	61	
No.10	2.99	27.70	62.42	42	
No.40	0.425	24.00	38.42	26	
No.200	0.075	15.20	23.22	16	
PAN		0.10			
Wash Loss Passing No.200		23.12			
TOTAL		147.12			

REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

Borehole BH-46 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 8.0 m Finished Grade: 9.3 m Subgrade Elevation: 7.4 m Cut height: 0.6 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-46
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/20/2013 DATE FINISHED: 3/20/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	USCS SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	89	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	15	12	20		19.10	NP	NP		100	92	87	61	54	41	29	18
2	2	100	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	39	34	41		15.25	NP	NP		100	86	79	67	49	42	35	16
3	3	89	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	25	28	34		12.41	NP	NP		100	94	82	68	38	31	25	10
4	4	67	-	SS		GM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	20	30	42		8.16	NP	NP			100	81	67	55	41	31	20
5	5	67	-	SS		GM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	35	41	37		10.72	NP	NP		100	96	84	70	58	42	25	17
							END OF BOREHOLE																

Subgrade Cut 0.6m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	228.09	159.56	126.42	163.79	118.55
Weight of can & dry soil, g.	203.40	141.23	115.21	153.17	109.21
Weight of water, g.	34.69	18.33	11.21	10.62	9.34
Weight of can, g.	21.79	21.06	24.90	23.06	22.13
Weight of dry soil, g.	181.61	120.17	90.31	130.11	87.08
Moisture Content, %	19.10	15.25	12.41	8.16	10.72

Borehole BH-46 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

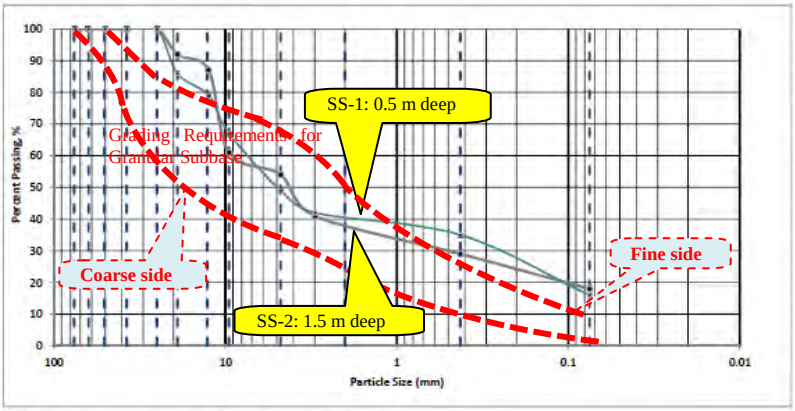
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (0.6 m deep) is dense (N-value of 30 to 40) but porous. It will require blending with small amount of crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-46 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: E. R. Aquino, Lab. Technician
Checked by: R.B. Dela Cruz, Laboratory Supervisor
Certified by: D.B. Santos, Manager

TEST DATA

SS - 1

OVEN-DRY Wt.,gm		181.61	Wash OVEN-Dry Wt., gm		149.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	181.6	100	
3/4"	19	14.53	167.08	92	
1/2"	12.5	9.08	158.00	87	
3/8"	9.5	47.22	110.78	61	
No.4	4.75	12.71	98.07	54	
No.10	2.99	23.61	74.46	41	
No.40	0.425	21.79	52.67	29	
No.200	0.075	19.98	32.69	18	
PAN		0.10			
Wash Loss Passing No.200		32.59			
TOTAL		181.61			

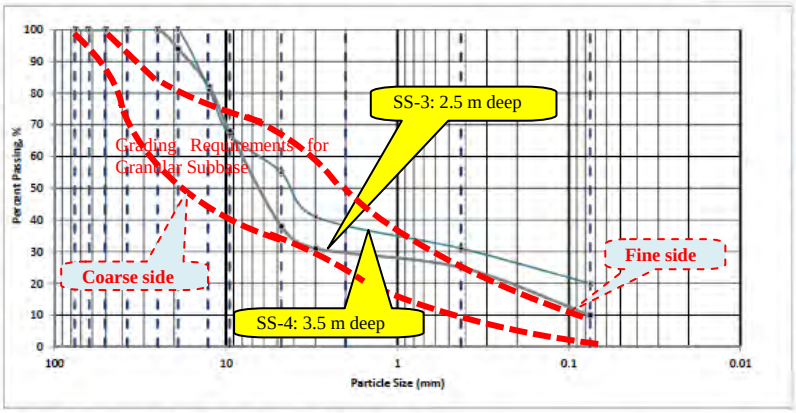
SS - 2

OVEN-DRY Wt.,gm		120.17	Wash OVEN-Dry Wt., gm		101.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	120.2	100	
3/4"	19	16.83	103.3	86	
1/2"	12.5	8.41	94.9	79	
3/8"	9.5	14.42	80.51	67	
No.4	4.75	21.65	58.88	49	
No.10	2.99	8.41	50.47	42	
No.40	0.425	8.41	42.06	35	
No.200	0.075	22.83	19.23	16	
PAN		0.07			
Wash Loss Passing No.200		19.16			
TOTAL		120.17			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-46 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: E. R. Aquino, Lab. Technician
Checked by: R.B. Dela Cruz, Laboratory Supervisor
Certified by: D.B. Santos, Manager

TEST DATA

SS - 3

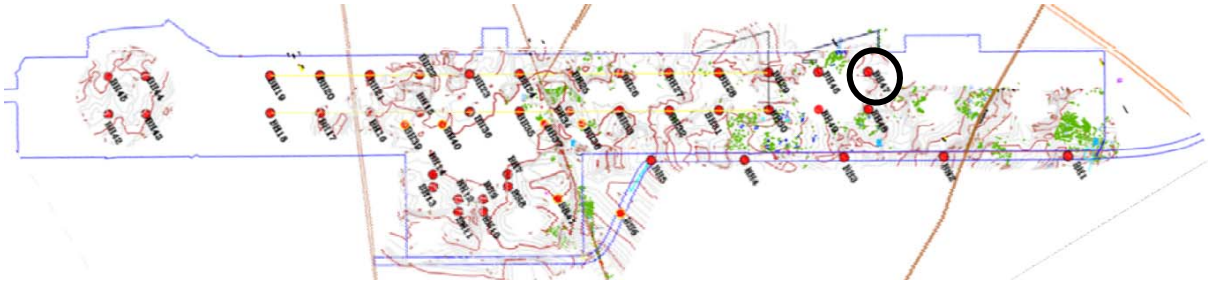
OVEN-DRY Wt.,gm		90.31	Wash OVEN-Dry Wt., gm		81.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	90.3	100	
1"	25	0.00	90.31	100	
3/4"	19	5.42	84.89	94	
1/2"	12.5	10.84	74.05	82	
3/8"	9.5	12.64	61.41	68	
No.4	4.75	27.09	34.32	38	
No.10	2.99	6.32	28.00	31	
No.40	0.425	5.42	22.58	25	
No.200	0.075	13.55	9.03	10	
PAN		0.12			
Wash Loss Passing No.200		8.91			
TOTAL		90.31			

SS - 4

OVEN-DRY Wt.,gm		130.11	Wash OVEN-Dry Wt., gm		104.2
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	130.11	100	
1/2"	12.5	24.72	105.39	81	
3/8"	9.5	18.22	87.17	67	
No.4	4.75	15.61	71.56	55	
No.10	2.99	18.22	53.34	41	
No.40	0.425	13.01	40.33	31	
No.200	0.075	14.31	26.02	20	
PAN		0.09			
Wash Loss Passing No.200		25.93			
TOTAL		130.11			

Borehole BH-47 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 8.2 m Finished Grade: 9.5 m Subgrade Elevation: 7.6 m Cut height: 0.6 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-47
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/20/2013 DATE FINISHED: 3/20/2013 WATER TABLE: DWT

DEPTH, m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface				Subgrade 30 Cut 0.6m 40												
1	1	89	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	18	15	22		15.16	NP	NP		100	89	77	68	59	47	39	27
2	2	89	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	21	33	40		18.20	NP	NP			100	92	78	62	42	31	24	9
3	3	67	-	SS		SM	Dark brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	15	41	58		25.42	NP	NP			100	94	87	79	57	38	25	
4	4	89	-	SS		GM	Dark brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	27	41	45		10.17	NP	NP			100	82	69	54	40	29	18	
5	5	89	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	31	54	62		12.75	NP	NP		100	90	77	65	51	45	31	20	

END OF BOREHOLE

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	174.63	171.52	197.38	132.74	134.59
Weight of can & dry soil, g.	154.30	148.37	162.21	122.42	122.20
Weight of water, g.	20.33	23.15	35.17	10.32	12.39
Weight of can, g.	20.21	21.17	23.86	20.97	25.06
Weight of dry soil, g.	134.09	127.20	138.35	101.45	97.14
Moisture Content, %	15.16	18.20	25.42	10.17	12.75

Borehole BH-47 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

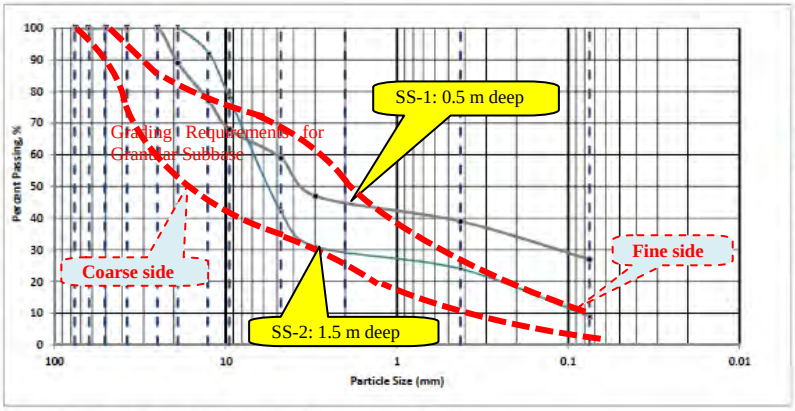
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (0.6 m deep) is dense (N-value of 30 to 40) but porous. I will require blending with crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-47 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		134.09	Wash OVEN-Dry Wt., gm		98.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	134.1	100	
3/4"	19	14.75	119.34	89	
1/2"	12.5	16.09	103.25	77	
3/8"	9.5	12.07	91.18	68	
No.4	4.75	12.07	79.11	59	
No.10	2.99	16.09	63.02	47	
No.40	0.425	10.73	52.29	39	
No.200	0.075	16.09	36.20	27	
PAN		0.15			
Wash Loss Passing No.200		36.05			
TOTAL		134.09			

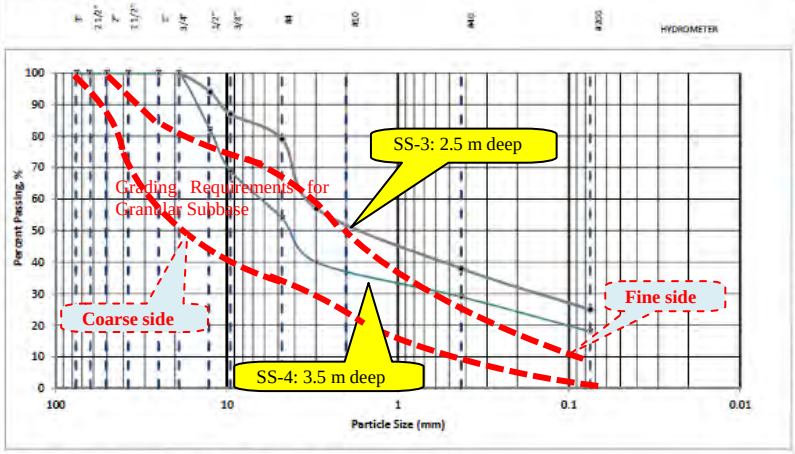
SS - 2

OVEN-DRY Wt.,gm		127.20	Wash OVEN-Dry Wt., gm		115.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	127.2	100	
1/2"	12.5	10.18	117.0	92	
3/8"	9.5	17.80	99.22	78	
No.4	4.75	45.80	53.42	42	
No.10	2.99	13.99	39.45	31	
No.40	0.425	8.90	30.53	24	
No.200	0.075	19.08	11.45	9	
PAN		0.08			
Wash Loss Passing No.200		11.37			
TOTAL		127.20			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-47 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

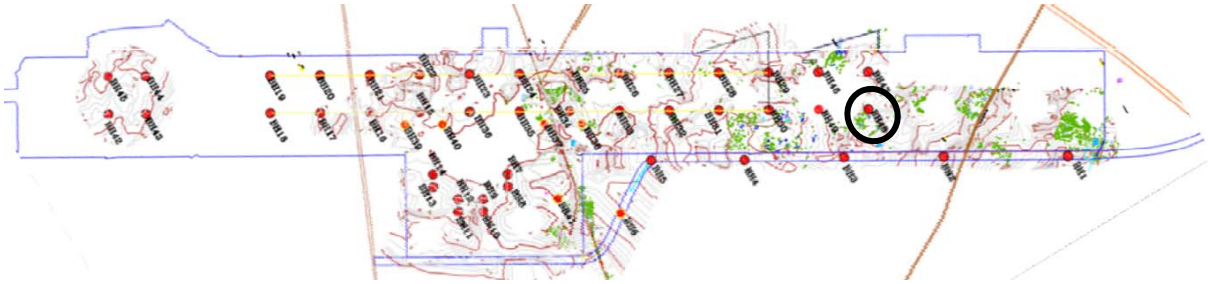
OVEN-DRY Wt.,gm		136.35	Wash OVEN-Dry Wt., gm		103.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	136.35	100	
1/2"	12.5	8.30	130.05	94	
3/8"	9.5	9.69	120.36	87	
No.4	4.75	11.06	109.30	79	
No.10	2.99	30.44	78.86	57	
No.40	0.425	26.29	52.57	38	
No.200	0.075	17.98	34.59	25	
PAN		0.06			
Wash Loss Passing No.200		34.53			
TOTAL		136.35			

SS - 4

OVEN-DRY Wt.,gm		101.45	Wash OVEN-Dry Wt., gm		83.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	101.45	100	
1/2"	12.5	18.26	83.19	82	
3/8"	9.5	13.19	70.00	69	
No.4	4.75	15.22	54.78	54	
No.10	2.99	14.20	40.58	40	
No.40	0.425	11.16	29.42	29	
No.200	0.075	11.16	18.26	18	
PAN		0.14			
Wash Loss Passing No.200		18.12			
TOTAL		101.45			

Borehole BH-48 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 9.0 m Finished Grade: 9.5 m Subgrade Elevation: 7.6 m Cut height: 1.4 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-48
		DEPTH:	5.0 m
LOCATION:	Panglao, Bohol		
DATE DRILLED:	3/21/2013 DATE FINISHED: 3/21/2013	WATER TABLE:	DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	100	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	16	15	17		10.12	NP	NP			100	87	64	52	44	31	20
2	2	89	-	SS		GW	Brown, very dense well graded gravel with sand (broken corals with limestone) of no plasticity	30	34	41		14.18	NP	NP		100	92	84	59	27	21	15	4
3	3	89	-	SS		GP-GM	Brown, very dense poorly graded gravel with silt and sand (broken corals with limestone) of no plasticity	38	49	40		9.72	NP	NP		100	88	75	69	45	36	24	8
4	4	89	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	39	40	47		18.16	NP	NP			100	92	70	56	41	29	16
5	5	100	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	42	54	55		15.40	NP	NP		100	90	84	72	60	51	34	22
							END OF BOREHOLE																

Subgrade Cut 1.4m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	122.86	144.75	129.83	131.68	122.08
Weight of can & dry soil, g.	113.90	129.87	120.58	115.25	109.10
Weight of water, g.	8.96	14.88	9.25	16.43	12.98
Weight of can, g.	25.40	24.92	25.40	24.75	28.80
Weight of dry soil, g.	88.50	104.95	95.18	90.50	84.30
Moisture Content, %	10.12	14.18	9.72	18.16	15.40

Borehole BH-48 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

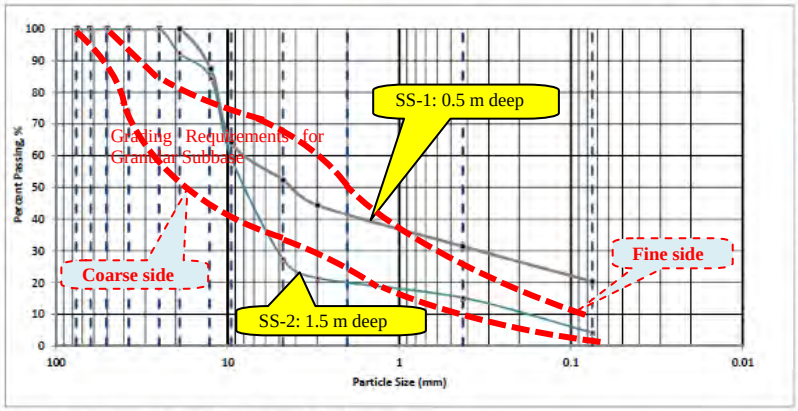
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (1.4 m deep) is dense (N-value of 60 to 70) but porous. It will require blending with large amount of crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-48 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		88.50	Wash OVEN-Dry Wt., gm		70.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	88.5	100	
3/4"	19	0.00	88.50	100	
1/2"	12.5	11.15	77.35	87	
3/8"	9.5	20.53	56.82	64	
No.4	4.75	10.53	46.29	52	
No.10	2.99	7.00	39.29	44	
No.40	0.425	11.50	27.79	31	
No.200	0.075	9.82	17.97	20	
PAN		0.25			
Wash Loss Passing No.200		17.72			
TOTAL		88.50			

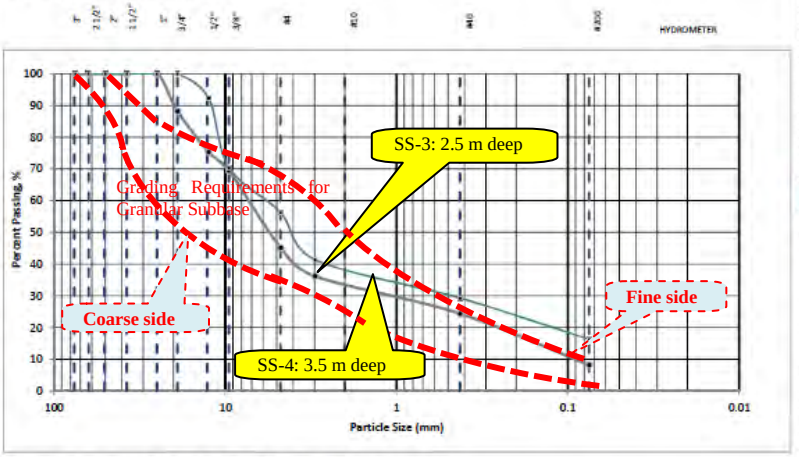
SS - 2

OVEN-DRY Wt.,gm		104.95	Wash OVEN-Dry Wt., gm		100.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	105.0	100	
3/4"	19	8.08	96.9	92	
1/2"	12.5	8.29	88.6	84	
3/8"	9.5	26.34	62.24	59	
No.4	4.75	33.48	28.76	27	
No.10	2.99	6.30	22.46	21	
No.40	0.425	6.51	15.95	15	
No.200	0.075	11.54	4.41	4	
PAN		0.29			
Wash Loss Passing No.200		4.12			
TOTAL		104.95			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-48 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by: *E. R. Aquino*, Lab. Technician
Checked by: *R.B. Dela Cruz*, Laboratory Supervisor
Certified by: *D.B. Santos*, Manager

T E S T D A T A

SS - 3

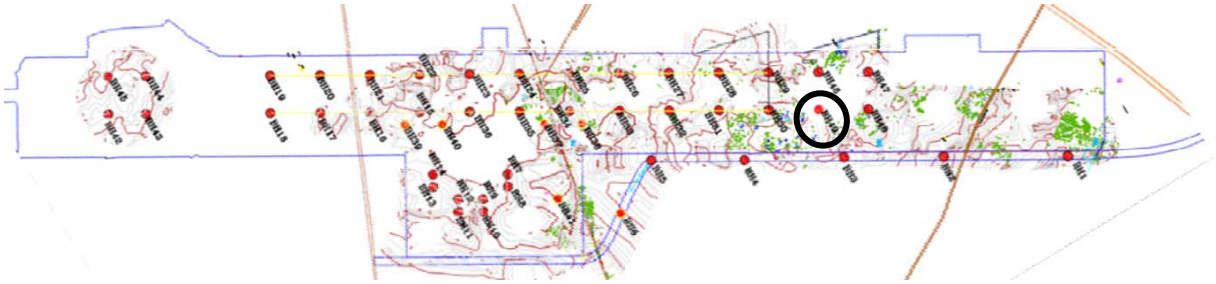
OVEN-DRY Wt.,gm		95.18	Wash OVEN-Dry Wt., gm		87.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	95.18	100	
3/4"	19	11.23	83.95	88	
1/2"	12.5	12.28	71.67	75	
3/8"	9.5	5.62	66.05	69	
No.4	4.75	23.03	43.02	45	
No.10	2.99	8.56	34.46	36	
No.40	0.425	11.24	23.22	24	
No.200	0.075	15.42	7.80	8	
PAN		0.24			
Wash Loss Passing No.200		7.56			
TOTAL		95.18			

SS - 4

OVEN-DRY Wt.,gm		90.50	Wash OVEN-Dry Wt., gm		75.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	90.50	100	
1/2"	12.5	6.97	83.53	92	
3/8"	9.5	19.82	63.71	70	
No.4	4.75	12.76	50.95	56	
No.10	2.99	13.48	37.47	41	
No.40	0.425	10.95	26.52	29	
No.200	0.075	11.77	14.75	16	
PAN		0.18			
Wash Loss Passing No.200		14.57			
TOTAL		90.50			

Borehole BH-49 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

Existing Grade: 8.0 m Finished Grade: 9.3 m Subgrade Elevation: 7.4 m Cut height: 0.6 m



FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-49
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/21/2013 DATE FINISHED: 3/21/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15 cm	15 cm	15 cm	GRAPH	MOISTURE CONTENT	ATTERBERG LIMITS LL (%)	PI (%)	SIEVE ANALYSIS % PASSING SIEVE NO. 1 1/2	1	3/4	1/2	3/8	4	10	40	200
							Ground Surface																
1	1	89	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	14	12	18		12.18	NP	NP				100	91	78	61	48	25
2	2	89	-	SS		SP-SM	Brown, very dense poorly graded sand with silt (broken corals with limestone) of no plasticity	30	34	40		19.40	NP	NP		100	94	83	75	51	38	20	9
3	3	67	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	32	41	45		10.75	NP	NP		100	91	78	67	49	38	30	16
4	4	89	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	38	48	52		21.40	NP	NP			100	88	71	60	51	33	21
5	5	100	-	SS		GM	Brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	45	51	60		22.18	NP	NP		100	92	80	64	55	45	34	25
							END OF BOREHOLE																

Subgrade Cut 0.6m

Pictures of disturbed soil samples

Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	170.11	170.80	145.65	167.22	188.26
Weight of can & dry soil, g.	154.06	146.33	133.57	115.25	158.28
Weight of water, g.	16.05	24.47	12.08	141.29	29.98
Weight of can, g.	22.31	20.18	21.17	20.13	23.12
Weight of dry soil, g.	131.75	126.15	112.40	95.12	135.16
Moisture Content, %	12.18	19.40	10.75	21.40	22.18

Borehole BH-49 – Runway (Pavement Thickness: 0.9 m + Subgrade/Slope: 1.0 m)

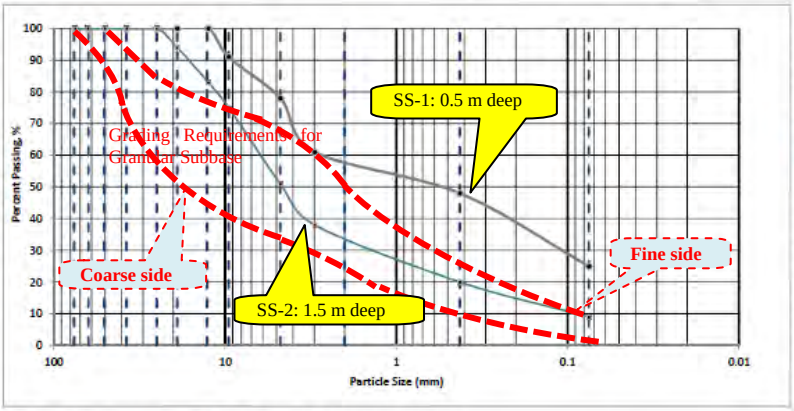
No fine topsoil exists. No large cavity exists.

Natural soil at subgrade level (0.6 m deep) is not much dense (N-value of 30). It will require blending with large amount of crashed limestone fragment when used for granular subbase course.

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-49 SS1/SS2
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		131.75	Wash OVEN-Dry Wt., gm		96.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19				
1/2"	12.5	0.00	131.75	100	
3/8"	9.5	11.86	119.89	91	
No.4	4.75	17.15	102.76	78	
No.10	2.99	22.39	80.37	61	
No.40	0.425	17.15	63.24	48	
No.200	0.075	30.30	32.94	25	
PAN		0.12			
Wash Loss Passing No.200		32.82			
TOTAL		131.75			

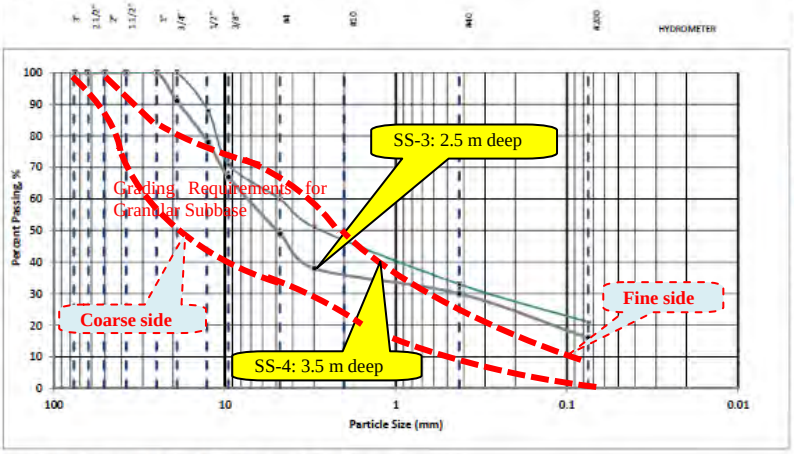
SS - 2

OVEN-DRY Wt.,gm		126.15	Wash OVEN-Dry Wt., gm		114.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	126.2	100	
3/4"	19	7.57	118.6	94	
1/2"	12.5	13.88	104.7	83	
3/8"	9.5	10.09	94.61	75	
No.4	4.75	30.27	64.34	51	
No.10	2.99	16.40	47.94	38	
No.40	0.425	22.71	25.23	20	
No.200	0.075	13.88	11.35	9	
PAN		0.06			
Wash Loss Passing No.200		11.29			
TOTAL		126.15			

UNIVERSAL TESTING LABORATORY AND INSPECTION, INC.
147 Pasig Boulevard, Pineda Pasig City

TEST REPORT FOR GRAIN SIZE ANALYSIS OF SOILS
(ASTM C 136)

Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-49 SS3/SS4
Sampled by: UTLII Representative



REMARKS: This report is the result of test performed on the samples submitted.

Tested by:	Checked by:	Certified by:
E. R. Aquino	*R.B. Dela Cruz*	*D.B. Santos*
Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

OVEN-DRY Wt.,gm		112.40	Wash OVEN-Dry Wt., gm		94.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	112.40	100	
3/4"	19	10.12	102.28	91	
1/2"	12.5	14.61	87.67	78	
3/8"	9.5	12.36	75.31	67	
No.4	4.75	20.23	55.08	49	
No.10	2.99	12.37	42.71	38	
No.40	0.425	8.99	33.72	30	
No.200	0.075	15.74	17.98	16	
PAN		0.13			
Wash Loss Passing No.200		17.85			
TOTAL		112.40			

SS - 4

OVEN-DRY Wt.,gm		121.16	Wash OVEN-Dry Wt., gm		95.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	121.16	100	
1/2"	12.5	14.54	106.62	88	
3/8"	9.5	20.60	86.02	71	
No.4	4.75	13.32	72.70	60	
No.10	2.99	10.91	61.79	51	
No.40	0.425	21.81	39.98	33	
No.200	0.075	14.54	25.44	21	
PAN		0.07			
Wash Loss Passing No.200		25.37			
TOTAL		121.16			

4.1.3 Observations and Findings

The Geological Survey Report (in Apr 2013; by Universal Testing Laboratory and Inspection) recommends that:

- Plasticity Index (PI) of soil is 6 to 10
- Bearing capacity is 500 kPa (50 ton/ m^2)
- Slope gradient should not steeper than 1(V) : 1(H)
- Subgrade Reaction (K) is 54 MN/m^3 (200 pci) for pavement or slab-on grade

Among 91 boreholes in total, only one (1) cavity happened to be detected, horizontal distribution of which was unknown, and possibly another cavity may exist.

Therefore, several engineering practice shall be exercised during construction stage, as follows:

a) Upon commencement, 5-m deep borehole investigation to the location of footings for PTB, control tower and administration building would be carried out. When excavation to the pavement subgrade level is completed, 2-m deep borehole investigation would be carried out. Those are incorporated in the specifications, BOQ and drawing of General Requirement so as to dictate possible cavity.

b) When cavity is found during the course of earthwork, the cavity should be removed to the bottom irrespective of the designed subgrade thickness.

c) Suspected weak soil underneath, if found, should be replaced, or grouted or covered by concrete slabs when necessary, subject to further Engineers' solution.

4.2 Weather Conditions

Monthly rainfall recorded from 1998 to 2008 is summarized as shown in Table 4.2-1.

Table 4.2-1 Number of rainy days in each month of the year

CALENDAR YEARS 1998-2008 (figures are in millimeters)												
MONTH	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	AVERAGE
JANUARY	35.50	177.80	64.10	85.30	52.40	78.50	64.40	26.20	95.70	185.50	264.70	102.74
FEBRUARY	0.60	182.00	312.91	63.30	85.50	64.60	97.70	1.30	130.70	25.10	202.80	106.05
MARCH	5.00	166.10	206.30	83.90	79.00	18.00	79.30	78.80	183.60	31.80	236.50	106.21
APRIL	TRACE	173.40	110.90	82.70	99.50	24.90	12.40	60.10	41.50	26.20	107.10	73.87
MAY	8.40	73.00	71.00	77.90	47.30	207.20	185.50	42.90	66.80	124.10	179.20	98.48
JUNE	52.70	173.10	125.50	193.60	197.90	196.00	148.00	137.50	125.00	244.10	294.00	171.58
JULY	71.80	183.60	69.00	152.70	131.70	230.90	116.60	133.10	103.60	141.30	155.30	135.42
AUGUST	83.40	219.90	96.40	117.90	130.90	179.00	109.40	129.50	111.50	50.50	241.00	133.58
SEPTEMBER	36.80	81.10	67.30	62.10	57.60	122.10	109.40	81.30	72.60	154.20	131.10	88.69
OCTOBER	177.40	189.10	301.50	187.40	156.50	266.20	102.10	92.50	140.50	214.60	176.20	182.18
NOVEMBER	253.20	158.90	279.40	447.50	148.40	107.20	111.50	204.50	170.00	161.30	120.90	196.62
DECEMBER	66.20	162.60	284.40	182.90	82.30	372.10	73.20	269.60	157.90	170.40	NA	182.16
YEARLY TOTAL	791.00	1,940.60	1,988.71	1,737.20	1,269.00	1,866.70	1,209.50	1,257.30	1,399.40	1,529.10	2,108.80	1,577.58
YEARLY AVERAGE	71.91	161.7	165.7	144.8	105.8	155.6	100.8	104.8	116.6	127.4	191.7	131.52

The Table shows that annual rainfall volumes are largely varying from 791 mm (in 1998) to2108 mm (in 2008).

The latest weather conditions daily recorded at Tagbilaran City from June 2010 to May 2011, i.e. for atmospheric pressure, temperature, humidity, rainfall, wind speed and direction are shown in the subsequent pages.

During the same period, annual total rainfall was 2,400 mm. The most rainfall recorded was in the month of January (i.e. 364 mm), and maximum rainfall was 94.6 mm in October 2010. Judging from the 1-year record that air pressure of lower than 1000 hPa was not in the record, no tropical depression nor typhoon seemed to hit the area

Unlike Manila or other areas in the Philippines, Visaya area has an average rainfall through the year (i.e., no distinguished rainy or dray seasons), and numbers of the day on which more than 5-mm rain falls is 183. Those features in each month of the same year are shown in Table 4.2-1.

Table 4.2-2 Number of rainy days in each month of the year

Month	Number of days						Total of Rainfall Days
	No Rain	0 ~ 5 mm	5 ~ 10 mm	10 ~ 15 mm	15 ~ 20 mm	20 mm more	
June 2010	16	7	3	2	1	1	14
July 2010	13	11	2	1	1	3	18
August 2010	11	9	7	2	1	1	20
September 2010	17	3	4	-	2	4	13
October 2010	12	12	1	1	-	5	19
November 2010	7	12	4	4	3	-	23
December 2010	13	6	2	1	4	5	18
January 2011	8	10	3	2	-	8	23
February 2011	12	8	3	2	1	2	16
March 2011	4	13	6	4	-	4	27
April 2011	17	10	2	-	-	1	13
May 2011	12	12	3	1	1	2	19
Total	142	113	40	20	14	36	223

Table 4.2-3 (1) Daily Weather Data at Tagbilaran City in June 2010

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: June 2010

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Tue	1	1007.7	1008.6	31.5	27.6	36.4	27.0	31.7	26.5	74	0.0	001	180						7	✓					✓
Wed	2	1008.8	1009.7	30.6	27.2	36.0	25.8	30.9	26.2	76	2.0	002	140						6	✓		✓			✓
Thu	3	1010.0	1010.9	29.2	26.6	34.4	25.5	30.0	25.8	82	0.0	001	140						5	✓					
Fri	4	1006.2	1007.1	30.6	26.9	36.5	26.0	31.2	25.8	75	0.0	001	270						5	✓					✓
Sat	5	1007.2	1008.1	29.6	26.7	36.0	25.1	30.6	25.8	80	10.8	001	180						6	✓		✓		✓	✓
Sun	6	1007.8	1008.7	29.6	26.5	34.3	25.4	29.8	25.6	78	0.0	002	150						5	✓				✓	
Mon	7	1008.4	1009.3	29.7	27.2	36.0	24.3	30.1	26.5	82	9.0	001	180						5	✓		✓		✓	
Tue	8	1008.1	1009.0	29.1	26.3	35.0	25.5	30.2	25.4	80	0.0	001	270						5	✓				✓	✓
Wed	9	1008.5	1009.4	29.5	26.8	33.0	25.6	29.3	26.0	81	3.0	001	270						6	✓		✓			✓
Thu	10	1009.6	1010.5	28.8	26.5	32.4	25.0	28.7	25.8	83	2.0	001	270						7	✓		✓		✓	✓
Fri	11	1009.9	1010.8	29.0	26.4	33.5	25.0	29.2	25.6	81	0.8	002	140						7	✓		✓		✓	
Sat	12	1009.1	1010.0	29.0	26.4	33.8	24.6	29.2	25.6	81	0.0	001	040						6	✓					
Sun	13	1008.9	1009.8	30.0	26.2	34.8	25.5	30.2	25.0	74	0.0	002	180						5	✓				✓	✓
Mon	14	1010.2	1011.1	28.7	25.8	32.0	24.5	28.2	24.9	79	1.4	001	090						7	✓		✓			
Tue	15	1009.1	1010.0	29.3	26.5	34.4	25.2	29.8	25.6	80	0.0	001	270						6	✓					
Wed	16	1008.8	1009.7	29.4	26.7	33.2	25.5	29.4	25.9	81	0.0	001	180						7	✓					✓
Thu	17	1008.9	1009.8	27.9	25.9	34.0	24.5	29.2	25.3	85	17.8	001	180	008	360	0434 Z			6	✓		✓		✓	✓
Fri	18	1009.6	1010.5	28.5	26.1	34.0	24.0	29.0	25.4	83	3.6	002	040						7	✓		✓		✓	
Sat	19	1009.2	1010.1	27.7	25.6	33.0	24.5	28.8	24.9	84	0.0	001	050						6	✓					
Sun	20	1008.4	1009.3	27.4	25.8	32.4	24.3	28.4	25.3	88	8.2	001	300						7	✓		✓		✓	
Mon	21	1009.2	1010.1	27.8	25.9	32.2	24.0	28.1	25.3	86	11.0	001	270						8	✓		✓			✓
Tue	22	1010.2	1011.1	28.6	25.9	33.1	25.0	29.0	25.0	81	0.0	001	270						7	✓		✓			✓
Wed	23	1008.6	1009.5	28.5	25.8	34.0	24.3	29.2	25.0	80	0.0	002	270						6	✓				✓	✓
Thu	24	1006.9	1007.8	29.6	26.5	34.4	25.5	30.0	25.6	78	0.0	002	280						6	✓					✓
Fri	25	1007.9	1008.8	27.8	25.6	33.0	23.0	28.0	24.9	84	70.2	002	180	014	180	1110 Z			7	✓		✓		✓	
Sat	26	1009.1	1010.0	28.0	26.0	33.0	24.4	28.7	25.4	85	0.0	001	220						6	✓					
Sun	27	1007.9	1008.8	28.8	26.1	33.6	25.2	29.4	25.3	81	0.0	002	180						6	✓					✓
Mon	28	1006.8	1007.7	28.4	26.0	33.8	24.5	29.2	25.2	83	7.6	001	180						7	✓		✓		✓	✓
Tue	29	1008.0	1008.9	28.3	26.0	32.6	24.3	28.4	25.3	83	1.4	001	180						6	✓		✓			
Wed	30	1008.2	1009.1	29.3	26.6	34.5	25.4	30.0	25.8	81	0.0	001	180						6	✓					
	31																								
Total		**30257.2**	**30284.2**	**870.2**	**790.1**	**1019.3**	**748.4**				**148.8**	**039**							**186**	**30**		**15**		**13**	**16**
Mean/ Extreme		**1008.6**	**1009.5**	**29.0**	**26.3**	**34.0**	**24.9**	**29.5**	**25.5**	**81**		**001**	**180**	**014**	**180**	**1110 Z**			**6**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS		
Sea Level Pressure		Temperature		Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more				Number of days with:		
Highest	**1012.7 MBS**	Highest	**36.5°C**								Dew Point Temperature (°C)	**25.5**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**6/22/10 1330 Z**	Date	**6/04/10 0700 Z**								Relative Humidity (%)	**81**			
Lowest	**1007.0 MBS**	Lowest	**23.0°C**	**0**	**14**	**13**	**4**	**1**	**1**	**0**	Vapor Pressure (mmHg)	**33.61**	**0**	**19**	**11**
Date	**6/04/10 0700 Z**	Date	**6/25/10 1935 Z**												
Mean	**1009.5 MBS**	Mean	**29.8°C**												

Table 4.2-3 (2) Daily Weather Data at Tagbilaran City in July 2010

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: July 2010

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Thu	1	1009.0	1009.9	27.4	25.3	32.5	24.0	28.2	24.6	84	1.0	001	050						7	✓		✓		✓	
Fri	2	1008.4	1009.3	29.0	26.4	35.0	25.0	30.0	25.6	81	0.0	001	180						5	✓				✓	✓
Sat	3	1009.2	1010.1	29.2	26.6	34.0	25.2	29.6	25.8	82	0.0	001	180						8	✓					✓
Sun	4	1008.8	1009.7	29.3	26.1	35.2	25.0	30.1	25.1	78	0.0	002	300						6	✓					
Mon	5	1009.0	1009.9	28.0	26.0	33.0	24.6	28.8	25.4	85	T	001	050						8	✓		✓		✓	
Tue	6	1010.0	1010.9	26.9	25.5	32.3	24.3	28.3	25.0	89	1.6	001	040						8	✓		✓		✓	✓
Wed	7	1009.7	1010.6	28.1	26.2	32.5	24.5	28.5	25.6	86	4.0	001	270						7	✓		✓		✓	✓
Thu	8	1009.1	1010.0	28.3	25.6	34.3	24.2	29.2	24.7	80	T	002	180	010	180	0214 Z			7	✓		✓			✓
Fri	9	1009.5	1010.4	29.4	26.5	34.4	35.2	29.8	25.6	80	T	001	270						7	✓					✓
Sat	10	1010.1	1011.0	28.5	26.0	33.4	24.8	29.1	25.2	82	1.6	001	140						7	✓		✓			✓
Sun	11	1009.0	1010.5	26.4	25.1	32.0	23.5	27.8	24.7	90	34.7	001	120						8	✓		✓		✓	
Mon	12	1007.5	1008.4	26.7	25.6	31.9	23.7	27.8	25.2	92	15.1	001	090						7	✓		✓		✓	✓
Tue	13	1007.4	1008.3	28.0	25.8	32.6	24.7	28.6	25.1	84	0.2	001	180						8	✓		✓			
Wed	14	1007.6	1008.5	27.2	25.7	33.2	24.2	28.7	25.2	89	0.4	001	050						8	✓		✓		✓	✓
Thu	15	1007.2	1008.1	27.4	25.9	32.8	24.5	28.6	25.4	89	0.0	002	180						6	✓					✓
Fri	16	1007.2	1008.1	29.2	26.4	33.8	25.0	29.4	25.6	80	0.0	001	280						6	✓					✓
Sat	17	1007.2	1008.1	29.5	26.5	33.4	25.5	29.4	25.6	79	0.0	001	270						5	✓					
Sun	18	1008.0	1008.9	29.0	26.3	32.4	25.2	28.8	25.5	81	0.2	002	240						8	✓		✓		✓	
Mon	19	1008.6	1009.5	27.8	25.6	34.2	23.8	29.0	24.9	84	11.8	002	180						7	✓		✓		✓	✓
Tue	20	1008.3	1009.2	28.8	26.4	33.2	25.3	29.2	25.7	83	0.0	002	090						6	✓					✓
Wed	21	1008.2	1009.1	28.3	25.9	32.6	24.8	28.7	25.1	82	0.0	001	180						7	✓					✓
Thu	22	1008.4	1009.3	28.5	26.2	33.2	25.0	29.1	25.5	83	0.6	002	280	010	040	0615 Z			7	✓		✓			
Fri	23	1007.5	1008.4	28.1	26.2	34.0	25.0	29.5	25.6	86	1.2	002	180						8	✓		✓			
Sat	24	1008.0	1008.9	28.3	26.1	33.0	24.6	28.8	25.4	84	4.0	002	180						7	✓		✓			
Sun	25	1007.8	1008.7	28.8	25.7	33.8	24.2	29.0	24.7	78	0.0	002	060						7	✓				✓	
Mon	26	1008.8	1009.7	26.6	25.2	32.8	24.2	28.5	24.7	89	5.1	001	040						7	✓		✓		✓	
Tue	27	1010.1	1011.0	26.6	25.2	31.0	24.0	27.5	24.9	90	5.6	001	040						8	✓		✓			
Wed	28	1009.2	1010.1	28.2	26.0	32.7	24.0	28.4	25.3	84	0.8	002	180						7	✓		✓			✓
Thu	29	1008.8	1009.7	27.6	25.6	33.2	24.0	28.6	25.0	85	27.0	001	290						7	✓		✓		✓	✓
Fri	30	1009.2	1010.1	27.5	25.6	32.5	23.9	28.2	25.0	86	49.4	001	180						7	✓		✓			
Sat	31	1010.1	1011.0	28.6	26.0	33.0	24.2	28.6	25.2	81	0.0	002	180						7	✓					
Total		**31266.9**	**31295.4**	**871.2**	**803.2**	**1027.9**	**770.1**				**164.3**	**039**							**218**	**31**		**20**		**13**	**16**
Mean/ Extreme		**1008.6**	**1009.5**	**28.1**	**25.9**	**33.2**	**24.8**	**28.8**	**25.2**	**84**		**001**	**180**	**010**	**180**	**0214 Z**			**7**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS		
Sea Level Pressure		Temperature											Number of days with:		
Highest	**1012.8 MBS**	Highest	**35.2°C**	Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more		Dew Point Temperature (°C)	**25.2**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**7/10/10 0202 Z**	Date	**7/04/10 0455 Z**								Relative Humidity (%)	**81**			
Lowest	**1005.1 MBS**	Lowest	**23.5°C**	**2**	**18**	**13**	**5**	**3**	**0**	**0**			**0**	**6**	**25**
Date	**7/15/10 0725 Z**	Date	**7/11/10 2350 Z**								Vapor Pressure (mmHg)	**31.66**			
Mean	**1009.5 MBS**	Mean	**29.4°C**												

Table 4.2-3 (3) Daily Weather Data at Tagbilaran City in August 2010

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: August 2010

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Sun	1	1009.8	1010.7	27.7	26.0	31.2	24.0	27.6	25.5	87	9.2	001	270						6	✓		✓		✓	
Mon	2	1008.0	1008.9	28.5	26.0	32.8	23.8	28.3	25.2	82	19.4	001	270						7	✓		✓		✓	✓
Tue	3	1005.9	1006.8	27.5	25.9	31.4	24.3	27.0	25.4	88	7.4	002	180						8	✓		✓			✓
Wed	4	1005.2	1006.1	27.3	25.6	30.6	24.5	27.6	25	87	10.0	001	180						7	✓		✓			✓
Thu	5	1006.3	1007.2	28.3	25.8	31.8	25.5	28.6	25	82	0.1	003	220						8	✓					
Fri	6	1007.1	1008.0	28.6	26.0	33.5	25.0	29.2	25.2	81	4.2	003	180	011	180	0758 Z			8	✓		✓		✓	
Sat	7	1007.4	1008.3	29.1	26.2	33.6	25.0	29.3	25.3	79	0.2	003	180	010	180	1110 Z			7	✓		✓			
Sun	8	1007.7	1008.6	29.5	26.3	33.4	25.8	29.6	25.3	78	0.0	002	180						8	✓					✓
Mon	9	1008.8	1009.7	29.8	26.2	34.2	24.2	29.2	25.1	75	0.2	003	180						7	✓		✓			✓
Tue	10	1009.4	1010.3	27.4	25.6	33.8	23.6	28.7	25.0	86	12.4	002	060						7	✓		✓		✓	✓
Wed	11	1010.7	1011.6	26.7	25.0	30.8	23.5	27.2	24.4	87	24.6	001	360						8	✓		✓			
Thu	12	1009.0	1009.9	27.8	25.9	31.8	24.5	28.2	25.3	86	0.2	001	090						6	✓		✓			✓
Fri	13	1008.6	1009.5	29.4	26.4	34.0	24.5	29.2	25.5	79	0.0	002	180						5	✓					
Sat	14	1009.3	1010.2	28.8	26.4	33.5	24.9	29.2	25.7	83	0.0	001	320						6	✓					
Sun	15	1009.7	1010.6	27.3	25.8	31.0	23.8	27.4	25.3	89	7.2	001	030						7	✓		✓		✓	
Mon	16	1008.6	1009.5	26.9	25.5	31.2	24.4	27.8	25.0	89	1.8	001	040	009	040	0528 Z			7	✓		✓		✓	
Tue	17	1007.6	1008.5	27.7	25.8	30.6	24.0	27.3	25.2	86	7.6	001	060						8	✓		✓		✓	✓
Wed	18	1008.6	1009.5	28.2	26.0	32.8	25.0	28.9	25.3	84	1.6	002	140						6	✓		✓			✓
Thu	19	1009.4	1010.3	28.5	26.1	32.9	24.8	28.8	25.4	83	0.0	001	290						7	✓				✓	✓
Fri	20	1008.2	1009.1	28.2	26.3	32.4	24.4	28.4	25.7	86	T	001	040						8	✓		✓			
Sat	21	1007.5	1008.4	28.0	26.0	33.4	23.6	28.5	25.4	85	6.6	001	290						8	✓		✓		✓	✓
Sun	22	1007.8	1008.7	28.6	25.7	33.4	24.5	29.0	24.8	79	1.2	002	150						7	✓		✓		✓	✓
Mon	23	1008.8	1009.7	28.9	26.2	33.7	24.9	29.3	25.4	81	0.0	002	180						7	✓					✓
Tue	24	1009.6	1010.5	28.0	25.3	32.4	23.6	28.0	24.4	80	4.8	002	270						7	✓		✓		✓	✓
Wed	25	1009.2	1010.1	28.8	25.5	33.2	25.6	29.4	24.4	77	0.0	002	220						7	✓					
Thu	26	1008.9	1009.8	28.6	25.0	32.8	24.2	28.5	23.8	75	0.0	002	270						6	✓					
Fri	27	1008.4	1009.3	29.6	25.8	34.3	25.0	29.6	24.6	74	0.0	002	180						4	✓					
Sat	28	1009.6	1010.5	29.2	26.1	35.0	23.3	29.2	25.1	78	13.0	001	180	012	220	1510 Z			7	✓		✓		✓	✓
Sun	29	1009.6	1010.5	28.0	25.4	33.4	23.6	28.5	24.6	81	0.0	002	180						6	✓				✓	✓
Mon	30	1007.8	1008.7	29.5	26.5	34.4	25.0	29.7	25.6	79	0.0	002	140						6	✓				✓	
Tue	31	1007.4	1008.3	29.6	26.6	34.5	25.2	29.8	25.7	79	6.2	002	180						6	✓		✓			✓
Total		**31259.9**	**31287.8**	**880.0**	**802.9**	**1017.8**	**758.0**				**137.8**	**053**							212	**31**		**20**		**14**	**17**
Mean/ Extreme		**1008.4**	**1009.3**	**28.4**	**25.9**	**32.8**	**24.5**	**28.6**	**25.1**	**82**		**002**	**180**	**012**	**220**	**1510 Z**			7						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS Number of days with:		
Sea Level Pressure		Temperature		Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more		Dew Point Temperature (°C)	**25.1**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Highest	**1012.2 MBS**	Highest	**35.0°C**												
Date	**8/11/10 1530 Z**	Date	**8/28/10 0800 Z**								Relative Humidity (%)	**82**			
Lowest	**1003.8 MBS**	Lowest	**23.3°C**												
Date	**8/04/10 0820 Z**	Date	**8/28/10 2330 Z**	**2**	**19**	**16**	**5**	**0**	**0**	**0**	Vapor Pressure (mmHg)	**31.66**	**0**	**10**	**21**
Mean	**1009.3 MBS**	Mean	**29.2°C**												

Table 4.2-3 (4) Daily Weather Data at Tagbilaran City in September 2010

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: September 2010

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Wed	1	1008.2	1009.1	28.8	26.6	33.4	23.3	28.4	25.9	84	27.8	002	180						7	✓		✓		✓	✓
Thu	2	1009.2	1010.1	28.0	26.2	32.3	25.0	28.6	25.6	87	0.0	001	160						8	✓					✓
Fri	3	1009.2	1010.1	28.1	25.6	33.5	25.0	29.2	24.8	82	0.0	001	270						7	✓					✓
Sat	4	1009.5	1010.4	28.6	26.3	34.3	25.0	29.6	25.6	83	3.0	002	180						7	✓		✓			✓
Sun	5	1009.5	1010.4	29.6	26.2	34.6	25.0	29.8	25.2	76	0.2	002	300						7	✓		✓			✓
Mon	6	1009.1	1010.0	28.3	25.5	33.2	24.0	28.6	24.6	80	6.0	002	180						7	✓		✓			✓
Tue	7	1008.8	1009.7	27.6	26.3	32.3	24.0	28.2	25.9	90	0.0	001	140						7	✓					
Wed	8	1010.2	1011.1	28.3	25.5	33.8	23.6	28.7	24.6	80	21.8	002	140	010	150	1438 Z			7	✓		✓		✓	
Thu	9	1009.3	1010.2	28.5	26.1	33.2	24.2	28.7	25.4	83	0.0	001	180						7	✓					✓
Fri	10	1008.8	1009.7	28.2	26.2	33.2	24.2	28.2	25.6	85	0.0	001	180						7	✓				✓	✓
Sat	11	1009.2	1010.1	28.4	25.9	33.2	24.2	28.7	25.1	82	7.4	002	050						7	✓		✓		✓	
Sun	12	1008.6	1009.5	28.3	25.6	33.3	24.2	28.8	24.7	80	0.0	001	180						6	✓					
Mon	13	1008.0	1008.9	26.3	25.0	32.8	23.0	29.9	24.6	90	6.8	001	180						7	✓		✓		✓	✓
Tue	14	1008.3	1009.2	26.6	24.8	31.8	23.5	27.6	24.2	86	51.2	001	180						7	✓		✓		✓	✓
Wed	15	1008.4	1009.3	28.5	26.2	33.2	24.0	28.6	25.5	80	0.0	002	180						5	✓					✓
Thu	16	1008.4	1009.3	28.7	26.3	33.6	24.5	29.0	25.6	83	0.0	001	140						6	✓					
Fri	17	1007.0	1007.9	27.8	25.6	33.5	24.0	28.8	24.9	84	0.0	001	180						6	✓					✓
Sat	18	1008.2	1009.1	27.8	26.0	33.3	23.1	28.2	25.4	87	19.8	001	180						6	✓		✓		✓	✓
Sun	19	1007.2	1008.1	28.4	25.8	33.3	23.9	28.6	25.0	81	0.0	002	150						5	✓		✓		✓	
Mon	20	1008.4	1009.3	28.9	26.3	33.9	24.9	29.4	25.5	81	0.0	001	180						7	✓					✓
Tue	21	1009.0	1009.9	28.0	25.4	33.0	23.2	28.1	24.6	81	0.0	002	040						7	✓				✓	
Wed	22	1008.2	1009.1	28.6	25.9	33.4	24.0	28.7	25.0	81	0.0	001	270						5	✓					✓
Thu	23	1007.7	1008.6	28.7	25.6	34.0	24.2	29.1	24.6	78	0.0	001	270						4	✓					✓
Fri	24	1008.4	1009.3	29.3	26.2	35.0	25.0	30.0	25.2	78	0.0	002	040						7	✓					
Sat	25	1008.7	1009.6	29.4	26.3	34.6	21.2	27.9	25.4	78	0.0	001	270						6	✓					✓
Sun	26	1008.7	1009.6	29.0	26.0	33.8	21.5	27.6	25.1	79	0.0	001	270						7	✓					✓
Mon	27	1007.8	1008.7	27.5	25.8	33.0	23.3	28.2	25.3	87	18.4	001	060						6	✓		✓		✓	✓
Tue	28	1007.0	1007.9	26.4	25.6	31.5	23.6	27.6	25.4	94	6.3	001	040						7	✓		✓		✓	✓
Wed	29	1006.6	1007.5	26.6	25.4	33.2	23.9	28.6	25.0	91	34.8	001	040						8	✓		✓		✓	✓
Thu	30	1006.3	1007.2	27.2	25.7	30.2	24.4	27.3	25.2	89	3.0	002	180						8	✓		✓			
	31																								
Total		**30251.9**	**30278.9**	**844.4**	**775.9**	**997.4**	**716.9**				**206.5**	**041**							**198**	**30**		**14**		**12**	**21**
Mean/ Extreme		**1008.4**	**1009.3**	**28.1**	**25.9**	**33.2**	**23.9**	**28.6**	**25.2**	**83**		**001**	**180**	**010**	**150**	**1438 Z**			**7**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS		
Sea Level Pressure		Temperature											Number of days with:		
Highest	**1012.1 MBS**	Highest	**35.0°C**	Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more		Dew Point Temperature (°C)	**25.2**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**9/04/10 1430 Z**	Date	**9/24/10 0615 Z**								Relative Humidity (%)	**84**			
Lowest	**1005.9 MBS**	Lowest	**21.2°C**	**0**	**13**	**12**	**6**	**3**	**1**	**0**			**0**	**10**	**20**
Date	**9/30/10 0830 Z**	Date	**9/25/10 2345 Z**								Vapor Pressure (mmHg)	**31.66**			
Mean	**1009.3 MBS**	Mean	**28.1°C**												

Table 4.2-3 (5) Daily Weather Data at Tagbilaran City in October 2010

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: October 2010

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Wet Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Fri	1	1006.5	1007.4	27.3	25.5	31.5	24.4	28.0	24.9	86	9.6	001	040						8	✓		✓		✓	✓
Sat	2	1007.8	1008.7	26.4	25.4	31.0	23.9	27.4	25.1	92	4.2	001	270						7	✓		✓			
Sun	3	1007.6	1008.5	28.5	26.2	33.6	24.5	29.0	25.5	83	1.0	002	180						7	✓		✓		✓	✓
Mon	4	1007.4	1008.3	29.4	26.7	33.8	25.0	29.4	25.9	81	0.0	002	270						6	✓					✓
Tue	5	1007.0	1007.9	29.2	26.9	34.3	23.8	29.0	26.4	84	4.4	002	180	012	050	1820 Z			5	✓		✓			✓
Wed	6	1007.5	1008.4	27.9	25.9	33.0	24.8	28.9	25.3	85	2.0	001	050						8	✓		✓		✓	✓
Thu	7	1007.0	1007.9	27.8	26.1	31.8	24.5	28.2	25.6	87	0.0	002	040						8	✓					✓
Fri	8	1007.3	1008.2	27.6	25.8	33.5	24.5	29.0	25.2	87	65.8	001	270						8	✓		✓		✓	
Sat	9	1007.2	1008.1	27.7	26.0	33.5	25.0	29.2	25.5	87	3.0	001	180						8	✓		✓			✓
Sun	10	1007.6	1008.5	27.7	25.8	33.0	25.2	29.1	25.2	86	0.0	002	180						7	✓					✓
Mon	11	1008.6	1009.5	27.5	25.5	31.8	25.0	28.4	24.8	85	14.8	001	270						8	✓		✓		✓	✓
Tue	12	1008.3	1009.2	27.4	25.5	32.0	24.3	28.2	24.9	86	0.3	001	180						7	✓		✓			
Wed	13	1007.3	1008.2	28.9	26.2	32.0	25.0	28.5	25.4	81	3.2	001	090						7	✓		✓		✓	✓
Thu	14	1007.2	1008.1	28.4	26.3	32.4	25.2	28.8	25.6	85	1.8	001	180						7	✓		✓		✓	✓
Fri	15	1008.5	1009.4	27.7	25.3	33.2	23.2	28.2	24.5	82	20.8	002	090						7	✓		✓		✓	✓
Sat	16	1007.4	1008.3	27.5	25.8	32.4	23.7	28.0	25.3	87	1.0	001	270						7	✓		✓		✓	✓
Sun	17	1006.4	1007.1	28.4	25.7	34.0	24.5	29.2	24.8	80	0.0	002	180						7	✓					
Mon	18	1005.8	1006.7	28.8	26.0	33.3	25.0	29.2	25.1	80	0.0	002	220						7	✓					
Tue	19	1007.4	1008.3	29.0	26.1	33.0	25.2	29.1	25.2	79	T	002	180	010	180	0300 Z			7	✓		✓			
Wed	20	1007.3	1008.2	29.6	26.1	34.2	25.4	29.8	25.0	76	0.0	002	180						6	✓					
Thu	21	1006.6	1007.5	29.6	26.5	34.4	25.0	29.7	25.6	78	0.0	002	180						7	✓					
Fri	22	1007.0	1007.9	29.6	26.5	34.5	25.0	29.8	25.6	78	0.0	001	180						8	✓					
Sat	23	1007.4	1008.3	28.9	25.8	34.0	23.4	28.7	24.8	78	1.0	002	220						8	✓		✓		✓	✓
Sun	24	1007.0	1007.9	29.2	26.1	33.4	24.4	28.9	25.1	78	0.0	001	150						8	✓					
Mon	25	1007.1	1008.0	29.0	26.0	34.4	24.8	29.6	25.1	79	0.0	001	240						8	✓					✓
Tue	26	1007.9	1008.8	27.2	25.6	33.4	23.9	28.6	25.0	87	34.6	001	180						8	✓		✓		✓	
Wed	27	1008.3	1009.2	27.0	25.3	30.4	23.6	27.0	24.7	87	0.2	002	180						7	✓		✓			✓
Thu	28	1008.4	1009.3	27.2	25.1	33.0	24.0	28.5	24.4	84	2.2	001	050						7	✓		✓			✓
Fri	29	1008.2	1009.1	27.4	25.4	32.5	24.0	28.2	24.8	85	0.0	002	140						6	✓					
Sat	30	1008.0	1008.9	25.3	24.5	29.5	23.8	26.6	24.2	94	94.6	002	320	018	040	0530 Z			7	✓		✓		✓	
Sun	31	1006.5	1007.4	25.6	24.8	32.2	23.2	27.7	24.5	94	40.6	002	060						7	✓		✓		✓	✓
Total		**31229.5**	**31257.2**	**868.7**	**800.4**	**1019.0**	**757.2**				**305.1**	**047**							**223**	**31**		**20**		**13**	**18**
Mean/ Extreme		**1007.4**	**1008.3**	**28.0**	**25.8**	**32.9**	**24.4**	**28.6**	**25.1**	**84**		**002**	**180**	**018**	**040**	**0530 Z**			**7**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS Number of days with:		
Sea Level Pressure		Temperature		Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more		Dew Point Temperature (°C)	**25.1**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Highest	**1011.6 MBS**	Highest	**34.5°C**								Relative Humidity (%)	**84**			
Date	**10/11/10 0130 Z**	Date	**10/22/10 0635 Z**												
Lowest	**1004.2 MBS**	Lowest	**23.2°C**								Vapor Pressure (mmHg)	**31.66**	**0**	**4**	**27**
Date	**10/18/10 0745 Z**	Date	**10/31/10 2200 Z**	**1**	**19**	**17**	**6**	**4**	**2**	**0**					
Mean	**1008.3 MBS**	Mean	**28.8°C**												

Table 4.2-3 (6) Daily Weather Data at Tagbilaran City in November 2010

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: November 2010

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Mon	1	1006.9	1007.8	26.6	25.1	31.0	23.9	27.4	24.6	88	15.6	001	160						7	✓		✓		✓	✓
Tue	2	1008.3	1009.2	27.0	25.4	32.0	24.4	28.2	24.9	88	0.0	001	050						6	✓					✓
Wed	3	1008.6	1009.5	28.3	26.3	33.2	25.0	29.1	25.7	85	3.6	002	180						6	✓		✓		✓	✓
Thu	4	1008.0	1008.9	27.8	25.8	31.8	24.5	28.2	25.2	85	12.6	002	180						7	✓		✓			
Fri	5	1006.7	1007.6	27.8	26.0	33.0	24.5	28.8	25.4	87	16.8	001	040						6	✓		✓			✓
Sat	6	1008.0	1008.9	28.3	26.1	33.0	24.4	28.7	25.4	84	6.8	001	180						7	✓		✓		✓	
Sun	7	1008.8	1009.7	27.4	24.9	32.7	23.8	28.2	24.1	82	0.2	002	150						8	✓		✓			✓
Mon	8	1009.1	1010.0	28.0	26.0	32.6	24.5	28.6	25.4	85	5.8	001	360						6	✓		✓			✓
Tue	9	1010.5	1011.4	26.6	25.3	31.0	23.5	27.2	24.9	90	2.0	001	050						7	✓		✓			
Wed	10	1009.8	1010.7	28.2	26.0	33.1	23.8	28.4	25.3	84	0.0	001	140						6	✓					
Thu	11	1009.1	1010.0	27.2	25.2	31.4	23.8	27.6	24.5	85	0.0	001	180						7	✓					✓
Fri	12	1007.8	1008.7	26.8	25.4	32.8	23.9	28.4	24.9	89	16.6	001	270	008	040	0545 Z			6	✓		✓		✓	
Sat	13	1009.0	1009.9	28.4	26.0	32.7	25.0	28.8	25.2	83	0.2	002	050						5	✓		✓			
Sun	14	1009.9	1010.8	28.1	25.4	34.0	24.3	29.2	24.5	80	12.8	002	040						6	✓		✓		✓	✓
Mon	15	1008.9	1009.8	26.4	25.2	32.0	23.5	27.8	24.8	91	0.3	001	040						7	✓		✓			
Tue	16	1008.0	1008.9	27.1	25.2	31.0	23.8	27.4	24.6	86	8.0	001	050						6	✓		✓		✓	✓
Wed	17	1007.4	1008.3	28.2	26.2	32.4	24.6	28.5	25.6	85	3.0	001	040						6	✓		✓			
Thu	18	1008.3	1009.2	27.7	25.7	32.6	24.6	28.6	25.1	85	1.0	001	050						6	✓		✓		✓	✓
Fri	19	1007.0	1007.9	28.0	26.0	32.5	24.0	28.2	25.4	85	0.0	002	040						6	✓					
Sat	20	1005.9	1006.8	27.5	25.6	32.8	24.0	28.4	25.0	86	0.2	001	090						6	✓		✓		✓	
Sun	21	1005.5	1006.4	27.4	25.3	33.0	23.3	28.2	24.6	84	9.0	002	050						7	✓		✓		✓	
Mon	22	1005.9	1006.8	28.0	25.8	32.8	25.0	28.9	25.1	84	0.0	001	220						6	✓					
Tue	23	1007.4	1008.3	28.1	26.2	33.0	23.8	28.4	25.6	86	1.0	001	180						7	✓		✓			
Wed	24	1007.1	1008.0	28.7	26.2	33.0	24.4	28.7	25.4	82	0.0	002	180						6	✓					✓
Thu	25	1007.2	1008.1	28.4	25.9	33.4	24.8	29.1	25.1	82	0.4	001	270						5	✓		✓			✓
Fri	26	1007.5	1008.4	27.2	25.1	32.0	24.0	28.0	24.4	84	10.6	001	040						7	✓		✓		✓	✓
Sat	27	1008.3	1009.2	27.3	25.4	32.5	24.4	28.4	24.8	86	13.0	002	040						7	✓		✓			
Sun	28	1007.8	1008.7	27.3	25.4	30.6	23.8	27.2	24.8	86	0.0	002	030						8	✓					
Mon	29	1006.9	1007.8	26.9	25.0	32.4	23.7	28.0	24.4	86	0.6	002	040						7	✓		✓			
Tue	30	1005.7	1006.6	27.7	25.0	32.0	24.2	28.1	24.1	80	0.5	002	050						7	✓		✓			
	31																								
Total		**30235.3**	**30262.3**	**828.4**	**768.1**	**972.3**	**725.2**				**140.6**	**042**							**194**	**30**		**23**		**10**	**13**
Mean/ Extreme		**1007.8**	**1008.7**	**27.6**	**25.6**	**32.4**	**24.2**	**28.3**	**25.0**	**85**		**001**	**040**	**008**	**040**	**0545 Z**			**6**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS		
Sea Level Pressure		Temperature		Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more				Number of days with:		
Highest	**1012.9 MBS**	Highest	**34.0°C**								Dew Point Temperature (°C)	**25.0**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**11/09/10 0200 Z**	Date	**11/14/10 0510 Z**								Relative Humidity (%)	**85**			
Lowest	**1003.6 MBS**	Lowest	**23.3°C**												
Date	**11/21/10 0730 Z**	Date	**11/21/10 2250 Z**	**0**	**23**	**16**	**6**	**0**	**0**	**0**	Vapor Pressure (mmHg)	**31.66**	**0**	**16**	**14**
Mean	**1008.7 MBS**	Mean	**28.6°C**												

Table 4.2-3 (7) Daily Weather Data at Tagbilaran City in December 2010

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: December 2010

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Wed	1	1005.8	1006.8	28.4	26.0	33.2	24.6	28.9	25.2	83	0.0	002	050						6	✓					
Thu	2	1006.3	1007.2	27.8	25.8	33.2	24.5	28.8	25.2	85	14.2	002	030						6	✓		✓			✓
Fri	3	1007.4	1008.3	27.0	25.4	33.0	23.5	28.2	24.9	88	15.2	001	090						7	✓		✓			
Sat	4	1005.8	1006.7	28.1	25.8	33.0	23.9	28.4	25.1	83	0.6	002	090						6	✓		✓			
Sun	5	1004.5	1005.4	28.6	25.9	33.8	24.5	29.2	25.0	81	0.0	003	060						7	✓					
Mon	6	1005.3	1006.2	27.3	25.2	32.0	24.4	28.2	24.5	84	T	002	040						8	✓		✓			
Tue	7	1005.0	1005.9	26.8	25.6	32.2	24.4	28.3	25.2	91	20.6	001	050	010	040	0445 Z			8	✓		✓			✓
Wed	8	1005.2	1006.1	27.2	25.4	33.4	24.8	29.1	24.8	86	0.4	001	090						6	✓		✓		✓	✓
Thu	9	1005.9	1006.8	27.4	26.0	32.0	24.0	28.0	25.6	89	0.0	001	340						7	✓					
Fri	10	1005.7	1006.6	27.5	25.8	33.0	24.0	28.5	25.3	87	2.2	001	270						8	✓		✓			
Sat	11	1005.0	1005.9	27.4	25.8	32.5	24.0	28.2	25.3	88	7.0	001	090						7	✓		✓		✓	
Sun	12	1005.4	1006.3	28.6	25.8	33.3	24.1	28.6	24.9	80	0.0	002	150						6	✓				✓	✓
Mon	13	1008.0	1008.9	28.5	26.4	34.0	24.2	29.1	25.8	85	0.0	002	040						5	✓					✓
Tue	14	1007.8	1008.7	28.0	25.8	33.5	24.0	28.8	25.1	84	T	001	040						6	✓		✓			
Wed	15	1006.0	1006.9	27.8	25.6	34.2	23.3	28.8	24.9	84	17.4	002	140						7	✓		✓		✓	✓
Thu	16	1006.5	1007.4	26.8	25.5	33.0	24.0	28.5	25.1	90	19.0	001	030						7	✓		✓		✓	
Fri	17	1007.3	1008.2	28.1	26.0	33.0	24.0	28.5	25.3	85	0.0	001	040						6	✓					
Sat	18	1007.8	1008.7	28.0	26.0	34.4	24.2	29.3	25.4	85	3.0	002	090						6	✓		✓			
Sun	19	1008.5	1009.4	26.5	24.8	28.5	24.2	26.4	24.2	87	0.4	002	060						8	✓		✓			✓
Mon	20	1006.8	1007.7	27.9	25.4	32.7	24.3	28.5	24.6	82	0.0	002	030						6	✓					
Tue	21	1005.6	1006.5	26.2	25.0	32.0	23.2	27.6	24.6	91	39.4	001	040						7	✓		✓			✓
Wed	22	1005.2	1006.1	27.0	24.7	32.0	24.0	28.0	23.9	83	0.0	001	040						7	✓					✓
Thu	23	1006.0	1006.9	27.4	25.2	32.4	24.0	28.2	24.5	84	0.0	001	140						7	✓					
Fri	24	1005.1	1006.0	26.7	24.9	33.0	22.5	27.8	24.3	86	42.6	002	270						7	✓		✓			✓
Sat	25	1005.5	1006.4	27.2	25.5	32.0	24.2	28.1	25.0	87	0.0	001	090						7	✓				✓	
Sun	26	1006.4	1007.3	26.6	25.2	31.4	24.0	27.7	24.7	89	53.8	002	030	008	330	0427 Z			7	✓		✓		✓	✓
Mon	27	1007.5	1008.4	27.2	24.8	32.0	24.0	28.0	24.0	82	0.0	002	040						6	✓					
Tue	28	1007.5	1008.4	27.3	25.5	33.2	24.5	28.8	24.9	86	15.2	001	050						6	✓		✓		✓	✓
Wed	29	1007.3	1008.2	26.8	25.6	32.0	23.9	28.0	25.2	91	23.4	002	290	010	040	0445 Z			8	✓		✓			
Thu	30	1007.0	1007.9	27.1	25.4	32.6	23.6	28.1	24.8	87	7.0	001	040						7	✓		✓		✓	✓
Fri	31	1006.8	1007.7	26.4	25.0	31.4	23.6	27.5	24.5	89	1.2	001	040						7	✓		✓			
Total		**31195.9**	**31223.9**	**849.6**	**790.8**	**1011.9**	**744.4**				**282.6**	**047**							**209**	**31**		**20**		**9**	**13**
Mean/ Extreme		**1006.3**	**1007.2**	**27.4**	**25.5**	**32.6**	**24.0**	**28.3**	**24.9**	**86**		**002**	**040**	**010**	**040**	**0445 Z**			**7**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS		
Sea Level Pressure		Temperature											Number of days with:		
Highest	**1011.5 MBS**	Highest	**34.4°C**	Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more		Dew Point Temperature (°C)	**24.9**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**12/19/10 0030 Z**	Date	**12/18/10 0655 Z**								Relative Humidity (%)	**86**			
Lowest	**1002.8 MBS**	Lowest	**22.5°C**	**2**	**18**	**15**	**10**	**3**	**1**	**0**			**0**	**12**	**19**
Date	**12/05/10 0830 Z**	Date	**12/24/10 2215 Z**								Vapor Pressure (mmHg)	**31.66**			
Mean	**1007.2 MBS**	Mean	**28.4°C**												

Table 4.2-3 (8) Daily Weather Data at Tagbilaran City in January 2011

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: January 2011

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Sat	1	1007.5	1008.4	26.4	24.9	30.6	24.0	27.3	24.4	88	1.3	002	040						8	✓		✓			
Sun	2	1008.5	1009.4	24.8	23.8	26.0	22.8	24.4	23.4	92	12.8	002	040						8	✓		✓			
Mon	3	1008.7	1009.6	24.0	22.8	25.0	22.2	23.6	22.3	90	5.2	002	040	012	060	1244 Z			8	✓		✓			
Tue	4	1008.6	1009.5	25.6	23.9	30.8	22.5	26.6	23.3	87	T	002	040						8	✓		✓			
Wed	5	1007.9	1008.8	25.4	24.4	27.2	22.8	25.0	24.1	92	4.3	002	040						8	✓		✓			
Thu	6	1007.6	1008.5	26.1	24.7	29.5	23.0	26.2	24.2	89	T	002	040						8	✓		✓			
Fri	7	1007.4	1008.3	26.9	24.9	31.8	23.5	27.6	24.2	85	3.4	001	040						7	✓		✓			
Sat	8	1006.4	1007.3	27.0	24.9	31.5	24.4	28.0	24.2	84	0.2	002	040						7	✓		✓			
Sun	9	1005.9	1006.8	26.4	24.8	31.2	24.0	27.6	24.3	88	1.6	002	050						6	✓		✓			
Mon	10	1003.8	1004.7	25.6	24.9	29.8	24.2	27.0	24.7	94	23.6	001	050						8	✓		✓		✓	✓
Tue	11	1004.2	1005.1	26.7	25.1	32.0	23.6	27.8	24.6	88	0.0	002	040						6	✓				✓	✓
Wed	12	1004.9	1005.8	26.8	25.6	32.0	24.2	28.1	25.2	91	26.8	002	180						7	✓		✓		✓	✓
Thu	13	1005.8	1006.7	26.9	25.1	30.8	24.0	27.4	24.5	86	0.0	002	040						8	✓					✓
Fri	14	1006.6	1007.5	27.8	25.8	33.5	25.0	29.2	25.2	85	7.0	001	180						7	✓		✓		✓	
Sat	15	1007.1	1008.0	27.8	25.6	33.0	23.7	28.4	24.9	84	50.7	001	180	009	220	1816 Z			7	✓		✓		✓	
Sun	16	1006.8	1007.7	26.4	24.8	30.2	23.9	27.0	24.3	88	29.0	002	060						8	✓		✓		✓	
Mon	17	1008.7	1009.6	25.8	24.4	30.0	23.2	26.6	23.9	89	26.2	002	040						8	✓		✓			
Tue	18	1008.6	1009.5	24.4	23.7	25.6	21.4	23.5	23.5	94	12.2	001	360						7	✓		✓			
Wed	19	1007.9	1008.8	26.8	24.9	31.9	23.4	27.6	24.3	86	0.0	001	180						7	✓				✓	
Thu	20	1008.0	1008.9	26.4	24.8	30.4	24.0	27.2	24.3	83	0.0	001	260						7	✓					
Fri	21	1008.3	1009.2	27.7	25.3	32.0	24.5	28.2	24.5	82	0.0	002	040						5	✓					
Sat	22	1009.5	1010.4	26.0	24.8	32.0	22.7	27.4	24.4	91	49.0	002	040						8	✓		✓		✓	✓
Sun	23	1009.5	1010.4	26.7	24.9	31.0	24.0	27.5	24.3	86	T	002	060						8	✓		✓			
Mon	24	1009.3	1010.2	26.0	24.1	30.3	22.8	26.6	23.4	85	4.6	002	040						7	✓		✓			
Tue	25	1010.6	1011.5	26.5	24.9	30.6	24.0	27.3	24.4	88	1.2	002	040						7	✓		✓			
Wed	26	1010.8	1011.7	25.5	24.6	28.8	23.2	26.0	24.3	93	55.2	003	040						8	✓		✓			
Thu	27	1011.9	1012.8	23.9	23.2	26.4	22.5	24.4	23.0	94	39.0	002	040						8	✓		✓			
Fri	28	1010.6	1011.5	25.0	23.8	27.5	23.0	25.2	23.4	90	7.8	002	040						8	✓		✓			
Sat	29	1010.0	1010.9	25.8	23.5	31.8	22.1	27.0	22.7	82	1.2	002	040						8	✓		✓			
Sun	30	1009.5	1010.4	26.5	24.2	30.6	23.3	27.0	23.4	83	0.2	003	360						8	✓		✓			
Mon	31	1008.8	1009.7	25.6	23.5	28.0	23.2	25.6	22.7	84	1.4	003	020	010	050	0758 Z			8	✓		✓			
Total		**31249.7**	**31277.6**	**809.2**	**760.6**	**931.8**	**725.1**				**363.9**	**058**							**231**	**31**		**26**		**7**	**5**
Mean/ Extreme		**1008.1**	**1009.0**	**26.1**	**24.5**	**30.1**	**23.4**	**26.7**	**24.0**	**88**		**002**	**040**	**012**	**060**	**1244 Z**			**7**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS		
Sea Level Pressure		Temperature											Number of days with:		
Highest	**1014.2 MBS**	Highest	**33.5°C**	Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more		Dew Point Temperature (°C)	**24.0**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**01/27/11 0230 Z**	Date	**01/14/11 0558 Z**								Relative Humidity (%)	**88**			
Lowest	**1002.9 MBS**	Lowest	**21.4°C**	**3**	**23**	**21**	**10**	7	**2**	**0**			**0**	**3**	**28**
Date	**01/10/11 0700 Z**	Date	**01/18/11 2300 Z**								Vapor Pressure (mmHg)	**29.82**			
Mean	**1008.9 MBS**	Mean	**27.4°C**												

Table 4.2-3 (9) Daily Weather Data at Tagbilaran City in February 2011

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: February 2011

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Tue	1	1008.4	1009.3	24.0	23.2	26.0	22.4	24.2	22.9	93	24.6	003	040						8	✓		✓			
Wed	2	1008.4	1009.3	25.5	23.9	28.2	23.0	25.6	23.3	88	0.2	003	040	009	040	0224 Z			8	✓		✓			
Thu	3	1007.0	1007.9	26.4	24.8	30.5	24.4	27.4	24.3	88	1.2	002	360						8	✓		✓			✓
Fri	4	1006.2	1007.1	27.0	25.5	31.0	24.6	27.8	25.0	89	0.8	002	050						7	✓		✓			✓
Sat	5	1006.9	1007.8	27.4	25.6	32.0	24.2	28.1	25.0	86	0.0	001	220						6	✓				✓	✓
Sun	6	1006.8	1007.7	27.7	25.8	32.0	24.7	28.2	25.2	86	0.0	002	040						6	✓					
Mon	7	1006.4	1007.3	27.2	25.5	32.0	23.0	27.5	25.0	87	10.8	001	040						7	✓		✓		✓	✓
Tue	8	1005.5	1006.4	27.7	25.1	32.2	23.6	27.9	24.2	81	0.0	001	180						7	✓					
Wed	9	1006.6	1007.5	27.7	25.3	33.0	24.0	28.5	24.5	82	0.0	001	280						6	✓					✓
Thu	10	1008.0	1008.9	27.8	25.7	32.2	23.8	28.0	25.0	84	0.0	001	040						6	✓					
Fri	11	1008.2	1009.1	28.0	26.0	33.2	24.0	28.6	25.4	85	0.3	002	040						5	✓		✓		✓	✓
Sat	12	1008.4	1009.3	27.4	25.1	32.8	24.3	28.6	24.3	83	6.0	002	040						7	✓		✓		✓	✓
Sun	13	1008.5	1009.4	26.3	24.6	29.0	23.6	26.3	24.0	87	1.2	003	030						8	✓		✓			
Mon	14	1009.7	1010.6	26.8	24.4	31.0	23.7	27.4	23.6	82	T	002	040						7	✓		✓			
Tue	15	1010.0	1010.9	26.8	25.0	32.2	23.4	27.8	24.4	86	10.5	002	040	010	090	0754 Z			7	✓		✓		✓	
Wed	16	1010.2	1011.1	27.2	25.0	33.0	23.6	28.3	24.3	84	0.0	002	040						6	✓					
Thu	17	1009.8	1010.7	26.9	24.7	32.4	23.0	27.7	24.0	84	4.6	002	040						8	✓		✓			
Fri	18	1009.3	1010.2	26.4	24.9	30.5	24.0	27.2	24.4	88	7.0	002	090						8	✓		✓		✓	
Sat	19	1010.1	1011.0	26.7	24.6	31.5	23.3	27.4	23.9	84	0.2	002	040						8	✓		✓			
Sun	20	1009.9	1010.8	26.8	24.9	31.8	22.0	26.9	24.3	86	6.4	002	040						6	✓		✓			
Mon	21	1009.8	1010.7	26.8	24.6	32.0	24.0	28.0	23.8	83	T	002	040						6	✓		✓			
Tue	22	1010.3	1011.2	25.7	23.3	31.0	21.9	26.4	22.4	80	0.0	002	040						8	✓					
Wed	23	1009.9	1010.8	26.0	23.2	31.4	21.8	26.6	22.2	79	0.0	001	040						7	✓					
Thu	24	1009.3	1010.2	26.7	23.7	32.4	22.8	27.6	22.6	78	T	002	040						7	✓		✓			
Fri	25	1008.3	1009.2	26.0	23.7	29.8	21.5	25.6	22.9	82	0.2	002	040						8	✓		✓			
Sat	26	1008.2	1009.1	26.9	23.6	31.5	23.5	27.5	22.4	76	16.0	002	040						8	✓		✓			
Sun	27	1006.8	1007.7	24.7	23.8	26.4	22.8	24.6	23.5	93	50.6	002	040						8	✓		✓			
Mon	28	1004.7	1005.6	27.0	25.4	30.0	24.4	27.2	24.9	88	T	002	040						8	✓		✓			✓
	29																								
	30																								
	31																								
Total		**28231.6**	**28256.8**	**747.5**	**690.9**	**871.0**	**655.3**				**140.6**	**053**							**199**	**28**		**20**		**6**	**8**
Mean/ Extreme		**1008.3**	**1009.2**	**26.7**	**24.7**	**31.1**	**23.4**	**27.2**	**24.0**	**85**		**002**	**040**	**010**	**090**	**0754 Z**			**7**						

EXTREMES			
Sea Level Pressure		Temperature	
Highest	**1012.3 MBS**	Highest	**33.2°C**
Date	**02/22/11 1430 Z**	Date	**02/11/11 0500 Z**
Lowest	**1003.5 MBS**	Lowest	**21.5°C**
Date	**02/28/11 0800 Z**	Date	**02/25/11 2330 Z**
Mean	**1009.2 MBS**	Mean	**27.4°C**

TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)						
Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more	
4	**16**	**11**	**5**	**1**	**1**	**0**

MONTHLY PSYCHOMETRIC VALUES	
Dew Point Temperature (°C)	**24.0**
Relative Humidity (%)	**85**
Vapor Pressure (mmHg)	**29.82**

MEAN CLOUDNESS IN OKTAS		
Number of days with:		
0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
0	**8**	**20**

Table 4.2-3 (10) Daily Weather Data at Tagbilaran City in March 2011

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: March 2011

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Tue	1	1006.3	1007.2	27.9	26.1	32.2	25.0	28.6	25.5	87	0.0	002	270						6	✓					
Wed	2	1007.8	1008.7	28.0	25.8	33.0	24.0	28.5	25.1	84	9.7	002	180						7	✓		✓			✓
Thu	3	1008.6	1009.5	27.0	25.1	32.3	23.0	27.6	24.5	86	50.0	002	290	009	080	1355 Z			7	✓		✓		✓	
Fri	4	1008.3	1009.2	26.8	25.2	31.0	23.5	27.2	24.7	88	T	001	140						7	✓		✓			
Sat	5	1009.4	1010.3	26.8	24.9	31.5	22.6	27.0	24.1	85	7.0	001	270						5	✓		✓			
Sun	6	1009.8	1010.7	27.3	24.8	31.8	23.0	27.4	24.0	82	0.8	002	060						7	✓		✓			
Mon	7	1009.2	1010.1	27.8	25.6	33.0	24.2	28.6	24.9	84	0.0	002	040						6	✓					
Tue	8	1010.0	1010.9	26.0	24.4	32.0	22.9	27.4	23.8	88	44.2	001	050						7	✓		✓		✓	
Wed	9	1010.6	1011.5	26.4	25.0	31.6	24.0	27.8	24.5	89	7.2	001	040						8	✓		✓			
Thu	10	1009.6	1010.5	26.8	24.9	31.2	24.0	27.6	24.3	86	2.3	002	040						8	✓		✓		✓	✓
Fri	11	1008.7	1009.6	27.2	25.5	32.5	24.0	28.2	25.0	87	8.6	003	040						7	✓		✓			
Sat	12	1008.8	1009.7	25.4	24.3	28.0	22.5	25.2	23.9	91	0.0	002	040						7	✓					
Sun	13	1006.0	1006.9	27.3	25.0	31.0	23.8	27.4	24.2	83	7.4	002	360						7	✓		✓			
Mon	14	1007.2	1008.1	27.0	25.2	31.0	24.5	27.8	24.6	86	1.0	002	030						8	✓		✓			✓
Tue	15	1007.9	1008.8	25.8	24.3	31.0	23.0	27.0	23.7	88	0.8	002	040						7	✓		✓		✓	
Wed	16	1008.2	1009.1	26.4	24.8	32.1	23.3	27.7	24.3	88	12.2	003	040						8	✓		✓		✓	
Thu	17	1009.4	1010.3	27.4	25.0	32.2	24.0	28.1	24.2	82	2.8	004	040	010	040	0255 Z			6	✓		✓			
Fri	18	1009.0	1009.9	27.0	25.1	31.5	24.0	27.8	24.5	86	1.0	002	040						8	✓		✓			
Sat	19	1008.8	1009.7	25.2	24.2	26.5	22.8	24.6	23.8	92	0.6	002	040						8	✓		✓			
Sun	20	1007.5	1008.4	27.7	25.5	31.9	25.0	28.4	24.8	84	0.3	003	040						7	✓		✓			
Mon	21	1007.8	1008.7	27.4	26.1	31.2	24.7	28.0	25.7	90	10.2	001	040						8	✓		✓			
Tue	22	1007.2	1008.1	28.0	26.0	33.2	23.9	28.6	25.4	85	0.1	002	050						6	✓		✓			
Wed	23	1007.4	1008.3	26.4	25.5	33.0	23.8	28.4	25.2	93	45.6	003	040						7	✓		✓		✓	
Thu	24	1007.5	1008.4	26.0	24.6	31.2	23.1	27.0	24.1	89	33.8	003	040	012	090	1005 Z			8	✓		✓			
Fri	25	1008.4	1009.3	26.1	24.8	30.4	23.6	27.0	24.4	90	13.2	002	040	014	040	0722 Z			8	✓		✓		✓	
Sat	26	1008.2	1009.1	26.2	24.8	29.4	23.5	26.4	24.3	89	2.8	003	040						8	✓		✓			
Sun	27	1007.1	1008.0	27.1	25.1	30.5	23.4	27.0	24.4	85	6.5	002	060						8	✓		✓			
Mon	28	1007.8	1008.7	27.5	25.4	32.4	24.0	28.2	24.7	84	4.2	002	040						7	✓		✓			
Tue	29	1008.3	1009.2	27.5	25.5	31.5	24.1	27.8	24.8	85	2.4	002	360						7	✓		✓		✓	
Wed	30	1007.7	1008.6	26.4	25.4	31.0	23.7	27.4	25.1	92	12.2	001	360						6	✓		✓			
Thu	31	1008.0	1008.9	27.1	25.4	31.2	24.0	27.6	24.8	87	2.6	002	040						8	✓		✓			
Total		**31256.5**	**31284.4**	**832.9**	**779.3**	**972.3**	**734.9**				**289.5**	**064**							**222**	**31**		**28**		**8**	**3**
Mean/ Extreme		**1008.3**	**1009.2**	**26.9**	**25.1**	**31.4**	**23.7**	**27.5**	**24.6**	**87**		**002**	**040**	**014**	**040**	**0722 Z**			**7**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS		
Sea Level Pressure		Temperature											Number of days with:		
Highest	**1013.5 MBS**	Highest	**33.2°C**	Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more		Dew Point Temperature (°C)	**24.5**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**03/09/11 0200 Z**	Date	**03/22/11 0450 Z**								Relative Humidity (%)	**86**			
Lowest	**1007.3 MBS**	Lowest	**22.5°C**												
Date	**03/13/11 0800 Z**	Date	**03/12/11 2330 Z**	**1**	**27**	**22**	**8**	**4**	**1**	**0**	Vapor Pressure (mmHg)	**29.82**	**0**	**5**	**26**
Mean	**1009.2 MBS**	Mean	**27.8°C**												

Table 4.2-3 (11) Daily Weather Data at Tagbilaran City in April 2011

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: April 2011

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Web Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Fri	1	1008.2	1009.1	26.1	24.4	29.0	23.0	26.0	23.8	87	0.6	002	020						8	✓		✓			
Sat	2	1007.5	1008.4	27.4	24.4	32.6	22.6	27.6	23.4	78	0.0	001	320						7	✓					
Sun	3	1007.5	1008.4	28.2	24.9	33.2	23.0	28.1	23.8	76	0.0	002	300						7	✓					
Mon	4	1008.8	1009.7	28.0	24.7	34.0	23.0	28.5	23.6	76	0.0	002	340						6	✓					
Tue	5	1010.5	1011.4	27.3	24.0	32.3	22.9	27.6	22.8	76	0.2	002	040						7	✓		✓			
Wed	6	1011.0	1011.9	26.2	24.2	31.2	23.0	27.1	23.5	85	T	001	030						7	✓		✓			
Thu	7	1010.8	1011.7	27.2	24.8	32.2	24.0	28.1	24.0	82	0.0	002	140						6	✓					
Fri	8	1011.3	1012.2	27.6	24.9	32.0	23.5	27.8	24.0	80	0.0	002	180						7	✓					
Sat	9	1011.1	1012.0	28.0	25.0	33.4	23.0	28.2	24.0	78	0.0	002	050						5	✓					
Sun	10	1010.7	1011.6	26.4	25.8	30.6	24.0	27.3	25.6	95	1.0	002	040						7	✓		✓			
Mon	11	1008.5	1009.4	27.2	24.9	32.1	23.0	27.6	24.1	83	0.1	002	050						7	✓		✓			
Tue	12	1010.0	1010.9	26.7	24.6	32.0	23.8	27.9	23.9	84	4.0	002	280	008	080	0422 Z			7	✓		✓		✓	
Wed	13	1010.3	1011.2	27.5	25.6	33.0	22.8	27.9	25.0	86	3.6	001	040						7	✓		✓			
Thu	14	1008.8	1009.7	27.6	24.8	32.8	25.0	28.9	23.9	80	1.4	002	160						6	✓		✓			
Fri	15	1008.8	1009.7	27.6	24.9	32.2	23.5	27.8	24.0	80	0.0	001	040						8	✓					
Sat	16	1009.2	1010.1	27.9	25.3	32.8	23.0	27.8	24.4	81	0.0	002	270						7	✓					
Sun	17	1008.2	1009.1	27.5	25.0	31.8	22.7	27.2	24.2	82	0.0	001	240						7	✓					
Mon	18	1007.4	1008.3	28.5	26.0	33.2	24.4	28.8	25.2	82	0.0	001	180						5	✓					
Tue	19	1008.3	1009.2	27.8	25.5	33.0	23.8	28.4	24.8	83	9.2	001	050						7	✓		✓			
Wed	20	1009.6	1010.5	27.4	25.2	32.6	24.0	28.3	24.5	84	2.0	001	270						7	✓		✓			
Thu	21	1009.4	1010.3	28.0	25.4	32.8	25.0	28.9	24.6	81	0.0	002	180						7	✓					
Fri	22	1008.2	1009.1	27.1	25.4	30.4	24.0	27.2	24.8	87	0.0	001	180						8	✓					
Sat	23	1008.1	1009.0	27.9	25.5	33.0	24.0	28.5	24.7	82	T	002	270						7	✓		✓			
Sun	24	1007.8	1008.7	26.8	25.4	32.6	24.3	28.4	24.9	89	5.2	001	050						7	✓		✓		✓	
Mon	25	1008.0	1008.9	29.0	26.3	33.4	24.2	28.8	25.5	81	0.0	001	360						6	✓					
Tue	26	1007.7	1008.6	28.4	26.0	33.8	23.7	28.8	25.2	83	0.2	002	160						6	✓		✓			
Wed	27	1006.8	1007.7	29.1	26.4	33.8	24.6	29.2	25.6	81	0.0	002	270						5	✓					
Thu	28	1007.2	1008.1	28.6	26.2	33.3	24.5	28.9	25.5	83	1.4	001	250						5	✓		✓		✓	
Fri	29	1007.6	1008.5	27.4	25.8	33.0	24.0	28.5	25.3	88	21.4	001	040						6	✓		✓		✓	
Sat	30	1007.6	1008.5	28.9	26.3	33.5	25.4	29.4	25.5	81	0.0	002	060						7	✓					
	31																								
Total		**30264.9**	**30291.9**	**829.3**	**757.6**	**975.6**	**711.7**				**50.3**	**047**							**199**	**30**		**15**		**4**	
Mean/ Extreme		**1008.8**	**1009.7**	**27.6**	**25.3**	**32.5**	**23.7**	**28.1**	**24.5**	**82**		**002**	**040**	**008**	**080**	**0422 Z**			**7**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS		
Sea Level Pressure		Temperature											Number of days with:		
Highest	**1014.3 MBS**	Highest	**34.0°C**	Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more		Dew Point Temperature (°C)	**24.6**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**04/08/11 0130 Z**	Date	**04/04/11 0450 Z**								Relative Humidity (%)	**83**			
Lowest	**1005.6 MBS**	Lowest	**22.6°C**	**2**	**13**	**9**	**1**	**0**	**0**	**0**			**0**	**10**	**20**
Date	**04/18/11 0840 Z**	Date	**04/02/11 2200 Z**								Vapor Pressure (mmHg)	**31.66**			
Mean	**1009.7 MBS**	Mean	**28.3°C**												

Table 4.2-3 (12) Daily Weather Data at Tagbilaran City in May 2011

STATION: TAGBILARAN CITY LATITUDE: 09°38'N LONGITUDE: 123°52'E For the Month of: May 2011

Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
		Station Pressure	Mean Sea Level Pressure	Dry Bulb	Wet Bulb	Maximum	Minimum	Mean	Mean Dew Point			Average Speed(mps)	Prevailing Direction (degrees)	Maximum Speed(mps)	Direction of Maximum Speed	Time of Maximum Wind(UTC)	Minutes	Precentage of Maximum Possible		Smoke/Haze/ Smaze	Fog	Rain/Drizzle	Hail	Thunderstorm	Lightning
	(1)	(2a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Sun	1	1007.3	1008.2	26.5	25.2	32.0	23.5	27.8	24.8	90	40.2	001	050						8	✓		✓		✓	
Mon	2	1005.9	1006.8	29.3	26.8	34.3	25.0	29.6	26	82	T	002	030						6	✓		✓			
Tue	3	1006.6	1007.5	26.7	25.6	32.0	24.0	28.0	25.2	92	15.2	001	090						7	✓		✓		✓	✓
Wed	4	1007.6	1008.5	27.2	25.8	30.6	24.4	27.5	25.4	89	0.5	001	180						8	✓		✓		✓	
Thu	5	1008.4	1009.3	26.8	25.6	29.4	24.0	26.7	25.2	91	2.7	001	090						8	✓		✓			
Fri	6	1007.4	1008.3	26.7	24.9	30.0	24.5	27.2	24.3	86	0.2	002	320						8	✓		✓			
Sat	7	1006.3	1007.2	26.7	25.5	28.0	25.2	26.6	25.1	91	2.4	001	220	008	220	2124 Z			8	✓		✓			
Sun	8	1006.7	1007.6	27.6	25.7	31.0	24.5	27.8	25.1	86	0.2	002	220						8	✓		✓			
Mon	9	1008.3	1009.2	28.5	25.7	33.0	21.5	27.2	24.8	80	9.0	002	180	015	240	1354 Z			7	✓		✓		✓	
Tue	10	1009.0	1009.4	29.0	26.6	33.4	24.5	29.0	25.9	83	0.0	002	270						6	✓					✓
Wed	11	1009.2	1010.1	28.0	25.9	32.2	24.0	28.1	25.2	84	0.0	001	180						7	✓					
Thu	12	1008.8	1009.7	28.1	25.8	32.8	24.5	28.6	25.1	83	0.0	001	270						4	✓				✓	
Fri	13	1008.3	1009.2	28.5	26.2	33.8	25.0	29.4	25.5	83	0.0	001	180						6	✓					✓
Sat	14	1009.8	1010.7	27.1	25.6	32.2	23.8	28.0	25.1	89	4.0	001	050						6	✓		✓		✓	
Sun	15	1010.8	1011.7	27.9	26.3	34.0	25.0	29.5	25.8	88	3.2	001	050						6	✓		✓			
Mon	16	1010.2	1011.1	27.5	26.0	32.2	24.0	28.1	25.5	89	T	001	360						7	✓		✓		✓	✓
Tue	17	1008.6	1009.5	28.0	26.3	33.0	25.0	29.0	25.8	87	4.6	001	340						6	✓		✓		✓	
Wed	18	1008.8	1009.7	28.4	26.1	33.2	24.9	29.0	25.4	83	0.0	002	080						7	✓				✓	
Thu	19	1008.8	1009.7	28.0	26.1	31.6	25.0	28.3	25.5	86	0.2	001	090						7	✓		✓		✓	✓
Fri	20	1007.8	1008.7	26.8	25.2	32.2	24.0	28.1	24.7	88	6.4	001	050						7	✓		✓		✓	
Sat	21	1006.7	1007.6	28.6	26.4	33.2	24.6	28.9	25.7	84	0.0	001	050						6	✓					
Sun	22	1006.8	1007.7	28.6	26.4	32.8	25.0	28.9	25.7	84	T	002	090						8	✓		✓		✓	✓
Mon	23	1007.0	1007.9	28.6	26.4	33.2	25.0	29.1	25.7	84	7.6	001	270						8	✓		✓		✓	
Tue	24	1005.8	1006.7	28.9	26.4	32.6	25.5	29.0	25.6	82	0.0	002	090						7	✓					✓
Wed	25	1004.0	1004.9	28.7	26.6	33.0	25.8	29.4	26.0	85	2.0	002	180						8	✓		✓			✓
Thu	26	1004.6	1005.5	28.1	26.2	31.6	25.0	28.3	25.6	87	12.6	003	220						8	✓		✓			
Fri	27	1006.4	1007.3	27.8	25.9	31.8	24.5	28.2	25.3	86	2.2	002	220						8	✓		✓			
Sat	28	1007.7	1008.6	29.2	26.5	33.2	25.4	29.3	25.7	81	0.0	002	220						8	✓					
Sun	29	1008.7	1009.6	29.1	25.2	32.5	25.5	29.0	23.9	73	1.8	002	180						7	✓		✓			
Mon	30	1008.6	1009.5	29.2	26.4	33.1	25.0	29.0	25.6	80	0.0	001	180						5	✓					
Tue	31	1007.8	1008.7	28.3	26.0	34.0	24.4	29.2	25.3	83	50.8	001	140						6	✓		✓		✓	✓
Total		**31238.7**	**31266.1**	**868.4**	**805.3**	**1001.9**	**762.0**				**165.8**	**045**							**216**	**31**		**22**		**14**	**9**
Mean/ Extreme		**1007.7**	**1008.6**	**28.0**	**26.0**	**32.3**	**24.6**	**28.4**	**25.3**	**85**		**001**	**180**	**015**	**240**	**1354 Z**			**7**						

EXTREMES				TOTAL 24-H RAINFALL IN MILLIMITERS (8 AM TO 8 AM)							MONTHLY PSYCHOMETRIC VALUES		MEAN CLOUDNESS IN OKTAS		
Sea Level Pressure		Temperature											Number of days with:		
Highest	**1013.3 MBS**	Highest	**34.3°C**	Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more		Dew Point Temperature (°C)	**25.4**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**05/15/11 0125 Z**	Date	**05/02/11 0500 Z**								Relative Humidity (%)	**85**			
Lowest	**1003.2 MBS**	Lowest	**21.5°C**	**3**	**19**	**15**	**4**	**2**	**1**	**0**			**0**	**10**	**21**
Date	**05/25/11 0830 Z**	Date	**05/09/11 2130 Z**								Vapor Pressure (mmHg)	**31.66**			
Mean	**1007.7 MBS**	Mean	**27.9°C**												

4.3 Land Acquisition and Resettlement

4.3.1 History

Land acquisition of the Right-of-Way (ROW) for the airport project in Panglao Island already commenced as early as 1990s. Bohol Provincial Government (BPG) had been entrusted by DOTC, DOT (Department of Tourism) and the Civil Aviation Authority of the Philippines (CAAP) to conduct the acquisition of the ROW for the project by virtue of a Memorandum of Agreement (MOA) dated 23rd January 1994. However, the new project had not been materialized for two decades. During the non-materialization of the project, another F/S was conducted in 2007, which realigned the project site bearing North 30 degrees East. As a result, 32.6 ha out of 62.4 ha-land already acquired became outside of the ROW.

From April to July 2012, under the Preparatory Survey assisted by JICA, a resettlement action plan (RAP) for the project was prepared in accordance with JICA Guidelines for Environmental and Social Considerations.

4.3.2 Scale and Status of Land Acquisition and Resettlement

As shown in Table 4.3-1, as of end of June 2013, the total area of the ROW is 223 ha, which equivalents to 407 lots. Out of the total 407 lots in the ROW, 358 lots, 88.0 %, are already acquired. Out of the remaining 49 lots, 40 are still for acquisition (under negotiation), and 9 are for expropriation.

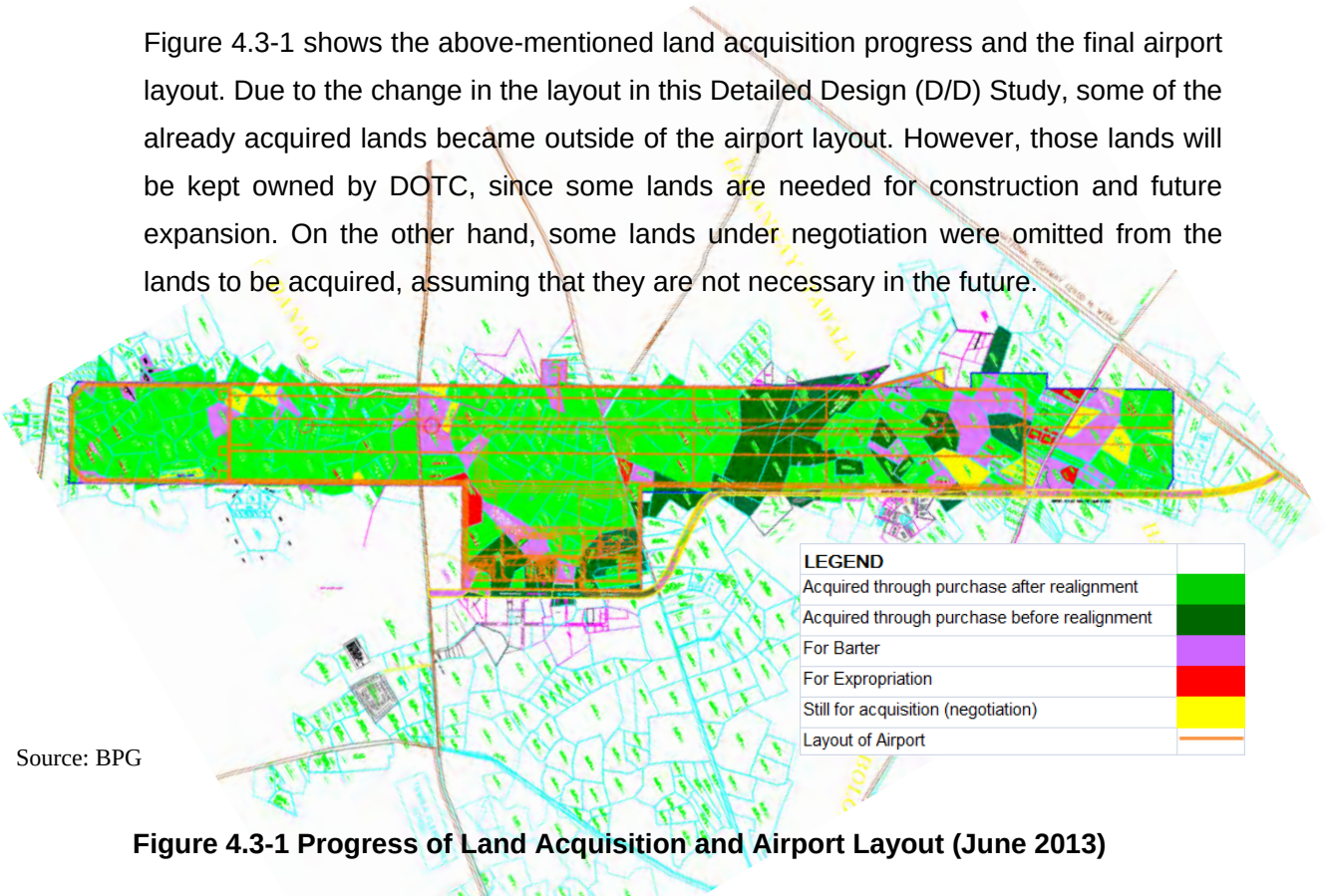
For the 40 plots still for acquisition, 'Entry Permits' obtained from the landowners are necessary to enter the lands, which is under process by the BPG. For the 9 lots for expropriation, the cases are under study by the Office of Solicitor General before filing with the Court. Only after the permission by the Court (issuance of 'Writ of Possession'), the government agencies can enter the land and demolish houses if necessary. Out of the 9 lots for expropriation, 4 lots are owned by one landowner, and two houses remain in these 4 lots. According to DOTC officials, expropriation of the 9 lots including two houses is most likely to complete within 2013.

Table 4.3-1 Status of Land Acquisitions as of June 2013

	Lots	Area (sq.m)	Lot-wise ratio (%)	Area-wise ratio (%)
Acquired through Purchase after Realignment	222	1,436,365	54.5%	64.4%
Acquired through Purchase Before Realignment	32	298,639	7.9%	13.4%
For Barter	99	321,978	24.3%	14.4%
Government Owned (Road)	5	18,635	1.2%	0.8%
Sub-total: Acquired	358	2,075,617	88.0%	93.1%
Still for Acquisition (Negotiation)	40	111,383	9.8%	5.0%
For Expropriation	9	42,849	2.2%	1.9%
Sub-total: Not Yet Acquired	49	154,232	12.0%	6.9%
Total	407	2,229,849	100.0%	100.0%

Source: BPG

Figure 4.3-1 shows the above-mentioned land acquisition progress and the final airport layout. Due to the change in the layout in this Detailed Design (D/D) Study, some of the already acquired lands became outside of the airport layout. However, those lands will be kept owned by DOTC, since some lands are needed for construction and future expansion. On the other hand, some lands under negotiation were omitted from the lands to be acquired, assuming that they are not necessary in the future.



Source: BPG

Figure 4.3-1 Progress of Land Acquisition and Airport Layout (June 2013)

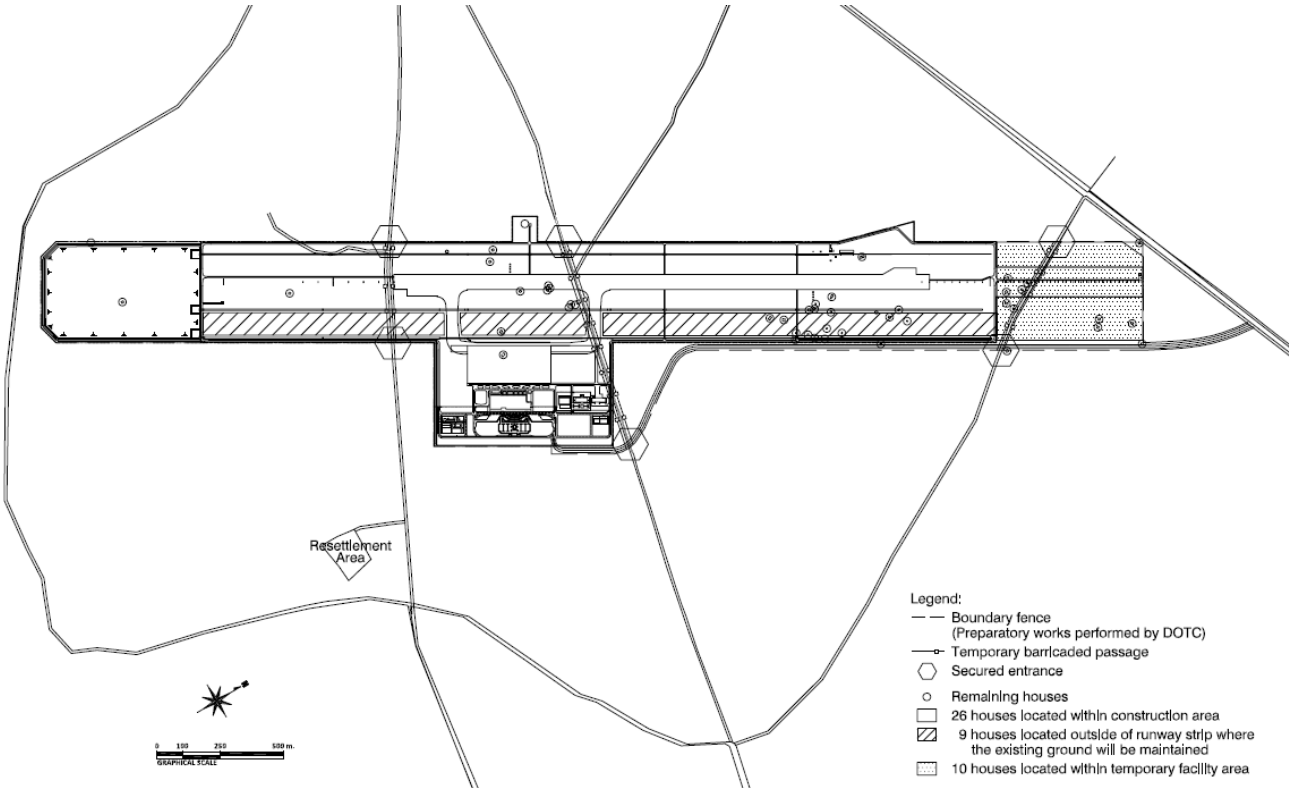
4.3.3 Status of Resettlement and Preparation of Resettlement Site

(1) Households Need to Resettle

When a census was conducted for households living in the ROW in January and February 2008, there were 64 house-affected households who needed to resettle outside of the ROW. Those 64 households were compensated for their lands and structures during 2008 and 2009. For those households, two options of resettlement mode were prepared, namely: 1) self-relocation (i.e., moving to a place where they find by themselves) and 2) relocation to a resettlement site prepared by BPG. Out of 64 households, 32 self-relocated after receiving compensation, while the other 32 remained in the site under the condition that they will vacate the area once the airport project pushes through, and eventually most of them had spent up their compensation.

As of June 2013, the number of households which need to resettle increased from 32 to 45. Out of the increased 13 households, 2 are affected by the finalized alignment of the access road, while 11 are not eligible for compensation since they built their houses after the cut-off date (20th February 2008). Figure 4.3-2 shows the distribution of those 45 households.

According to the BPG, out of the two households on the access road, one was already compensated, and the other is ready to sign the determined compensation.

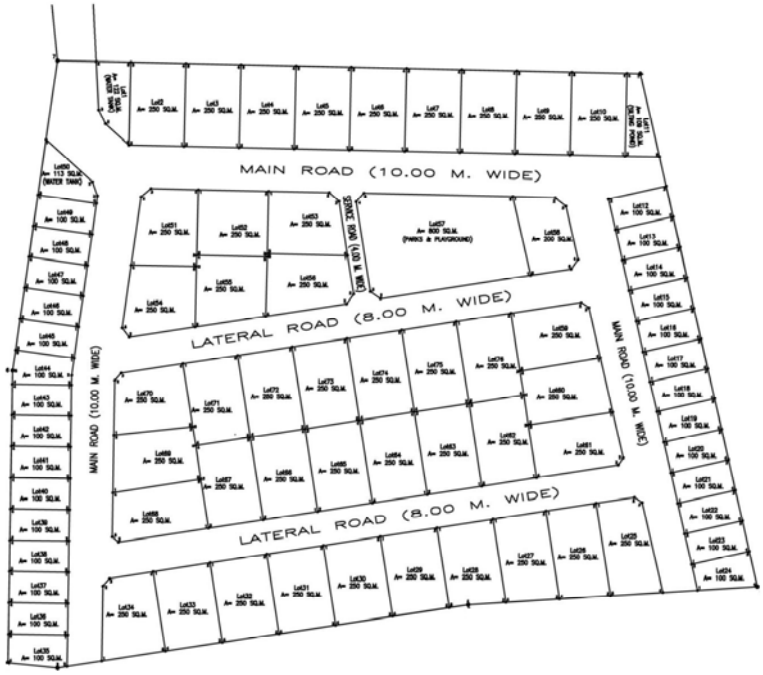


Source: BPG

Figure 4.3-2 Distribution of 45 Households Need to Resettle

(2) Preparation of Resettlement Site

The Figure 4.3-3 shows the resettlement site plan prepared by the BPG, which has 71 plots aside from communal spaces. The resettlement site is located 600 m away from the terminal area of the new airport (Figure 4.3-2).



Source: BPG

Figure 4.3-3 Resettlement Site Plan by BPG

In June 2013, a consultation meeting was conducted with the affected households regarding the resettlement package (a plot and a house), which was followed by individual visits to ask about their resettlement options. As a result, 31 out of the 45 households opted for moving to the resettlement site, while others opted for self-relocation or have not made their decisions.

4.4 Construction Plan proposed by JICA Detailed Design Study Team

4.4.1 Activity Schedule before Commencement of Construction

The GOP, through Department of Transportation and Communications (DOTC), plans to execute by its own fund, the following activities

a) Preparatory Works (boundary fence, clearing and grubbing of construction site); .Local bidding was called in March 2013 and closed in May. The lowest bidder was selected in June and now under final review by Bid and Award Committee (BAC). If the contract is awarded in July, the Work is assumed to start in September and to complete in February 2014.

b) Construction of external water supply which consists of construction of a water receiving tank in Dawis, a Relay Tank at the highest elevation (65 m above MSL) and 8.7-km long piping network along National Highway to the intersection of the new airport access road (based on the detailed design and bidding documents prepared earlier through the course of this JICA Study); Local bidding was called in June and closed in July 2013. The Work is critical element to supply vast water required for the new airport construction, and are supposed to commence in October and be completed by April 2014. DOTC intends to select a private water company through separate bidding, to supply water with operation and maintenance of the completed water tanks and pipelines.

c) Embankment of soaking yard perimeter; This Work is initially supposed to be included in the above a) (Preparatory Works), however DOTC intends to select contractor through a separate bidding. If its local bidding is called in August, closed in September, and awarded in November 2013 through the normal process, the Works can be executed from January to June 2014. This Work is also critical to start with temporary drainage and earthworks for the new airport construction.

Meanwhile, DOTC intends to complete all the process to procure a consultant for the construction management services before the end of August 2013. Then the selected consultant can start from September 2013, with his initial services for assistance in Bidding for the construction contract.

Now, the draft detailed design and bidding documents are being reviewed by JICA and DOTC. When the same are approved by JICA and DOTC, the International

Competitive Bidding (ICB) could start from August 2013. Hence, in the earliest case, those various activities mentioned above are possibly processed as shown in Table 4.4-1.

Table 4.4-1 Activity Schedule before Commencement of Construction of the Project

Activity				2013							2014											
				6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
A. DOTC-funded Project																						
1	**Preparatory Works**																					
	1	Bidding	Jun 2013																			
	2	Contract signing	Jul 2013																			
	3	Construction	Sep 2013						6 months													
2	**External Water Supply**																					
	1	Bidding	Jul 2013																			
	2	Contract signing	Sep 2013																			
	3	Construction	Oct 2013						6 months													
3	**Embankment of Soaking Yard Perimeter**																					
	1	Bidding	Aug 2013																			
	2	Contract signing	Nov 2013																			
	3	Construction	Dec 2013								6 months											
B. JICA funded New Bohol Airport Construction Project																						
0	**Selection of CMS Consultants**																					
	1	Bidding	Jul 2013																			
	2	Contract signing	Sep 2013																			
1	**Bidding**																					
		Advertisement	Aug 2013																			
		Issuance of Bid Documents	Aug 2013																			
		Pre-bid Conference	Sep 2013																			
		Bidders' Proposal/Submission	Nov 2013																			
		Technical Evaluation	Nov 2013																			
		Financial Evaluation	Dec 2013																			
		Clarification/Negotiation/Award	Jan 2014																			
		Preparation of Performance Security	Feb 2014																			
2	Contract Signing		Mar 2014																			
		Mobilization of Contractor	Apr 2014																			
		Advance Payment	Apr 2014																			
3	**Constuction**		May 2014																			

Source: JICA Study Team

Resettlement of 45 houses for the Project Affected Families (PAFs) is targeted to be completed before commencement of the new airport construction.

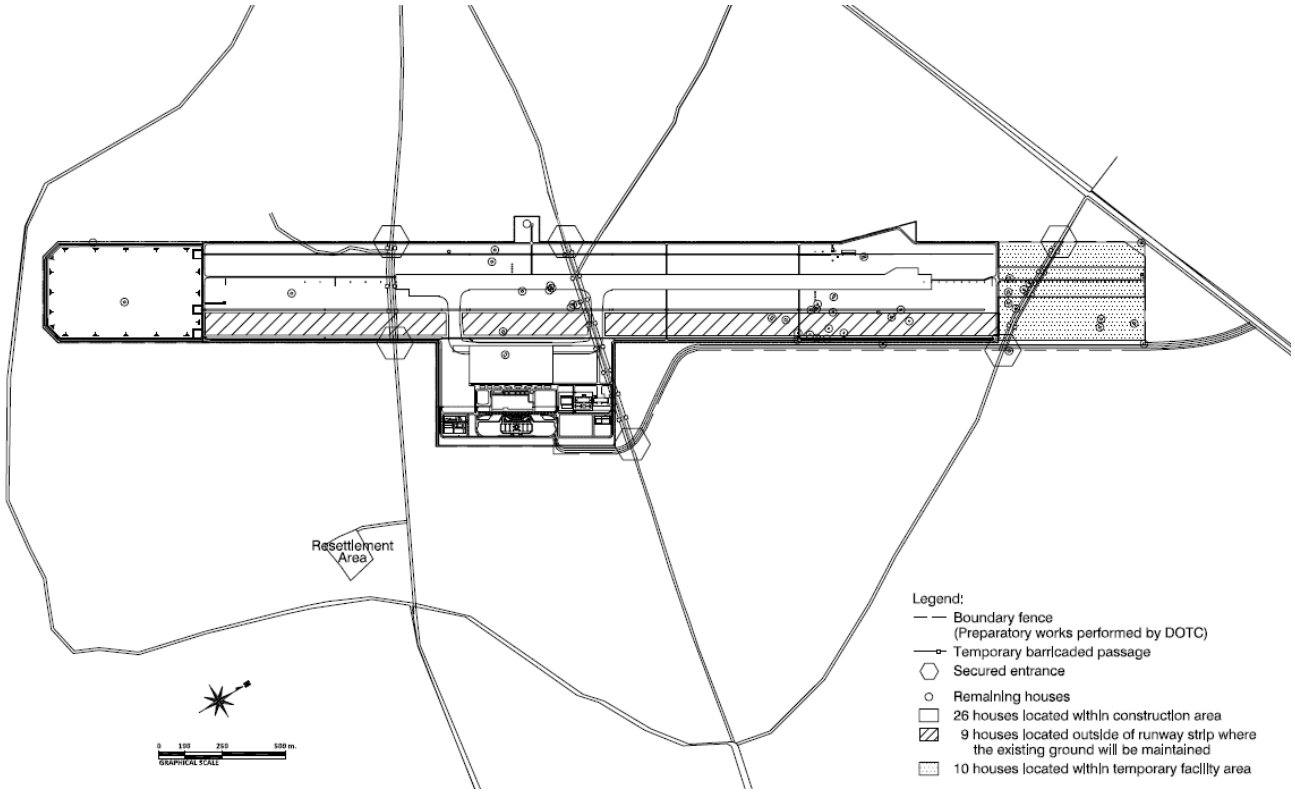
4.4.2 Temporary Works

(1) Access to Construction Site and Care of Habitants

There are three (3) Barangay roads laterally crossing the construction site. Those unpaved roads that currently connect between the National Highway and houses scattered in the vicinity are passable even with a little raining, owing to the durable ground surface made of coralline limestone.

DOTC intends, through the course of Preparatory Works aforesaid, to soon erect barbed-wire boundary fence to enclose the entire construction site. However, DOTC announced to public that the Barangay roads are initially kept accessible with a

provision of six (6) openings, where the fence is replaced by mobile barricades. The openings would be closed upon completion of the permanent airport access road that would give more convenient access to those who live at the south of the new airport. Those who live at the north of the new airport are already given convenient access to the highway.



Source: JICA Study Team

Figure 4.4-1 Remaining Houses and Barangay Road

The new airport construction could not be entirely worked without closure of those three (3) Barangay roads crossing the site. Therefore, the completion and taking-over of the permanent access road within a year is mandated in the Particular Conditions of the Construction Contract.

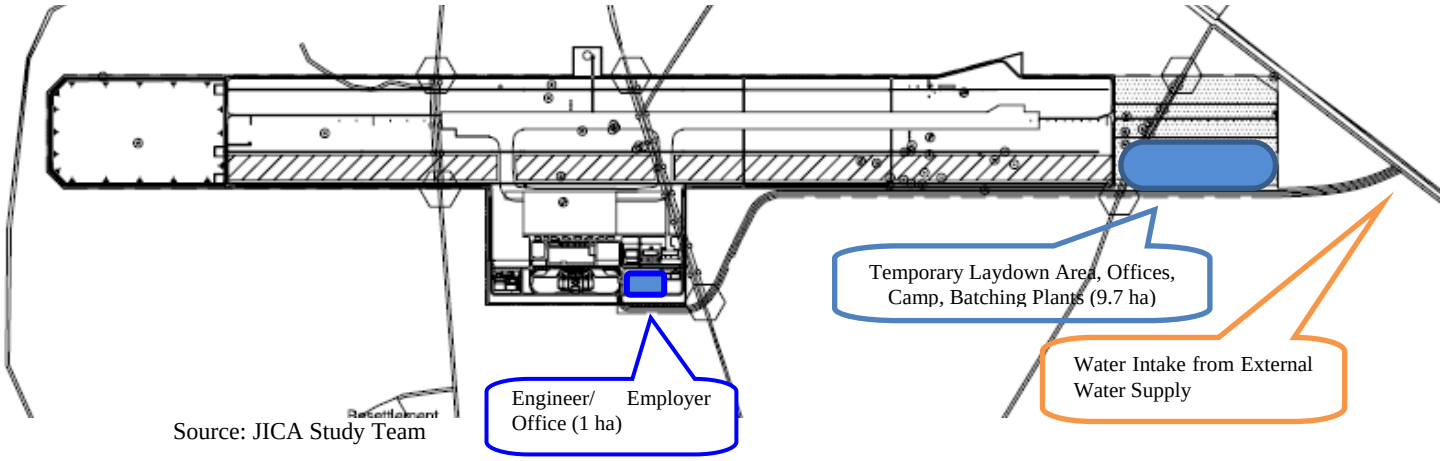
As of June 2013, 45 households are still living in the project site, and most of them opt for moving to the resettlement site, once it is prepared. The transfer of these households and demolishing of vacant houses are scheduled prior to commencement of the airport construction.

However, assuming the worst case scenario wherein the construction of the resettlement site is delayed, provision of temporary fence and security guards are incorporated in the proposed specifications and BOQ, in order to protect safety of project affected households remaining in the project site.

(2) Temporary Construction Yard

An area of approximately 10 ha (200 m x 500 m) is available for temporary yard as shown in Figure 4.4-2. This area is intended to cater for Contractor's laydown area, offices, camp, batching plants, equipment and loading yard. The area is conveniently located in the entry point of the access road from the National Highway, where water tapping point is planned to be constructed by DOTC before commencement of the construction.

The Employer and Engineers' office and laboratory, which are pay items for General Requirement, are desirable to be constructed at a location where those can remain un-demolished as long as possible for future storage of construction record, such as approved shop-drawings, as-built drawings, request for approval of materials and equipment, similar to the case of Iloilo Airport Project. The 1-ha area in front of the proposed Control Tower/Administration Building is vacant at a moment for future car park and/or concessions. This area is alongside the existing Barangay road where electricity is currently provided, hence is earmarked as the proposed site for the Employer and Engineers' office and laboratory



Source: JICA Study Team

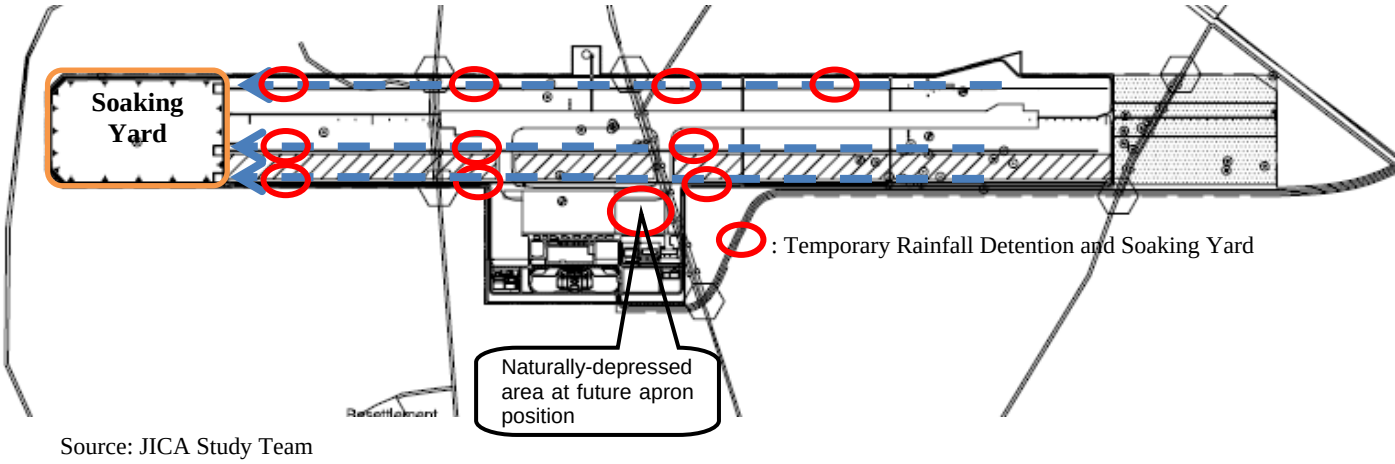
Figure 4.4-2 Proposed Temporary Construction Yard

(3) Temporary Drainage

The site of the proposed airport is generally flat with a moderate slope (0.1% to o.15%) in the general direction from north-east to south-west. Permanent drainage facilities are designed to follow this natural slope.

Following the natural terrain of the site, prior to any cut/ fill operations, temporary drainage should be constructed, alignment of which may be recommended to be along the position of permanent rip-rapped open ditch. The temporary ditch should be, before crossing the Barangay roads, provided with numbers of temporary detention or soaking yard. Where necessary, pipe culvert should be temporarily placed under the Barangay road, so that the road passage is maintained. Naturally-depressed area (e.g.

beside aircraft parking apron in front of control tower) should be utilized as temporary soaking area where applicable.



Source: JICA Study Team

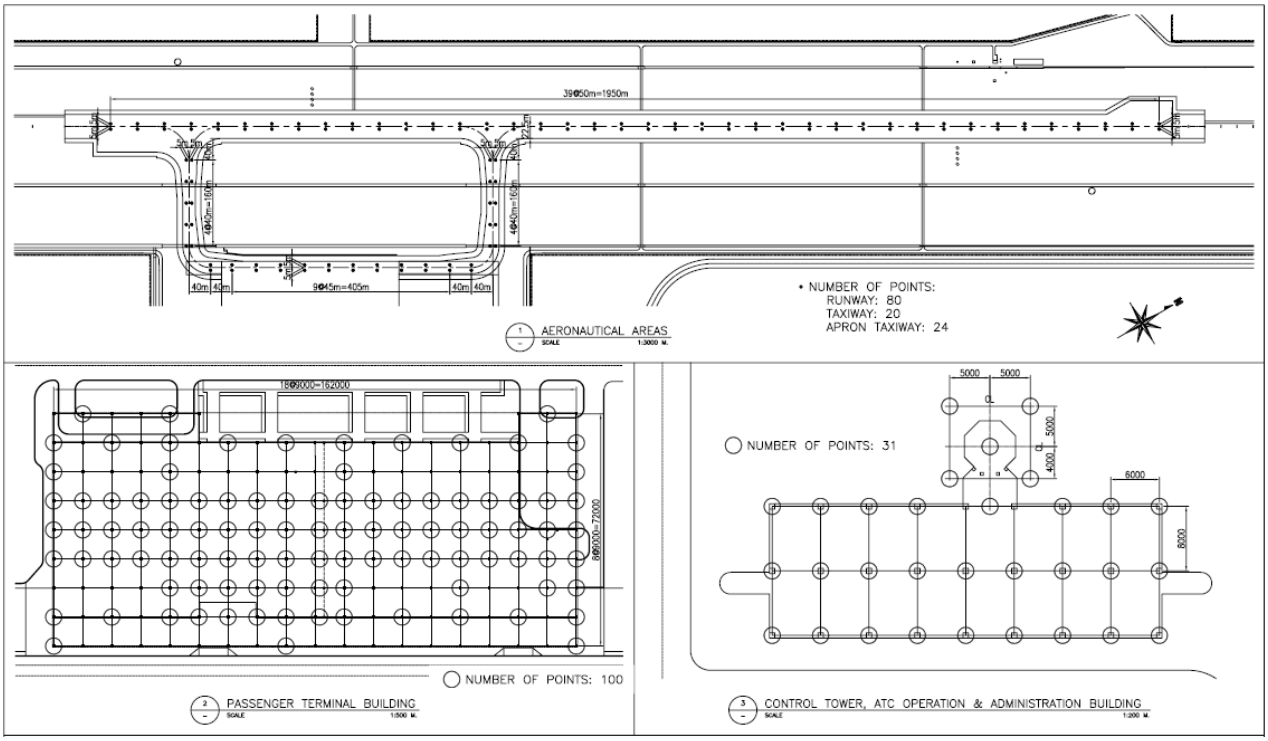
Figure 4.4-3 Temporary Ditch, Rainfall Detention and Soaking Yard

4.4.3 Further Investigation for Possible Cavity

Through the previous investigations, i.e. more than 90 boreholes in total (in 2009 and 2013), only one (1) cavity was found possibly by accident.

To make sure that no major cavity exists directly under pavement or footing of buildings, further borehole investigations are proposed to be implemented just after commencement of the construction, as follows:

- At footing for PTB: 100 boreholes of 5-m deep
- At footing for control tower/ administration building: 31 boreholes of 5-m deep
- 5 m on both side of centerline of Runway/ taxiway: 124 boreholes of 2-m deep



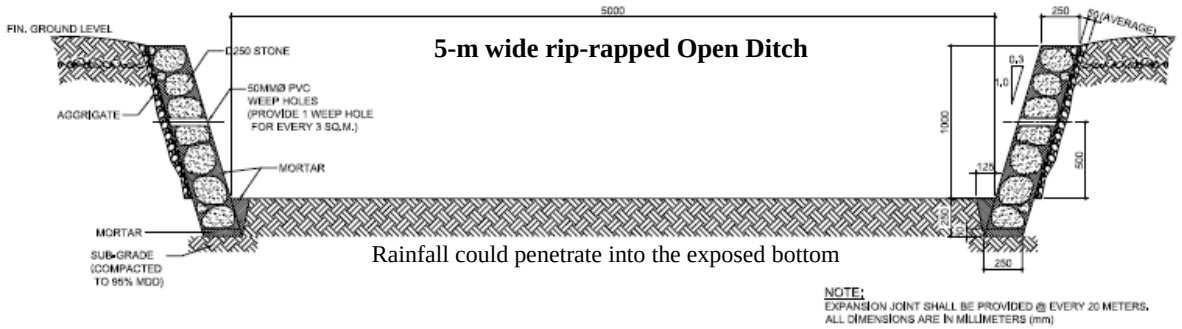
Source: JICA Study Team

Figure 4.4-4 Location for Further Borehole Investigations

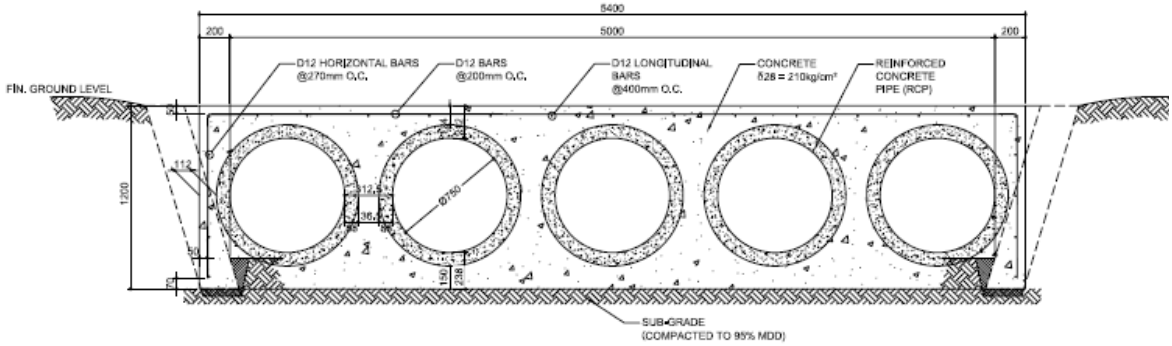
4.4.4 Airport Drainage

(1) Aeronautical Area

One of the prerequisite conditions for environmental protection is that any dirty water should not overflow from the new airport to the ocean. Towards this objective, storm water along airfield is planned to be collected through riprapped open ditch, bottom of which is exposed ground, so that storm water is locally detained and absorbed into the ground as much as possible, then only a minimal volume of storm water would flow into the soaking yard.



RCP 750 crossing under Taxiway pavement

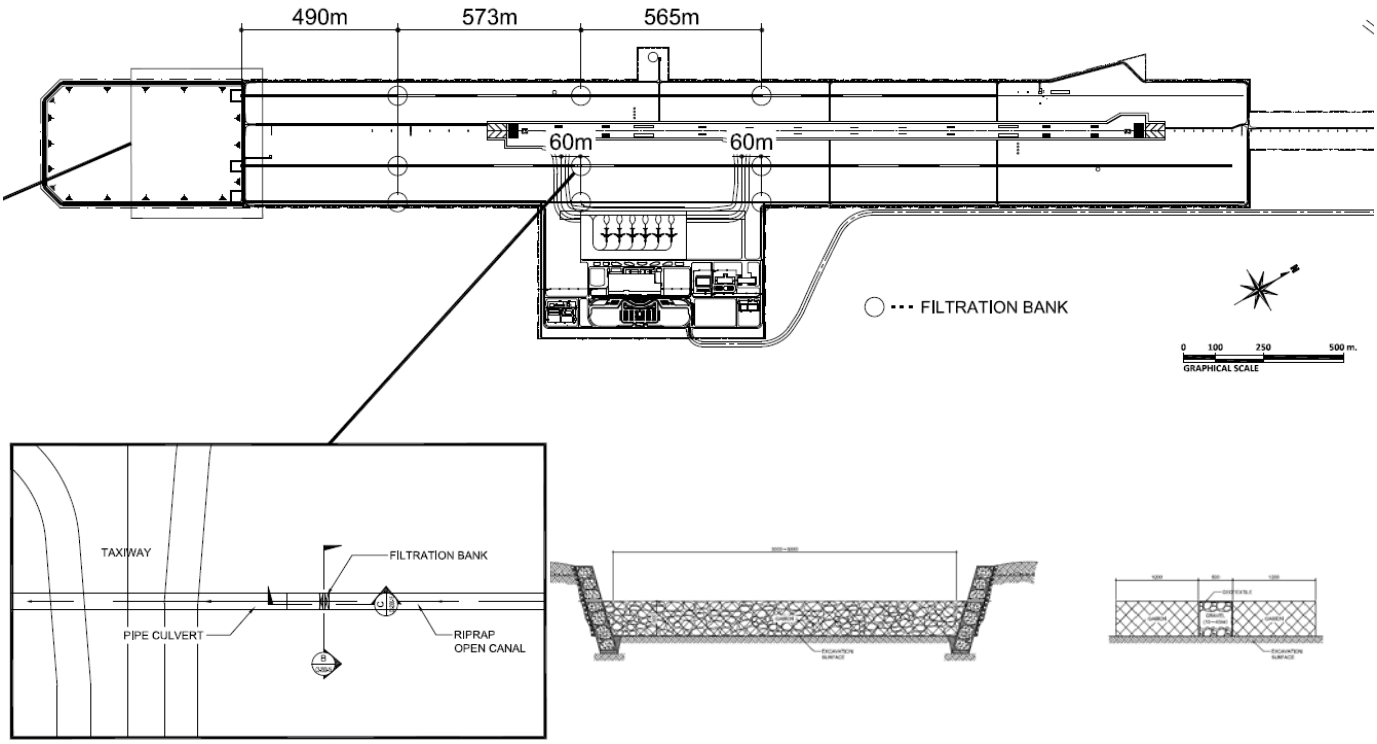


Source: JICA Study Team

Figure 4.4-5 Drainage Facilities at Aeronautical Area

Width of the riprapped open ditch of 5 m is more than what is required as a drainage capacity because cost of the riprap-wall is the same irrespective of their separation and widely-exposed bottom of the natural ground can locally absorb rainfall as much as possible.

Before the storm-water flowing into the RCP, filtration bank of stone covered with gabion is proposed to be made so as to prevent fine silt flowing to soaking yard .



Source: JICA Study Team

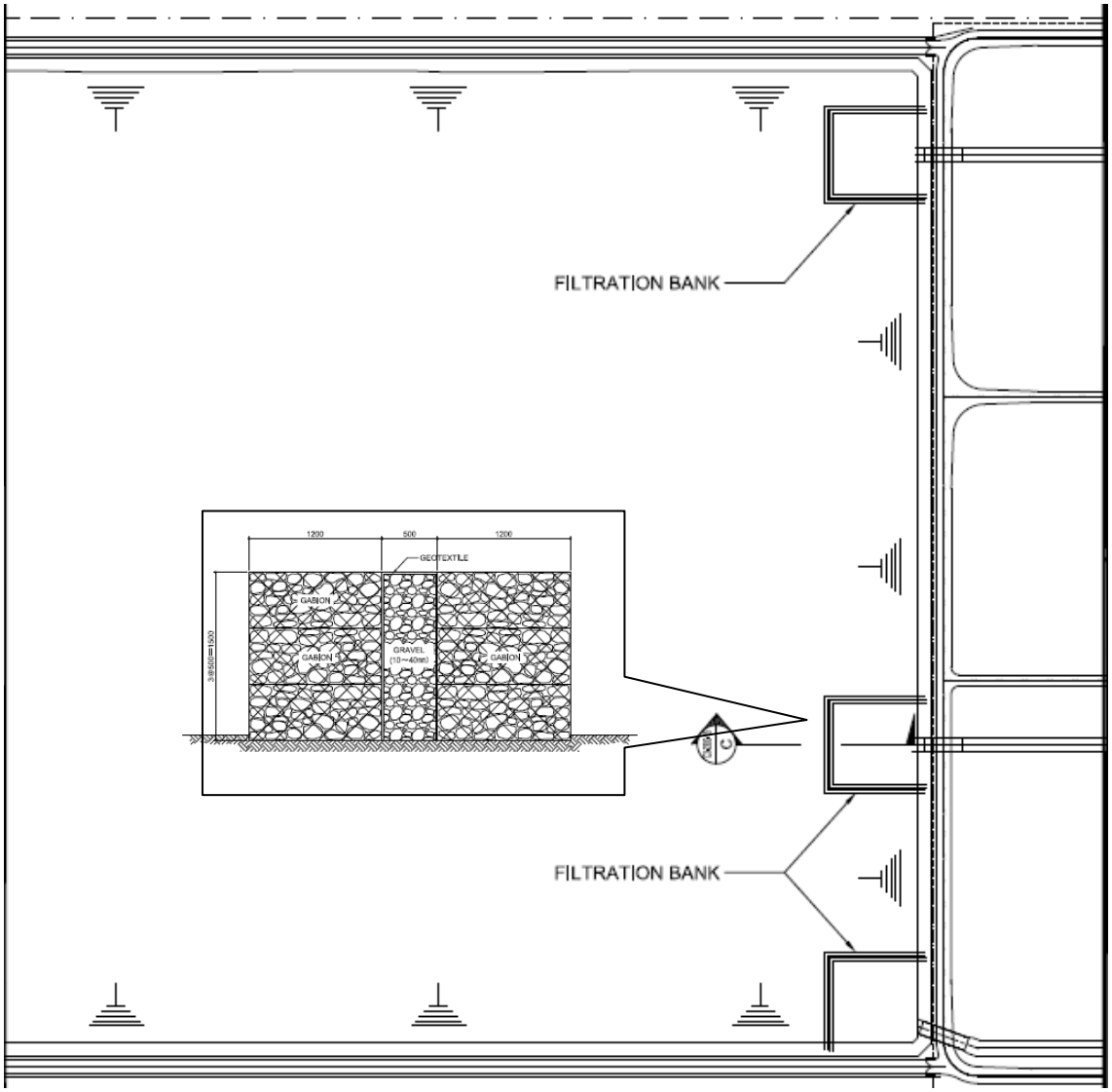
Figure 4.4-6 Filtration Bank at Aeronautical Area

(2) Soaking Yard

Normally, airport storm drainage system is designed based on the rainfall intensity of its return period of 5 years (by FAA) or 10 years (by JCAB). However, as JICA's Advisory Committee of Environmental and Social Considerations advised that the area of soaking yard should cope with extraordinary weather condition recently encountered worldwide, the capacity of the soaking yard is so designed that any storm water would not overflow from the airport property for long future.

Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) analyzed based on their 29-year record, that daily maximum rainfall could be 143 mm for the return period 10 year, 197 mm for that of 50 years, and 219 mm for that of 100 years. Assuming 50 % of the rainfall is naturally absorbed into the ground of approximately 200ha, reservoir capacity of detention pond (soaking yard) for the return period of 100 years should not be less than 220,000 tons of water (i.e. 50% x 0.219 m x 2,000,000 m^2). In addition, maximum 420 tons in total of water used for the building complex will be discharged via sewage treatment plant to the same soaking yard, which culminate a total of 220,420 ton of water. Meanwhile, dimension of the soaking yard is planned to be 20 ha in area and 2.5 m in depth, where 500,000 tons of reservoir capacity is available.

DOTC intends to proceed with the embankment of the soaking yard perimeter by its own fund. It should be instructed to the local contractor in charge that the final elevation of the bottom of soaking yard should not be exposed nor compacted during construction, so as to maintain natural permeability.



Source: JICA Study Team

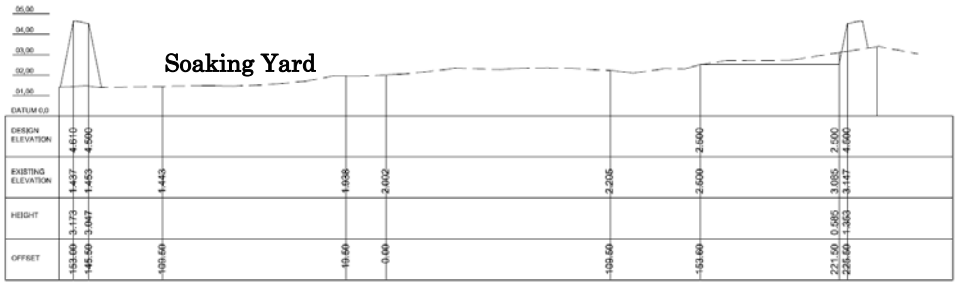
Figure4.4-7 Filtration Bank at Soaking Yard

To preserve the soaking function in the open ditch, filtration bank of stone covered with gabion should be made. It was further designed that the bottom of the soaking yard be covered by geo-textile materials so that fine sand stuck into natural underground-watercourse could be prevented.

4.4.5 Earthwork

It was decided by DOTC that airfield earthworks should be carried out only to the extent of runway strip for instrument operations (i.e. 150 m on both sides of runway centerline) and taxiway strip (i.e. 47.5 m on both sides of taxiway centerline for Code E). The existing ground for future parallel taxiway should be untouched.

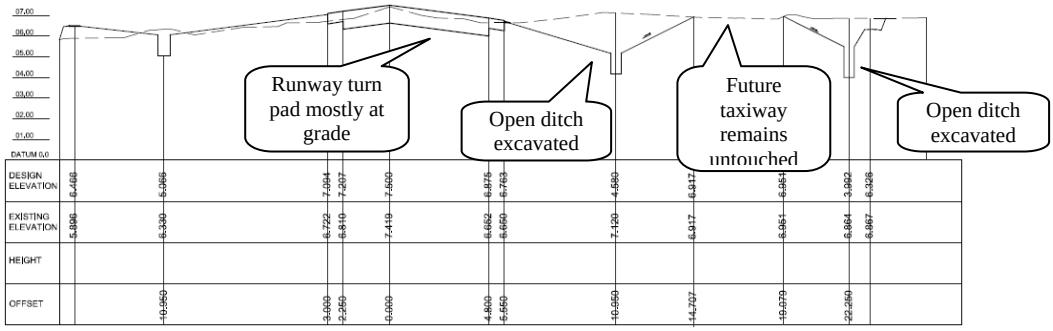
Runway cross section has been so designed that cut and fill volumes are balanced as shown below:



Airport storm water will drain into the Soaking Yard of 20 ha. Its bottom elevation varies from 1.4 m to 2.5 m, and the perimeter is embanked to be 4.5 m above MSL, where 500 thousand tons of water will be stored.

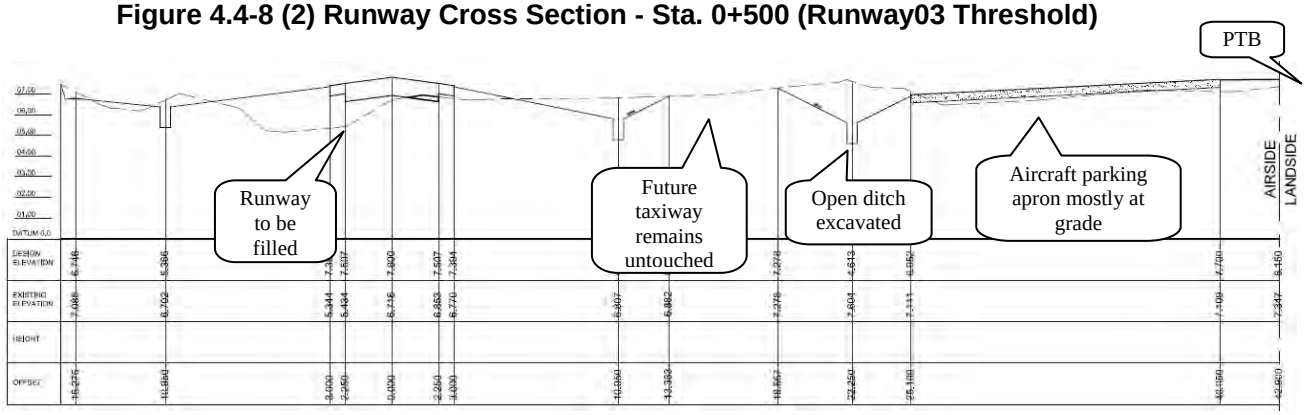
Source: JICA Study Team

Figure 4.4-8 (1) Typical Cross Section - Sta. 0-900 (Soaking Yard)



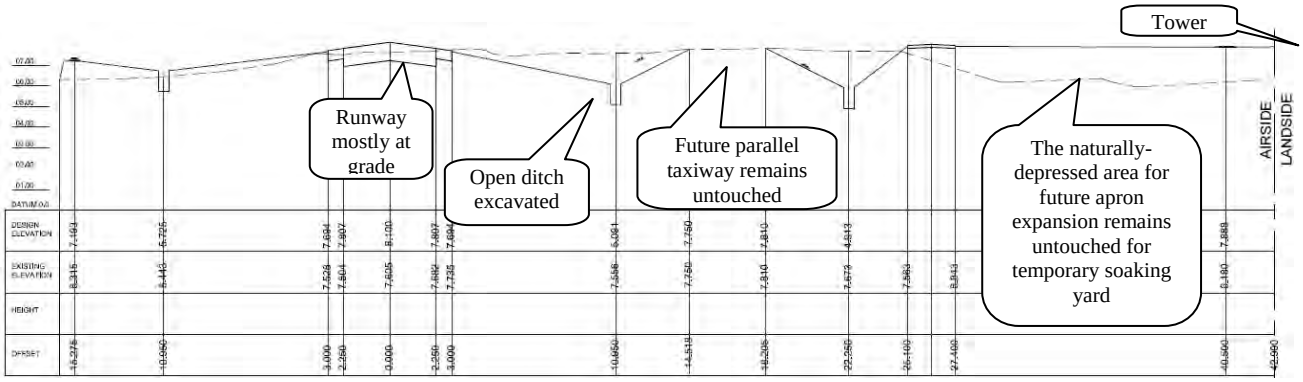
Source: JICA Study Team

Figure 4.4-8 (2) Runway Cross Section - Sta. 0+500 (Runway03 Threshold)



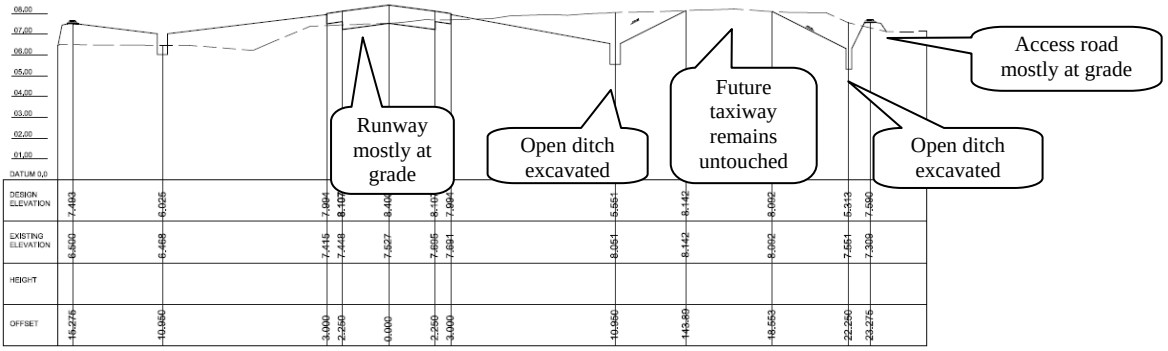
Source: JICA Study Team

Figure4.4-8 (3) Runway Cross Section - Sta.0+800 (PTB Area)



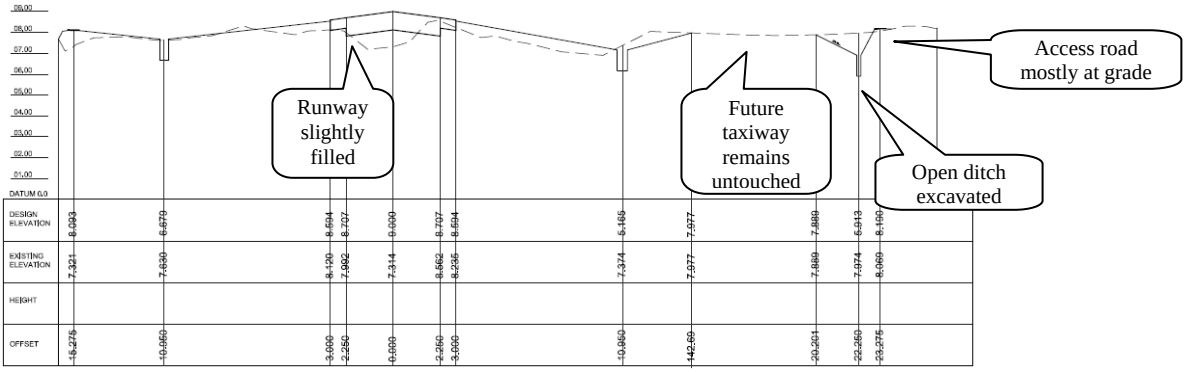
Source: JICA Study Team

Figure 4.4-8 (4) Runway Cross Section - Sta.1+100 (Area in front of Tower)



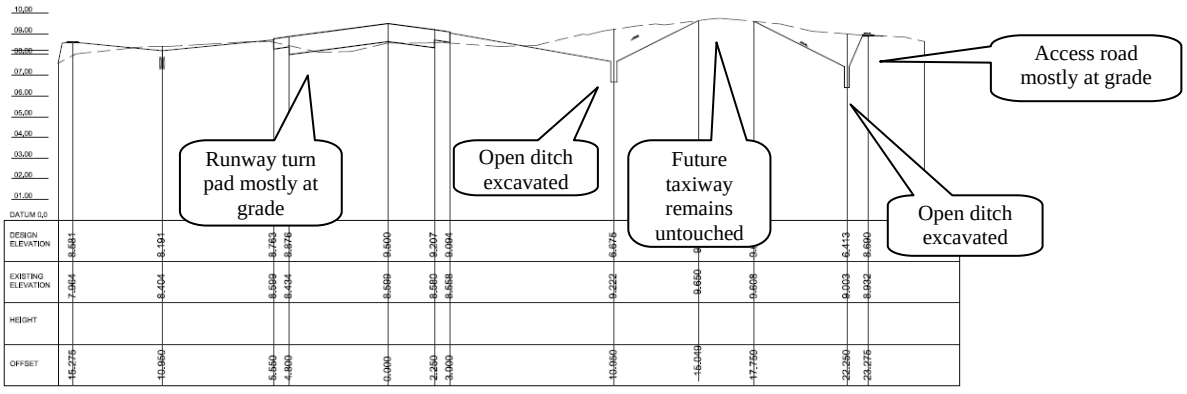
Source: JICA Study Team

Figure4.4-8 (5) Runway Cross Section - Sta.1+400 (around middle of Runway)



Source: JICA Study Team

Figure4.4-8 (6) Runway Cross Section - Sta.2+000 (Touchdown Area for Runway 22)



Source: JICA Study Team

Figure4.4-8 (7) Runway Cross Section - Sta.2+500 (Runway22 Threshold)

Topsoil of a constant depth of 0.30 m from the original ground elevation had been planned to be excavated and stored, however it was found through additional soil investigation that volume of top soil is very minimal. At any rate, humus topsoil if found should be stored beside runway strip as much as possible for later use for landscaping.

As a result, earthwork volume has been re-computed to be 460 thousand m^3 for excavation and 290 thousand m^3 for embankment (surplus of 170 thousand). This computation of earthwork volumes revealed that savings of some 200 thousand m^3 for excavation and 300 thousand m^3 for embankment from those previously-computed through JICA Preparatory Survey (i.e. 660 thousand m^3 of excavation and 580 thousand m^3 for embankment) could be made. Those earthwork volumes include additional 50-cm deep excavation of subgrade in cut and same volume to replace and re-compact thereof (i.e. embankment) if and when suspected cavity or weak soil appears on the ground.

The excess excavation volume of 170 thousand m^3 may be utilized as sub-base materials for pavement works after crushing and blending, if the quality and quantity are met subject to laboratory tests during the construction stage.

4.4.6 Execution Plan

(1) Delivery of Raw Materials

The construction requires 7,800 m^3 of building structural concrete, 22,800 m^3 of apron pavement concrete, 500 m^3 of drainage and other miscellaneous concrete, 45,240 m^3 of asphalt concrete, 125,900 m^3 of pavement base-course materials, and 167,700 m^3 of sub-base material.

With the exception of sub-base material that may possibly be obtained from the excavated rock within the site, it is estimated that approximately 200,000 m^3 in total of sand and aggregate should be outsourced from other island, such as Leyte, Cebu or Mindanao, since Bohol and Panglao Islands are mostly made of limestone which is not suitable for concrete or asphalt concrete. Diligent and quick marketing effort to select suppliers and careful examination of material quality is essentially required by the Contractor beforehand.

When delivery duration 600 days are assumed to be available for shipping, daily average of more than 350 m^3 of sand and aggregate should be constantly delivered by barge ship and dump-truck to the site. Adequate size and capacity of barge ship and dump-truck should be carefully allocated in consideration of the conditions of Tagbilaran Port and road in Panglao Island. Considering the fact that round trip of a barge ship between islands takes 3~4 days, 150 round trips (in 600 day) only are counted, hence required numbers of barge ships should be carefully examined.

In addition, delivery of 14,000 tons of cement, 6,000 tons of asphalt, 600 tons of structural steel, 8,000 tons of re-bar, architectural finishing materials, which however is

less frequent compared with aggregate mentioned above.

Delivery of those raw materials is one of the critical elements in the construction activities in such remote island.

(2) Batching Plants

There is no major commercial batching plant producing such considerable quantity available in Bohol (both for concrete and asphalt).

It is practical that at least one (1) concrete batching plant and one (1) asphalt concrete batching plant, both of reasonable production capacity should be erected on site immediately upon commencement of the construction.

As the case may be, an extra concrete batching plant may be necessary exclusively for apron concrete pavement because it requires hard concrete mixture of low-slump (i.e. 2 to 5 cm only) and quick transportation by dump truck is only allowed (no transportation by agitating-truck is allowed).

It normally takes at least 6 month to deliver on site, erect, commission and calibrate a batching plant, together with trial mix of materials to satisfy the specified quality (e.g. strength, slump).

In addition, rock crushing plants is assumed to be strategically located so as to produce subgrade and or sub-base materials.

(3) Major Quantities of Building Works

Construction of building works consists of a series of activities, e.g. excavation and backfill of foundation, concreting of footing, concrete slab on grade, and columns, scaffolding, structural steel, roofing, electro/mechanical works, and architectural finishing works.

Although quantities of works have to be defined through the course of detailed design, major quantities of building works are roughly estimated as enumerated in Table14.4-2.

Table 4.4-2 Quantity of major Building Works

Building Components				floor area		Concrete		Footings	
				(m^2)	%	(m^3)	%	nos.	%
Part 4: Building Works									
	B1		Passenger Terminal Building (PTB)	8,361	64.8%	3,817	49.0%	161	47.8%
	B3		Control Tower & Admin. (ATO)	1,945	15.1%	1,976	25.3%	27	8.0%
	B4		Fire Station and Maintenance (FSM)	864	6.7%	567	7.3%	27	8.0%
	B5		Ancilliary Buildings)ACB)						
	B	51	Drivers Lounge (DRL)	45	0.3%	104	1.3%	6	1.8%
	B	52	Car Park Toilet (CPT)	22	0.2%	40	0.5%	6	1.8%
	B	53	Guard Houses (GDH)	38	0.3%	141	1.8%	28	8.3%
	B	54	Toll Booth (TLB)	24	0.2%	9	0.1%		0.0%
	B6		Utility Building (ULB)						
	B	61	Water Tank/ Pump Room (WPH)	480	3.7%	344	4.4%	18	5.3%
	B	62	Power House (PWH)	864	6.7%	574	7.4%	28	8.3%
	B	63	STP Control Room (STP)	60	0.5%	92	1.2%	8	2.4%
	B	64	Material Recovery Facilitiy (MRF)	96	0.7%	10	0.1%	10	3.0%
	B7		Navaids Buildings (NAV)						
	B	71	LLZ Building (LLZ)	28	0.2%	37	0.5%	6	1.8%
	B	72	GS Building (GSB)	28	0.2%	37	0.5%	6	1.8%
	B	73	VOR Building (VOR)	51	0.4%	47	0.6%	6	1.8%
			Total	12,906	100%	7,795	100.0%	337	100%

Source: JICA Study Team

The above table shows that PTB works involves 65% of total building floor areas, 50 % of total building concrete volume, and 48 % of the number of footings, consequently the critical path in the construction schedule of the building is for PTB.

It is economical for the Contractor that concrete works for major buildings are scheduled in a sequential manner according to the volume of concrete, so that one (1) concrete batching plant can effectively deliver the required quantities of concrete. However, those buildings which necessitate installation of major equipment (for utilities and air navigation) subsequently after the concreting works are also given priority.

Priority of the sequence of building construction is assumed based on the concrete volume as follows:

priority 1.	B1: Passenger Terminal Building (PTB):	3,817 m^3
priority 2.	B3: Control Tower & Admin. Building (ATO):	1,976 m^3
priority 3.	B61 Water Tank/ Pump Room (WPH):	344 m^3
priority 4.	B62: Power House (PWH):	574 m^3
priority 5.	B4: Fire Station and Maintenance Building (FSM):	567 m^3
priority 6.	Navaids Buildings (NAV):	121 m^3

4.4.7 Preliminary Construction Schedule

Upon commencement of the construction, temporary works (e.g. temporary road, drainage, construction of offices, camp, etc.) are assumed to start immediately.

Meanwhile, construction of major civil works consists of earthworks, pavement works, drainage works, which are assumed to start in general sequence.

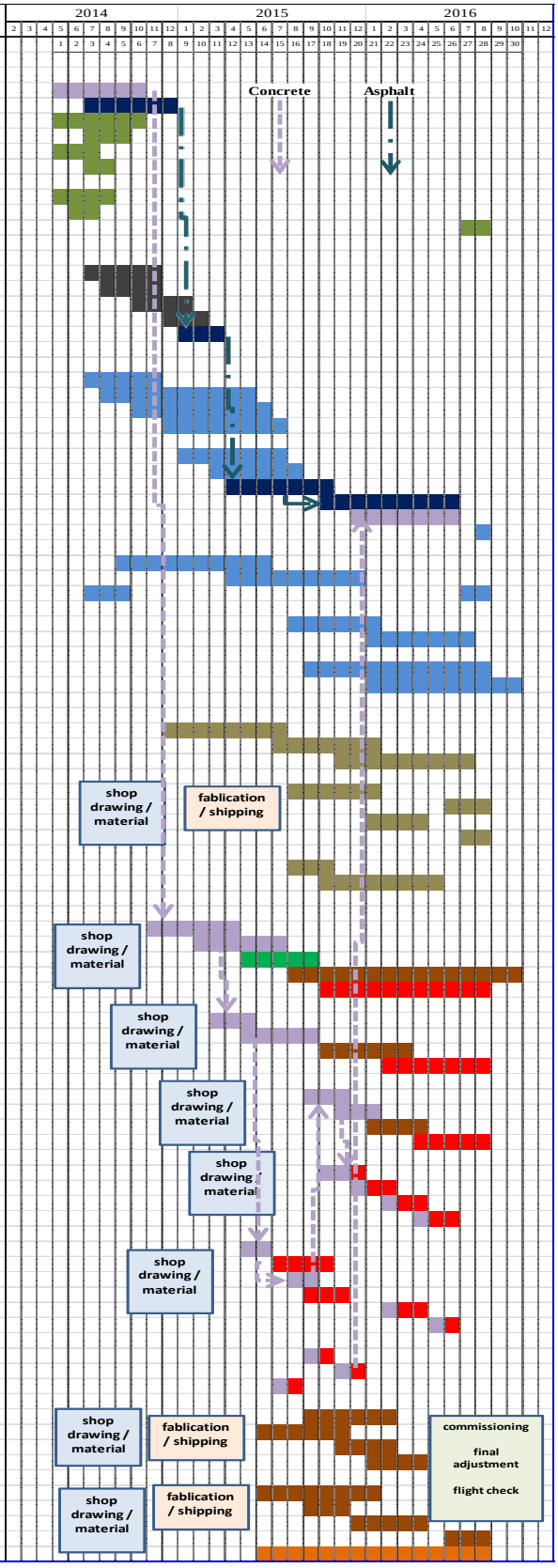
Erection of the concrete batching plant is assumed to take at least 6 month together with all temporary works. By the time, land preparation at the finishing elevation for PTB area is assumed to be completed through the civil works as the first priority, with necessary measures taken for subsoil strengthening and filling-up or grouting of cavity if any. After concreting of all building works, then apron concrete pavement works are assumed to be commenced.

Erection of asphalt batching plant is also of primary importance to execute such vast quantity of asphalt concrete pavement comprising 2 layers of 3-km long access road, 4 layers of 2,000-km long runway, perimeter road and necessary maintenance road.

On this basis, construction is assumed to be generally implemented as shown in Table 10.7-1. It is concluded that it would take 12 months to complete the access road, and 30 months to complete all airport infrastructure, including PTB and runway.

Table 4.4-3 Preliminary Construction Schedule

Activity	Remarks: works	Remarks: quantity	daily progress	days required
Construction				
Component 0: Temporary Works				
Batching Plant				
Concrete Batching Plant/trial mix				
Asphalt Batching Plant/trial mix				
Temporary Drainage				
Temporary Road				
Offices & Camp				
Temporary Utility				
Component 1: General Requirements				
Employer/Engineers' Office				
Project Vehicle				
Maintenance Equipment				
Component 2: Civil Works				
Subcomponent-2-1: Access Road				
Excavation		43,800 m³	400 m³	110 days
Embankment		15,800 m³	200 m³	80 days
Subbase Course		11,700 m³	200 m³	60 days
Base Course		7,300 m³	150 m³	50 days
Asphalt Pavement Surface		4,240 m²	100 m³	50 days
Subcomponent-2-2: Airport Infrastructure				
Earthworks				
Topsoil Removal		160,000 m³	1,600 m³	100 days
Excavation		390,000 m³	2,000 m³	200 days
Embankment		402,000 m³	5,000 m³	160 days
Subgrade Preparation		3,600 m²	40 m³	90 days
Pavement Works				
Subbase Course		156,000 m³	1,000 m³	160 days
Base Course		94,700 m³	800 m³	120 days
Treated Basecourse		23,900 m³	150 m³	160 days
Asphalt Pavement Surface		41,000 m³	200 m³	210 days
Concrete Pavement Surface		22,800 m³	150 m³	150 days
Marking		21,700 m²		
Drainage System				
Airfield Drainage (Riprapped-wall)	length	8,380 m	40 m	210 days
Terminal Area Drainage (Con. pipe)	length	3,060 m	20 m	150 days
Soaking Yard	area	22 ha		
Miscellaneous Works				
Curbstone	length	2,600 m	50 m	60 days
Fence & Gate	length	10,500 m	70 m	150 days
Landscaping				
Airfield Sodding	area	65,500 m²		
Landside tree/ bushes/ sodding	area	69,100 m²		
Component 3: Utility Works				
U1 Water Supply System				
Water Supply Piping Network	length	3,030 m	30 m	100 days
Water Storage				
Water Distribution System	length	6,250 m	30 m	210 days
U2 Power Supply System				
Power Supply				
Stanby Generator				
Power Distribution				
Road and Car Park Lighting				
U3 Sewage Treatment System				
Sewer Piping/ Manhole	length	650 m	15 m	50 days
Sewage Treatment Plant				
Component 4: Building Works				
B1 Passenger Terminal Building (PTB)				
Excavation/Footing/Backfilling	footings	161 nos.	1 no	160 days
Structural Concrete	concrete	3,817 m³	30 m³	130 days
Structural Steal & Roof				
Electrical/ Mechanical Works				
Internal/External Finishing Works	floor area	8,361 m²		
B3 Control Tower & Admin. (ATO)				
Excavation/Footing/Backfilling	footings	27 nos.	1 no	30 days
Structural Concrete	concrete	1,976 m³	30 m³	70 days
Electrical/ Mechanical Works				
Internal/External Finishing Works	floor area	1,945 m²		
B4 Fire Station and Maintenance (FSM)				
Excavation/Footing/Backfilling	footings	27 nos.	1 no	30 days
Structural Concrete	concrete	567 m³	30 m³	20 days
Electrical/ Mechanical Works				
Internal/External Finishing Works	floor area	864 m²		
B5 Ancilliary Buildings)ACB)				
B 51 Drivers Lounge (DRL)	floor area	45 m²		
B 52 Car Park Toilet (CPT)	floor area	22 m²		
B 53 Guard Houses (GDH)	floor area	38 m²		
B 54 Toll Booth (TLB)	floor area	24 m²		
B6 Utility Building (ULB)				
B 61 Water Tank/ Pump Room (WPH)	concrete	344 m³	15 m³	30 days
	floor area	480 m²		
B 62 Power House (PWH)	concrete	574 m³	15 m³	40days
	floor area	864 m²		
B 63 STP Control Room (STP)	floor area	60 m²		
B 64 Material Recovery Facilitiy (MRF)	floor area	96m²		
B7 Navaids Buildings (NAV)				
B 71 LLZ Building (LLZ)	floor area	28 m²		
B 72 GS Building (GSB)	floor area	28 m²		
B 73 VOR Building (VOR)	floor area	51 m²		
Component 5: Air Navigation Facilities				
N1 ILS				
N2 VOR/DME				
N3 ATS & Telecomunication				
N4 Meteorological Observation				
Component 6: Aeronautical Ground Lightsing Works				
L1 Approach Lighting System				
L2 PAPI				
L3-5 Runway/Taxiway/Other Lighting				
L6 Apron Floodlighting				
L7-8 Cable Duct/ Control& Monitoring System				



Source: JICA Study Team

PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS

Notes on Conditions of Contract and Contract Forms

The Conditions of Contract comprise two parts:

(a) **Standard General Conditions** – GC (Section VII of this document), and

(b) **Particular Conditions** – PC (Section VIII of this document).

The General Conditions of Contract set forth in Part 3, Section VII of these Standard Bidding Documents for Procurement of Works (version 1.0) published by JICA in October, 2012 (hereinafter referred to as "Standard GC"), are the MDB Harmonized Edition of the Conditions of Contract for Construction prepared and copyrighted by the International Federation of Consulting Engineers (*Fédération Internationale des Ingénieurs-Conseils*, or FIDIC), FIDIC 2010, all rights reserved. The use of these Standard GC, in all Bidding Documents/Contracts for construction works financed by Japanese ODA Loans is **required,** and they shall be used without any modification. A copy of the Standard GC may be attached to the Bidding Documents/Contract prepared by the Employer for reference purposes only. If the General Conditions in the Bidding Documents/Contract prepared by the Employer contain modifications from the Standard GC, JICA will not consider them valid and the Standard GC, as defined above, shall apply.

By virtue of a license agreement subscribed between JICA and FIDIC, JICA's Borrowers and their implementing agencies are authorized the reproduction and translation of the MDB Harmonized Edition of FIDIC's General Conditions of Contract for the exclusive purpose of preparing Bidding Documents in accordance with these Standard Bidding Documents. Therefore, Borrowers and their implementing agencies shall abstain from making any use of the Harmonized Edition of FIDIC's General Conditions of Contract, distinct from the use indicated herein.

The Conditions of Contract have been prepared for an ad measurement (unit price or unit rate) type of contract and cannot be used without major modifications for other types of contract.

The use of these standard conditions of contract for all civil works will ensure comprehensiveness of coverage, better balance of rights or obligations between Employer and Contractor, general acceptability of its provisions, and savings in time and cost for Bid preparation and review, leading to more economical prices.

Any amendments and additions to the General Conditions, specific to the contract in hand, should be introduced in the Particular Conditions. A number of such Particular Conditions, applicable to the above Conditions of Contract, are included in Section VIII.

The Particular Conditions take precedence over the General Conditions—see Sub-Clause 1.5, Priority of Documents, in the General Conditions.

The Particular Conditions (PC) complement the General Conditions (GC) to specify data and contractual requirements linked to the special circumstances of the country, the Employer, the Engineer, the sector, the overall project, and the Works. It is good practice to have a list of tax and custom regulations applicable in the country, to be provided as non-binding general information, attached to the Bidding Documents.

Part A, the Contract Data of the PC, includes data to complement GC in a manner similar to the way in which the Bid Data Sheet complements the Instructions to Bidders.

Part B, the Specific Provisions of the PC, consists of a set of provisions prepared by JICA which shall be used **without modification**. In addition to the provisions prepared by JICA, country- or project-specific provisions for PC must also be prepared in each case.

Whoever drafts the PC should be thoroughly familiar with the provisions of the GC and with any specific requirements of the Contract. Legal advice is recommended when amending provisions or drafting new ones. Note that the **PC provisions take precedence over those in the GC**.

Clause numbers in the PC correspond to those in the GC.

Section VII. General Conditions (GC)

The General Conditions governing this Contract shall be Conditions of Contract for Construction MDB Harmonized Edition, prepared and copyrighted by the International Federation of Consulting Engineers (*Fédération Internationale des Ingénieurs-Conseils*, or FIDIC), FIDIC 2010, all rights reserved, (hereinafter referred to as "Standard GC"). This publication is exclusive for the use of JICA's Borrowers and their project implementing agencies as provided under the License Agreement dated August 1st, 2008, between JICA and FIDIC, and, consequently, no part of this publication may be reproduced, translated, adapted, stored in a retrieval system or communicated, in any form or by any means, whether mechanical, electronic, magnetic, photocopying, recording or otherwise, without prior permission in writing from FIDIC, except by the parties above and only for the exclusive purpose of preparing this Contract.

Conditions of Contract for **CONSTRUCTION**

FOR BUILDING AND ENGINEERING WORKS DESIGNED BY THE EMPLOYER

Multilateral Development Bank Harmonised Edition
June 2010

General Conditions

FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS
INTERNATIONAL FEDERATION OF CONSULTING ENGINEERS
INTERNATIONALE VEREINIGUNG BERATENDER INGENIEURE
FEDERACION INTERNACIONAL DE INGENIEROS CONSULTORES

General Conditions

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General Conditions

1 General Provisions

1.1 Definitions

In the Conditions of Contract ("these Conditions"), which include Particular Conditions, Parts A and B, and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

1.1.1 The Contract

1.1.1.1 "**Contract**" means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.

1.1.1.2 "**Contract Agreement**" means the contract agreement referred to in Sub-Clause 1.6 [*Contract Agreement*].

1.1.1.3 "**Letter of Acceptance**" means the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression "Letter of Acceptance" means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.

1.1.1.4 "**Letter of Tender**" means the document entitled letter of tender or letter of bid, which was completed by the Contractor and includes the signed offer to the Employer for the Works.

1.1.1.5 "**Specification**" means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.

1.1.1.6 "**Drawings**" means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract.

1.1.1.7 "**Schedules**" means the document(s) entitled schedules, completed by the Contractor and submitted with the Letter of Tender, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.

1.1.1.8 "**Tender**" means the Letter of Tender and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.

1.1.1.9 "**Bill of Quantities**", "**Daywork Schedule**" and "**Schedule of Payment Currencies**" mean the documents so named (if any) which are comprised in the Schedules.

1.1.1.10 "**Contract Data**" means the pages completed by the Employer entitled contract data which constitute Part A of the Particular Conditions.

1.1.2 Parties and Persons

1.1.2.1 "**Party**" means the Employer or the Contractor, as the context requires.

1.1.2.2 "**Employer**" means the person named as employer in the Contract Data and the legal successors in title to this person.

1.1.2.3 "**Contractor**" means the person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s).

1.1.2.4 "**Engineer**" means the person appointed by the Employer to act as the Engineer for the purposes of the Contract and named in the Contract Data, or other person appointed from time to time by the Employer and notified to the Contractor under Sub-Clause 3.4 [*Replacement of the Engineer*].

1.1.2.5 "**Contractor's Representative**" means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.3 [*Contractor's Representative*], who acts on behalf of the Contractor.

1.1.2.6 "**Employer's Personnel**" means the Engineer, the assistants referred to in Sub-Clause 3.2 [*Delegation by the Engineer*] and all other staff, labour and other employees of the Engineer and of the Employer; and any other personnel notified to the Contractor, by the Employer or the Engineer, as Employer's Personnel.

1.1.2.7 "**Contractor's Personnel**" means the Contractor's Representative and all personnel whom the Contractor utilises on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.

1.1.2.8 "**Subcontractor**" means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.

1.1.2.9 "**DB**" means the person or three persons appointed under Sub-Clause 20.2 [*Appointment of the Dispute Board*] or Sub-Clause 20.3 [*Failure to Agree on the Composition of the Dispute Board*].

1.1.2.10 "**FIDIC**" means the Fédération Internationale des Ingénieurs-Conseils, the international federation of consulting engineers.

1.1.2.11 "**Bank**" means the financing institution (if any) named in the Contract Data.

1.1.2.12 "**Borrower**" means the person (if any) named as the borrower in the Contract Data.

1.1.3 Dates, Tests, Periods and Completion

1.1.3.1 "**Base Date**" means the date 28 days prior to the latest date for submission of the Tender.

1.1.3.2 "**Commencement Date**" means the date notified under Sub-Clause 8.1 [*Commencement of Works*].

1.1.3.3 "**Time for Completion**" means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [*Time for Completion*], as stated in the Contract Data (with any extension under Sub-Clause 8.4 [*Extension of Time for Completion*]), calculated from the Commencement Date.

1.1.3.4 "**Tests on Completion**" means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [*Tests on Completion*] before the Works or a Section (as the case may be) are taken over by the Employer.

1.1.3.5 "**Taking-Over Certificate**" means a certificate issued under Clause 10 [*Employer's Taking Over*].

1.1.3.6 "**Tests after Completion**" means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Employer.

1.1.3.7 "**Defects Notification Period"** means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [*Completion of Outstanding Work and Remedying Defects*], which extends over 365 days except if otherwise stated in the Contract Data (with any extension under Sub-Clause 11.3 [*Extension of Defects Notification Period*]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause 10.1 [*Taking Over of the Works and Sections*].

1.1.3.8 "**Performance Certificate**" means the certificate issued under Sub-Clause 11.9 [*Performance Certificate*].

1.1.3.9 "**day**" means a calendar day and "year" means 365 days.

1.1.4 Money and Payments

1.1.4.1 "**Accepted Contract Amount**" means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.

1.1.4.2 "**Contract Price**" means the price defined in Sub-Clause 14.1 [*The Contract Price*], and includes adjustments in accordance with the Contract.

1.1.4.3 "**Cost**" means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

1.1.4.4 "**Final Payment Certificate**" means the payment certificate issued under Sub-Clause 14.13 [*Issue of Final Payment Certificate*].

1.1.4.5 "**Final Statement**" means the statement defined in Sub-Clause 14.11 [*Application for Final Payment Certificate*].

1.1.4.6 "**Foreign Currency**" means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.

1.1.4.7 "**Interim Payment Certificate**" means a payment certificate issued under Clause 14 [*Contract Price and Payment*], other than the Final Payment Certificate.

1.1.4.8 "**Local Currency**" means the currency of the Country.

1.1.4.9 "**Payment Certificate**" means a payment certificate issued under Clause 14 [*Contract Price and Payment*].

1.1.4.10 "**Provisional Sum**" means a sum (if any) which is specified in the Contract as

a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [*Provisional Sums*].

1.1.4.11 "**Retention Money**" means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 [*Application for Interim Payment Certificates*] and pays under Sub-Clause 14.9 [*Payment of Retention Money*].

1.1.4.12 "**Statement**" means a statement submitted by the Contractor as part of an application, under Clause 14 [*Contract Price and Payment*], for a payment certificate.

1.1.5 Works and Goods

1.1.5.1 "**Contractor's Equipment**" means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Employer's Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.

1.1.5.2 "**Goods**" means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

1.1.5.3 "**Materials**" means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.

1.1.5.4 "**Permanent Works**" means the permanent works to be executed by the Contractor under the Contract.

1.1.5.5 "**Plant**" means the apparatus, machinery and vehicles intended to form or forming part of the Permanent Works, including vehicles purchased for the Employer and relating to the construction or operation of the Works.

1.1.5.6 "**Section**" means a part of the Works specified in the Contract Data as a Section (if any).

1.1.5.7 "**Temporary Works**" means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

1.1.5.8 "**Works**" mean the Permanent Works and the Temporary Works, or either of them as appropriate.

1.1.6 Other Definitions

1.1.6.1 "**Contractor's Documents**" means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.

1.1.6.2 "**Country**" means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.

1.1.6.3 "**Employer's Equipment**" means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Employer.

1.1.6.4 "**Force Majeure**" is defined in Clause 19 [*Force Majeure*].

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.

1.1.6.6 "**Performance Security**" means the security (or securities, if any) under Sub-Clause 4.2 [*Performance Security*].

1.1.6.7 "**Site**" means the places where the Permanent Works are to be executed, including storage and working areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.

1.1.6.8 "**Unforeseeable**" means not reasonably foreseeable by an experienced contractor by the Base Date.

1.1.6.9 "**Variation**" means any change to the Works, which is instructed or approved as a variation under Clause 13 [*Variations and Adjustments*].

1.1.6.10 "**Notice of Dissatisfaction**" means the notice given by either Party to the other under Sub-Clause 20.4 [*Obtaining Dispute Board's Decision*] indicating its dissatisfaction and intention to commence arbitration.

1.2 Interpretation

In the Contract, except where the context requires otherwise:

(a) words indicating one gender include all genders;
(b) words indicating the singular also include the plural and words indicating the plural also include the singular;
(c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be record in writing;
(d) "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and
(e) the word "tender" is synonymous with "bid", and "tenderer" with "bidder" and the words "tender documents" with "bidding documents".

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

In these Conditions, provisions including the expression "Cost plus profit" require this profit to be one-twentieth (5%) of this Cost unless otherwise indicated in the Contract Data.

1.3 Communications

Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

(a) in writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Contract Data; and
delivered, sent or transmitted to the address for the recipient's communications as stated in the Contract Data. However:

(i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
(ii) if the recipient has not stated otherwise when requesting an approval or

consent, it may be sent to the address from which the request was issued.

Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Engineer or the other Party, as the case may be.

1.4

Law and Language

The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.

The ruling language of the Contract shall be that stated in the Contract Data.

The language for communications shall be that stated in the Contract Data. If no language is stated there, the language for communications shall be the ruling language of the Contract.

1.5

Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

(a) the Contract Agreement (if any),
(b) the Letter of Acceptance,
(c) the Letter of Tender,
(d) the Particular Conditions - Part A,
(e) the Particular Conditions - Part B,
(f) these General Conditions,
(g) the Specification,
(h) the Drawings, and
(i) the Schedules and any other documents forming part of the Contract.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

1.6

Contract Agreement

The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

1.7

Assignment

Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:

(a) may assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party, and
may, as security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.

1.8

Care and Supply of Documents

The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, two copies of the Contract and of each

subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.

Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer six copies of each of the Contractor's Documents.

The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.

If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

1.9

Delayed Drawings or Instructions

The Contractor shall give notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.

If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

However, if and to the extent that the Engineer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

1.10

Employer's Use of Contractor's Documents

As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.

The Contractor shall be deemed (by signing the Contract) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence shall:

apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,

(b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and

(c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Employer for purposes other than those permitted under this Sub-Clause.

1.11

Contractor's Use of Employer's Documents

As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Employer. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Employer's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

1.12

Confidential Details

The Contractor's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.

Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

1.13

Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:

(a) the Employer shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specification as having been (or to be) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and

(b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

1.14

Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:

(a) these persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract;
(b) these persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and
(c) the Contractor shall not alter its composition or legal status without the prior consent of the Employer.

1.15 Inspections and Audit by the Bank

The Contractor shall permit the Bank and/or persons appointed by the Bank to inspect the Site and/or the Contractor's accounts and records relating to the performance of the Contract and to have such accounts and records audited by auditors appointed by the Bank if required by the Bank.

2 The Employer

2.1 Right of Access to the Site

The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Contract Data. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Specification. However, the Employer may withhold any such right or possession until the Performance Security has been received.

If no such time is stated in the Contract Data, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [*Programme*].

If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

2.2 Permits, Licences or Approvals

The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:

(a) copies of the Laws of the Country which are relevant to the Contract but are not readily available, and
(b) any permits, licences or approvals required by the Laws of the Country:

(i) which the Contractor is required to obtain under Sub-Clause 1.13 [*Compliance with Laws*],
(ii) for the delivery of Goods, including clearance through customs, and
(iii) for the export of Contractor's Equipment when it is removed from the Site.

2.3

Employer's Personnel

The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:

(a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [*Co-operation*], and
(b) take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [*Safety Procedures*] and under Sub-Clause 4.18 [*Protection of the Environment*].

2.4

Employer's Financial Arrangements

The Employer shall submit, before the Commencement Date and thereafter within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 [*Contract Price and Payment*]. Before the Employer makes any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.

In addition, if the Bank has notified to the Borrower that the Bank has suspended disbursements under its loan, which finances in whole or in part the execution of the Works, the Employer shall give notice of such suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the Engineer, within 7 days of the Borrower having received the suspension notification from the Bank. If alternative funds will be available in appropriate currencies to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of Bank notification of the suspension, the Employer shall provide reasonable evidence in his notice of the extent to which such funds will be available.

2.5

Employer's Claims

If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [*Electricity, Water and Gas*], under Sub-Clause 4.20 [*Employer's Equipment and Free-Issue Materials*], or for other services requested by the Contractor.

The notice shall be given as soon as practicable and no longer than 28 days after the Employer became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.

The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [*Extension of Defects Notification Period*].

This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.

3 The Engineer

3.1 Engineer's Duties and Authority

The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.

The Engineer shall have no authority to amend the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions. The Employer shall promptly inform the Contractor of any change to the authority attributed to the Engineer.

However, whenever the Engineer exercises a specified authority for which the Employer's approval is required, then (for the purposes of the Contract) the Employer shall be deemed to have given approval.

Except as otherwise stated in these Conditions:

(a) whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Employer;
(b) the Engineer has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract;
(c) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and
(d) any act by the Engineer in response to a Contractor's request except as otherwise expressly specified shall be notified in writing to the Contractor within 28 days of receipt.

The following provisions shall apply:

The Engineer shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of these Conditions:

(A) Sub-Clause 4.12: agreeing or determining an extension of time and/or additional cost.
(B) Sub-Clause 13.1: instructing a Variation, except;

(i) in an emergency situation as determined by the Engineer, or
(ii) if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data.

Sub-Clause 13.3: approving a proposal for Variation submitted by the Contractor in accordance with Sub-Clause 13.1 or 13.2.

(D) Sub-Clause 13.4: specifying the amount payable in each of the applicable currencies.

Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.

3.2

Delegation by the Engineer

The Engineer may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident engineer, and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the Engineer shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [*Determinations*].

Assistants shall be suitably qualified persons, who are competent to carry out these duties and exercise this authority, and who are fluent in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorised to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

(a) any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Engineer to reject the work, Plant or Materials;
(b) if the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

3.3

Instructions of the Engineer

The Engineer may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes a Variation, Clause 13 [*Variations and Adjustments*] shall apply.

The Contractor shall comply with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer or a delegated assistant:

gives an oral instruction,
receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and

(c) does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation,

then the confirmation shall constitute the written instruction of the Engineer or delegated assistant (as the case may be).

3.4 Replacement of the Engineer

If the Employer intends to replace the Engineer, the Employer shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Engineer. If the Contractor considers the intended replacement Engineer to be unsuitable, he has the right to raise objection against him by notice to the Employer, with supporting particulars, and the Employer shall give full and fair consideration to this objection.

3.5 Determinations

Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars, within 28 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [*Claims, Disputes and Arbitration*].

4 The Contractor

4.1 Contractor's General Obligations

The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer's instructions, and shall remedy any defects in the Works.

The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.

All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Bank.

The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.

The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.

If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Particular Conditions:

(a) the Contractor shall submit to the Engineer the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
(b) these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [*Law and Language*], and shall include additional information required by the Engineer to add to the Drawings for co-ordination of each Party's designs;
(c) the Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purposes for which the part is intended as are specified in the Contract; and
(d) prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [*Taking Over of the Works and Section*s] until these documents and manuals have been submitted to the Engineer.

4.2 Performance Security

The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount stated in the Contract Data and denominated in the currency(ies) of the Contract or in a freely convertible currency acceptable to the Employer. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

The Contractor shall deliver the Performance Security to the Employer within 28 days after receiving the Letter of Acceptance, and shall send a copy to the Engineer. The Performance Security shall be issued by a reputable bank or financial institution selected by the Contractor, and shall be in the form annexed to the Particular Conditions, as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.

The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract.

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.

Employer shall return the Performance Security to the Contractor within 21 days of receiving a copy of the Performance Certificate.

Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition or a reduction to the Contract Price as a result of a change in

cost and/or legislation, or as a result of a Variation amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Engineer's request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.

4.3 Contractor's Representative

The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.

Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [*Contractor's Personnel*], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.

The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer's prior consent, and the Engineer shall be notified accordingly.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [*Instructions of the Engineer*].

The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4 [*Law and Language*]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

4.4 Subcontractors

The Contractor shall not subcontract the whole of the Works.

The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Particular Conditions:

(a) the Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;

the prior consent of the Engineer shall be obtained to other proposed Subcontractors;

the Contractor shall give the Engineer not less than 28 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and

(d) each subcontract shall include provisions which would entitle the Employer to require the subcontract to be assigned to the Employer under Sub-Clause 4.5 [*Assignment of Benefit of Subcontract*] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [*Termination by Employer*].

The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [*Confidential Details*] apply equally to each Subcontractor.

Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from the Country to be appointed as Subcontractors.

4.5 Assignment of Benefit of Subcontract

If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Employer, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Employer for the work carried out by the Subcontractor after the assignment takes effect.

4.6 Co-operation

The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:

(a) the Employer's Personnel,
(b) any other contractors employed by the Employer, and
(c) the personnel of 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.

Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Engineer in the time and manner stated in the Specification.

4.7 Setting Out

The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

The Employer shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.

If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

4.8 Safety Procedures

The Contractor shall:

(a) comply with all applicable safety regulations,
(b) take care for the safety of all persons entitled to be on the Site,
(c) use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,
(d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [*Employer's Taking Over*], and
(e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

4.9 Quality Assurance

The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer shall be entitled to audit any aspect of the system.

Details of all procedures and compliance documents shall be submitted to the Engineer for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

4.10 Site Data

The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.

To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):

the form and nature of the Site, including sub-surface conditions,
the hydrological and climatic conditions,
the extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects,

(d) the Laws, procedures and labour practices of the Country, and
(e) the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

4.11

Sufficiency of the Accepted Contract Amount

The Contractor shall be deemed to:

(a) have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount, and
(b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [*Site Data*].

Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

4.12

Unforeseeable Physical Conditions

In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.

If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as practicable.

This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer may give. If an instruction constitutes a Variation, Clause 13 [*Variations and Adjustments*] shall apply.

If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost, which shall be included in the Contract Price.

Upon receiving such notice and inspecting and/or investigating these physical conditions, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

However, before additional Cost is finally agreed or determined under sub-paragraph (i), the Engineer may also review whether other physical conditions in similar parts of the Works (if any) were more favourable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favourable conditions were encountered, the Engineer may proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine the reductions in Cost

which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.

The Engineer shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor's interpretation of any such evidence.

4.13

Rights of Way and Facilities

Unless otherwise specified in the Contract the Employer shall provide effective access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. 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.

4.14

Avoidance of Interference

The Contractor shall not interfere unnecessarily or improperly with:

(a) the convenience of the public, or
(b) the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.

The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

4.15

Access Route

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in these Conditions:

(a) the Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;
(b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
(c) the Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route;
(d) the Employer does not guarantee the suitability or availability of particular access routes; and
(e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

4.16

Transport of Goods

Unless otherwise stated in the Particular Conditions:

(a) the Contractor shall give the Engineer not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;
(b) the Contractor shall be responsible for packing, loading, transporting, receiving,

unloading, storing and protecting all Goods and other things required for the Works; and

(c) the Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.

4.17

Contractor's Equipment

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

4.18

Protection of the Environment

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

4.19

Electricity, Water and Gas

The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.

The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specification. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.

The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [*Employer's Claims*] and Sub-Clause 3.5 [*Determinations*]. The Contractor shall pay these amounts to the Employer.

4.20

Employer's Equipment and Free-Issue Materials

The Employer shall make the Employer's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:

(a) the Employer shall be responsible for the Employer's Equipment, except that

(b) the Contractor shall be responsible for each item of Employer's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.

The appropriate quantities and the amounts due (at such stated prices) for the use of Employer's Equipment shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [*Employer's Claims*] and Sub-Clause 3.5 [*Determinations*]. The Contractor shall pay these amounts to the Employer.

The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Specification. The Employer shall, at his risk

and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them, and shall promptly give notice to the Engineer of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.

After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.

4.21 Progress Reports

Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

Each report shall include:

(a) charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Clause 5 [*Nominated Subcontractors*]),
(b) photographs showing the status of manufacture and of progress on the Site;
(c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:

    (i) commencement of manufacture,
    (ii) Contractor's inspections,
    (iii) tests, and
    (iv) shipment and arrival at the Site;

(d) the details described in Sub-Clause 6.10 [*Records of Contractor's Personnel and Equipment*];
(e) copies of quality assurance documents, test results and certificates of Materials;
(f) list of notices given under Sub-Clause 2.5 [*Employer's Claims*] and notices given under Sub-Clause 20.1 [*Contractor's Claims*];
(g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
(h) comparisons of actual and planned progress, with details of any events or circumstances which may jeopardise the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

4.22 Security of the Site

Unless otherwise stated in the Particular Conditions:

the Contractor shall be responsible for keeping unauthorised persons off the Site, and

(b) authorised persons shall be limited to the Contractor's Personnel and the Employer's Personnel; and to any other personnel notified to the Contractor, by the Employer or the Engineer, as authorised personnel of the Employer's other contractors on the Site.

4.23

Contractor's Operations on Site

The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Engineer as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

4.24

Fossils

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

5 Nominated Subcontractors

5.1

Definition of "nominated Subcontractor"

In the Contract, "nominated Subcontractor" means a Subcontractor:

(a) who is stated in the Contract as being a nominated Subcontractor, or
(b) whom the Engineer, under Clause 13 [*Variations and Adjustments*], instructs the Contractor to employ as a Subcontractor subject to Sub-Clause 5.2 [*Objection to Notification*].

5.2 Objection to Nomination

The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Employer agrees in writing to indemnify the Contractor against and from the consequences of the matter:

(a) there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;
(b) the nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and employees; or
(c) the nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:

(i) undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract,
(ii) indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities, and
(iii) be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [*Payment to nominated Subcontractors*].

5.3 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Engineer certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-clause 13.5 [*Provisional Sums*], except as stated in Sub-Clause 5.4 [*Evidence of Payments*].

5.4 Evidence of Payments

Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:

(a) submits this reasonable evidence to the Engineer, or

(b) (i) satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and
(ii) submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement,

then the Employer may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Employer, the amount which the nominated Subcontractor was directly paid by the Employer.

6 Staff and Labour

6.1
Engagement of Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, feeding, transport and, when appropriate, housing.

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from sources within the Country.

6.2
Rates of Wages and Conditions of Labour

The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.

The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in the Country in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of the Country for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.

6.3
Persons in the Service of Employer

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.

6.4
Labour Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

6.5
Working Hours

No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours stated in the Contract Data, unless:

(a) otherwise stated in the Contract,
(b) the Engineer gives consent, or
(c) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer.

6.6
Facilities for Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.

The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

6.7
Health and Safety

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, 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, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

HIV-AIDS Prevention. The Contractor shall conduct an HIV-AIDS awareness programme via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

The Contractor shall throughout the contract (including the Defects Notification Period): (i) conduct Information, Education and Communication (IEC) campaigns, at least every other month, addressed to all the Site staff and labour (including all the Contractor's employees, all Subcontractors and any other Contractor's or Employer's personnel, and all truck drivers and crew making deliveries to Site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behaviour with respect to, of Sexually Transmitted Diseases (STD) - or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular; (ii) provide male or female condoms for all Site staff and labour as appropriate; and (iii) provide for STI and HIV/AIDS screening, diagnosis, counselling and referral to a dedicated national STI and HIV/AIDS programme, (unless otherwise agreed) of all Site staff and labour.

The Contractor shall include in the programme to be submitted for the execution of the Works under Sub-Clause 8.3 an alleviation programme for Site staff and labour and their families in respect of Sexually Transmitted Infections (STI) and Sexually Transmitted Diseases (STD) including HIV/AIDS. The STI, STD and HIV/AIDS alleviation programme shall indicate when, how and at what cost the Contractor plans to satisfy the requirements of this Sub-Clause and the related specification. For each component, the programme shall detail the resources to be provided or utilised and any related sub-contracting proposed. The programme shall also include provision of a detailed cost estimate with supporting documentation. Payment to the Contractor for preparation and implementation this programme shall not exceed the Provisional Sum dedicated for this purpose.

6.8
Contractor's Superintendence

Throughout the execution of the Works, and as long thereafter as is necessary to fulfil Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.

Superintendence shall be given by a sufficient number of persons having adequate

knowledge of the language for communications (defined in Sub-Clause 1.4 [*Law and Language*]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

6.9

Contractor's Personnel

The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:

(a) persists in any misconduct or lack of care,
(b) carries out duties incompetently or negligently,
(c) fails to conform with any provisions of the Contract, or
(d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment.

If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

6.10

Records of Contractor's Personnel and Equipment

The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

6.11

Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

6.12

Foreign Personnel

The Contractor may bring in to the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use his best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or government permission required for bringing in the Contractor's personnel.

The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.13

Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel the purposes of or in connection with the Contract.

6.14

Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

6.15
Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.16

Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereto by Contractor's Personnel.

6.17

Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

6.18

Festivals and Religious Customs

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

6.19

Funeral Arrangements

The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of his local employees who may die while engaged upon the Works.

6.20

Forced Labour

The Contractor shall not employ forced labour, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.

6.21

Child Labour

The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where the relevant labour laws of the Country have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.

6.22

Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarised on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [*Records of Contractor's Personnel and Equipmen*t].

6.23

Workers' Organisations

In countries where the relevant labour laws recognise workers' rights to form and to join workers' organisations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. Where the relevant labour laws substantially restrict workers' organisations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where the relevant labour laws are silent, the Contractor shall not discourage the Contractor's Personnel from forming or joining workers' organisations of their choosing or from bargaining collectively, and shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to

participate, in such organisations and bargain collectively. The Contractor shall engage with such workers' representatives. Workers' organisations are expected to fairly represent the workers in the workforce.

6.24

Non-Discrimination and Equal Opportunity

The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where the relevant labour laws provide for non-discrimination in employment, the Contractor shall comply with such laws. When the relevant labour laws are silent on non-discrimination in employment, the Contractor shall meet this Sub-Clause's requirements. Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination.

7 Plant, Materials and Workmanship

7.1

Manner of Execution

The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

(a) in the manner (if any) specified in the Contract,
(b) in a proper workmanlike and careful manner, in accordance with recognised good practice, and
(c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

7.2

Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for consent prior to using the Materials in or for the Works:

(a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and
(b) additional samples instructed by the Engineer as a Variation.

Each sample shall be labelled as to origin and intended use in the Works.

7.3

Inspection

The Employer's Personnel shall at all reasonable times:

(a) have full access to all parts of the Site and to all places from which natural Materials are being obtained, and
(b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

The Contractor shall give the Employer's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

The Contractor shall give notice to the Engineer whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Engineer shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and thereafter reinstate and make good, all at the Contractor's cost.

7.4 Testing

This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

The Engineer may, under Clause 13 [*Variations and Adjustments*], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

The Engineer shall give the Contractor not less than 24 hours' notice of the Engineer's intention to attend the tests. If the Engineer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Engineer's presence.

If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

The Contractor shall promptly forward to the Engineer duly certified reports of the tests. When the specified tests have been passed, the Engineer shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Engineer has not attended the tests, he shall be deemed to have accepted the readings as accurate.

7.5 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

If the Engineer requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [*Employer's Claims*] pay these costs to the Employer.

7.6 Remedial Work

Notwithstanding any previous test or certification, the Engineer may instruct the Contractor to:

(a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
(b) remove and re-execute any other work which is not in accordance with the Contract, and
(c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).

If the Contractor fails to comply with the instruction, the Employer shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [*Employer's Claims*] pay to the Employer all costs arising from this failure.

7.7 Ownership of Plant and Materials

Except as otherwise provided in the Contract, each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:

(a) when it is incorporated in the Works;
(b) when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [*Payment for Plant and Materials in Event of Suspension*].

7.8 Royalties

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

(a) natural Materials obtained from outside the Site, and
(b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.

8 Commencement, Delays and Suspension

8.1 Commencement of Works

Except as otherwise specified in the Particular Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer's notification recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:

(a) signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country;
(b) delivery to the Contractor of reasonable evidence of the Employer's Financial arrangements (under Sub-Clause 2.4 [*Employer's Financial Arrangements*]);
(c) except if otherwise specified in the Contract Data, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [*Compliance with Laws*] as required for the commencement of the Works;
(d) receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [*Advance Payment*] provided that the corresponding bank guarantee has been delivered by the Contractor.

If the said Engineer's instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [*Termination by Contractor*].

The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

8.2 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

(a) achieving the passing of the Tests on Completion, and
(b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [*Taking Over of the Works and Sections*].

8.3 Programme

The Contractor shall submit a detailed time programme to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [*Commencement of Works*]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:

(a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,
(b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [*Nominated Subcontractors*],
(c) the sequence and timing of inspections and tests specified in the Contract, and
(d) a supporting report which includes:

    (i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and
    (ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the programme when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [*Variation Procedure*].

If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer in accordance with this Sub-Clause.

8.4 Extension of Time for Completion

The Contractor shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [*Taking-Over of the Works and Sections*] is or will be delayed by any of the following causes:

(a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [*Variation Procedure*]) or other substantial change in the quantity of an item of work included in the Contract,
(b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,
(c) exceptionally adverse climatic conditions,
(d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or
(e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [*Contractor's Claims*]. When determining each extension of time under Sub-Clause 20.1, the Engineer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

8.5 Delays Caused by Authorities

If the following conditions apply, namely:

(a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,
(b) these authorities delay or disrupt the Contractor's work, and
(c) the delay or disruption was Unforeseeable,

then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [*Extension of Time for Completion*].

8.6 Rate of Progress

If, at any time:

(a) actual progress is too slow to complete within the Time for Completion, and/or
progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [*Programme*],

other than as a result of a cause listed in Sub-Clause 8.4 [*Extension of Time for Completion*], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [*Programme*], a revised programme and supporting report describing the

revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

Unless the Engineer notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Employer to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [*Employer's Claims*] pay these costs to the Employer, in addition to delay damages (if any) under Sub-Clause 8.7 below.

Additional costs of revised methods including acceleration measures, instructed by the Engineer to reduce delays resulting from causes listed under Sub-Clause 8.4 [*Extension of Time for Completion*] shall be paid by the Employer, without generating, however, any other additional payment benefit to the Contractor.

8.7

Delay Damages

If the Contractor fails to comply with Sub-Clause 8.2 [*Time for Completion*], the Contractor shall subject to notice under Sub-Clause 2.5 [*Employer's Claim*s] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Contract Data, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Contract Data.

These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [*Termination by Employer*] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

8.8

Suspension of Work

The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

The Engineer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

8.9

Consequences of Suspension

If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions under Sub-Clause 8.8 [*Suspension of Work*] and/or from resuming the work, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.7 [*Determinations*] to agree or determine these matters.

The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [*Suspension of Work*].

8.10 Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:

(a) the work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days, and

(b) the Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Engineer's instructions.

8.11 Prolonged Suspension

If the suspension under Sub-Clause 8.8 [*Suspension of Work*] has continued for more than 84 days, the Contractor may request the Engineer's permission to proceed. If the Engineer does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [*Variations and Adjustments*] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [*Termination by Contractor*].

8.12 Resumption of Work

After the permission or instruction to proceed is given, the Contractor and the Engineer shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Engineer an instruction to this effect under Clause 13 [*Variations and Adjustments*].

9 Tests on Completion

9.1 Contractor's Obligations

The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [*Testing*], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [*Contractor's General Obligations*].

The Contractor shall give to the Engineer not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Engineer shall instruct.

In considering the results of the Tests on Completion, the Engineer shall make allowances for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

9.2 Delayed Tests

If the Tests on Completion are being unduly delayed by the Employer, Sub-Clause 7.4 [*Testing*] (fifth paragraph) and/or Sub-Clause 10.3 [*Interference with Tests on Completion*] shall be applicable.

If Tests on Completion are being unduly delayed by the Contractor, the Engineer may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Employer's Personnel may proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

9.3

Retesting

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [*Rejection*] shall apply, and the Engineer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.

9.4

Failure to Pass Tests on Completion

If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [*Retesting*], the Engineer shall be entitled to:

(a) order further repetition of Tests on Completion under Sub-Clause 9.3;
(b) if the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 11.4 [*Failure to Remedy Defects*]; or
(c) issue a Taking-Over Certificate, if the Employer so requests.

In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or (ii) determined and paid under Sub-Clause 2.5 [*Employer's Claims*] and Sub-Clause 3.5 [*Determinations*].

10 Employer's Taking Over

10.1
Taking Over of the Works and Sections

Except as stated in Sub-Clause 9.4 [*Failure to Pass Tests on Completion*], the Works shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [*Time for Completion*] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

The Engineer shall, within 28 days after receiving the Contractor's application:

issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or

(b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.

If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2

Taking Over of Parts of the Works

The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.

The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Employer does use any part of the Works before the Taking-Over Certificate is issued:

(a) the part which is used shall be deemed to have been taken over as from the date on which it is used,
(b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Employer, and
(c) if requested by the Contractor, the Engineer shall issue a Taking-Over Certificate for this part.

After the Engineer has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.

If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to payment of any such Cost plus profit, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine this Cost and profit.

If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [*Delay Damages*], and shall not limit the maximum amount of these damages.

10.3

Interference with Tests on Completion

If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Employer shall be

deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.

If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

10.4 Surfaces Requiring Reinstatement

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

11 Defects Liability

11.1 Completion of Outstanding Work and Remedying Defects

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:

(a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer, and
(b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Employer on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.

11.2 Cost of Remedying Defects

All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [*Completion of Outstanding Work and Remedying Defects*] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

(a) any design for which the Contractor is responsible,
Plant, Materials or workmanship not being in accordance with the Contract, or failure by the Contractor to comply with any other obligation.

and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Employer, and Sub-Clause 13.3 [*Variation Procedure*] shall apply.

11.3 Extension of Defects Notification Period

The Employer shall be entitled subject to Sub-Clause 2.5 [*Employer's Claims*] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.

If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [*Suspension of Work*] or Sub-Clause 16.1 [*Contractor's Entitlement to Suspend Work*], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/or Materials would otherwise have expired.

11.4 Failure to Remedy Defects

If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [*Cost of Remedying Defects*], the Employer may (at his option):

(a) carry out the work himself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [*Employer's Claims*] pay to the Employer the costs reasonably incurred by the Employer in remedying the defect or damage;

(b) require the Engineer to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [*Determinations*]; or

(c) if the defect or damage deprives the Employer of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Employer shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

11.5 Removal of Defective Work

If the defect or damage cannot be remedied expeditiously on the Site and the Employer gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

11.6 Further Tests

If the work of remedying of any defect or damage may affect the performance of the Works, the Engineer may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 28 days after the defect or damage is remedied.

These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [*Cost of Remedying Defects*], for the cost of the remedial work.

11.7
Right of Access

Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Employer's reasonable security restrictions.

11.8

Contractor to Search

The Contractor shall, if required by the Engineer, search for the cause of any defect, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [*Cost of Remedying Defects*], the Cost of the search plus profit shall be agreed or determined by the Engineer in accordance with Sub-Clause 3.5 [*Determinations*] and shall be included in the Contract Price.

11.9

Performance Certificate

Performance of the Contractor's obligations shall not be considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.

The Engineer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Performance Certificate shall be issued to the Employer.

Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

11.10

Unfulfilled Obligations

After the Performance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.11

Clearance of Site

Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

If all these items have not been removed within 28 days after receipt by the Contractor of the Performance Certificate, the Employer may sell or otherwise dispose of any remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer's costs, the Contractor shall pay the outstanding balance to the Employer.

12 Measurement and Evaluation

12.1
Works to be Measured

Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [*Application for Interim Payment Certificates*], 14.10 [*Statement on Completion*] and 14.11 [*Application for Final Payment Certificate*] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.

Whenever the Engineer requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:

(a) promptly either attend or send another qualified representative to assist the Engineer in making the measurement, and
(b) supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate.

Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.

If the Contractor examines and disagrees the records, and/or does not sign them as agreed, then the Contractor shall give notice to the Engineer of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Engineer shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Engineer within 14 days after being requested to examine the records, they shall be accepted as accurate.

12.2 Method of Measurement

Except as otherwise stated in the Contract and notwithstanding local practice:

(a) measurement shall be made of the net actual quantity of each item of the Permanent Works, and
(b) the method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.

12.3 Evaluation

Except as otherwise stated in the Contract, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine the Contract Price by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.

For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contract or, if there is no such item, specified for similar work.

Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

However, a new rate or price shall be appropriate for an item of work if:

(a) (i) the measured quantity of the item is changed by more than 25% from the quantity of this item in the Bill of Quantities or other Schedule,
(ii) this change in quantity multiplied by such specified rate for this item exceeds 0.25% of the Accepted Contract Amount,
(iii) this change in quantity directly changes the Cost per unit quantity of this item by more than 1%, and
(iv) this item is not specified in the Contract as a "fixed rate item";

or

(b) (i) the work is instructed under Clause 13 [*Variations and Adjustments*],
(ii) no rate or price is specified in the Contract for this item, and
(iii) no specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.

Each new rate or price shall be derived from any relevant rates or prices in the Contract, with reasonable adjustments to take account of the matters described in sub-paragraph (a) and/or (b), as applicable. If no rates or prices are relevant for the derivation of a new rate or price, it shall be derived from the reasonable Cost of executing the work, together with profit, taking account of any other relevant matters.

Until such time as an appropriate rate or price is agreed or determined, the Engineer shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.

12.4 Omissions

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

(a) the Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;
(b) the omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
(c) this cost is not deemed to be included in the evaluation of any substituted work;

then the Contractor shall give notice to the Engineer accordingly, with supporting particulars. Upon receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine this cost, which shall be included in the Contract Price.

13 Variations and Adjustments

13.1 Right to Vary

Variations may be initiated by the Engineer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Engineer shall cancel, confirm or vary the instruction.

Each Variation may include:

changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),
changes to the quality and other characteristics of any item of work,
changes to the levels, positions and/or dimensions of any part of the Works,
(d) omission of any work unless it is to be carried out by others,

(e) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work, or
(f) changes to the sequence or timing of the execution of the Works.

The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Engineer instructs or approves a Variation.

13.2 Value Engineering

The Contractor may, at any time, submit to the Engineer a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Employer of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Employer of the completed Works, or (iv) otherwise be of benefit to the Employer.

The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [*Variation Procedure*].

If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:

(a) the Contractor shall design this part,
(b) sub-paragraphs (a) to (d) of Sub-Clause 4.1 [*Contractor's General Obligations*] shall apply, and
(c) if this change results in a reduction in the contract value of this part, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:

    (i) such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.7 [*Adjustments for Changes in Legislation*] and Sub-Clause 13.8 [*Adjustments for Changes in Cost*], and
    (ii) the reduction (if any) in the value to the Employer of the varied works, taking account of any reductions in quality, anticipated life or operational efficiencies.

However, if amount (i) is less than amount (ii), there shall not be a fee.

13.3 Variation Procedure

If the Engineer requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

(a) a description of the proposed work to be performed and a programme for its execution,
(b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [*Programme*] and to the Time for Completion, and
(c) the Contractor's proposal for evaluation of the Variation.

The Engineer shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [*Value Engineering*] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Engineer to the Contractor, who shall acknowledge receipt.

Each Variation shall be evaluated in accordance with Clause 12 [*Measurement and Evaluation*], unless the Engineer instructs or approves otherwise in accordance with this Clause.

13.4

Payment in Applicable Currencies

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

13.5

Provisional Sums

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Engineer shall have instructed. For each Provisional Sum, the Engineer may instruct:

(a) work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [*Variation Procedure*]; and/or

(b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [*Nominated Subcontractors*] or otherwise; and for which there shall be included in the Contract Price:

  (i) the actual amounts paid (or due to be paid) by the Contractor, and

  (ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in the Contract Data shall be applied.

The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

13.6

Daywork

For work of a minor or incidental nature, the Engineer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.

Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer accurate statements in duplicate which shall include the following details of the resources used in executing the previous day's work:

(a) the names, occupations and time of Contractor's Personnel,

the identification, type and time of Contractor's Equipment and Temporary Works, and

the quantities and types of Plant and Materials used.

One copy of each statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor. The Contractor shall then submit priced statements of

these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [*Application for Interim Payment Certificates*].

13.7

Adjustments for Changes in Legislation

The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [*Adjustments for Changes in Cost*].

13.8

Adjustments for Changes in Cost

In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.

If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

$$\mathbf{P}n = \mathbf{a} + \mathbf{b}\frac{\mathbf{L}n}{\mathbf{L}o} + \mathbf{c}\frac{\mathbf{E}n}{\mathbf{E}o} + \mathbf{d}\frac{\mathbf{M}n}{\mathbf{M}o} + \cdots\cdots$$

"**P**n" is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period "n", this period being a month unless otherwise stated in the Contract Data;

"**a**" is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

"**b**", "**c**", "**d**", … are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;

"**L**n", "**E**n", "**M**n", … are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

"**L**o", "**E**o", "**M**o", … are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.

In cases where the "currency of index" is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.

Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

14 Contract Price and Payment

14.1 The Contract Price

Unless otherwise stated in the Particular Conditions:

(a) the Contract Price shall be agreed or determined under Sub-Clause 12.3 [*Evaluation*] and be subject to adjustments in accordance with the Contract;

the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [*Adjustments for Changes in Legislation*];

any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:

(i) of the Works which the Contractor is required to execute, or
(ii) for the purposes of Clause 12 [*Measurement and Evaluation*]; and

(d) the Contractor shall submit to the Engineer, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Engineer may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.

Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation.

14.2 Advance Payment

The Employer shall make an advance payment, as an interest-free loan for mobilisation and cash flow support, when the Contractor submits a guarantee in accordance with this Sub-Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the Contract Data.

Unless and until the Employer receives this guarantee, or if the total advance payment is not stated in the Contract Data, this Sub-Clause shall not apply.

The Engineer shall deliver to the Employer and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [*Application for Interim Payment Certificates*]) and after the Employer receives (i) the Performance Security in accordance with Sub-Clause 4.2 [*Performance Security*] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institution selected by the Contractor, and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.

The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.

Unless stated otherwise in the Contract Data, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Engineer in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*], as follows:

(a) deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount less Provisional Sums; and
(b) deductions shall be made at the amortisation rate stated in the Contract Data of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.

If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [*Termination by Employer*], Clause 16 [*Suspension and Termination by Contractor*] or Clause 19.6 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [*Termination by Employer*], except for Sub-Clause 15.5 [*Employer's Entitlement to Termination for Convenience*], payable by the Contractor to the Employer.

14.3

Application for Interim Payment Certificates

The Contractor shall submit a Statement in six copies to the Engineer after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.21 [*Progress Reports*].

The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

(a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);
(b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [*Adjustments for Changes in Legislation*] and Sub-Clause 13.8 [*Adjustments for Changes in Cost*];
(c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Contract Data to the total of the above amounts, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Contract Data;
(d) any amounts to be added for the advance payment (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [*Advance Payment*];
(e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [*Plant and Materials intended for the Works*];
(f) any other additions or deductions which may have become due under the Contract or otherwise, including those under Clause 20 [*Claims, Disputes and Arbitration*]; and
(g) the deduction of amounts certified in all previous Payment Certificates.

14.4

Schedule of Payments

If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:

(a) the instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [*Application for Interim Payment Certificates*];
(b) Sub-Clause 14.5 [*Plant and Materials intended for the Works*] shall not apply; and
(c) if these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Engineer may proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.

If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each

quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

14.5

Plant and Materials intended for the Works

If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [*Application for Interim Payment Certificate*s].

If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the Schedules this Sub-Clause shall not apply.

The Engineer shall determine and certify each addition if the following conditions are satisfied:

(a) the Contractor has:

(i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and
(ii) submitted a statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;

and either:

(b) the relevant Plant and Materials:

(i) are those listed in the Schedules for payment when shipped,
(ii) have been shipped to the Country, en route to the Site, in accordance with the Contract; and
(iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Employer in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [*Advance Payment*] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;

or

(c) the relevant Plant and Materials:

(i) are those listed in the Schedules for payment when delivered to the Site, and
(ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.

The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Engineer's determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [*Application for Interim Payment Certificates*]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

14.6

Issue of Interim Payment Certificates

No amount will be certified or paid until the Employer has received and approved the Performance Security. Thereafter, the Engineer shall, within 28 days after receiving a Statement and supporting documents, deliver to the Employer and to the Contractor an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Engineer on the Statement if any.

However, prior to issuing the Taking-Over Certificate for the Works, the Engineer shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated in the Contract Data. In this event, the Engineer shall give notice to the Contractor accordingly.

An Interim Payment Certificate shall not be withheld for any other reason, although:

(a) if any thing supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or
(b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.

The Engineer may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer's acceptance, approval, consent or satisfaction.

14.7

Payment

The Employer shall pay to the Contractor:

(a) the first instalment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents in accordance with Sub-Clause 4.2 [*Performance Security*] and Sub-Clause 14.2 [*Advance Payment*], whichever is later;
(b) the amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents; or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor within 14 days after such statement is submitted, any discrepancy being rectified in the next payment to the Contractor; and
the amount certified in the Final Payment Certificate within 56 days after the Employer receives this Payment Certificate; or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2 [*Termination by Contractor*].

Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.

14.8

Delayed Payment

If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [*Payment*], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [*Payment*], irrespective (in the case of its sub-paragraph (b)) of the date on which any Interim Payment Certificate is issued.

Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not available, the interbank offered rate, and shall be paid in such currency.

The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.

14.9

Payment of Retention Money

When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.

Promptly after the latest of the expiry dates of the Defects Notification Periods, the outstanding balance of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.

However, if any work remains to be executed under Clause 11 [*Defects Liability*], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been executed.

When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [*Adjustments for Changes in Legislation*] and Sub-Clause 13.8 [*Adjustments for Changes in Cost*].

Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security in Sub-Clause 4.2. On receipt by the Employer of the required guarantee, the Engineer shall certify and the Employer shall pay the second half of the Retention Money. The release of the second half of the Retention Money

against a guarantee shall then be in lieu of the release under the second paragraph of this Sub-Clause. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under it when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security.

14.10

Statement at Completion

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Engineer six copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [*Application for Interim Payment Certificates*], showing:

(a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works,
(b) any further sums which the Contractor considers to be due, and
(c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Engineer shall then certify in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*].

14.11

Application for Final Payment Certificate

Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

(a) the value of all work done in accordance with the Contract, and
(b) any further sums which the Contractor considers to be due to him under the Contract or otherwise.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require within 28 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

However if, following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [*Obtaining Dispute Board's Decision*] or Sub-Clause 20.5 [*Amicable Settlement*], the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.

14.12

Discharge

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This

discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

14.13

Issue of Final Payment Certificate

Within 28 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [*Application for Final Payment Certificate*] and Sub-Clause 14.12 [*Discharge*], the Engineer shall deliver, to the Employer and to the Contractor, the Final Payment Certificate which shall state:

(a) the amount which he fairly determines is finally due, and
(b) after giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.

If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [*Application for Final Payment Certificate*] and Sub-Clause 14.12 [*Discharge*], the Engineer shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 28 days, the Engineer shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

14.14

Cessation of Employer's Liability

The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:

(a) in the Final Statement and also
(b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [*Statement at Completion*].

However, this Sub-Clause shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.

14.15

Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. If more than one currency is so named, payments shall be made as follows:

(a) if the Accepted Contract Amount was expressed in Local Currency only:

(i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties;
(ii) payments and deductions under Sub-Clause 13.5 [*Provisional Sums*] and Sub-Clause 13.7 [*Adjustments for Changes in Legislation*] shall be made in the applicable currencies and proportions; and
(iii) other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [*Application for Interim Payment Certificates*] shall be made in the currencies and proportions specified in sub-paragraph (a)(i) above;

payment of the damages specified in the Contract Data shall be made in the currencies and proportions specified in the Schedule of Payment currencies;

(c) other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency as may be agreed by both Parties;
(d) if any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
(e) if no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and determined by the central bank of the Country.

15 Termination by Employer

15.1
Notice to Correct

If the Contractor fails to carry out any obligation under the Contract, the Engineer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

15.2
Termination by Employer

The Employer shall be entitled to terminate the Contract if the Contractor:

(a) fails to comply with Sub-Clause 4.2 [*Performance Security*] or with a notice under Sub-Clause 15.1 [*Notice to Correct*],
(b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,
(c) without reasonable excuse fails:

  (i) to proceed with the Works in accordance with Clause 8 [*Commencement, Delays and Suspension*], or
  (ii) to comply with a notice issued under Sub-Clause 7.5 [*Rejection*] or Sub-Clause 7.6 [*Remedial Work*], within 28 days after receiving it,

(d) subcontracts the whole of the Works or assigns the Contract without the required agreement,
(e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or
(f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:

  (i) for doing or forbearing to do any action in relation to the Contract, or
  (ii) for showing or forbearing to show favour or disfavour to any person in relation to the Contract,

or if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

If any of these events or circumstances, the Employer may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the

Site. However, in the case of sub-paragraph (e) or (f), the Employer may by notice terminate the Contract immediately.

The Employer's election to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.

The Employer shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

15.3

Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [*Termination by Employer*] has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

15.4

Payment after Termination

After a notice of termination under Sub-Clause 15.2 [*Termination by Employer*] has taken effect, the Employer may:

(a) proceed in accordance with Sub-Clause 2.5 [*Employer's Claims*],
(b) withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Employer, have been established, and/or
(c) recover from the Contractor any losses and damages incurred by the Employer and any extra costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 15.3 [*Valuation at Date of Termination*]. After recovering any such losses, damages and extra costs, the Employer shall pay any balance to the Contractor.

15.5

Employer's Entitlement to Termination for Convenience

The Employer shall be entitled to terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the Performance Security. The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [*Termination by Contractor*].

After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [*Cessation of Work and Removal of Contractor's Equipment*] and shall be paid in accordance with Sub-Clause 16.4 [*Payment on Termination*].

15.6 Corrupt or Fraudulent Practices

If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [*Termination by Employe*r].

Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [*Contractor's Personnel*].

[*For contracts financed by the African Development Bank:*]

For the purposes of this Sub-Clause:

(a) "corrupt practice" means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in the contract execution; and

(b) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of the Contract to the detriment of the borrower, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the borrower of the benefits of free and open competition.

16 Suspension and Termination by Contractor

16.1 Contractor's Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*] or the Employer fails to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*] or Sub-Clause 14.7 [*Payment*], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [*Employer's Financial Arrangements*], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [*Delayed Payment*] and to termination under Sub-Clause 16.2 [*Termination by Contractor*].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall

give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

16.2

Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

(a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [*Contractor's Entitlement to Suspend Work*] in respect of a failure to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*],
(b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
(c) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [*Payment*] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [*Employer's Claims*]),
(d) the Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
(e) the Employer fails to comply with Sub-Clause 1.6 [*Contract Agreement*] or Sub-Clause 1.7 [*Assignment*],
(f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [*Prolonged Suspension*],
(g) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events,
(h) the Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [*Commencement of Works*].

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [*Payment*] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [*Delayed Payment*], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

15.6 Corrupt or Fraudulent Practices

If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [*Termination by Employer*].

Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [*Contractor's Personnel*].

[*For contracts financed by the Asian Development Bank:*]

For the purposes of this Sub-Clause:

(a) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;
(b) "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
(c) coercive practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
(d) "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.

16 Suspension and Termination by Contractor

16.1 Contractor's Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*] or the Employer fails to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*] or Sub-Clause 14.7 [*Payment*], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [*Employer's Financial Arrangements*], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [*Delayed Payment*] and to termination under Sub-Clause 16.2 [*Termination by Contractor*].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

16.2 Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

(a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [*Contractor's Entitlement to Suspend Work*] in respect of a failure to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*],
(b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
(c) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [*Payment*] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [*Employer's Claims*]),
(d) the Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
(e) the Employer fails to comply with Sub-Clause 1.6 [*Contract Agreement*] or Sub-Clause 1.7 [*Assignment*],
(f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [*Prolonged Suspension*],
(g) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events,
(h) the Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [*Commencement of Works*].

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [*Payment*] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [*Delayed Payment*], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

15.6 Corrupt or Fraudulent Practices

If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [*Termination by Employe*r].

Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [*Contractor's Personnel*].

[*For contracts financed by the Black Sea Trade and Development Bank or by the European Bank for Reconstruction and Development:*]

For the purposes of this Sub-Clause:

(a) "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official, or the threatening of injury to person, property or reputation, in connection with the procurement process or in contract execution in order to obtain or retain business or other improper advantage in the conduct of international business; and

(b) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the client, and includes collusive practices among tenderers (prior to or after tender submission) designed to establish tender prices at artificial, non-competitive levels and to deprive the client of the benefits of free and open competition.

16 Suspension and Termination by Contractor

16.1 Contractor's Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*] or the Employer fails to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*] or Sub-Clause 14.7 [*Payment*], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [*Employer's Financial Arrangements*], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [*Delayed Payment*] and to termination under Sub-Clause 16.2 [*Termination by Contractor*].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

16.2 Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

(a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [*Contractor's Entitlement to Suspend Work*] in respect of a failure to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*],
(b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
(c) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [*Payment*] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [*Employer's Claims*]),
(d) the Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
(e) the Employer fails to comply with Sub-Clause 1.6 [*Contract Agreement*] or Sub-Clause 1.7 [*Assignment*],
(f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [*Prolonged Suspension*],
(g) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events,
(h) the Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [*Commencement of Works*].

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [*Payment*] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [*Delayed Payment*], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

15.6 Corrupt or Fraudulent Practices

If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [*Termination by Employer*].

Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [*Contractor's Personnel*].

[*For contracts financed by the Caribbean Development Bank:*]

For the purposes of this Sub-Clause:

(a) "corrupt practice" means the offering, giving, receiving or soliciting, directly or indirectly, of any thing of value to influence the action of a public official in the procurement process or in the Contract execution;
(b) "fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of the Contract;
(c) "collusive practice" means a scheme or arrangement between two or more bidders, with or without the knowledge of the Borrower, designed to establish bid prices at artificial, non-competitive levels;
(d) "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract.

16 Suspension and Termination by Contractor

16.1 Contractor's Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*] or the Employer fails to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*] or Sub-Clause 14.7 [*Payment*], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [*Employer's Financial Arrangements*], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [*Delayed Payment*] and to termination under Sub-Clause 16.2 [*Termination by Contractor*].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

16.2 Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

(a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [*Contractor's Entitlement to Suspend Work*] in respect of a failure to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*],
(b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
(c) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [*Payment*] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [*Employer's Claims*]),
(d) the Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
(e) the Employer fails to comply with Sub-Clause 1.6 [*Contract Agreement*] or Sub-Clause 1.7 [*Assignment*],
(f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [*Prolonged Suspension*],
(g) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events,
(h) the Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [*Commencement of Works*].

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [*Payment*] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [*Delayed Payment*], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

15.6 Corrupt or Fraudulent Practices

If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [*Termination by Employe*r].

Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [*Contractor's Personnel*].

[*For contracts financed by the Inter-American Development Bank:*]

For the purposes of this Sub-Clause:

The Bank requires that all Contractors adhere to the Bank's Policies for the Procurement of Works and Goods financed by the Bank. In particular, the Bank requires that all Borrowers (including grant beneficiaries), the executing agencies and contracting agencies, as well as all firms, entities and individuals bidding for or participating in a Bank-financed project, including, inter alia, applicants, bidders, contractors, consulting firms and individual consultants (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Bank all suspected acts of fraud or corruption of which it has knowledge or becomes aware, during the Bidding Process and throughout the negotiation or execution of a Contract. Fraud and corruption are prohibited.

Fraud and corruption include acts of:

(a) bribery,
(b) extortion or coercion,
(c) fraud, and
(d) collusion.

The definitions of actions set forth below cover the most common types of corrupt practices, but are not exhaustive. For this reason, the Bank shall also take action in the event of any similar deed or complaint involving alleged acts of corruption, even when these are not specified in the following list. The Bank shall in all cases proceed in accordance with Sub-Clause 15.6.

In pursuance of this policy:

(a) the Bank defines the terms set forth below as follows:

(i) "bribery" meaning the offering or giving of anything of value to influence the actions or decisions of third parties or the receiving or soliciting of any benefit in exchange for actions or omissions related to the performance of duties;

(ii) "extortion" or "coercion" meaning the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force, where potential or actual injury may befall upon a person, his/her reputation or property;

(iii) "fraud" meaning any action or omission intended to misrepresent the truth so as to induce others to act in reliance thereof, with the purpose of obtaining some unjust advantage or causing damage to others; and

(iv) "collusion" meaning a secret agreement between two or more parties to defraud or cause damage to a person or entity or to obtain an unlawful purpose;

(b) if the Bank, in accordance with its administrative procedures, demonstrates that any firm, entity or individual bidding for or participating in a Bank-financed project including, inter alia, applicants, bidders, contractors, consulting firms, individual consultants, borrowers (including grant beneficiaries), purchasers, executing agencies and contracting agency (including their respective officers, employees and agents) engaged in an act of fraud or corruption in connection with Bank-financed projects, the Bank may:

(i) decide not to finance any proposal to award a contract or a contract awarded financed by the Bank;
(ii) suspend disbursement of the operation if it is determined at any stage that evidence is sufficient to support a finding that an employee, agent or representative of the Borrower, Executing Agency or Contracting Agency has engaged in an act of fraud or corruption;
(iii) cancel and/or accelerate the payment of, the portion of a loan or grant earmarked for a contract, when there is evidence that the representative of the Borrower, or Beneficiary of a grant, has not taken the adequate remedial measures within a time period which the Bank considers reasonable, and in accordance with the due process guarantees of the Borrowing country's legislation;
(iv) issue a reprimand in the form of a formal letter of censure of the firm, entity or individual's behaviour;
(v) issue a declaration that an individual, entity or firm is ineligible, either permanently or for a stated period of time, to be awarded contracts under Bank-financed projects except under such conditions as the Bank deems to be appropriate;
(vi) refer the matter to appropriate law enforcement authorities; and/or;
(vii) may impose other sanctions that it deems to be appropriate under the circumstances, including the imposition of fines representing reimbursement of the Bank for costs associated with investigations and proceedings. Such other sanctions may be imposed in addition to or in lieu of other sanctions;

(c) the Bank has established administrative procedures for cases of allegations of fraud and corruption within the procurement process or the execution of a contract financed by the Bank which are available at the Bank's website (www.iadb.org), as updated from time to time. To that effect any complaint shall be submitted to the Bank's Office of Institutional Integrity (OII) for the appropriate investigation. Allegations may be presented confidentially or anonymously;
(d) payments are expressly conditional upon the claimant's participation in the procurement process conformed with all applicable Bank policies on Fraud and Corruption described in this Sub-Clause 15.5; and
(e) the imposition of any sanction referred to paragraph (b) of this Sub-Clause will be public;

The Bank will have the right to require that a Contractor permit the Bank to inspect their accounts and records and other documents relating to the submission of bids and contract performance and to have them audited by auditors appointed by the Bank. The Bank will have the right to require that Contractors to:

maintain all documents and records related to the Bank-financed project for five (5) years after completion of the work; and
require the delivery of any document necessary for the investigation of allegations of fraud or corruption and the availability of employees or agents of the contractor with knowledge of the Bank-financed project to respond to questions from the Bank.

If the Contractor refuses to comply with the Bank's request, the Bank, in its sole discretion, may take appropriate action against the Contractor.

The Contractor represents and warrants:

(a) that they have read and understood the Bank's prohibition against fraud and corruption and agrees to abide by the applicable rules;
(b) that they have not engaged in any violation of policies on fraud and corruption described herein;
(c) that they have not misrepresented or concealed any material facts during the procurement or contract negotiation processes or performance of the contract;
(d) that neither they nor any of their directors, officers or principal shareholders have been declared ineligible to be awarded Bank-financed contracts or have been convicted of a crime involving fraud or corruption;
(e) that none of their directors, officers or principal shareholders has been a director, officer or principal shareholder of any other company or entity that has been declared ineligible to be awarded a Bank-financed contract or has been convicted of a crime involving fraud or corruption;
(f) that all commissions, agents' fees, facilitating payments or revenue-sharing agreements related to the Bank-financed contract or consulting agreement have been disclosed;
(g) that they acknowledge that the breach of any of these warranties constitute a basis for the imposition of any or a combination of the measures described in this Sub-Clause.

16 Suspension and Termination by Contractor

16.1 Contractor's Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*] or the Employer fails to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*] or Sub-Clause 14.7 [*Payment*], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [*Employer's Financial Arrangements*], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [*Delayed Payment*] and to termination under Sub-Clause 16.2 [*Termination by Contractor*].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall

give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

16.2

Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

(a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [*Contractor's Entitlement to Suspend Work*] in respect of a failure to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*],
(b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
(c) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [*Payment*] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [*Employer's Claims*]),
(d) the Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
(e) the Employer fails to comply with Sub-Clause 1.6 [*Contract Agreement*] or Sub-Clause 1.7 [*Assignment*],
(f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [*Prolonged Suspension*],
(g) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events,
(h) the Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [*Commencement of Works*].

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [*Payment*] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [*Delayed Payment*], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

15.6 Corrupt or Fraudulent Practices

If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [*Termination by Employe*r].

Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [*Contractor's Personnel*].

[*For contracts financed by The World Bank:*]

In pursuance of this policy, the Bank:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

In this context, "another party" refers to a public official acting in relation to the procurement process or contract execution]. In this context, "public official" includes World Bank staff and employees of other organisations taking or reviewing procurement decisions.

(ii) "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

In this context, "party" refers to a public official; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.

(iii) "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

In this context, "parties" refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

(iv) "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

In this context, "parties" refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

(v) "obstructive practice" is:

(A) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(B) acts intended to materially impede the exercise of the Bank's inspection and audit rights.

In this context, "party" refers to a participant in the procurement process or contract execution.

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16 Suspension and Termination by Contractor

16.1 Contractor's Entitlement to Suspen

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*] or the Employer fails to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*] or Sub-Clause 14.7 [*Payment*], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [*Employer's Financial Arrangements*], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [*Delayed Payment*] and to termination under Sub-Clause 16.2 [*Termination by Contractor*].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and

payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

16.2

Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

(a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [*Contractor's Entitlement to Suspend Work*] in respect of a failure to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*],

(b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,

(c) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [*Payment*] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [*Employer's Claims*]),

(d) the Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,

(e) the Employer fails to comply with Sub-Clause 1.6 [*Contract Agreement*] or Sub-Clause 1.7 [*Assignment*],

(f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [*Prolonged Suspension*],

(g) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events,

(h) the Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [*Commencement of Works*].

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [*Payment*] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [*Delayed Payment*], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

[*For contracts financed by The World Bank:*]

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16.3 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 15.5 [*Employer's Entitlement to Termination for Convenience*], Sub-Clause 16.2 [*Termination by Contractor*] or Sub-Clause 19.6 [*Optional Termination, Payment and Release*] has taken effect, the Contractor shall promptly:

(a) cease all further work, except for such work as may have been instructed by the Engineer for the protection of life or property or for the safety of the Works,
(b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and
(c) remove all other Goods from the Site, except as necessary for safety, and leave the Site.

16.4 Payment on Termination

After a notice of termination under Sub-Clause 16.2 [*Termination by Contractor*] has taken effect, the Employer shall promptly:

(a) return the Performance Security to the Contractor,
(b) pay the Contractor in accordance with Sub-Clause 19.6 [*Optional Termination, Payment and Release*], and
(c) pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

17 Risk and Responsibility

17.1 Indemnities

The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

(a) bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and
(b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [*Insurance against Injury to Persons and Damage to Property*].

17.2 Contractor's Care of the Works

The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be

issued under Sub-Clause 10.1 [*Taking Over of the Works and Sections*]) for the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Employer.

After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [*Employer's Risks*], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

17.3 Employer's Risks

The risks referred to in Sub-Clause 17.4 [*Consequences of Employer's Risks*] below, insofar as they directly affect the execution of the Works in the Country, are:

(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
(b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war, within the Country,
(c) riot, commotion or disorder within the Country by persons other than the Contractor's Personnel,
(d) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity,
(e) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,
(f) use or occupation by the Employer of any part of the Permanent Works, except as may be specified in the Contract,
(g) design of any part of the Works by the Employer's Personnel or by others for whom the Employer is responsible, and
(h) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

17.4 Consequences of Employer's Risks

If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to the extent required by the Engineer.

e Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, Contractor shall give a further notice to the Engineer and shall be entitled subject b-Clause 20.1 [*Contractor's Claims*] to:

an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and

(b) payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (f) and (g) of Sub-Clause 17.3 [*Employer's Risks*], Cost plus profit shall be payable.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

17.5

Intellectual and Industrial Property Rights

In this Sub-Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" means a claim (or proceedings pursuing a claim) alleging an infringement.

Whenever a Party does not give notice to the other Party of any claim within 28 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

The Employer shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:

(a) an unavoidable result of the Contractor's compliance with the Contract, or
(b) a result of any Works being used by the Employer:

(i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or
(ii) in conjunction with any thing not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.

The Contractor shall indemnify and hold the Employer harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.

If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

17.6

Limitation of Liability

Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.7 [*Delay Damages*]; Sub-Clause 11.2 [*Cost of Remedying Defects*]; Sub-Clause 15.4 [*Payment after Termination*]; Sub-Clause 16.4 [*Payment on Termination*]; Sub-Clause 17.1 [*Indemnities*]; Sub-Clause 17.4(b) [*Consequences of Employer's Risks*] and Sub-Clause 17.5 [*Intellectual and Industrial Property Rights*].

The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [*Electricity, Water and Gas*], Sub-Clause 4.20 [*Employer's Equipment and Free-Issue Materials*], Sub-Clause 17.1 [*Indemnities*] and Sub-Clause 17.5 [*Intellectual and Industrial Property Rights*], shall not exceed the sum resulting from the application of a multiplier (less or greater than

one) to the Accepted Contract Amount, as stated in the Contract Data, or (if such multiplier or other sum is not so stated), the Accepted Contract Amount.

This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

17.7

Use of Employer's Accommodation/Facilities

The Contractor shall take full responsibility for the care of the Employer-provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).

If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Employer is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer.

18 Insurance

18.1

General Requirements for Insurances

In this Clause, "insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Employer. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Employer shall act for Employer's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.

Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.

The relevant insuring Party shall, within the respective periods stated in the Contract Data (calculated from the Commencement Date), submit to the other Party:

(a) evidence that the insurances described in this Clause have been effected, and

(b) copies of the policies for the insurances described in Sub-Clause 18.2

[*Insurance for Works and Contractor's Equipment*] and Sub-Clause 18.3 [*Insurance against Injury to Persons and Damage to Property*].

When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.

Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.

If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.

Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.

Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [*Employer's Claims*] or Sub-Clause 20.1 [*Contractor's Claims*], as applicable.

The Contractor shall be entitled to place all insurances relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

18.2

Insurance for Works and Contractor's Equipment

The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under sub-paragraph (a) of Sub-Clause 18.1 [*General Requirements for Insurances*], until the date of issue of the Taking-Over Certificate for the Works.

The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [*Defects Liability*]).

The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment,

the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

Unless otherwise stated in the Particular Conditions, insurances under this Sub-Clause:

(a) shall be effected and maintained by the Contractor as insuring Party,
(b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage,
(c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [*Employer's Risks*],
(d) shall also cover, to the extent specifically required in the bidding documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Employer of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [*Employer's Risks*], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated in the Contract Data (if an amount is not so stated, this sub-paragraph (d) shall not apply), and
(e) may however exclude loss of, damage to, and reinstatement of:

    (i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),
    (ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,
    (iii) a part of the Works which has been taken over by the Employer, except to the extent that the Contractor is liable for the loss or damage, and
    (iv) Goods while they are not in the Country, subject to Sub-Clause 14.5 [*Plant and Materials intended for the Works*].

If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Employer, with supporting particulars. The Employer shall then (i) be entitled subject to Sub-Clause 2.5 [*Employer's Claims*] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [*General Requirements for Insurances*].

18.3

Insurance against Injury to Persons and Damage to Property

The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [*Insurance for Works and Contractor's Equipment*]) or to any person (except persons insured under Sub-Clause 18.4 [*Insurance for Contractor's Personnel*]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

This insurance shall be for a limit per occurrence of not less than the amount stated in the Contract Data, with no limit on the number of occurrences. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

Unless otherwise stated in the Particular Conditions, the insurances specified in this Sub-Clause:

(a) shall be effected and maintained by the Contractor as insuring Party,
(b) shall be in the joint names of the Parties,
(c) shall be extended to cover liability for all loss and damage to the Employer's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract, and
(d) may however exclude liability to the extent that it arises from:

(i) the Employer's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works,
(ii) damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any defects, and
(iii) a cause listed in Sub-Clause 17.3 [*Employer's Risks*], except to the extent that cover is available at commercially reasonable terms.

18.4

Insurance for Contractor's Personnel

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

The insurance shall cover the Employer and the Engineer against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19 Force Majeure

19.1
Definition of Force Majeure

In this Clause, "Force Majeure" means an exceptional event or circumstance:

(a) which is beyond a Party's control,
(b) which such Party could not reasonably have provided against before entering into the Contract,
(c) which, having arisen, such Party could not reasonably have avoided or overcome, and
(d) which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

(i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
(ii) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
(iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,

(iv) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and
(v) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

19.2

Notice of Force Majeure

If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.

The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.

Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

19.3

Duty to Minimise Delay

Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.

A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

19.4

Consequences of Force Majeure

If the Contractor is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [*Notice of Force Majeure*], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
(b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [*Definition of Force Majeure*] and, in the case of sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [*Insurance for Works and Contractor's Equipment*].

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

19.5

Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

19.6

Optional Termination, Payment and Release

If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under

Sub-Clause 19.2 [*Notice of Force Majeure*], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [*Cessation of Work and Removal of Contractor's Equipment*].

Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:

(a) the amounts payable for any work carried out for which a price is stated in the Contract;
(b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal;
(c) other Costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;
(d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and
(e) the Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.

19.7 Release from Performance

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

(a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and
(b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [*Optional Termination, Payment and Release*] if the Contract had been terminated under Sub-Clause 19.6.

20 Claims, Disputes and Arbitration

20.1 Contractor's Claims

If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Employer's liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records, and shall (if instructed) submit copies to the Engineer.

Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

(a) this fully detailed claim shall be considered as interim;
(b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and
(c) the Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within the above defined time period.

Within the above defined period of 42 days, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [*Extension of Time for Completion*], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

If the Engineer does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Engineer and any of the Parties may refer to the Dispute Board in accordance with Sub-Clause 20.4 [*Obtaining Dispute Board's Decision*].

The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

20.2 Appointment of the Dispute Board

Disputes shall be referred to a DB for decision in accordance with Sub-Clause 20.4 [*Obtaining Dispute Board's Decision*]. The Parties shall appoint a DB by the date stated in the Contract Data.

The DB shall comprise, as stated in the Contract Data, either one or three suitably qualified persons ("the members"), each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of construction involved in the Works and with the interpretation of contractual documents. If the number is not so stated and the Parties do not agree otherwise, the DB shall comprise three persons.

If the Parties have not jointly appointed the DB 21 days before the date stated in the Contract Data and the DB is to comprise three persons, each Party shall nominate one member for the approval of the other Party. The first two members shall recommend and the Parties shall agree upon the third member, who shall act as chairman.

However, if a list of potential members has been agreed by the Parties and is included in the Contract, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DB.

The agreement between the Parties and either the sole member or each of the three members shall incorporate by reference the General Conditions of Dispute Board Agreement contained in the Appendix to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert whom the DB consults, shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

If at any time the Parties so agree, they may jointly refer a matter to the DB for it to give its opinion. Neither Party shall consult the DB on any matter without the agreement of the other Party.

If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DB (including each member) shall expire when the discharge referred to in Sub-Clause 14.12 [*Discharge*] shall have become effective.

20.3 Failure to Agree on the Composition of the Dispute Board

If any of the following conditions apply, namely:

(a) the Parties fail to agree upon the appointment of the sole member of the DB by the date stated in the first paragraph of Sub-Clause 20.2 [*Appointment of the Dispute Board*],

either Party fails to nominate a member (for approval by the other Party), or fails to approve a member nominated by the other Party, of a DB of three persons by such date,

the Parties fail to agree upon the appointment of the third member (to act as chairman) of the DB by such date, or

(d) the Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment,

then the appointing entity or official named in the Contract Data shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

20.4

Obtaining Dispute Board's Decision

If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, either Party may refer the dispute in writing to the DB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this Sub-Clause.

For a DB of three persons, the DB shall be deemed to have received such reference on the date when it is received by the chairman of the DB.

Both Parties shall promptly make available to the DB all such additional information, further access to the Site, and appropriate facilities, as the DB may require for the purposes of making a decision on such dispute. The DB shall be deemed to be not acting as arbitrator(s).

Within 84 days after receiving such reference, or within such other period as may be proposed by the DB and approved by both Parties, the DB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either Party is dissatisfied with the DB's decision, then either Party may, within 28 days after receiving the decision, give a Notice of Dissatisfaction to the other Party indicating its dissatisfaction and intention to commence arbitration. If the DB fails to give its decision within the period of 84 days (or as otherwise approved) after receiving such reference, then either Party may, within 28 days after this period has expired, give a Notice of Dissatisfaction to the other Party.

In either event, this Notice of Dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 20.7 [*Failure to Comply with Dispute Board's Decision*] and Sub-Clause 20.8 [*Expiry of Dispute Board's Appointment*], neither Party shall be entitled to commence arbitration of a dispute unless a Notice of Dissatisfaction has been given in accordance with this Sub-Clause.

If the DB has given its decision as to a matter in dispute to both Parties, and no Notice of Dissatisfaction has been given by either Party within 28 days after it received the decision, then the decision shall become final and binding upon both Parties.

20.5

Amicable Settlement

Where a Notice of Dissatisfaction has been given under Sub-Clause 20.4 above, both Parties shall attempt to settle the dispute amicably before the commencement of

arbitration. However, unless both Parties agree otherwise, the Party giving a Notice of Dissatisfaction in accordance with Sub-Clause 20.4 above should move to commence arbitration after the fifty-sixth day from the day on which a Notice of Dissatisfaction was given, even if no attempt at an amicable settlement has been made.

20.6 Arbitration

Any dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.5 above and in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows:

(a) if the Contract is with foreign contractors,

(i) for contracts financed by all participating Banks except under sub-paragraph (a)(ii) below:

international arbitration (1) with proceedings administered by the arbitration institution designated in the Contract Data, and conducted under the rules of arbitration of such institution; or, if so specified in the Contract Data, (2) international arbitration in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or (3) if neither an arbitration institution nor UNCITRAL arbitration rules are specified in the Contract Data, with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules.

(ii) for contracts financed by the Asian Development Bank:

international arbitration (1) with proceedings administered by the arbitration institution specified in the Contract Data and conducted under the rules of arbitration of such institution unless it is specified in the Contract Data that the arbitration shall be conducted under the rules of the United Nations Commission on International Trade Law (UNCITRAL) and if UNCITRAL Rules are so specified then the named arbitration institution shall be the appointing authority and shall administer the arbitration); or (2) if an arbitration institution is not specified in the Contract Data, with proceedings administered by the Singapore International Arbitration Centre (SIAC) and conducted under the SIAC Rules, by one or more arbitrators appointed in accordance with the said arbitration rules.

(b) if the Contract is with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer's country.

The place of arbitration shall be the neutral location specified in the Contract Data; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for

dissatisfaction given in its Notice of Dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration.

Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

20.7

Failure to Comply with Dispute Board's Decision

In the event that a Party fails to comply with a final and binding DB decision, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 [*Arbitration*]. Sub-Clause 20.4 *[Obtaining Dispute Board's Decision*] and Sub-Clause 20.5 [*Amicable Settlement*] shall not apply to this reference.

20.8

Expiry of Dispute Board's Appointment

If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DB in place, whether by reason of the expiry of the DB's appointment or otherwise:

(a) Sub-Clause 20.4 [*Obtaining Dispute Board's Decision*] and Sub-Clause 20.5 [*Amicable Settlement*] shall not apply, and
(b) the dispute may be referred directly to arbitration under Sub-Clause 20.6 [*Arbitration*].

APPENDIX

General Conditions of Dispute Board Agreement

1
Definitions

Each "Dispute Board Agreement" is a tripartite agreement by and between:

(a) the "Employer";
(b) the "Contractor"; and
(c) the "Member" who is defined in the Dispute Board Agreement as being:

(i) the sole member of the "DB" and, where this is the case, all references to the "Other Members" do not apply, or
(ii) one of the three persons who are jointly called the "DB" (or "Dispute Board") and, where this is the case, the other two persons are called the "Other Members".

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2
General Provisions

Unless otherwise stated in the Dispute Board Agreement, it shall take effect on the latest of the following dates:

(a) the Commencement Date defined in the Contract,
(b) when the Employer, the Contractor and the Member have each signed the Dispute Board Agreement, or
(c) when the Employer, the Contractor and each of the Other Members (if any) have respectively each signed a dispute board agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days' notice of resignation to the Employer and to the Contractor, and the Dispute Agreement shall terminate upon the expiry of this period.

3
Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member's representations that he/she is:

(a) experienced in the work which the Contractor is to carry out under the Contract,
(b) experienced in the interpretation of contract documentation, and
(c) fluent in the language for communications defined in the Contract.

4
General Obligations of the Member

The Member shall:

(a) have no interest financial or otherwise in the Employer, the Contractor or Engineer, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;

(b) not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;

(c) have disclosed in writing to the Employer, the Contractor and the Other Members (if any), before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;

(d) not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except as may be agreed in writing by the Employer, the Contractor and the Other Members (if any);

(e) comply with the annexed procedural rules and with Sub-Clause 20.4 of the Conditions of Contract;

(f) not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;

(g) not while a Member enter into discussions or make any agreement with the Employer, the Contractor or the Engineer regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;

(h) ensure his/her availability for all site visits and hearings as are necessary;

(i) become conversant with the Contract and with the progress of the Works (and of any other parts of the project of which the Contract forms part) by studying all documents received which shall be maintained in a current working file;

(j) treat the details of the Contract and all the DB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members (if any); and

(k) be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members (if any).

5

General Obligations of the Employer and the Contractor

The Employer, the Contractor, the Employer's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DB's activities under the Contract and the Dispute Board Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the Contractor's Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members (if any):

be appointed as an arbitrator in any arbitration under the Contract;
be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or
be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding paragraph.

Whenever the Employer or the Contractor refers a dispute to the DB under Sub-Clause 20.4 of the Conditions of Contract, which will require the Member to make a site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

6 Payment

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

(a) a retainer fee per calendar month, which shall be considered as payment in full for:

(i) being available on 28 days' notice for all site visits and hearings;
(ii) becoming and remaining conversant with all project developments and maintaining relevant files;
(iii) all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and
(iv) all services performed hereunder except those referred to in sub-paragraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Board Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by one third. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Board Agreement is otherwise terminated.

(b) a daily fee which shall be considered as payment in full for:

(i) each day or part of a day up to a maximum of two days' travel time in each direction for the journey between the Member's home and the site, or another location of a meeting with the Other Members (if any);
(ii) each working day on Site visits, hearings or preparing decisions; and
(iii) each day spent reading submissions in preparation for a hearing.

(c) all reasonable expenses including necessary travel expenses (air fare in less than first class, hotel and subsistence and other direct travel expenses) incurred in connection with the Member's duties, as well as the cost of telephone calls, courier charges, faxes and telexes: a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (b) of this Clause;
any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The retainer and daily fees shall be as specified in the Dispute Board Agreement. Unless it specifies otherwise, these fees shall remain fixed for the first 24 calendar

months, and shall thereafter be adjusted by agreement between the Employer, the Contractor and the Member, at each anniversary of the date on which the Dispute Board Agreement became effective.

If the parties fail to agree on the retainer fee or the daily fee, the appointing entity or official named in the Contract Data shall determine the amount of the fees to be used.

The Member shall submit invoices for payment of the monthly retainer and air fares quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor.

The Contractor shall pay each of the Member's invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DB; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

7

Termination

At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days' notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

8

Default of the Member

If the Member fails to comply with any of his obligations under Clause 4 (a) - (d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for

proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the non-compliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

9

Disputes

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity thereof, shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

Annex PROCEDURAL RULES

1 Unless otherwise agreed by the Employer and the Contractor, the DB shall visit the Site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.

2 The timing of and agenda for each Site visit shall be as agreed jointly by the DB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DB. The purpose of Site visits is to enable the DB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavour to prevent potential problems or claims from becoming disputes.

3 Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each Site visit and before leaving the site, the DB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.

4 The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the DB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.

5 If any dispute is referred to the DB in accordance with Sub-Clause 20.4 of the Conditions of Contract, the DB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:

(a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and
(b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

6 The DB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

7 Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

8 The Employer and the Contractor empower the DB, among other things, to:

(a) establish the procedure to be applied in deciding a dispute,
(b) decide upon the DB's own jurisdiction, and as to the scope of any dispute referred to it,
(c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules,
(d) take the initiative in ascertaining the facts and matters required for a decision,
(e) make use of its own specialist knowledge, if any,
(f) decide upon the payment of financing charges in accordance with the Contract,
(g) decide upon any provisional relief such as interim or conservatory measures, and
(h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

9 The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:

(a) it shall convene in private after a hearing, in order to have discussions and prepare its decision;
(b) it shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and
(c) if a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless:

(i) either the Employer or the Contractor does not agree that they do so, or
(ii) the absent Member is the chairman and he/she instructs the other Members not to make a decision.

INDEX OF SUB-CLAUSES

Section VIII. Particular Conditions (PC)

Notes on Particular Conditions

The PC complement the GC to specify data and contractual requirements linked to the special circumstances of the country, the Employer, the Engineer, the sector, the overall project, and the Works. Whenever there is a conflict, the provisions herein shall prevail over those in the GC.

Part A, Contract Data of the PC, includes data to complement the GC in a manner similar to the way in which the Bid Data Sheet complements the Instructions to Bidders.

Part B, the Specific Provisions of the PC, consists of a set of provisions prepared by JICA which shall be used **without modification**. In addition to the provisions prepared by JICA, country- or project-specific provisions for PC must also be prepared in each case.

Note that the PC provisions take precedence over those in the GC.

Clause numbers in the PC correspond to those in the GC.

Particular Conditions (PC)

The following Particular Conditions shall supplement the GC. Whenever there is a conflict, the provisions herein shall prevail over those in the GC.

Part A - Contract Data

[The Employer should insert relevant data prior to the issue of the Bidding Documents. Where a number of days is to be inserted it is desirable for the number to be a multiple of seven for consistency with the Conditions of Contract.]

Conditions	Sub-Clause	Data
Employer's name and address	1.1.2.2 & 1.3	Department of Transportation and Communications
Engineer's name and address	1.1.2.4 & 1.3	*To be specified after the Consultant for CS is selected by DOTC.*
Bank's name	1.1.2.11	Japan International Cooperation Agency (JICA)
Borrower's name	1.1.2.12	Government of the Republic of the Philippines
Time for Completion	1.1.3.3	Section A: Three hundred and sixty five (365) consecutive calendar days from the Commencement Date. Section B: Nine hundred and twelve (912) consecutive calendar days from the Commencement Date.
Defects Notification Period	1.1.3.7	Three hundred and sixty five (365) consecutive calendar days.
Sections	1.1.5.6	Refer to Table: Summary of Sections below.
Electronic transmission systems	1.3	Electronic mail *Contractor's name and address are to be specified after the Contractor is selected by DOTC.*
Governing Law	1.4	Laws of the Republic of the Philippines
Ruling language	1.4	English language

Conditions	Sub-Clause	Data
Language for communications	1.4	English language
Time for access to, and possession of all parts of, the Site	2.1	The Contractor will be given access to and possession of the Site on the Commencement Date. However, three (3) existing roads crossing the Site shall be maintained for use by surrounding people until the Section A is completed and opened to the public. For more detail, refer to Section 1115 of Specification 1000 Series.
Engineer's Duties and Authority	3.1(B)(ii)	Variations resulting in an increase of the Accepted Contract Amount in excess of one (1) percent shall require approval of the Employer.
Performance Security	4.2	The Performance Security will be in the form of a demand guarantee in the amounts of ten (10) percent of the Accepted Contract Amount and in the same currencies of the Accepted Contract Amount.
Normal working hours	6.5	From 08:00 to 17:00 inclusive of 60-minut meal period
Commencement of Works	8.1(c)	See 2.1 above.
Delay damages for the Works	8.7	One-tenth (0.1) percent of the Contract Price applicable to Sections A and B respectively per day.
Maximum amount of delay damages	8.7	Ten (10) percent of the final Contract Price.
Provisional Sums	13.5.(b)(ii)	Twenty (20) percent.
Total advance payment	14.2	Fifteen (15) percent of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable.
Repayment amortization rate of advance payment	14.2(b)	Twenty (20) percent.
Percentage of Retention	14.3(c)	Ten (10) percent
Limit of Retention Money	14.3(c)	Five (5) percent of the Accepted Contract Amount

Conditions	Sub-Clause	Data
Plant and Materials	14.5(b)(i)	Plant and Materials for payment Free on Board are as follows: ✓ Plant imported from outside of the Republic of the Philippines.
	14.5(c)(i)	Plant and Materials for payment when delivered to the Site are as follows: ✓ Cement; ✓ Steel reinforcement bars; ✓ Bitumen; and ✓ Locally procured Plant.
Minimum Amount of Interim Payment Certificates	14.6	One (1) percent of the Accepted Contract Amount.
Maximum total liability of the Contractor to the Employer	17.6	The product of one (1) times the Accepted Contract Amount.
Periods for submission of insurance: a. evidence of insurance. b. relevant policies	18.1	*[Insert period for submission of evidence of insurance and policy. Period may be from 14 days to 28 days.]* __14___days Note. No work will be allowed to commence on Site until the evidence of insurance as required under sub-clause 18.1 is provided to the Engineer. __28___days
Maximum amount of deductibles for insurance of the Employer's risks	18.2(d)	Japanese Yen Ten (10) million.
Minimum amount of third party insurance	18.3	Japanese Yen One Hundred (100) million.
Date by which the DB shall be appointed	20.2	28 days after a Party gives notice to the other Party of its intention to refer a dispute to DB.
The DB shall be comprised of	20.2	Sole Member.
List of potential DB sole members	20.2	Not applicable.
Appointment (if not agreed) to be made by	20.3	President of FIDIC.

Table: Summary of Sections

Section Name/Description (Sub-Clause 1.1.5.6)	Time for Completion (Sub-Clause 1.1.3.3)	Damages for Delay (Sub-Clause 8.7)
Section A: Component 2-1 (Access Road including Water Supply)	365 consecutive calendar days from the Commencement Date	One tenth (0.1) percent of the Contract Price applicable to Section A (maximum ten (10) percent).
Section B: Other Components of the Works	912 consecutive calendar days from the Commencement Date	One tenth (0.1) percent of the Contract Price applicable to Section B (maximum ten (10) percent).

Part B - Specific Provisions

Sub-Clause	Particular Conditions
Sub-Clause 1.1.1 The Contract	*Delete the text of Sub-Clause 1.1.1.4 and substitute with the following:* "Letter of Tender" means the documents entitled Letter of Technical Bid and Letter of Price Bid, which were completed by the Contractor and includes the signed offer to the Employer for the Works.
Sub-Clause 1.5 Priority of Documents	*Delete items (a) to (i) and substitute with the following:* (a) the Contract Agreement (b) the Letter of Acceptance; (c) the Letter of Technical Bid ; (d) the Letter of Price Bid ; (e) the addenda if any; (f) the Particular Conditions Part A (g) the Particular Conditions Part B; (h) the General Conditions; (i) the Specification; (j) the Drawings*;* (k) the completed Schedules; and (l) the Acknowledgement of Compliance with Guidelines for Procurement under Japanese ODA Loans.
Sub-Clause 1.15 Inspections and Audit by the Bank	*Delete this Sub-Clause 1.15.*
Sub-Clause 4.1 Contractor's General Obligations	*Replace in the third paragraph: "as defined by the Bank" with* "as defined by the Loan Agreement between the Bank and the Borrower". *Add the following paragraph to the end of Sub-Clause 4.1:* The Contractor shall carry out the training of Employer's Personnel in the operation and maintenance of the Works to the extent specified in the Contract. If the Contract specifies training which is to be carried out before Taking-Over, the Works shall not be considered to be completed for the purpose of Taking-Over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until this training has been completed.
Sub-Clause 4.4 Subcontractors	*Insert the following new items (e) and (f) after item (d):* (e) the Engineer shall be deemed to have given his consent for subcontracting of the works and the employment of the Subcontractors proposed by the Contractor with his Bid as specialist subcontractors;

Sub-Clause	Particular Conditions
	(f) the Contractor shall not alter the works to be subcontracted to the specialist subcontractors or the specialist subcontractors so consented to.
Sub-Clause 8.1 Commencement of Works	*Delete item (a) and substitute with the following:* (a) signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country and concurrence of the Bank;
Sub-Clause 10.2 Taking Over of Parts of the Works	*Insert* "the Project Equipment specified in Section 1210 of Specification Series 1000 and" *between* "(other than" *and* "as a temporary measure….)" *in the first line of second paragraph.*
Sub-Clause 12.2 Method of Measurement	*Insert* "the Specification" *between* "…. in accordance with" *and* "the Bill of Quantities" *in the text of item (b).*
2Sub-Clause 14.1 The Contract Price	*Delete the last paragraph and substitute with the following:* Notwithstanding the provision of subparagraph (b), the Government of the Republic of the Philippines shall, by itself or through the Employer, assume all duties and related fiscal charges imposed in the Republic of the Philippines on the Japanese companies operating as suppliers and contractors with respect to the import and re-export of their own materials and equipment needed for the implementation of the Project.
Sub-Clause 14.3 Application for Interim Payment Certificates	*Add the following after item (g) to Sub-clause 14.3:* *h) an accumulated up-to-date amount of Japanese origin with reference to Form JPO: Price List of Japanese Origin Items..*
Sub-Clause 14.7 Payment	*Add the following before the first line of Sub-clause 14.7:* All payments under the Contract shall be made in accordance with the Procedures agreed upon by the Employer and the Bank. The Employer shall ensure that the Contractor shall be paid the Peso amounts as certified in accordance with Clause 14 regardless of the exchange loss or gain arising from the payment Procedures.
Sub-Clause 14.15 Currencies of Payment	*Replace the entire Sub-Clause 14.15 with the following:* The Contract Price shall be paid in the currency or currencies in which the bid price was expressed in the Letter of Bid. If more than one currency is so

Sub-Clause	Particular Conditions
	named, payments shall be made as follows: (a) payment of the damages specified in GC 8.7, shall be made in the currencies and proportions specified in the Letter of Bid; (b) other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency as may be agreed by both Parties; (c) if any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and (d) the applicable rates of exchange shall be those prevailing on the Base Date and determined by the central bank of the Country.
Sub-Clause14.16 Tax Exemption Principles	*Add the following Sub-clause 14.16:* The Government of the Republic of the Philippines shall, by itself or through the Employer, assume: (a) all fiscal levies and taxes imposed in the Republic of the Philippines on the Japanese companies operating as suppliers and/or contractors with respect to the payment carried out for and the income accruing from the supply of the products and/or services required in respect of the Contract; and (b) all fiscal levies and taxes imposed in the Republic of the Philippines on the Japanese employees engaged in the Contract with respect to their personal income derived from Japanese companies operating as suppliers, and/or contractors.
Sub-Clause 14.17 Value Added Tax (VAT)	*Add the following Sub-clause 14.17:* VAT payable in accordance with the laws of the Republic of the Philippines shall be paid by the Employer to the Contractor in Philippine Pesos. The amount of payment of VAT shall be in addition to the Contract Price payable on both the local currency portion and foreign currency portion converted to Philippine Pesos.
Sub-Clause 14.18 Foreign and Local Corporate and Employees Taxes	*Add the following Sub-clause 14.18:* Further to Sub-Clause 14.1 (b) of the Conditions of Contract, the Contractor shall be responsible for complying with all tax laws and regulations of the Foreign Government and of the Government of the Republic of the Philippines and shall

Sub-Clause	Particular Conditions
	register, keep accounts, obtain all available exemptions and directions from the authorities, file returns and the like and pay all corporate income taxes and employees' income taxes as applicable and in accordance with such laws and regulations.
Sub-C 15.6 **Corrupt or Fraudulent Practices**	*Replace the entire Sub-Clause 15.6 with the following:* If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 day-notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [Termination by Employer]. Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [Contractor's Personnel].
Sub-Clause 20.2 **Appointment of the Dispute Board**	*Delete the second sentence of the first paragraph and substitute with the following:* The Parties shall cause the President of FIDIC to appoint the member of DB. *Delete the third and fourth paragraphs.* *Delete the last paragraph and substitute with the following:* The appointment of member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DB shall expire when the DB has given its decision on the dispute referred to it under Sub-Clause 20.4 [Obtaining Dispute Board's Decision], unless other disputes have been referred to the DB by that time under Sub-Clause 20.4, in which event the relevant date shall be when the DB has also given decisions on those disputes.

Sub-Clause	Particular Conditions
Sub-Clause 20.4 **Obtaining Dispute Board's Decision**	*Delete the first paragraph and substitute with the following:* If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any disputes as to any certificate, determination, instruction, opinion or valuation of the Engineer, then after a DB has been appointed pursuant to Sub-Clauses 20.2 [Appointment of the Dispute Board] and 20.3 [Failure to Agree Dispute Board] either Party may refer the dispute in writing to the DB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this Sub-Clause. *Delete the fourth paragraph and substitute with the following:* Within 84 days after receiving such reference or within such other period as may be proposed by the DB and approved by both Parties, the DB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. However, if neither of the Parties has paid in full the invoices submitted by the member pursuant to Clause 6 of the Appendix, the DB shall not be obliged to give its decision until such invoices have been paid in full. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.
Sub-**Clause 20.6 Arbitration**	*Replace the entire Sub-Clause 20.6 with the following:* Any dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.5 above and in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows: (a) if the contract is with foreign contractors (or if the lead partner is a foreign contractor, in case of JV), international arbitration with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules. (b) if the Contract is with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer's country. The place of arbitration shall be a neutral location determined in accordance with the applicable rules of arbitration; and the arbitration

Sub-Clause	Particular Conditions
	shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language]. The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute. Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration. Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

	APPENDIX
General Conditions of Dispute Board Agreement	*Delete "General Conditions of Dispute Board Agreement" and substitute with the following:* APPENDIX General Conditions of Adhoc Dispute Board Agreement
Annex PROCEDURAL RULES	*Delete "Annex PROCEDURAL RULES" and substitute with the following:* Annex PROCEDURAL RULES OF ADHOC DISPUTE BOOARD

APPENDIX TO SUB-CLAUSE 20.2

General Conditions of Adhoc Dispute Board Agreement

1 Definitions

Each “Dispute Board Agreement” is a tripartite agreement by and between:

(a) the “Employer”;
(b) the “Contractor”; and
(c) the “Member” who is defined in the Dispute Board Agreement as being the sole member of the “DB”.

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the “Contract” and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2 General Provisions

The Dispute Board Agreement shall take effect when the Employer, the Contractor and the Member have respectively each signed a dispute board agreement.

When the Dispute Board Agreement has taken effect, the Employer and the Contractor shall each give notice to the Member accordingly. If the Member does not receive either notice within six months after entering into the Dispute Board Agreement, it shall be void and ineffective.

This employment of the Member is a personal appointment. No assignment or subcontracting of the Dispute Board Agreement is permitted without the prior written agreement of all the parties to it.

3 Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Engineer. The Member shall promptly disclose, to each of them any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member’s representations that he/she is:

(a) experienced in the work which the Contractor is to carry out under the Contract,
(b) experienced in the interpretation of contract documentation, and
(c) fluent in the language for communications defined in the Contract.

4 General Obligations of the Member

The Member shall:

(a) have no interest financial or otherwise in the Employer, the Contractor or the Engineer, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;

(b) not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;

(c) have disclosed in writing to the Employer, the Contractor before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;

(d) not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except as may be agreed in writing by the Employer, the Contractor;

(e) comply with the annexed procedural rules and with Sub-Clause 20.4 of the Conditions of Contract;

(f) not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;

(g) not while a Member enters into discussions or makes any agreement with the Employer, the Contractor or the Engineer regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;

(h) ensure his/her availability for any site visit and hearings as are necessary; and

(i) treat the details of the Contract and all the DB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor.

5 General Obligations of the Employer and the Contractor

The Employer, the Contractor, the Employer's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DB's activities under the Contract and the Dispute Board Agreement, and except to the extent that prior agreement is given by the Employer and the Contractor. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the Contractor's Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor and the Member:

(a) be appointed as an arbitrator in any arbitration under the Contract;
(b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or
(c) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he/she is relieved from liability under the preceding paragraph.

6 Payment

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

(a) a daily fee shall be considered as payment in full for:

  (i) each working day spent for submissions, attending hearings (if any), preparing decisions, or making site visits (if any); and
  (ii) each day or part of a day up to maximum of two days' travel time in each direction for the journey (if any) between the Member's home and site or another location of a meeting with the Employer and the Contractor;

(b) all reasonable expenses incurred in connection with the Member's duties, including the cost of secretarial services, telephone calls, courier charges, faxes and telexes, travel expenses, hotel and subsistence costs; a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (a) of this Clause; and

(c) any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The daily fee shall be as specified in the Dispute Board Agreement.

Immediately after the Dispute Board Agreement takes effect, the Member shall, before engaging in any activities under the Dispute Board Agreement, submit to the Contractor, with a copy to the Employer, an invoice for (a) an advance of twenty-five (25) percent of the estimated total amount of daily fees to which he/she will be entitled and (b) an advance equal to the estimated total expenses that he/she shall incur in connection with his/her duties. Payment of such invoice shall be made by the Contractor upon his receipt of the invoice. The Member shall not be obliged to engage in activities under the Dispute Board

Agreement until the Member has been paid in full for invoices submitted under this paragraph.

Thereafter the Member shall submit to the Contractor, with a copy to the Employer, invoices for the balance of his/her daily fees and expenses, less the amounts advanced. The DB shall not be obliged to render its decision until invoices for all daily fees and expenses of the Member for making a decision shall have been paid in full.

Unless paid earlier in accordance with the above, the Contractor shall pay the Member's invoices in full within 28 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DB; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 28 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice to the Employer and the Contractor. The notice shall take effect when received by them both. Any such notice shall be final and binding on the Employer, the Contractor and the Member.

7 Default of the Member

If the Member fails to comply with any obligations under Clause 4, he/she shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member, for proceedings or decisions (if any) of the DB which are rendered void or ineffective.

8 Disputes

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity thereof, shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

Annex PROCEDURAL RULES OF ADHOC DISPUTE BOARD

1 The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the matter in dispute. All communications between the DB and the Employer or the Contractor shall be copied to the other party.

2 The DB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:

(a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and
(b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

3 The DB may conduct a hearing on the dispute, in which even it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

4 Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

5 The Employer and the Contractor empower the DB, among other things, to:

(a) establish the procedure to be applied in deciding a dispute,
(b) decide upon the DB's own jurisdiction, and as to the scope of any dispute referred to it,
(c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules,
(d) take the initiative in ascertaining the facts and matters required for a decision,
(e) make use of its own specialist knowledge, if any,
(f) decide upon the payment of financing charges in accordance with the Contract,
(g) decide upon any provisional relief such as interim or conservatory measures, and
(h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4 or as otherwise agreed by the Employer and the Contractor in writing.

Section IX. Annex to the Particular Conditions - Contract Forms

Table of Forms

Letter of Acceptance

[Insert letterhead paper of the Employer]

[Insert date]

To: *[Insert name and address of the Contractor]*

This is to notify you that your Bid dated *[insert date]* for execution of the New Bohol Airport Construction and Sustainable Environment Protection Project for the Accepted Contract Amount of the equivalent of Japanese Yen *[insert amount in words and figures]* and Philippine Peso *[insert amount in words and figures]*, as corrected and modified in accordance with the Instructions to Bidders, is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section IX, Annex to the Particular Conditions - Contract Forms, of the Bidding Documents.

Authorized Signature: _____
Name and Title of Signatory: _____
Name of Agency: _____

Attachment: Contract Agreement

[Option B: Two-Envelope Bidding]

Contract Agreement

THIS AGREEMENT made the *[insert day]* day of *[insert month]*, *[insert year]*, between Department of Transportation and Communications (hereinafter "the Employer"), of the one part, and *[insert name of the Contractor]* (hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as the New Bohol Airport Construction and Sustainable Environment Protection Project should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.

(i) the Letter of Acceptance;

(ii) the Letter of Technical Bid ;

(iii) the Letter of Price Bid

(iv) the addenda Nos *[insert addenda numbers, if any]* (if any);

(v) the Particular Conditions ;

(vi) the General Conditions;

(vii) the Specification

(viii) the Drawings*;*

(ix) the completed Schedules; and

(x) the Acknowledgement of Compliance with Guidelines for Procurement under Japanese ODA Loans.

For the purpose of interpretation, the priority of the listed documents shall be in accordance with the above listed order.

3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of the Republic of the Philippines on the day, month and year specified above.

Signed by _____

for and on behalf of the Employer
in the presence of

Witness, Name, Signature, Address, Date

Signed by _____

for and on behalf the Contractor
in the presence of

Witness, Name, Signature, Address, Date

Performance Security

Option 1: (Demand Guarantee)

[Insert Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[Insert name and Address of the Employer]*

Date: *[Insert date of issue]*

PERFORMANCE GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of the New Bohol Airport Construction and Sustainable Environment Protection Project (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*[insert amount in words]*),[1] such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for its demand or the sum specified therein.

This guarantee shall expire, no later than the *[insert the day]* day of *[insert month], [insert year]*[2], and any demand for payment under it must be received by us at this office indicated above on or before that date.

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[1] *The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.*

[2] *Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the*

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____
[signature(s)]

[Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.]

Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

Advance Payment Security

Demand Guarantee

[Insert Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[Insert name and address of the Employer]*

Date: *[Insert date of issue]*

ADVANCE PAYMENT GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that [*insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date of the contract]* with the Beneficiary, for the execution of the New Bohol Airport Construction and Sustainable Environment Protection Project (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum *[insert amount in figures]* (*[insert amount in words]*) is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*[insert amount in words]*)[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:

(a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or

(b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number *[insert number]* at *[insert name and address of Applicant's bank].*

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[1] *The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.*

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the *[insert day]* day of *[insert month]*, *[insert year]*,[2] whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____
[signature(s)]

[Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.]

[2] *Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

Retention Money Security

Demand Guarantee

[Insert Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[Insert name and Address of* Employer*]*

Date: *[Insert date of issue]*

RETENTION MONEY GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of the New Bohol Airport Construction and Sustainable Environment Protection Project (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of *[insert* the second half of the Retention Money *or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money,* the difference between half of the Retention Money and the amount guaranteed under the Performance Security*]* is to be made against a Retention Money guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*[insert amount in words]*)[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or show grounds for its demand or the sum specified therein.

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[1] *The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Beneficiary.*

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Applicant on its account number *[insert account's number]* at *[insert name and address of Applicant's bank]*.

This guarantee shall expire no later than the *[insert day]* day of *[insert month]*, *[insert year]*[2], and any demand for payment under it must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____
[signature(s)]

[Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.]

[2] *Insert the same expiry date as set forth in the Performance Security, representing the date twenty-eight days after the completion date described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*