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

September 2013

Japan International Cooperation Agency (JICA)

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

Exchange Rate of Currency

US$ 1.00 = ¥ 98.9

US$ 1.00 = PHP 43

PHP 1.00 = ¥ 2.3

Application Date: As of September 2013


CEBU
CEBU CITY
MACTAN
BOHOL
PHILIPPINES MAP
BOHOL
Rajah Sikatuna
National Park
Existing Airport
TAGBILARAN
PANGLAO
BOHOL SEA
DAUIS
PANGLAO
PANGLAO
Proposed New Bohol Airport
PANGLAO MAP

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List of Abbreviations

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A

AASHTO	**American Association of State Highway and Transportation Officials**
AAZ	**Aerodrome Advisory Zone**
ABC	**A: Common Combustibles, B: Flammable Liquids & Gas, C: Live Electrical Equipment**
AC	**Alternating Current**
ACB	**Ancillary Building**
ACC	**Area Control Center**
ACI	**American Concrete Institute**
ADM	**Administration Building**
A/G	**Air to Ground**
AGL	**Airfield Ground Lights**
AIP	**Airport Improvement Program**
AIS	**Aeronautical Information Service**
AISC	**American Institute of Steel Construction**
ALS	**Approach Lighting System**
AMSL	**Above Mean Sea Level**
AMHS	**ATS Message Handling System**
ANS	**Air Navigation Service**
ANSI	**American National Standards Institute**
ASCE	**American Society of Civil Engineer**
ASEP	**American Society of Exercise Physiologists**
ASTM	**American Society for Testing and Materials**
ATC	**Air Traffic Control**
ATS	**Air Traffic Service**
ATS	**Automatic Transfer Switch**
ATZ	**Aerodrome Traffic Zones**
AWOS	**Aeronautical Weather Observation System Specifications**

B

BAC	**Bid and Award Committee**
BBC	**Bohol Biodiversity Complex**
BCP	**Biodiversity Conservation Plan**
BEC	**Bohol Environmental Code**
BEMO	**Bohol Environment Management Office**
BEPO	**Bohol Employment and Placement Office**

BH	**Borehole**
BHS	**Baggage Handling Systems**
BICTU	**Bohol Information and Communications Technology Unit**
BISU	**Bohol Island State University**
BMT	**Bohol Marine Triangle**
BMS	**Building Management System**
BOD	**Biochemical Oxygen Demand**
BOHECO-I	**Bohol I Electric Cooperative, Inc.**
BOQ	**Bill Of Quantities**
BPG	**Bohol Provincial Government**
BSP	**British Standard Pipe**

C

CAAP	**Civil Aviation Authority of the Philippines**
CB	**Concrete Block**
CBR	**California Bearing Ratio**
CCC	**Climate Change Commission**
CCO	**Command and Control Office**
CCR	**Constant Current Regulator**
CCTV	**Closed Circuit Television**
CDM	**Clean Development Mechanism**
CFLs	**Compact Fluorescent Lamp**
CHATTO	**Communication HEAT-Bohol Activities & programs Thru Tri-media Outreach**
CHB	**Concrete Hollow Block**
CIQ	**Customs, Immigration and Quarantine**
CNC	**Certificate of Non-Coverage**
COD	**Chemical Oxygen Demand**
CPT	**Car Parks Toilet**
CRSI	**Concrete Reinforcing Steel Institute**
CTB	**Cargo Building**
CTO	**ATC Operation/Administration Building**
CTR	**Control Zone**

D

DA	**Department of Agriculture**
DAO	**Department Administrative Order**
DAR	**Department of Agrarian Reform**
DC	**Direct Current**

D/D	**Detailed Design**
DENR	**Department of Environment and Natural Resources**
DME	**Distance Measuring Equipment**
DNA	**Designated National Authority**
DOE	**Department of Energy**
DOT	**Department of Tourism**
DOTC	**Department of Transportation and Communications**
DPWH	**Department of Public Works and Highways**
DRL	**Drivers Lounge**

E

EAAA	**Eastern Asia Airport Alliance**
ECC	**Environmental Compliance Certificate**
ECP	**Energy Conservation Program**
EDCOM	**Effective Development Communication**
EDS	**Explosive Detection System**
EGF	**Environment Guarantee Fund**
EIA	**Environmental Impact Assessment**
EIAMD	**Environmental Impact Assessment Management Division**
EIS	**Environment Impact Statement**
EMB	**Environmental Management Bureau**
EMF	**Environment Management Fund**
EMP	**Environmental Management Plan**
EMMoP	**Environment Management Monitoring Plan**
EMoF	**Environmental Monitoring Fund**
EMoP	**Environmental Monitoring Plan**
EO	**Executive Order**
EPA	**Environmental Protection Agency**
EPIRA	**Electric Power Industry Reform Act**
EPRMP	**Environment Preliminary Management Plan**
EPS	**Electric Pipe Shaft**
ERC	**Energy Regulatory Commission**
ESCO	**Establish an Energy Service Company**
ETD	**Explosive Trace Detector**

F

FAA	**Federal Aviation Administration**
FADS	**Fire Alarm and Detection System**

FAF	**Final Approach Fix**
FAHU	**Fresh Air Handling Unit**
FCU	**Fan Coil Unit**
FIDIC	**International Federation of Consulting Engineers**
FIDS	**Flight Information Display System**
FIR	**Flight Information Region**
FiT	**Feed-in Tariff**
FOBS	**Flight Operation Briefing Service**
FOD	**Foreign Object Debris**
FRS	**Fire Rescue Station**
FS	**Feasibility Study**
FSM	**Fire Station and Airport Maintenance Building**
FSS	**Flight Service Station**

G

GCC	**General Conditions of Contract**
GDH	**Guard House**
GEMP	**Government Energy Management Program**
GHG	**Greenhouse Gas**
GIS	**Geographic Information System**
GOJ	**Government of Japan**
GOP	**Government of the Republic of the Philippines**
GPR	**Ground Penetration Radar**
GPS	**Global Positioning System**
GRM	**Grievance Redress Mechanism**
GS	**Glide Slope**
GSE	**Ground Service Equipment**

H

HDPE-EF	**High Density Polyethylene Electric-Fusion Joint**
HF	**High Frequency**
HID	**High Intensity Discharge**
HLURB	**Housing and Land USE Regulatory Board**
HVAC	**Heating Ventilation and Air-Conditions**
HWL	**High Water Level**

I

IAS	**Indicated Air Speed**

IATA	**International Air Transport Association**
ICAO	**International Civil Aviation Organization**
ICB	**International Competitive Bidding**
IEC	**Information Education and Communication**
IEER	**Initial Environment Evaluation Report**
IFR	**Instrument Flight Rule**
IGES	**Institute for Global Environmental Strategies, Japan**
ILS	**Instrument Landing System**
IMP	**Impact Management Plan**
IPCC	**Intergovernmental Panel on Climate Change**
IRR	**Implementation Rules and Regulations**

J

JCAB	**Japan Civil Aviation Bureau**
JCT	**Junction**
JICA	**Japan International Cooperation Agency**
JIS	**Japanese Industrial Standard**

L

LAN	**Local Area Network**
LCB	**Local Competitive Bidding**
LCC	**Low Cost Carrier**
LED	**Light Emitting Diode**
LGU	**Local Government Unit**
LLZ	**Localizer**
LPDA	**Log Periodic Dipole Antenna**
LPMT	**Local Project Management Team**
LV	**Low Voltage**
LWL	**Low Water Level**
LWUA	**Local Water Utilities Administration**

M

MC	**Memorandum Circular**
MDD	**Maximum Dry Density**
MDF	**Main Distribution Frame**
MEL	**Minimum En-route Altitude**
MET	**Meteorological Equipment**
METAR	**Regular Airport Weather Report**

MENRO	**Municipal Environment and Natural Resources Office**
MIAA	**Manila International Airport Authority**
MLGUs	**Municipal Local Government Units**
MMT	**Multi-partite Monitoring Team**
MNT	**Maintenance Building**
MOA	**Memorandum of Agreement**
MPDO	**Municipal Planning and Development Office**
MRF	**Material Recover Facility**
MSL	**Mean Sea Level**
MV	**Medium Voltage**
MWFRS	**Main Wind-Force Resisting System**

N

NAIA	**Ninoy Aquino International Airport**
NAPOCOR	**National Power Corporation**
NASA	**National Aeronautics and Space Administration in United States**
NAV	**Navaids Buildings**
NBADP	**New BOHOL Airport Development Project**
NCCAP	**National Climate Change Action Plan**
NCSP	**National Standard Code of Philippines**
NDB	**Non-Directional Beacon**
NEECP	**National Energy Efficiency and Conservation Program**
NEMA	**National Electrical Manufacturing Association**
NFPA	**National Fire Protection Association**
NGO	**Non-governmental Organization**
NGP	**National Greening Program**
NHA	**National Housing Authority**
NIPAS	**National Integrated Protected Areas System**
NPT	**National Pipe Thread**
NREB	**National Renewable Energy Board**
NREL	**National Renewable Energy Laboratory in United States**
NSCP	**National Structural Code of The Philippines**

O

OD	**Oxidation Ditch**
ODA	**Official Development Assistance**
OIC	**Office In Charge**
OM	**Operation Manual**

P

PABX	**Private Automatic Branch Exchange**
PAFs	**Project Affected Families**
PAGASA	**Philippine Atmospheric Geophysical and Astronomical Services Administration**
PAL	**Philippine Airline**
PALS	**Precision Approach Lighting System**
PAP	**Project Affected Person**
PAPI	**Precision Approach Path Indicator**
PBB	**Passenger Boarding Bridge**
PBD	**Philippine Bidding Documents**
PCA	**Philippine Coconut Authority**
PCCP	**Portland Cement Concrete Pavement**
PCO	**Pollution Control Office**
PD	**Presidential Decree**
PEC	**Philippine Electrical Code**
PEEP	**Philippine Energy Efficiency Project**
PEISS	**Philippines Environmental Impact Statement System**
PEMAPS	**Project Environmental Monitoring and Audit Prioritization Scheme**
PENRO	**Provincial Environment and Natural Resources Office**
PEO	**Provincial Environment Office**
PGB	**Provincial Government BOHOL**
PGSO	**Provincial General Services Office**
PI	**Plasticity Index**
PLC	**Programmable Logic Controller**
PLOMPCO	**Panglao Landowners Multi-Purpose Cooperative**
PMO	**Project Manager Office**
PNP	**Philippine National Police**
PNSDW	**Philippine National Standards for Drinking Water**
POs	**People's Organizations**
PPDO	**Provincial Planning and Development Office**
PPP	**Public Private Partnership**
PTB	**Passenger Terminal Building**
PV	**Solar Photovoltaic**
PVC	**Polyvinyl Chloride**
PWH	**Power House**

Q

QNH	**Altimeter sub-scale setting to obtain elevation when on the ground**
QFE	**Atmospheric pressure at aerodrome elevation**

R

RA	**Republic Act**
RAP	**Resettlement Action Plan**
RC	**Reinforced Concrete**
RCA	**Residual Containment Area**
RCP	**Reinforced Concrete Pipe**
REDL	**Runway Edge Light**
RENL	**Runway End Light**
REPF	**Renewable Energy Policy Framework**
RIV	**Rapid Intervention Vehicle**
RMMS	**Remote Maintenance and Monitoring System**
ROW	**Right Of Way**
RTHL	**Runway Threshold Light**
RVR	**Runway Visual Range**
RWY	**Runway**

S

SALS	**Simple Approach Lighting System**
SDP	**Social Development Plan**
SPECI	**Special Weather Report**
STEP	**Special Terms for Economic Partnership**
STFs	**Sewage Treatment Facilities**
STP	**Sewage Treatment Plant**
SWM	**Solid Waste Management Plan**

T

T-DME	**Terminal-Distance Measuring Equipment**
TDH	**Total Dynamic Head**
TEDL	**Taxiway Edge Light**
TXGL	**Taxiway Guidance Sign**
TLB	**Toll Booths**
TMA	**Terminal Control Area**
TOR	**Terms of Reference**
TTC	**Telephone Terminal Cabinet**

TRCV	**Transceiver**
TWG	**Technical Working Group**
TWY	**Taxiway**

U

UBC	**Uniform Building Code**
UL	**Underwriter Laboratories, Inc.**
ULB	**Utility Buildings**
UNCSD	**United Nations Commission on Suitable Development**
UNFCCC	**United Nations Framework Convention on Climate Change**
UPS	**Uninterruptible Power Supply**
u-PVC	**Unplasticised Polyvinyl Chloride**

V

VAT	**Value Added Tax**
VCCS	**Voice Communication Control System**
VFR	**Visual Flight Rule**
VHF	**Very High Frequency**
VOR	**VHF Omnidirectional Radio Range**
VRF	**Variable Refrigerant Flow**
VSAT	**Very Small Aperture Terminal**

W

WARM	**Waste Reduction Model**
WBRL	**Wing Bar Light**
WDIL	**Wing Direction Indicator Light**
WDPDS	**Weather Data Processing and Display System**
WECPNL	**Weighted Equivalent Continuous Perceived Noise Level**
WMO	**World Meteorological Organization**
WPH	**Water Tank and Pump Houses**
WT	**Water Tank**

CHAPTER 1

BACKGROUND OF THE PROJECT

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Chapter 1 Background of the Project

1.1. Precedents

Due to the archipelago geography that consists of 7,000 or more islands, the Government of the Republic of the Philippines (GOP) has continued its effort to establish safe and capable nationwide aviation network to enhance nation's socio-economic activities along with international standards and practice.

At the existing Tagbilaran Airport, the capital airport of Bohol Province in the Central Philippines, the air passenger demand has been dramatically increased from 39 thousand in 2001 to 572 thousand in 2010, and further increased to 755 thousand in 2011 with an average annual growth rate of more than 30 %. This is mainly because the runway at the existing Tagbilaran Airport was extended in 2002, upon which jet aircraft (B737, A320) operations were commenced, and lately LCCs offer daily 9 round trips of 80-minutes air services to/from Manila with less fare than 30-hours ferry services.

The existing Tagbilaran airport is situated right in the middle of downtown, where numerous housings exist in close proximity to the runway, operations are allowed only with visual flight rule (VFR) thus often cancelled when cloudy, narrow apron (with 2 aircraft stands) deeply encroaches into the runway strip, hilly terrain jeopardizes aircraft approach to the runway, there are no control tower nor air navigation facilities, all facilities are obsolete and not in accordance with even minimum safety requirements. Hence, GOP plans to construct a new Bohol Airport to meet international standard in Panglao Island since 1990's. In the past, feasibility studies had been made twice in 2000 and 2007, and a detailed engineering was conducted once by a local consultant in 2009. However, the locally-funded bidding was not successful presumably due to lack of finance and/or the national election in 2010.

In 2010, the new Aquino Administration of GOP defined the New Airport Construction Project being one of the priority infrastructure development projects to be implemented under Public Private Partnership (PPP), and requested technical assistance from Japan International Cooperation Agency (JICA). In response, JICA conducted from April 2011 to August 2012, a "Preparatory Study" for the New Bohol Airport Construction and Sustainable Environment Protection Project (from herein after called the "Project").

The Preparatory Study has concluded that is possible to financially attract private investors to build and operate such local airport of mainly domestic operations. Hence, the GOP decided that the Project would be implemented through a "public-build and private-operate scheme", as the most doable PPP scheme.

In 2012, Civil Aviation Authority of the Philippines (CAAP) restricted the aircraft operations during the time in which one aircraft stands in the apron because it is situated

within the runway strip. This is an appropriate solution for the sake of aircraft operational safety, but in return the existing airport has become no longer capable of accommodating further demand increase. Hence construction of the new Bohol Airport at the earliest possible time frame is earnestly sought by every party concerned.

In the end of 2012, upon request from the GRP, a STEP Loan for the New Bohol Airport Construction was pledged by the Government of Japan (GOJ), and Loan Agreement for the Project was engaged between the GOP and JICA on 27th March 2013.

JICA has granted this Detailed Design Study for the Project, and further started to dispatch another Consultants' team to conduct a multi-year technical assistance program to preserve natural environment in the vicinity.

In the meantime, the GOP, through Department of Transportation and Communications (DOTC), has started by its own fund, the following activities

a) From February 2013, additional geotechnical and topographic surveys, the results are considered in this report

b) Bidding announcement in April 2013 of local bidding for Preparatory Works (boundary fence, clearing and grubbing of construction site)

c) Bidding announcement in June 2013, of local bidding for construction of external water supply piping network, which detailed design and bidding documents were prepared earlier through the course of this JICA Study

d) Preparation of local bidding for embankment of perimeter of soaking yard

e) Miscellaneous activities for finalization of land acquisition and resettlement of project affected families (PAFs), including negotiation and information disseminations

1.2. Roles tasked in the New Airport Construction

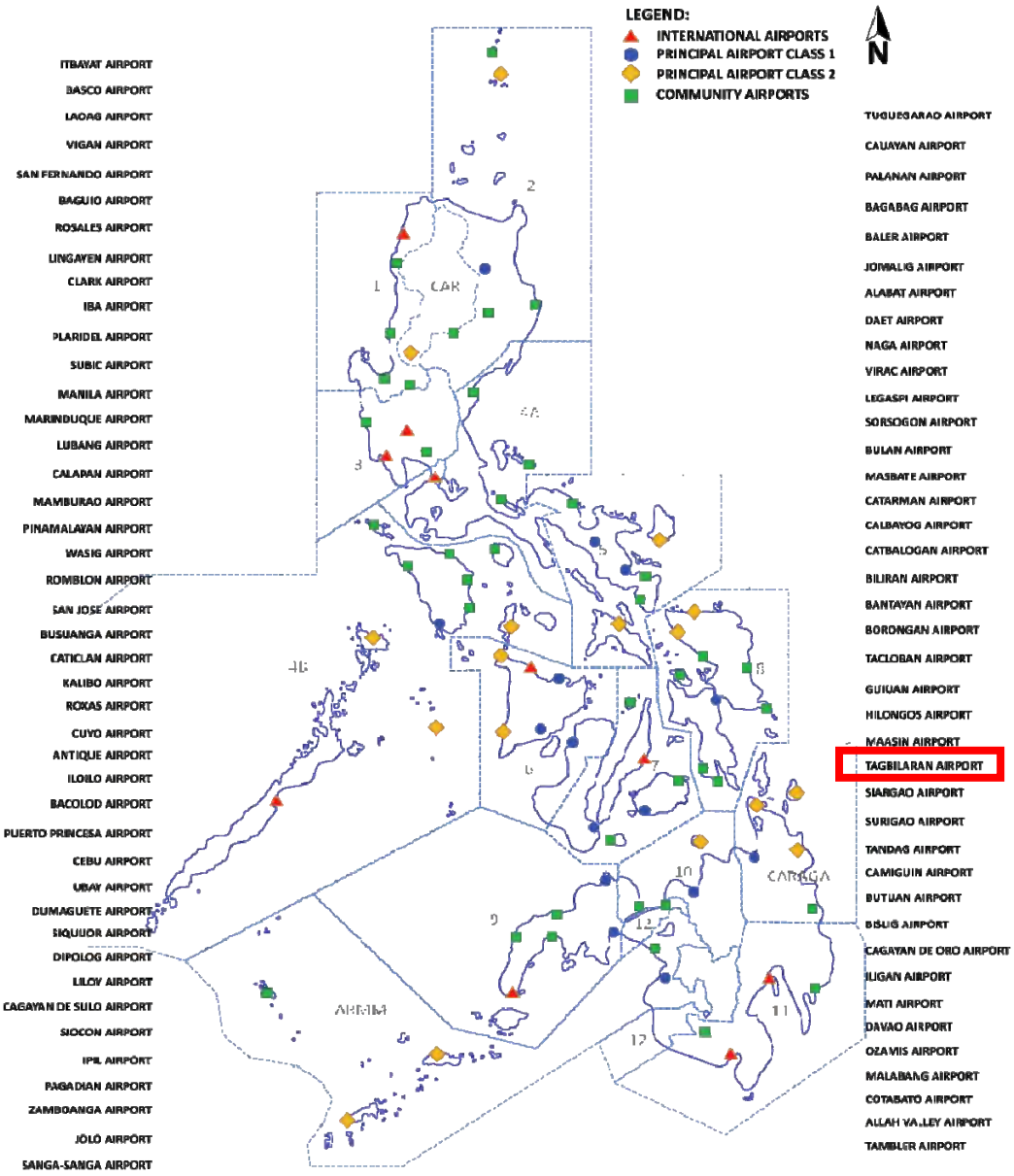
Owing to the inherent natural resources in Bohol Province and due to global concerns on sustainable environmental protection with energy conservation, the new Bohol Airport to be constructed under financial assistance of Japan is desired to deserve the status of "Eco-airport".

The following elements of "Eco-airport" are mainly incorporated in the Detailed Design, and are described in the respective chapters indicated as follows:

a)	Airport drainage should not cause ocean contamination:	Chapter 4.4.2~3
b)	Beautiful landscaping to regulate CO2 emission:	Chapter 4.6.2
c)	Recycling of sewerage treated water for landscaping:	Chapters 4.6.3 / 5.3.2 (5)
d)	Natural ventilation for short dwelling-time passengers:	Chapter 6.1.1 (5)
e)	Adoption of renewable energy (solar panel on the roof):	Chapters 5.2.4 / 6.1.1 (5)
f)	Energy-saving type air condition system:	Chapter 6.1.3 (2)
g)	Solar water heater:	Chapter 6.2.3 (1)
h)	LED lighting:	Chapter 6.1.2 (2)
i)	Universal Design:	Chapter 6.1.2 (4)

1.3. Air Transportation in the entire Philippines

Locations of the airports in the entire Philippines are shown in Figure 1.3-1.



Note

10 International Airport: accommodating scheduled international flights, with CIQ facilities
15 Principal Airport Class 1: accommodating scheduled domestic flights of jet aircraft
17 Principal Airport Class 2: accommodating scheduled domestic flights by turbo-prop aircraft
41 Community Airport: to accommodate commuter and/or general aviation flights

Source: CAAP

Figure 1.3-1 Location of Airports in the entire Philippines

There are 83 airports in the Philippines, from which 10 are designated as international airports, 15 as principal airports class 1, 17 as class 2, and 41 as community airports.

The chronological changes in the nationwide air traffic volumes in the Philippines are shown in the Table below.

Table 1.3-1 Nationwide Air traffic record in the Philippines

Year	Total Passenger Movement	Total Cargo Movement (in Kgs.)	Total Aircraft Movement
1992	13,768,005	381,138,752	412,460
1993	15,090,872	415,638,687	370,833
1994	16,468,004	428,203,923	407,986
1995	17,730,347	488,366,467	446,755
1996	19,864,800	526,277,040	495,273
1997	22,756,438	680,670,144	528,612
1998	19,444,029	502,131,976	365,816
1998	19,444,029	502,131,976	365,816
1999	20,279,201	510,628,738	468,756
2000	20,592,932	553,168,592	472,140
2001	19,329,924	505,665,011	357,689
2002	20,606,090	549,720,662	409,308
2003	20,232,889	526,869,575	372,666
2004	23,634,313	590,505,446	358,725
2005	24,675,383	590,989,124	329,336
2006	26,684,128	531,180,991	286,181
2007	34,209,248	642,542,728	607,837
2008	36,044,167	534,377,275	562,818
2009	39,139,222	480,636,808	591,540
2010	41,872,041	561,614,178	612,826
2011	52,632,261	597,839,975	754,534
2012	58,836,216	671,511,124	835,778

Source: Civil Aviation Authority of the Philippines (CAAP)

The Table shows that air traffic in the Philippines has kept increasing remarkably for the past 5 years. The number of air passengers increased from 34.2 million in 2007 to 58.8 million in 2012 with an average annual growth of 11.5 %. The aircraft movements increased from 608 thousand in 2007 to 836 thousand in 2012 with an average annual growth of 6.6 %, while the air cargo volumes for the past decade remained fairly constant and stayed between 500 thousand to 670 thousand tons.

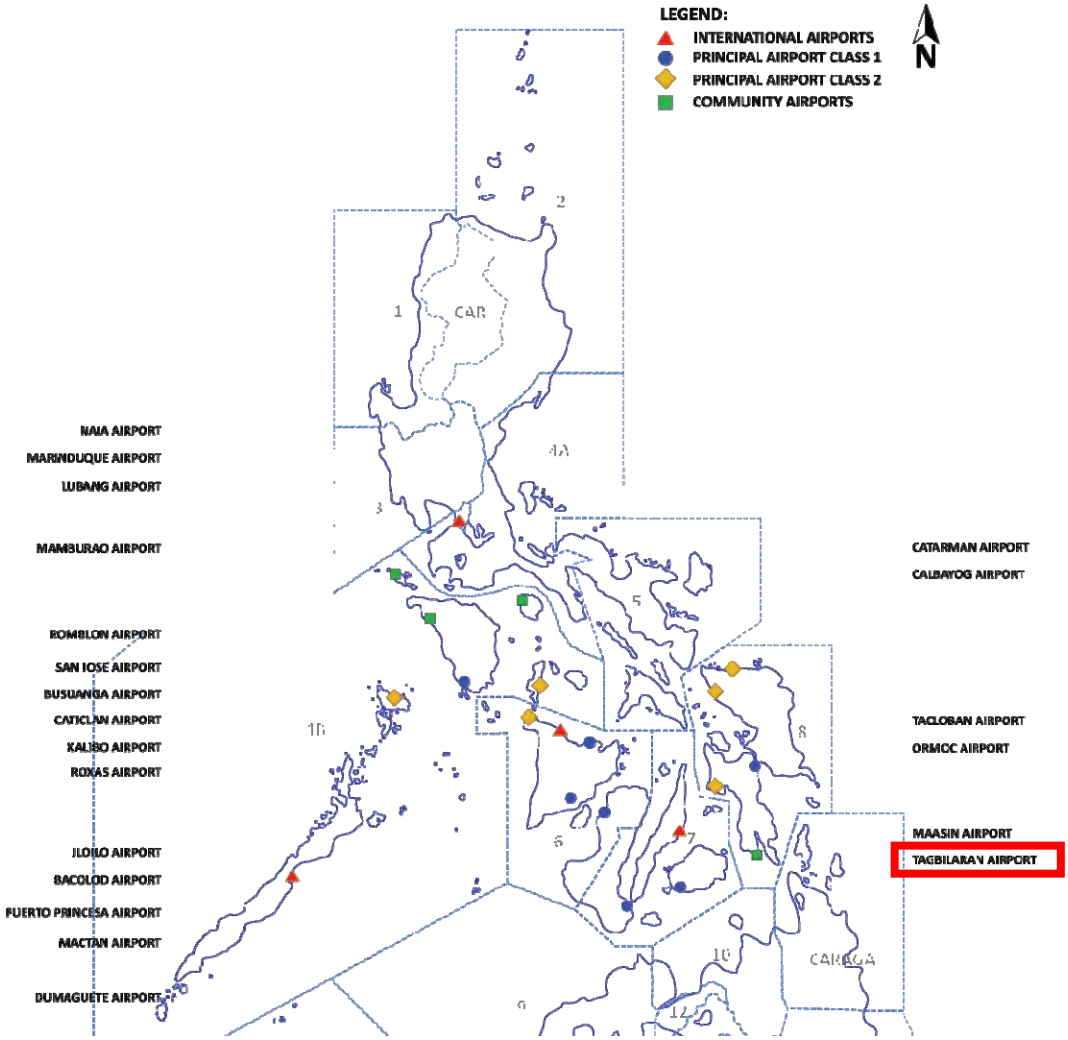
At the nation's premier airport, Ninoy Aquino International Airport (NAIA), 14,139 thousand international, 17,739 domestic, and 2,011 general aviation passengers (i.e. total of 33,890 thousand passengers) and 461,550 thousand tons of Cargo were handled in 2012 by thirty-one (31) foreign airlines and five (5) domestic airlines; which is equivalent to 60 % of nation's total passengers and 70 % of cargoes.

The total annual aircraft movements at NAIA in 2012 of 273 thousand (i.e. nearly 800 operations a day, or 65 operations in a peak hour) have most probably reached the physical operational capacity of the two runways of closed configuration at NAIA. Being aware that Manila is almost 80% of the origin/destination of the flights to/from local major airports situated especially in the Central or Southern Philippines, development of alternate capital airport in Manila region is essentially required.

1.4. Air Transportation in the Central Philippines

In the Central Philippines, there are a total of 20 airports, in which 3 airports are designated as international airport (Mactan, Puerto Princesa and Kalibo), 7 as principal airports Class 1, 6 as Class 2 and 4 airports are designated as community airports.

The locations of these 20 airports are shown in Figure 1.3-1.



Note

3 International Airport: accommodating scheduled international flights, with CIQ facilities

7 Principal Airport Class 1: accommodating scheduled domestic flights of jet aircraft

6 Principal Airport Class 2: accommodating scheduled domestic flights by turbo-prop aircraft

4 Community Airport: to accommodate commuter and/or general aviation flights

Source: CAAP

Figure 1.4-1 Location of Airports in the Central Philippines

Among these 20 airports in the Central Philippines, 13 airports are located in “Visayas”, namely, 2 international airports (Mactan, Kalibo), 6 principal airports Class 1 (Iloilo,

Bacolod, Tacloban, Tagbilaran, Dumaguete, Roxas), 4 Class 2 airports (Caticlan and others), and 1 community airport.

Table 1.4-1 shows the past domestic traffic record (2001 to 2012) for aircraft movements and air passengers at the 10 major airports in the Central Philippines.

Table 1.4-1 Domestic Air Traffic Record at major 10 Airports in the Central Philippines

Region	IVb	VI					VII			VIII	Total
Island	Palwan	Panay				Negros		Cebu	Bohol	Leyte	
Airport	Puetro Princesa	Caticlan	Kalibo	Roxas	Iloilo	Bacolod	Dumaguete	Mactan (Cebu)	Tagbilaran	Tacloban	
Runway	2650 m	834 m	2187 m	1890 m	2500 m	2000 m	1845 m	3300 m	1779 m	2138 m	
Population	892,660	495,122	515,265	701,664	2,261,826	2,869,766	1,231,904	3,850,989	1,230,110	724,240	
Aircraft	A330	DH3	A320	A320	A320	A320	A320	A330	A320	A320	
Annual Domestic Aircraft Movemants											
2001	2,695	7,512	5,264	1,440	13,425	8,032	2,184	24,047	1,154	6,448	72,201
2002	2,000	11,124	5,796	1,440	17,864	7,052	2,164	26,005	2,134	6,708	82,287
2003	2,792	11,426	2,858	1,438	17,412	6,680	2,540	24,541	1,920	6,367	77,974
2004	3,170	14,242	5,938	1,460	17,736	6,904	2,162	23,892	1,816	6,500	83,820
2005	3,232	19,172	2,822	1,182	8,224	6,114	1,922	24,219	2,262	4,046	73,195
2006	2,914	18,880	3,398	1,230	8,232	6,188	1,898	23,977	2,194	4,432	73,343
2007	3,352	18,662	4,307	1,142	9,070	7,782	2,690	25,895	2,810	4,186	79,896
2008	4,012	23,362	3,486	1,288	9,366	8,510	2,714	25,113	3,300	5,032	86,183
2009	6,292	19,875	3,888	1,822	12,136	9,676	2,630	37,311	4,478	8,912	107,020
2010	7,368	24,516	7,774	1,558	16,034	15,780	3,048	38,397	4,664	7,616	125,269
2011	8,484	17,288	8,946	1,482	18,520	12,106	3,530	43,719	6,512	7,391	127,978
2012	12,046	15,952	12,326	2,024	18,176	11,674	5,380	48,496	7,332	9,816	143,222
Annual Domestic Passengers											Total
2001	188,713	162,786	236,968	86,915	696,587	534,832	137,334	1,860,461	39,268	297,878	4,241,742
2002	147,000	196,315	274,560	81,804	676,015	512,240	134,877	1,733,273	76,314	302,281	4,134,679
2003	194,176	234,911	229,068	84,552	681,360	522,395	152,316	1,850,453	104,934	308,454	4,362,619
2004	267,507	392,484	267,172	100,550	739,494	572,666	173,496	1,947,057	159,073	345,668	4,965,167
2005	284,042	519,349	239,851	102,183	708,469	562,062	162,915	2,263,777	196,707	327,912	5,367,267
2006	306,607	516,631	341,097	119,944	863,018	663,882	188,465	2,467,517	240,176	398,909	6,106,246
2007	388,083	545,015	511,051	133,418	1,001,273	782,573	275,991	2,985,695	344,068	510,683	7,477,850
2008	477,293	793,478	381,436	153,488	1,073,788	840,711	306,182	2,940,830	398,661	626,856	7,992,723
2009	584,232	797,312	500,713	188,237	1,324,148	1,044,623	360,360	3,835,163	561,774	892,856	10,089,418
2010	822,358	672,919	754,372	203,840	1,581,304	1,218,213	362,551	4,206,651	572,476	1,148,728	11,543,412
2011	986,775	729,661	830,783	189,220	1,707,937	1,345,195	410,165	4,582,241	754,911	1,008,552	12,545,440
2012	1,322,925	595,564	1,116,006	217,466	1,854,427	1,018,137	450,986	5,195,125	734,045	1,149,592	13,654,273
Increase from 2001 to 2012	701%	366%	471%	250%	266%	190%	328%	279%	1869%	386%	322%
average annual growth from 2001 to 2012	19%	13%	15%	9%	9%	6%	11%	10%	30%	13%	11%
average Pax onboard (2012)	110	37	91	107	102	87	84	107	100	117	95

Source: JICA Study Team

The Table shows extraordinary growth of domestic air traffic in the Central Philippines. Particularly for the 5 years since 2005, the total volume of domestic passengers at these

10 airports has drastically increased from 4.3 million in 2001 to 13.7 million in 2012, and the total number of domestic aircraft movements has increased from 72 thousand in 2001 to 143 thousand in 2012.

The Table also shows that the numbers of domestic passengers at airports in Visayas were dramatically increased with an average annual growth of more than 10 %.

1.5. Current Situation of the Exiting Bohol-Tagbilaran Airport

1.5.1. General

The existing Tagbilaran Airport is situated right in the middle of downtown, where numerous housings exist in close proximity to the runway, narrow apron (with 2 aircraft stands) deeply encroaches into the runway strip, hilly terrain jeopardizes aircraft approach to the runway, there are no control tower nor air navigation facilities, all facilities are obsolete and not in accordance with even minimum safety standard.

The Table 1.5-1 shows the general information of Tagbilaran Airport.

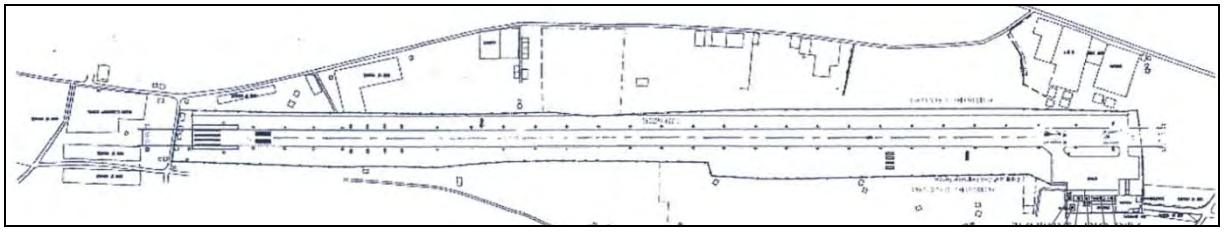
Table 1.5-1 General Information of Tagbilaran Airport

Item	Description
City / Aerodrome	TAGBILARAN National Airport
Domestic or International	Domestic
ICAO Reference Code	3C
Airport Reference Point	Long. 123°51’13.0665’’E, Lat. 09°39’51.088’’N
Elevation	11.52m (38 FT) AMSL
Reference Temperature	28 degree Celsius
Operational Hours	0600 to 1800 (Local time)
Administered by	Civil Aviation Authority of the Philippines (CAAP)

Source: JICA Study Team

1.5.2. Airside Facilities

Figure 1.5-1 and Table 1.5-2 shows layout and configuration of airside facilities.



Source: JICA Study Team

Figure 1.5-1 Airfield Layout of Tagbilaran Airport

Table 1.5-2 Airfield Facilities at Tagbilaran Airport

Item		Description
Runway	Direction Length Width Pavement Runway strip	17/35 1,779 m. 30 m. PCCP Width : 50 m. on both side, Length: 1,842.3 m.
Taxiway	-Configuration Width Pavement	2 Connections with Apron 21 m. PCCP
Apron	Configuration Aircraft stands Parking Area Pavement	Passenger loading apron 2 x A320 Self maneuvering 126 m. x 40 m. (5,040 sq.m.) PCCP

Source: JICA Study Team

1.5.3. Landside Facilities

The existing landside facilities of Tagbilaran Airport consist of a passenger terminal building with car parking area, FSS building, fire station and power house. The configuration of the existing landside facilities is shown below in Table 1.5-3.

Table 1.5-3 Landside facilities at Tagbilaran Airport

Building	Area	Description	
Passenger terminal building	Public area	Departure area	10 Check-In counters for the followings: • Philippines Airline • CEBU Pacific Airline • AIRPHIL-Express Airline • ZEST Airline
			3 X-Ray's located at departure area. • Operating one X-Ray only • 2X-Rays (Out of Commission)
		Arrival area	Baggage loading area. • Baggage Handling System
	Restricted area	CAAP office	• Administrator staff • Aerodrome operation staff
		Airport manager's room	• Airport Manager • Secretary
		PASCOM (PNP)	• Airport Police staff
	Private area	Car parking	• Limited to 30 cars
		Concessionaire	20 Concessionaire as follows; • The Peacock Garden Luxury Resort and Spa • Island City Mall • BOHOL Quality Corp. • BOHOL Coconut Palm Resort • BOHOL Beach Club

			• La Construction Paradise Beach Resort • BOHOL Tropics Resort Corporation • Agricultural Promotion Centre • The Artist Shop Comp. Inc • Virginia Dumapias • Cionverge • Jocelyn Putian • Philippine Airline • CEBU Pacific Airline • ZEST Airline • AIRPHIL-Express Airline • SKYCAP • Airport Tricycle Driver Association • RAMER for Car and Van for hire • MPC for Car and Van for hire BIOD
FSS building	Restricted area	Rooftop	Radio communication facility • VHF antenna
		VFR room	Radio communication console • Aerodrome console • Fixed communication console • Flight data console
		Equipment room	Radio communication equipment • VHF Transmitter equipment • VHF Receiver equipment • HF Transceiver equipment • Voice communication control system • Voice recording system
		CAAP office	• Air traffic service staff • Air navigation operation staff
Fire station		Office	• Fire man staff
		Garage	• Fire major vehicle • Rapid intervention vehicle
Power house		Engine generator room	• Engine generator • Power receiving system
		Office	• Air navigation operation staff

Source: JICA Study Team

1.5.4. Air Navigation Facilities

The airport commenced its operation without radio navigation aids. These were never provided except for visual aids facilities. The existing radio facilities consist of VHF AM, VHF FM, HF SSB, voice communication control system and voice recording system in the ATS and telecommunication system, which is supporting the air traffic advisory service. The configuration of existing ATS and telecommunication system, meteorological facilities and aeronautical ground lights are shown below in Tables 1.5-4 to 6.

Table 1.5-4 ATS and Telecommunication

Item		Description
Air to ground communication system	VHF AM 122.2MHz	Configuration of VHF radio communication • 50W VHF AM transmitter equipment • VHF AM receiver equipment • 5W VHF AM transceiver equipment
Ground to ground communication system	VHF FM	Configuration of VHF radio communication • 5W VHF FM transceiver equipment • 5W VHF FM portable transceiver
Point to point communication system	HF SSB 5205KHz and 3872.5KHz	Configuration of HF SSB radio communication • 100W HF SSB transceiver equipment
Radio, intercom & telephone line control system	Control system	Configuration of control system • Voice communication control system • Voice recording system
Air traffic advisory service	Service console	Configuration of console • Aerodrome console • Fixed communication console • Flight data console

Source: JICA Study Team

Table 1.5-5 Meteorological Facilities

Item		Description
Aerodrome weather information	Meteorological facilities	Configuration of meteorological facilities • Wind speed sensor • Wind direction sensor • Temperature sensor • Barometric pressure sensor • Operational status monitor

Source: JICA Study Team

Table 1.5-6 Aeronautical Ground Lights

Item		Description
Visual aids for navigation	Aeronautical ground lights	Configuration of aeronautical ground lights • Runway edge light • Runway threshold and wing bar light for both sides • Runway end light for 17 side • Taxiway edge light for North side • PAPI for both sides

Source: JICA Study Team

1.5.5. Flight Information Advisory Service by CAAP

(1) General

ATS airspace classification of Tagbilaran Airport is “G” which is prescribed in ICAO Annex 11. It is not an air traffic control service but an aerodrome information advisory

service for aircrafts which are on the airfield ground or flying over within 5NM radius from the airport reference point and vertical limits with an altitude of less than 2,000 ft. The flight procedure for the airport is only VFR flight and no vertical separation is established. The service has been operated by Civil Aviation Authority of the Philippines (CAAP).

The operation hour of aerodrome information advisory service is from 06:00 to 18:00 local time. The advisory service is ordinarily carried out by two radio communicators; and in total six radio communicators are stationed for the airport advisory service with morning and afternoon shifts.

The following is particular information related to the flight information advisory service at Tagbilaran Airport as noted during the site observation:

a) Mainly inform aircraft pilots of the airport status such as the weather condition, landing /departure runway, etc.

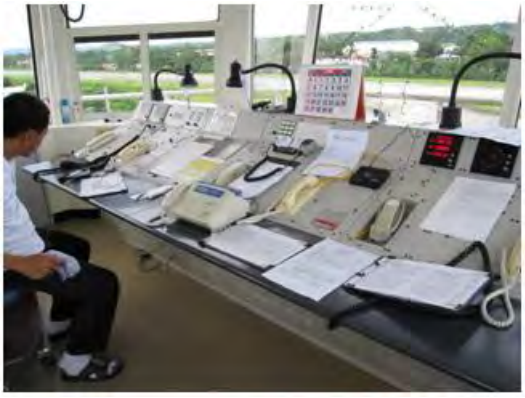
b) Initial contact with aircraft starts around 10NM from the airport. (There are cases that pilot requests airport weather conditions when they are flying on en-route around 100~130 NM from the airport.)

c) FSS receives ATC Clearance for flight plan from Mactan ACC via Mactan Radar indirectly due to no establishment of direct hot line between the FSS and Mactan ACC.

d) Phraseology of advisory service for aircraft's landing and taking-off is "YOU MAY LAND/TAKE-OFF" instead off "Cleared to Land/Cleared for Take-off".

e) FSS staff is called "Communicator" not ATC controller, however they have an ATC Controller certificate.

FSS Tower in Tagbilaran Airport

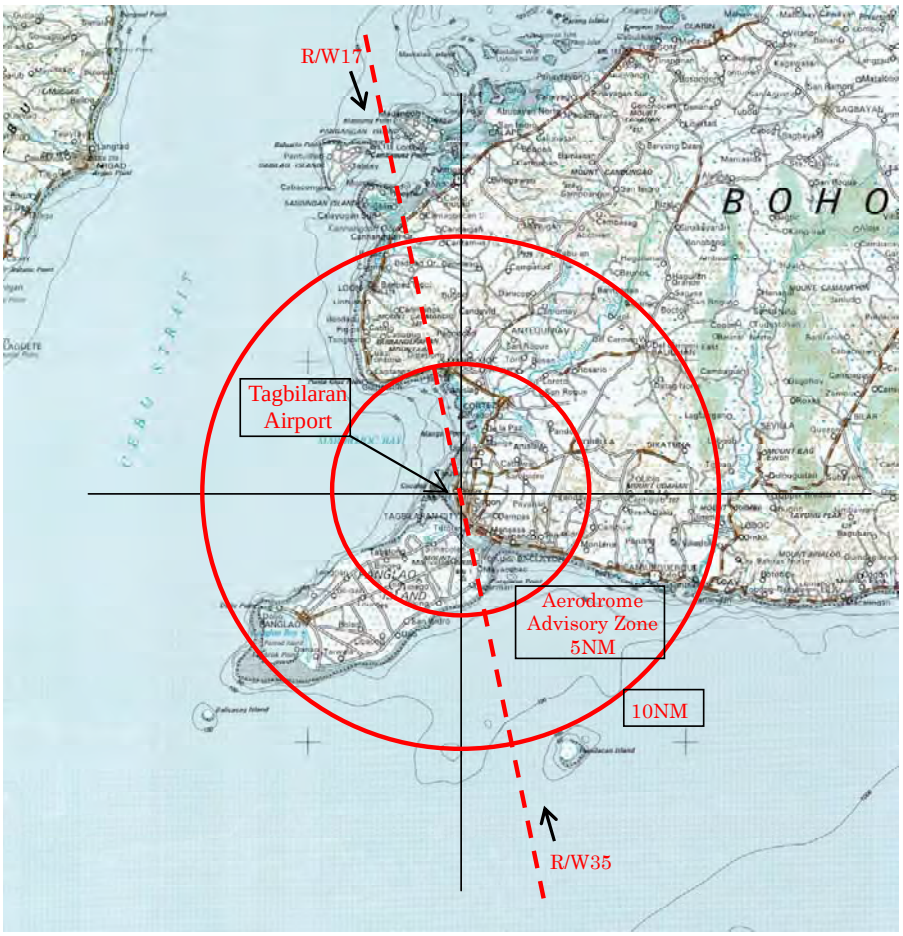


FSS Console inside of Tower

Figure 1.5-2 FSS Tower and VFR Room at Tagbilaran Airport

(2) Topography and Aircraft Operation

Figure 1.5-3 shows a general topographical map around Tagbilaran Airport marked with a distance approximately 10NM radius from the airport reference point. Regular flights for the airport are only to and from Manila. In addition there are some general aviation flights such as private & training flights by flying schools which are facilitated at Mactan and Dumaguete Airports. The number of general aviation flights at the airport is around 80~100 flights per month.



Source: JICA Study Team

Figure 1.5-3 Topography around Tagbilaran Airport

According to the information provided by the FSS staff, the following obstacles such as hills or mountains that the pilots have to pay attention to for their aircraft operations are located around Tagbilaran Airport:

a) Mountains with a height of around 1,500 ft. are located at 5 NM north of the airport

b) Hills with a height of around 650 ft. are located at 3.5 NM south of the airport

c) Buildings on the hills are located at 2 km south of the airport

d) There is an antenna tower for cell-phone base station in the vicinity of the airport

e) Many trees and residential houses are close to the airport boundary

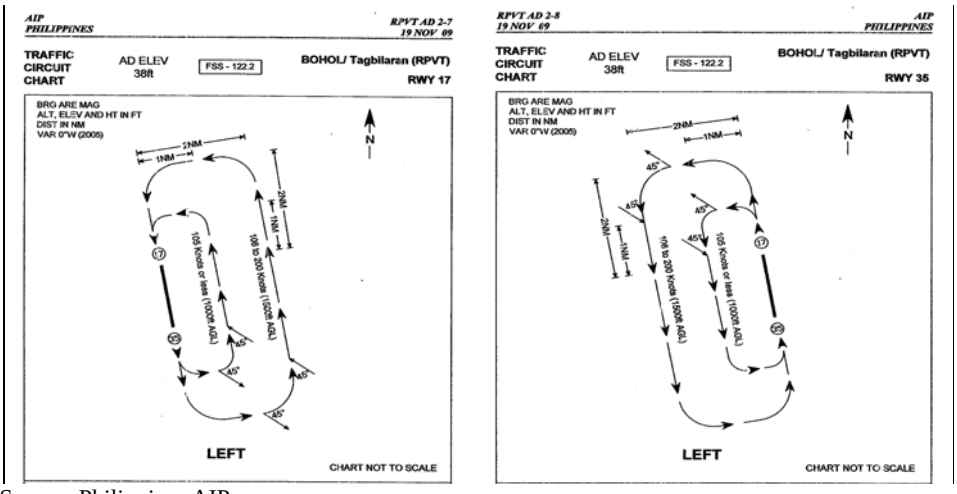
R/W17Approach direction

R/W35Approach direction

Figure 1.5-4 Runway 17 and Hilly Terrain for Runway 35 Approach

(3) Flight Procedure

There are no radio navigational aids such as ILS, VOR/DME or NDB for the airport, so that VFR traffic circuits are only established as left hand pattern for approach and departure procedure, which is prescribed in the airport's AIP. During the site observation, however, an Airbus 320 from Manila executed its approach to R/W 17 via the Right Base to Final course (right hand pattern) based on the pilot's observation.



Source: Philippines AIP

Figure 1.5-5 Approach/Departure Traffic Circuit Chart for Tagbilaran Airport

The VFR flight procedures for Tagbilaran Airport are as follows:

a) Arriving aircraft shall enter the traffic circuit on the downwind leg at an angle of 45 degrees; and

b) Departing aircraft shall follow the traffic circuit after passing the aerodrome boundary; and then leave the circuit at an angle of 45 degrees from the crosswind leg.

(4) Airspace Restrictions

Restricted, prohibited and danger areas, such as military/training activities and hazardous features which affect airspace usage or aircraft operations, are presently not established around the Tagbilaran Airport area.

1.5.6. Problem of the existing Tagbilaran Airport

(1) Current Restriction

Current situations and problems at the existing Tagbilaran Airport are summarized in Table 1.5-7.

Table 1.5-7 Situation and Problem at Tagbilaran Airport

	Runway Strip	It does not meet the requirement for ICAO Code3, i.e. 150 m (75 m on both side) in case of non-instrument landings.
	Runway length	Due to lack of stop-way and runway-end-safety area (ICAO requires minimum of 150 m in total) on both ends of the runway, effective runway length is considerably shorter than the announced 1790 m (e.g. only some 1500m is available), which could have endangered passengers' life safety and/or imposed payload restriction on predominant aircraft (A320) from the operators safety point of view.
	Passenger Terminal	It situates too close to the runway, where aircraft parking on the apron falls inside the non-instrument runway strip, and not cleared from the runway transitional surface.
	Apron Spot	There are two (2) aircraft stands parking to face uni-direction in tandem position without bypass taxiing lane. This first-come-first-serve basis parking style is observed in the morning peak-hour to causes the 3rd aircraft on hold in the air until the 2 stands have been vacated.
	VFR approach operations	Visual Flight Rule (VFR) approach is only applied for aircraft operations. Instrument Flight Rule (IFR) approach cannot be provided unless northern high mountains are removed.
	Possibility for Expansion	Densely-populated housing and commercial area exist in close proximity. Further expansion, if required, would spend considerable cost and time for acquisition of ROW, replacement and resettlement.

Source: JICA Study Team

The above table shows that the Tagbilaran Airport is suffered from serious infirmity in its current infrastructure.

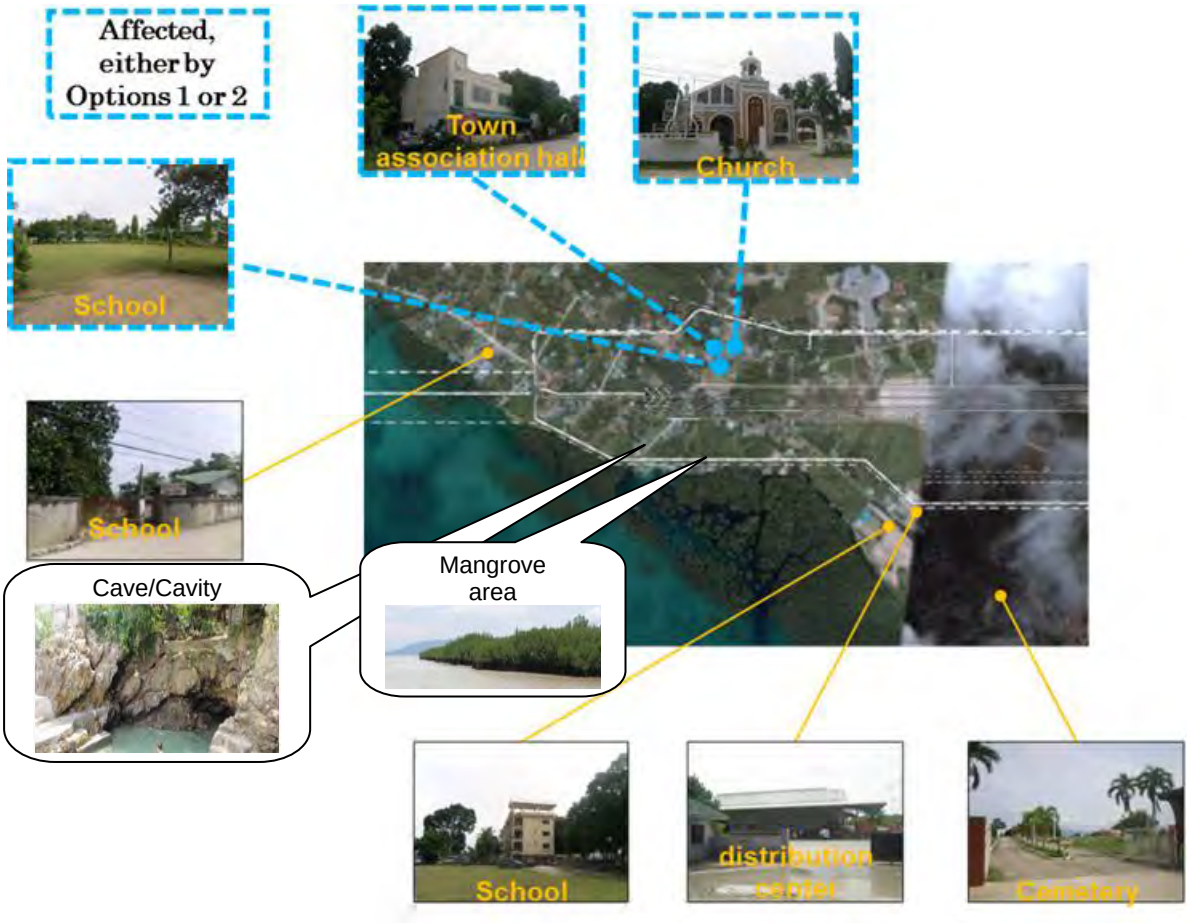
Features of the existing Tagbilaran Airport are explained in the Photo below:

<table>
<tr><td>  </td><td> 
</td></tr>
<tr><td>Adequate width of runway strip and runway-end-safety area is not provided
densely populated housings are observed under aircraft wing just before landing on Runway 35</td><td>Runway-end safety area is not provided
stiff slope immediately before the Runway 35 threshold can be observed</td></tr>
<tr><td colspan="2"> 
</td></tr>
<tr><td colspan="2">Densely-populated housings are located inside the non-instrument runway strip
Stiff slope exists before the Runway 35 threshold</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Pre-departure area is fully crowded
No room for passengers even to stand when 2 departures are simultaneously operated in peak hours</td><td>Apron locates inside the runway strip
Passengers walking along the narrow apron crossing with ground handling operations and/or occasionally aircraft full blast winds</td></tr>
</table>

Source: JICA Study Team

(2) Properties for Possible Demolition and Replacement; if operations continue

If operations at Tagbilaran Airport are continued, the properties affected thus requiring acquisition of ROW, demolition and replacement/ resettlement of the residents are shown in Figure 1.5-6.



Source: JICA Study Team

Figure 1.5-6 Properties affected by Tagbilaran Airport development

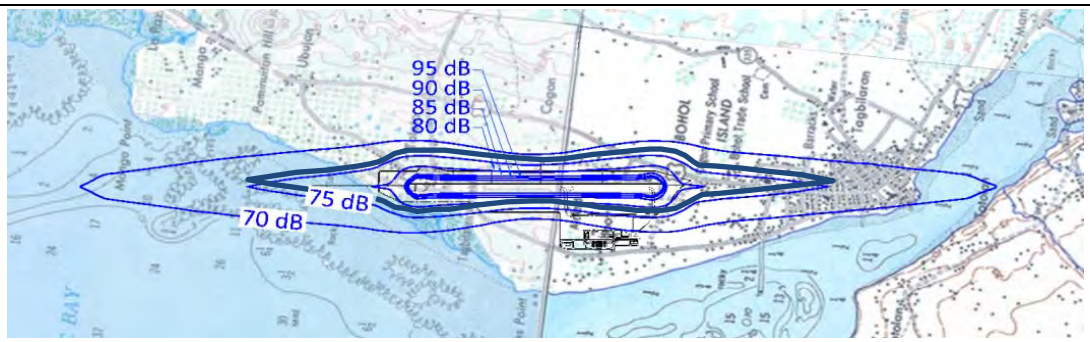
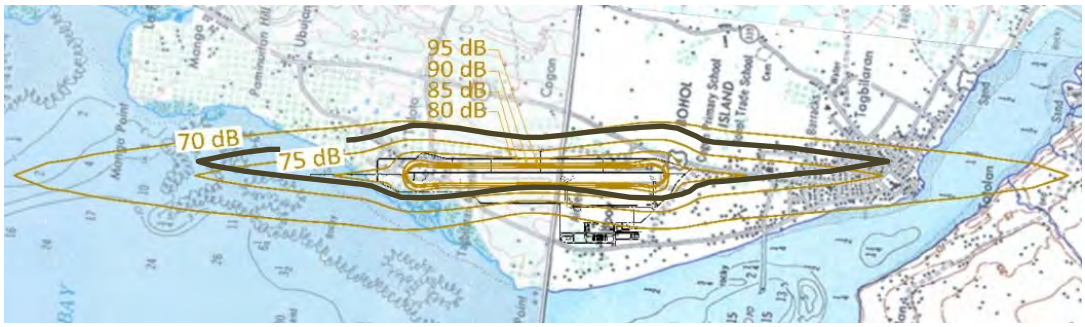
In addition, as shown in the above pictures, there exist wide area of clean mangrove and a cave observed at vertical face of limestone precipice in the immediate vicinity of the runway extension area. This will not only give difficulty in 10-m high embankment for the minimal width of non-instrument runway strip, but also special considerations must be given to how to protect such natural environment especially during construction period.

(3) Properties affected by Possible Noise Pollution; if operations continue

If operations at Tagbilaran Airport are continued, possible noise pollution will be occurred along-with the main street in Tagbilaran City downtown. Impacts of the noise pollution have been simulated by using FAA software, and measured by means of Weighted Equivalent Continuous Perceived Noise Level (WECPNL).

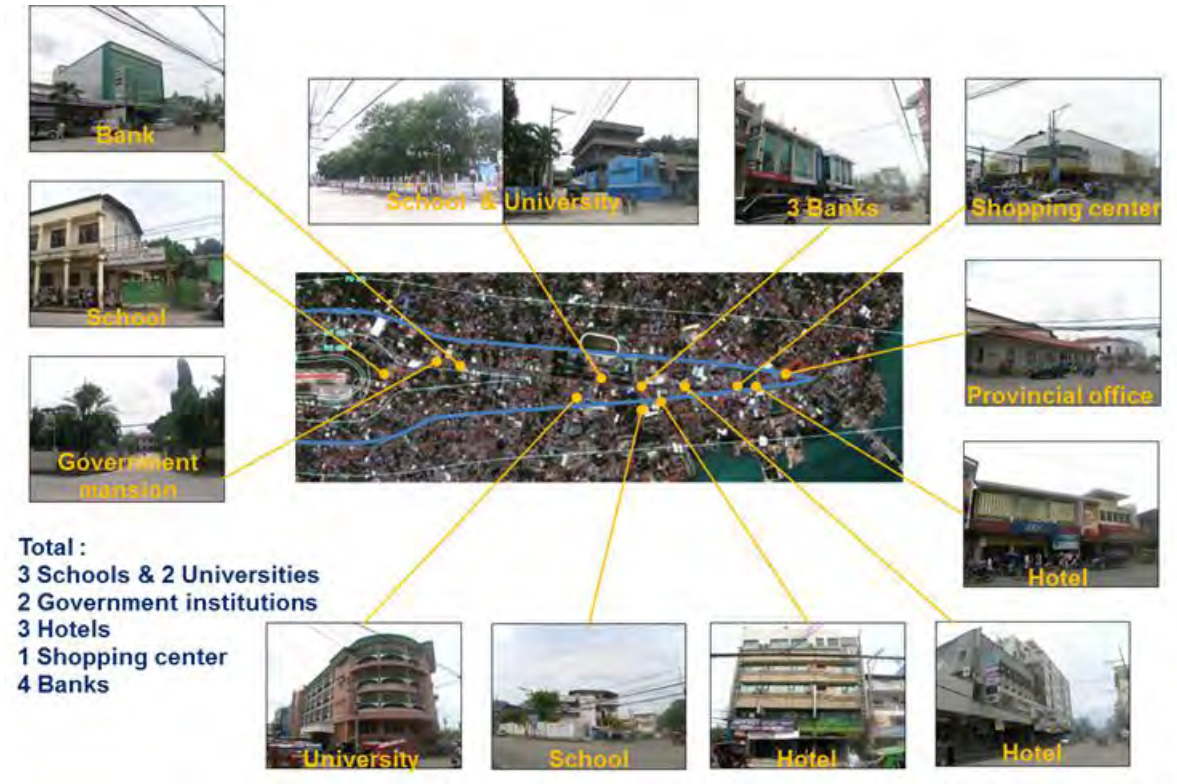
WECPNL is a parameter of noise pollution based on ICAO Annex 16. In Japan, properties affected by more than 75 WECPNL are subject to compensation of noise preventive measures, e.g. provision of sound proof windows, walls, roofs and/or air-conditioning.

Possible noise contours for the years 2020 and 2030, and the properties affected by the noise pollution (above WECPNL75) are shown in Figures 1.5-7 and -8, respectively.

WECPNL for the year 2020	
WECPNL for the year 2030	

Source: JICA Study Team

Figure 1.5-7 Noise Contour (WECPNL) if Tagbilaran Airport is developed



Source: JICA Study Team

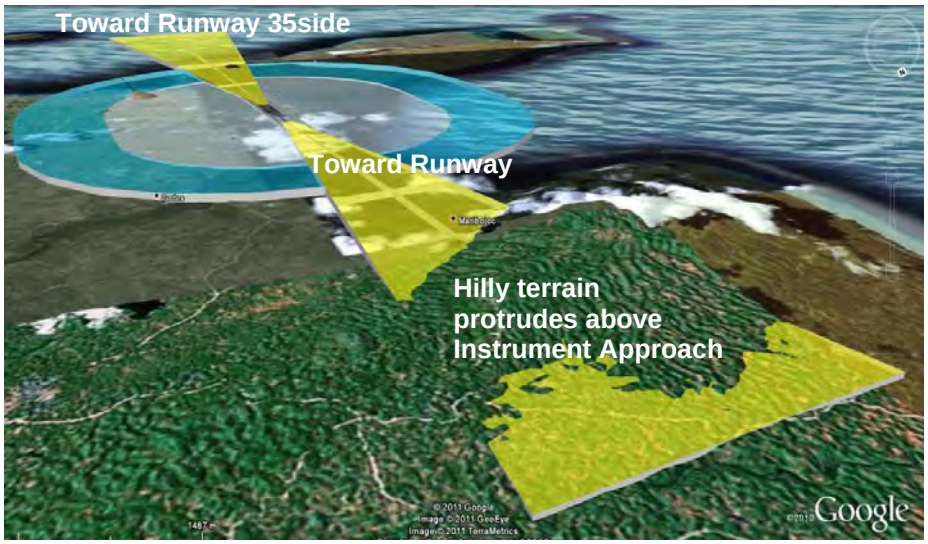
Figure 1.5-8 Possible Noise pollution, if Tagbilaran Airport is developed

(4) Possible Obstacles; if Instrument Approach Runway is applied

A series of hilly terrain exists along northern part of the approach surface (approximately 5NM from the runway threshold), which are protruding above the obstacle limitation surfaces for the instrument runway, thereby giving difficulty to establish an instrument approach procedure in accordance with ICAO Annex 14.

When standard ILS approach procedure is implemented, the pilot must face toward the exact runway orientation at the Final Approach Fix (FAF). However, approaching to the FAF from any direction the aircraft would pass over such topography at extraordinary near distance. Those hilly terrain projecting above the obstacle limitation surfaces are virtually shown in Figure 1.5-9.

View of Runway from North side



View of Runway from South side

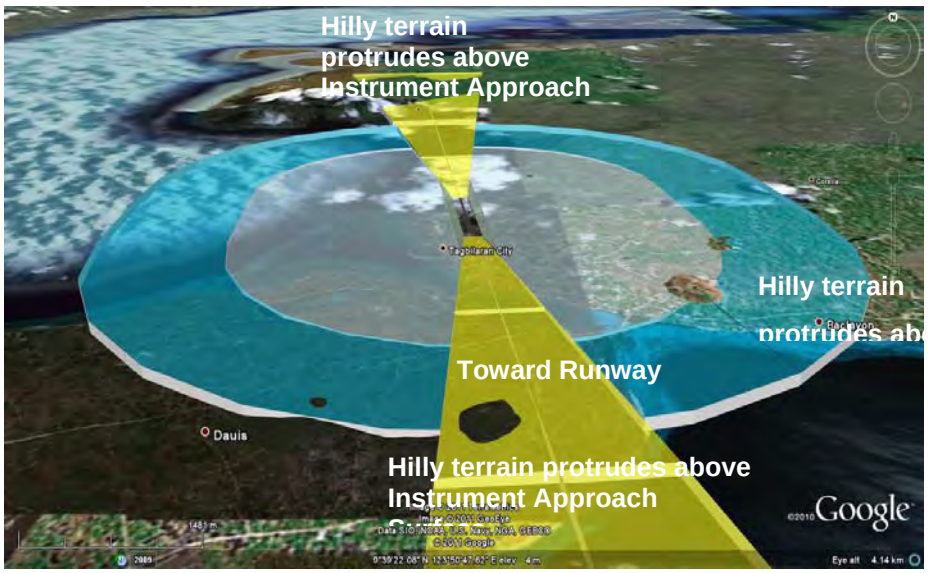


Figure 1.5-9 Obstacle Limitation Surface (Virtual Image) at Tagbilaran Airport

1.6. Selection of New Airport Site

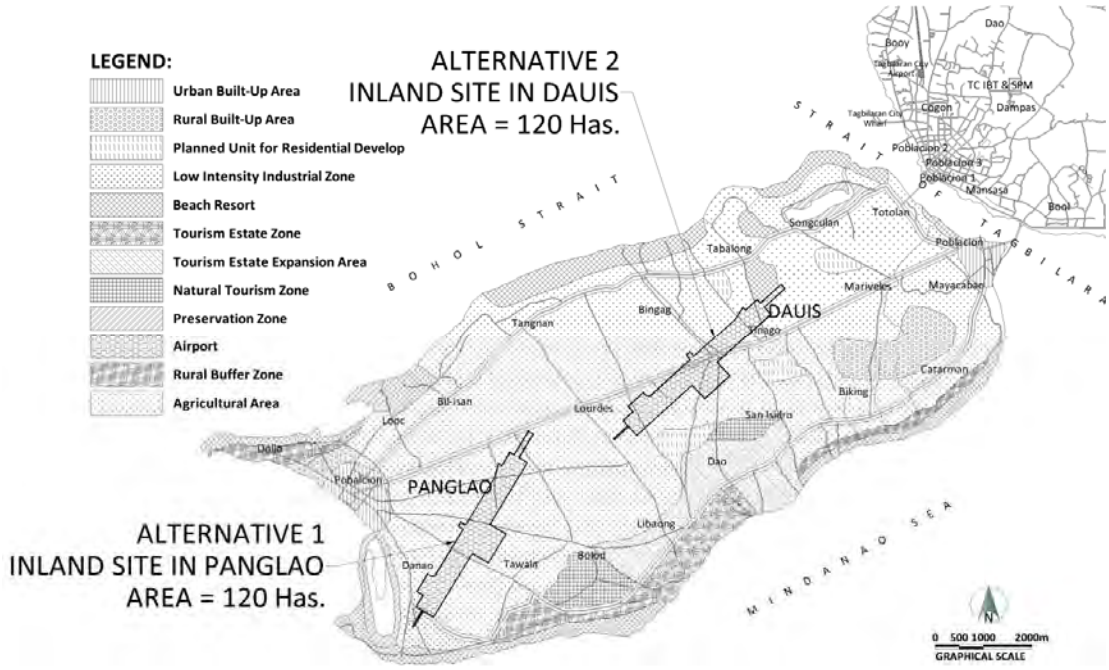
The site for the New Bohol Airport on Panglao Island was earlier selected through the course of Feasibility Study conducted in 2000, for the main reason that the mainland Bohol is mountainous and has very few flat areas, where if an airport would be developed, natural topography would project into obstacle limitation surface of the runway.

Panglao Island is located south west of Bohol and elongates along its northeasterly-southwesterly axis. It is separated from mainland Bohol by a shallow 600-m wide channel, with two bridges connected between the Island and mainland Bohol.

The Island is monotonously flat interrupted by two low hills located at the northeastern end (Dayao and Bicag Hills, Dauis) and along southeastern side (Bolod Hill, Barangay Tawala). The average elevation of the island is 15 to 20 m. above MSL. The apex of Bicag Hill has the highest elevation with a peak height of 184 m above MSL.

The Island is made up of coralline limestone. Being highly soluble even in slightly-acidic water, the limestone terrain is characterized by solution cavities which range in varying dimensions from fractures of few centimeters to caves and sinkholes. Another characteristic of the limestone terrain is the absence of a surface drainage system; instead surface run-off is diverted to subterranean drainage ways.

Panglao Island was a logical alternative site and the municipalities of Dauis and Panglao had been earmarked as the possible alternative sites, as shown in Figure 1.6-1.



Source: JICA Study Team

Figure 1.6-1 Alternative Sites for New Bohol Airport (in 2000 FS)

Alternative 1 (Panglao Site) was selected through evaluation mainly as shown in Table 1.6-1.

Table 1.6-1 Evaluation of Alternative Construction Sites

Item	Alternative 1 - Panglao Site	Alternative 2 - Dauis Site
General	In Barangays Bolod and Tawala. The land is flat and predominantly agricultural and rural in character.	In Barangays Tabalong, Tinago and Bingag. The land is undulated in northern part, undeveloped with marginal agriculture and coconut plantation.
Distance from Tagbilaran city	15 km, 20-30 minutes by car	8 km; 15-20 minutes by car
Airspace	Approach/departure for either direction has no obstruction. The site is within the outer horizon surface of Tagbilaran.	Direction is toward Tagbilaran Airport. Low hills exist at 2.5km east that may protrude into the inner horizontal surface. The site is within the conical surface of Tagbilaran.
Wind Coverage	Both Alternatives suite against prevailing wind direction which is northeast (NE). Wind coverage is 99.79% and cross wind is 5 miles per hour.	
Social Environment	No diversion is necessary.	Paved spine road (highway) and power line must be diverted.
Natural Environment	Adverse impacts on natural environment on both alternatives will be little.	
Pollution	The aircraft noise problem will be minimal if land use surrounding the new airport is appropriately controlled in the future. Noise modeling study conducted by the Consultant shows that noise generated by airport operations will be within a tolerable limit.	
Resident perception	Local residents are aware of the project benefits and possible livelihood opportunities. 40% of Panglao site was acquired in 2000, while no acquisition was made in Dauis.	
Conclusion	Recommended	Not recommended

Source: JICA Study Team

CHAPTER 2
CURRENT CONDITIONS OF CONSTRUCTION SITE

TABLE OF CONTENTS

Chapter 2 Current Conditions of Construction Site

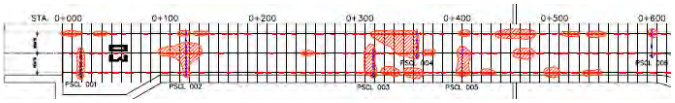
2.1. Geological Conditions

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.

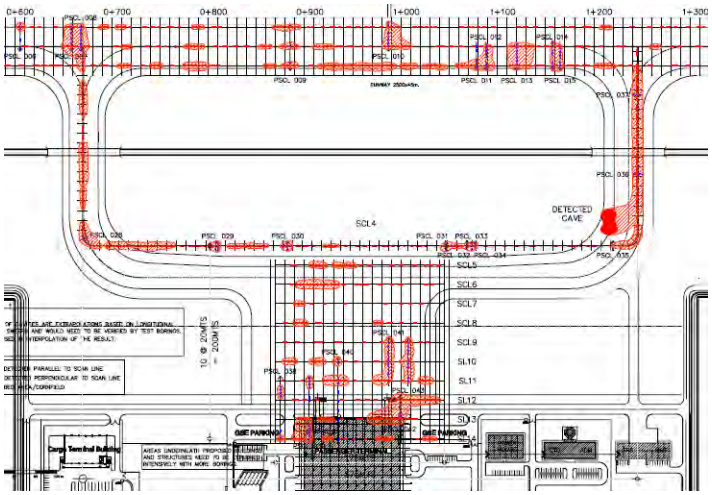
2.1.1. Previous Geological Survey conducted in 2009

A Ground Penetration Radar (GPR) survey conducted in 2009. In Figure 2.1-1 are potential cavities shown.

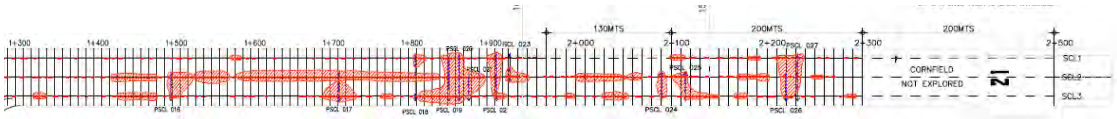
Runway STA 0-60 to STA 0+600



Runway STA + 600 to STA 1+300



Runway STA 1+300 to STA 2+560



Source: JICA Study Team

Figure 2.1-1 Potential Cavity suspected through GPR Survey (in 2009)

After having obtained the results of GPR survey, a geological investigations by means of Boreholes (BH) and Test Pits were implemented, the locations and logs of which are summarized as shown in Figures 2.1-2 (1) to (3), and with the runway centerline profile as shown in Figures 2.1-3 (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 2.1-2 (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 6 m below the ground level as shown in Figure 2.1-3 (2). Another relatively low 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 2.1-3 (2). In both cases no ground water table was 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 2.1-3 (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 when subgrade construction is commenced.

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

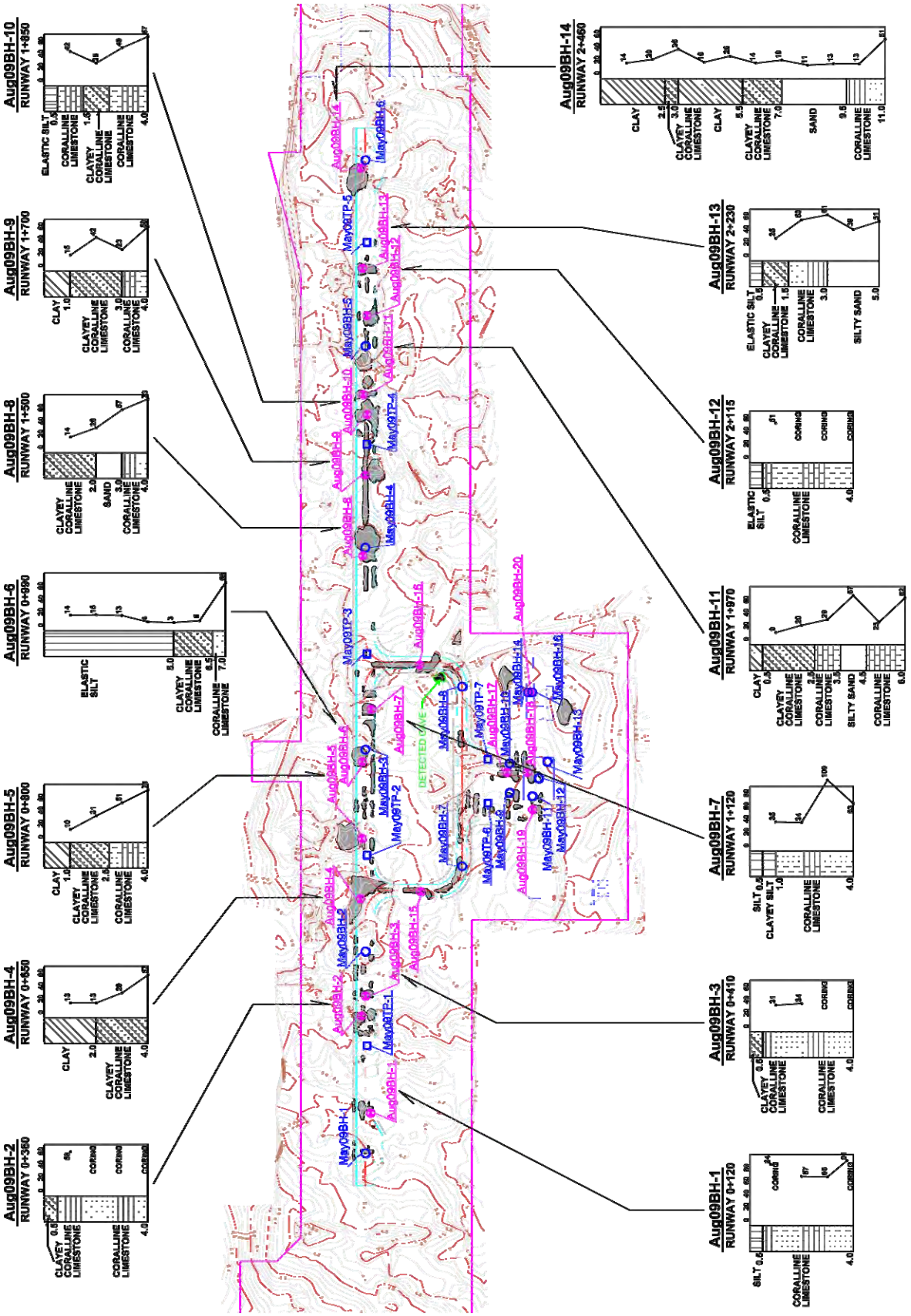


Figure 2.1-2 (1) Boreholes and Test Pits investigated in May & August 2009 along Runway & Taxiways

Source: JICA Study Team

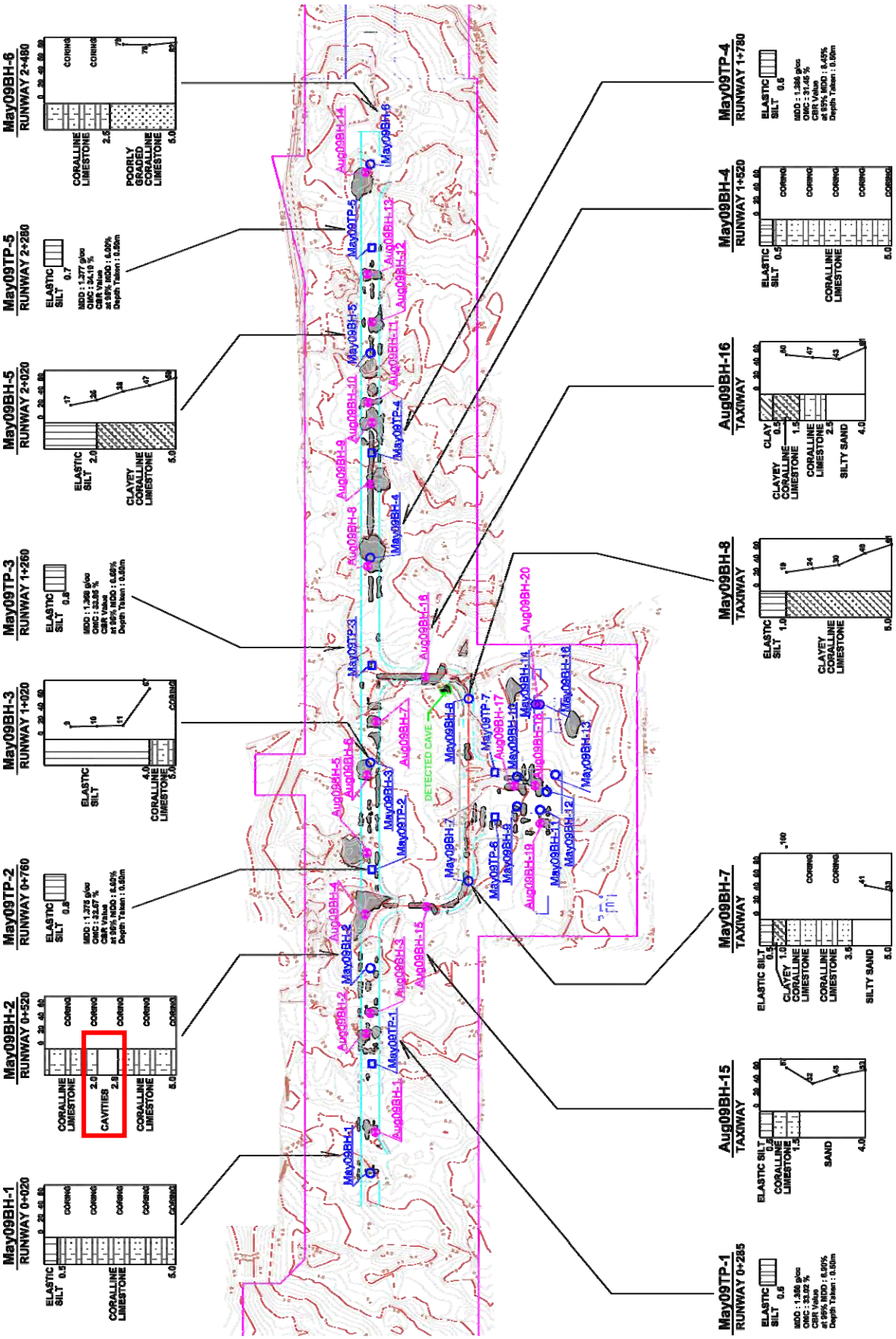
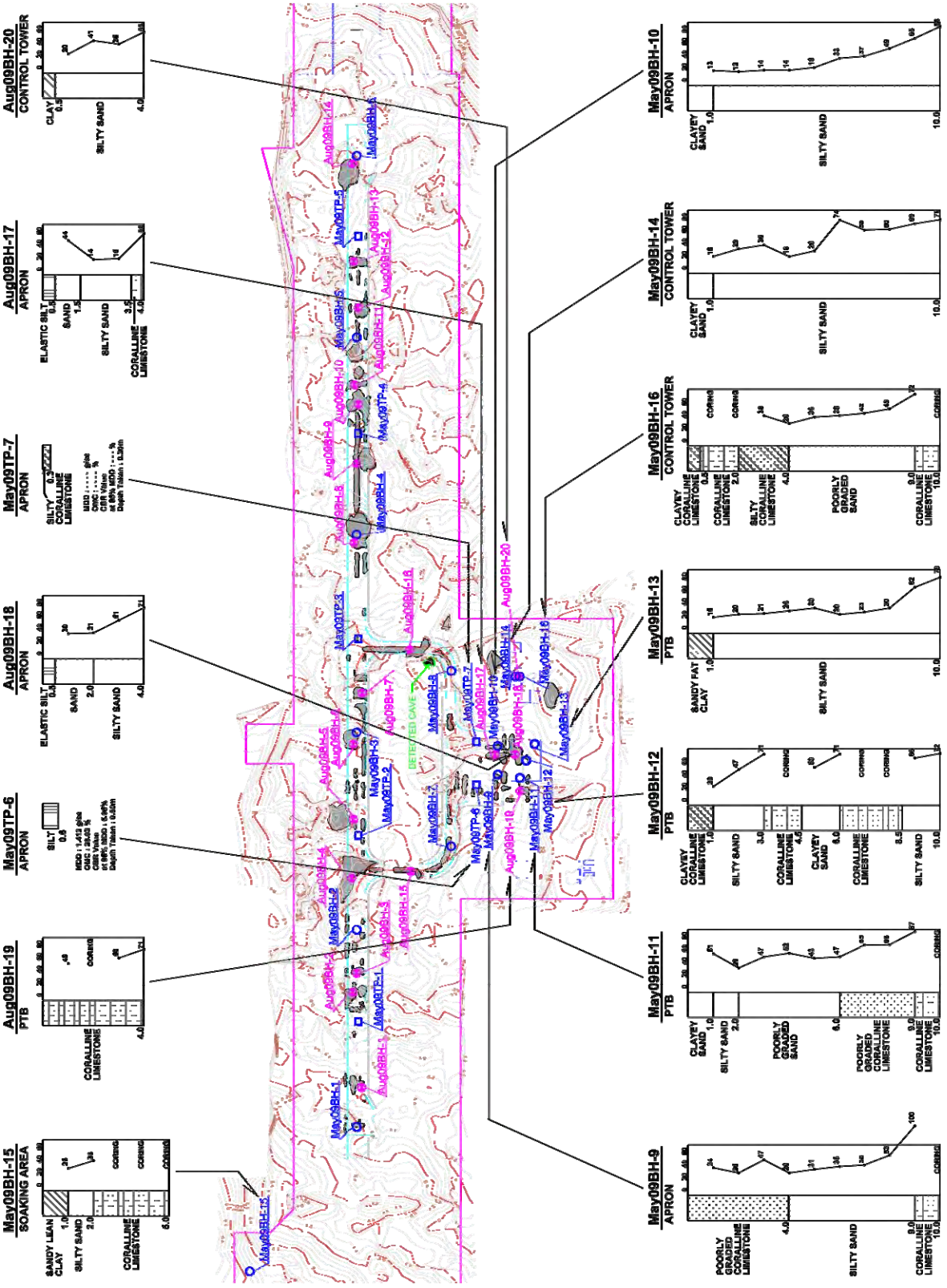


Figure 2.1-2 (2) Boreholes and Test Pits investigated in May & August 2009 along Runway & Taxiways

Source: JICA Study Team



Source: JICA Study Team

Figure 2.1-2 (3) Boreholes and Test Pits investigated in May & August 2009 at Terminal Area

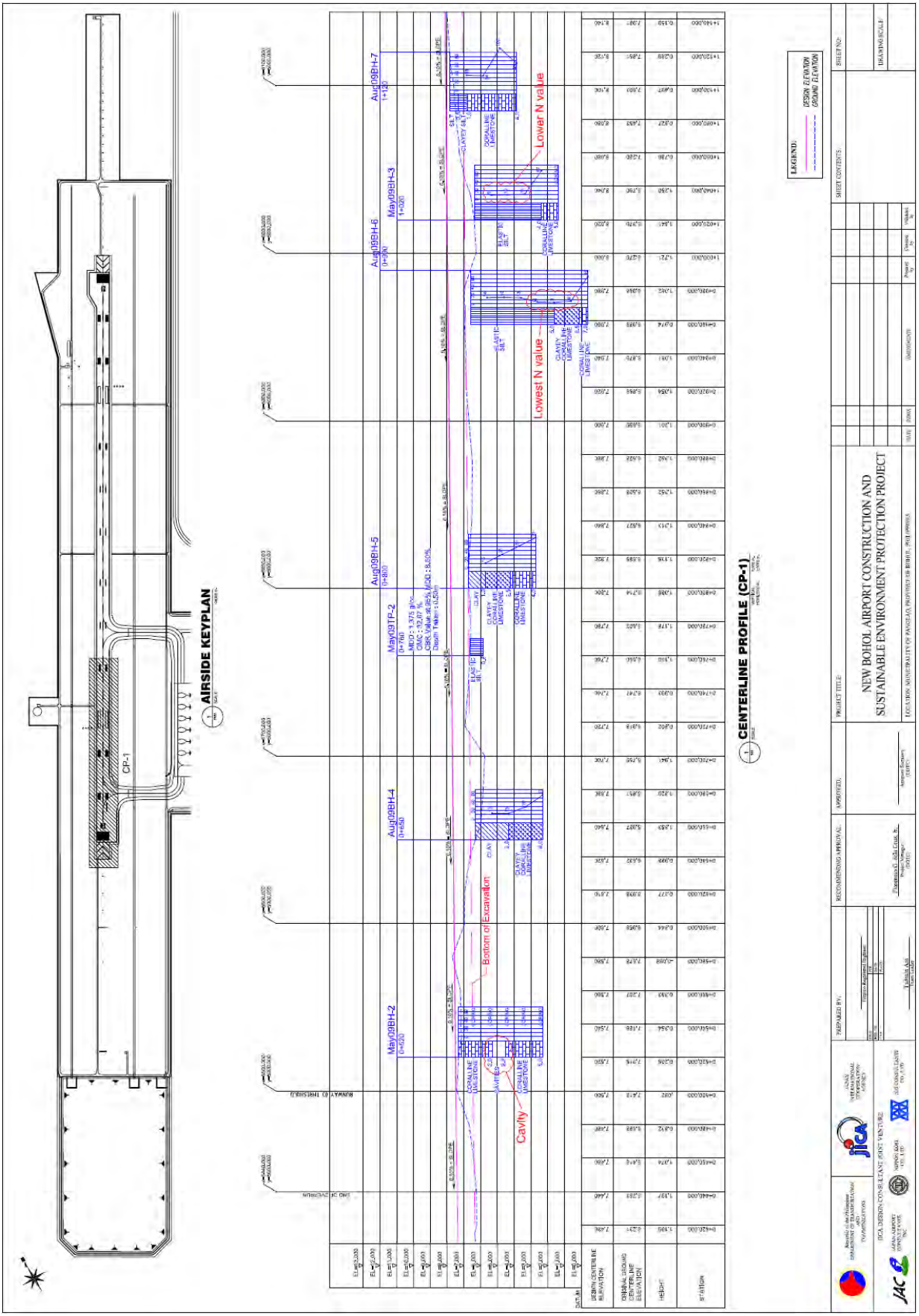


Figure 2.1-3 (1) Runway Centerline Profile with Borehole and Test Pit logs (sta. 420 m – 1,140 m)

Source: JICA Study Team

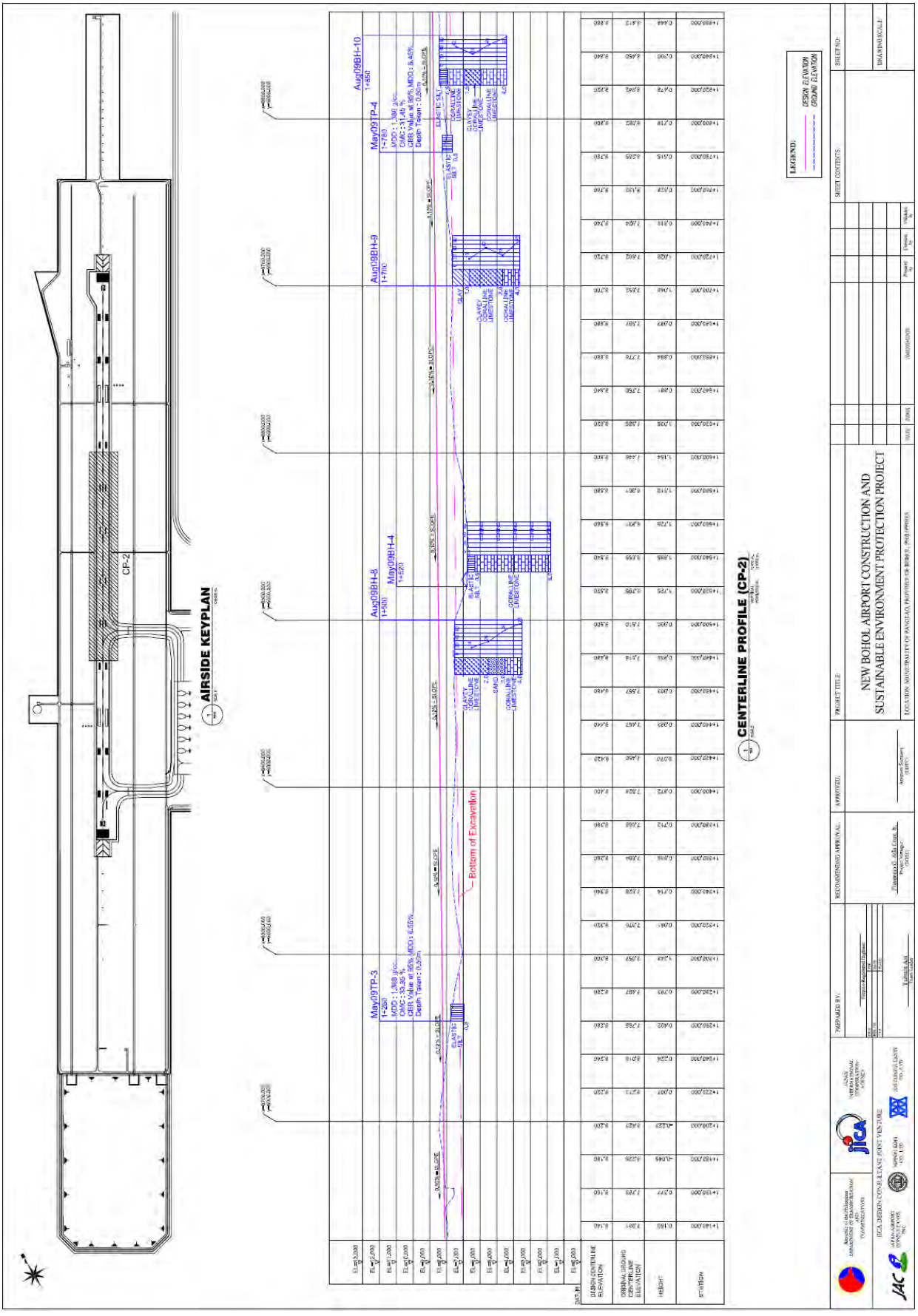
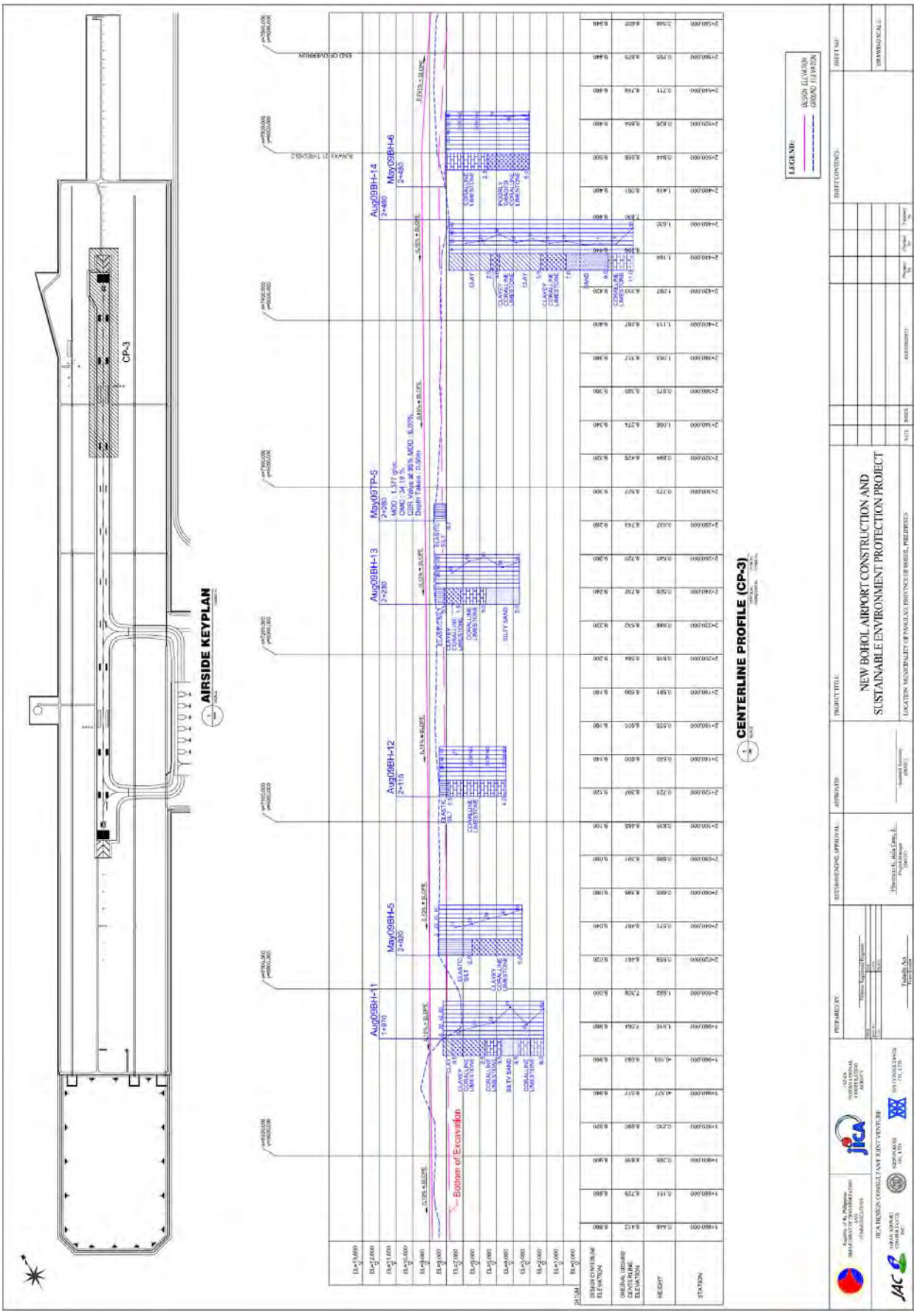


Figure 2.1-3 (2) Runway Centerline Profile with Borehole and Test Pit logs (sta. 1,140 m - 1,860 m)

Source: JICA Study Team



Source: JICA Study Team

Figure 2.1-3 (3) Runway Centerline Profile with Borehole and Test Pit logs (sta. 1,860 m - 2,560 m)

2.1.2. 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 centerline of Access Road

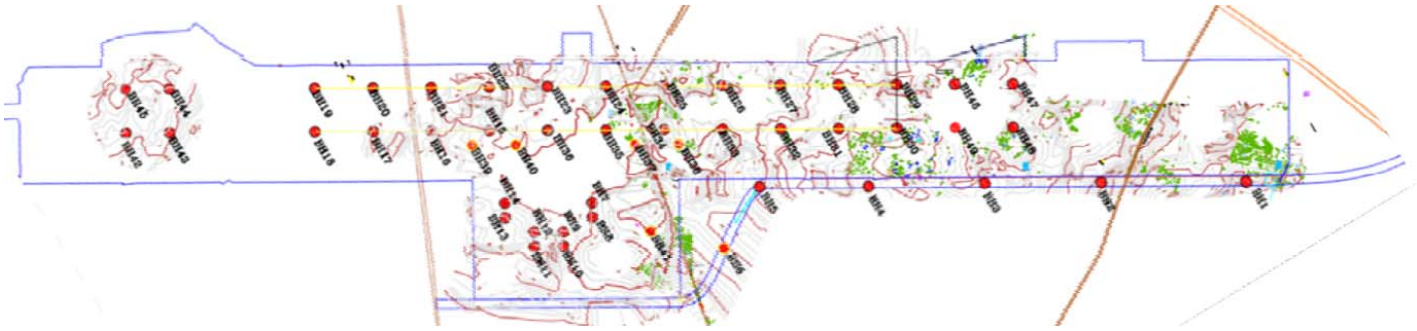


Figure 2.1-4 Location of Additional 48 Boreholes

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 Picture 2.1-1 which was only the recovered core sample among 48 boreholes.

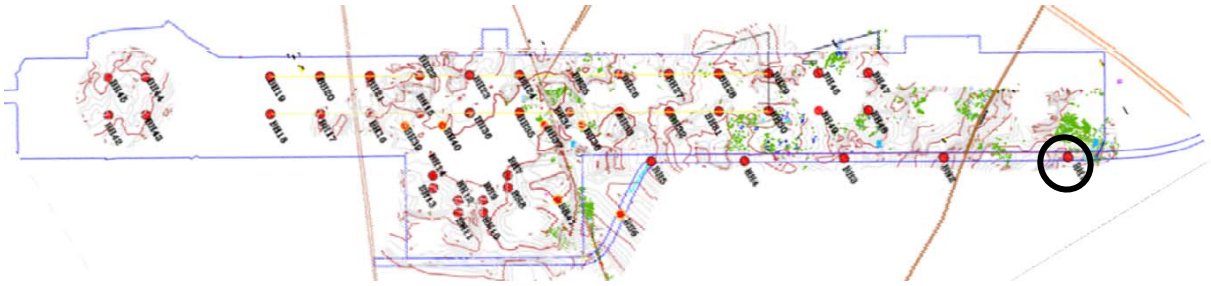
Standard Penetration Test (STP) by means of 63.5-kg automatic hammer with tripping device (free drop from the height of 76 cm) at every 1-m depth at 48 boreholes could have been achieved without coring, and N-value is measured at generally 50 to 100. This means that the dense soil strata are generally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

Picture 2.1-1 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



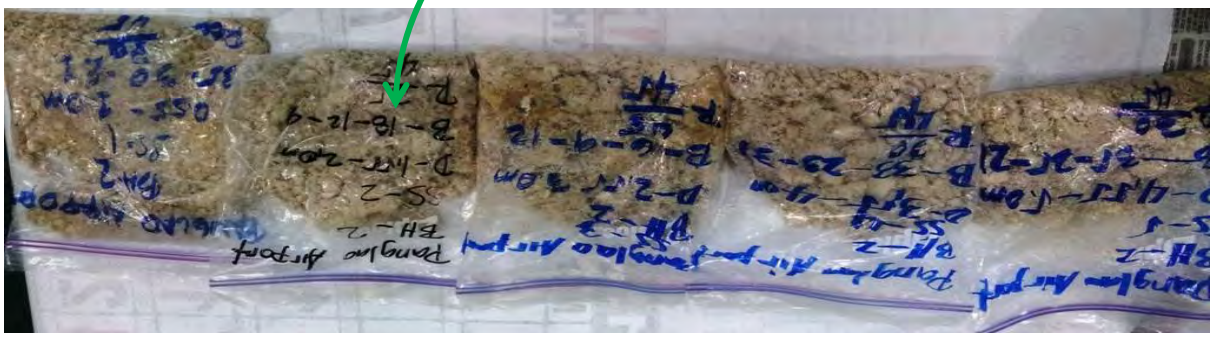
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

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



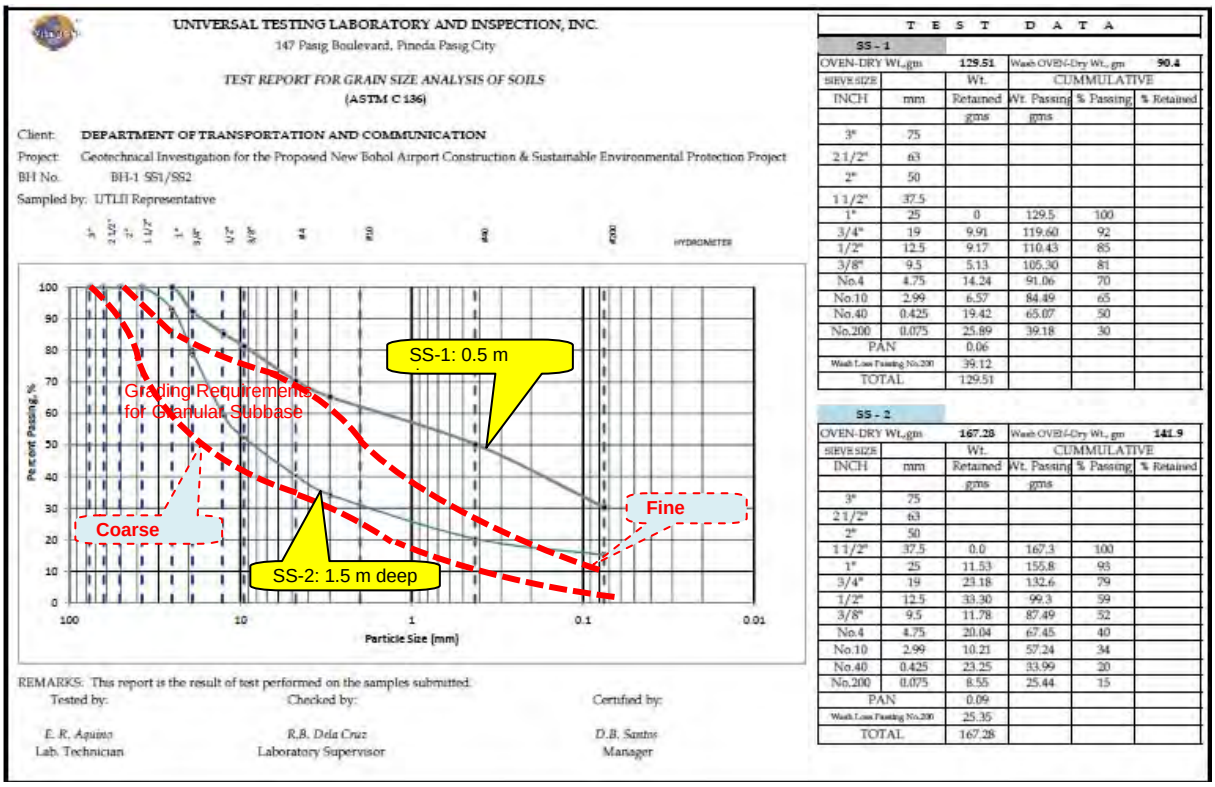
Moisture contents of disturbed soil samples

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

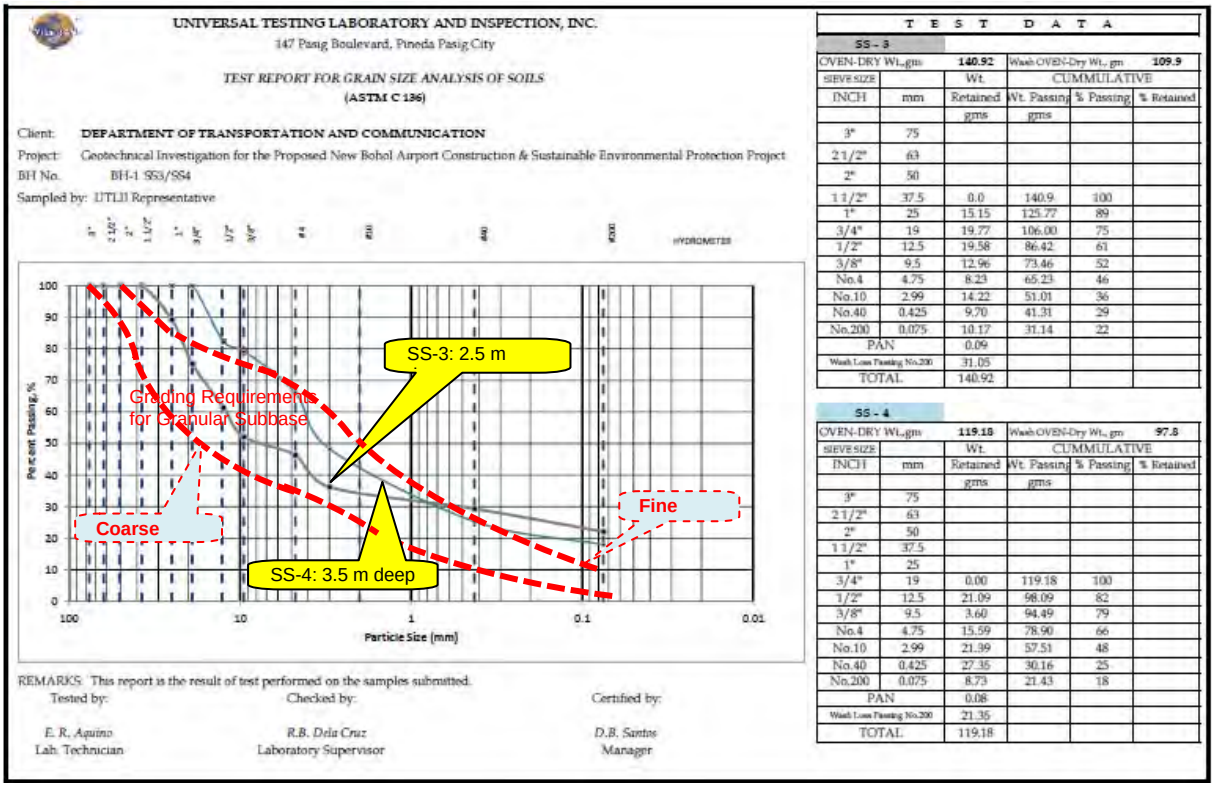
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		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: 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

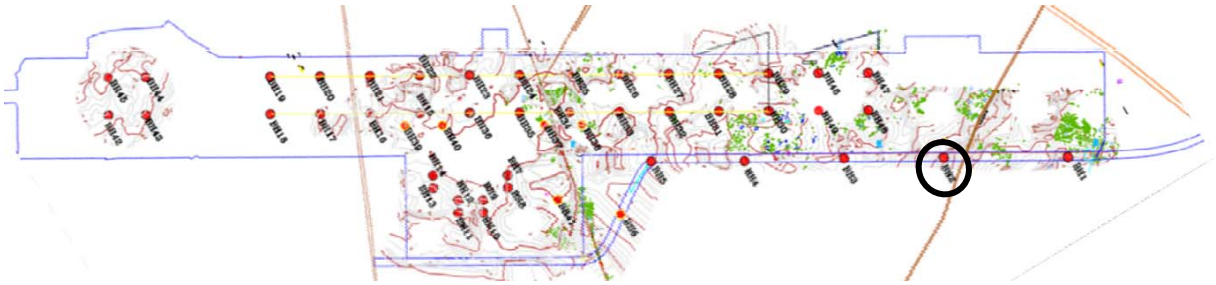
OVEN-DRY Wt.,gm		140.92	Wash OVEN-Dry Wt., gm		109.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	140.9	100	
1"	25	15.15	125.77	89	
3/4"	19	19.77	106.00	75	
1/2"	12.5	19.58	86.42	61	
3/8"	9.5	12.96	73.46	52	
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

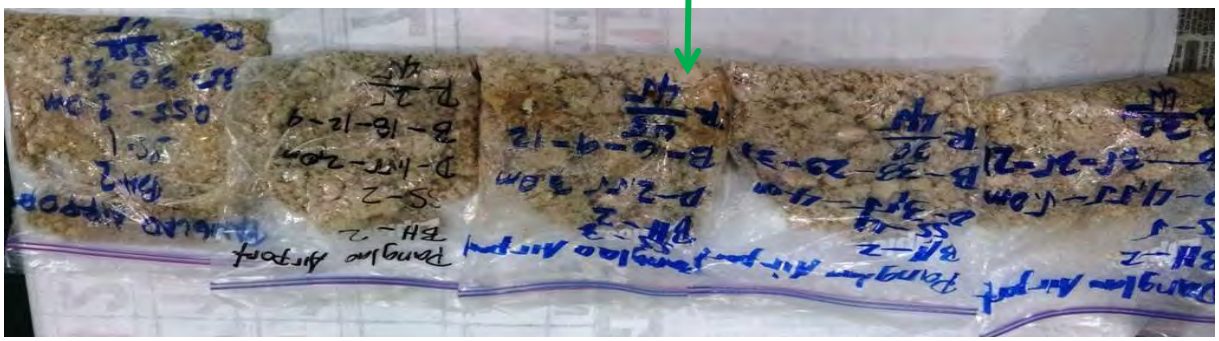
PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-2
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 2/5/2013 DATE FINISHED: 2/5/2013 WATER TABLE: DWT

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

Subgrade Cut 3.0m

END OF BOREHOLE

Pictures of disturbed soil samples



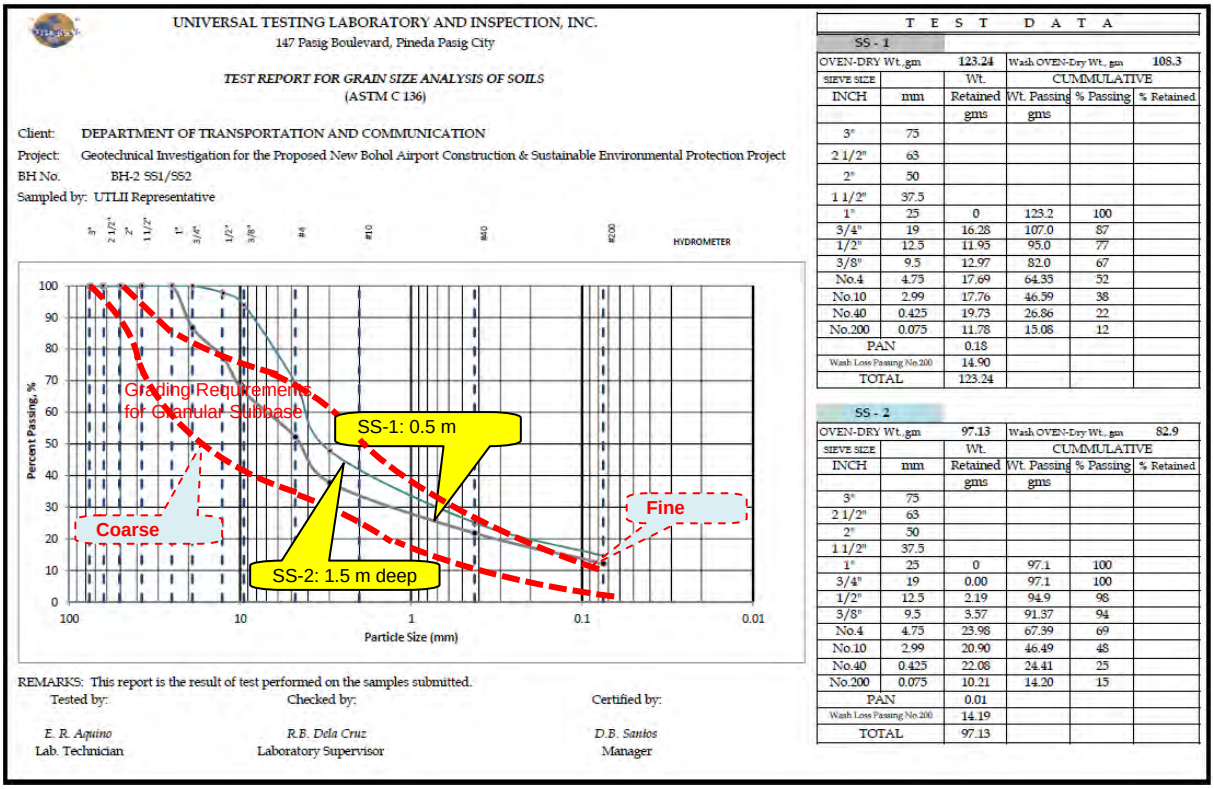
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	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 subgrade 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

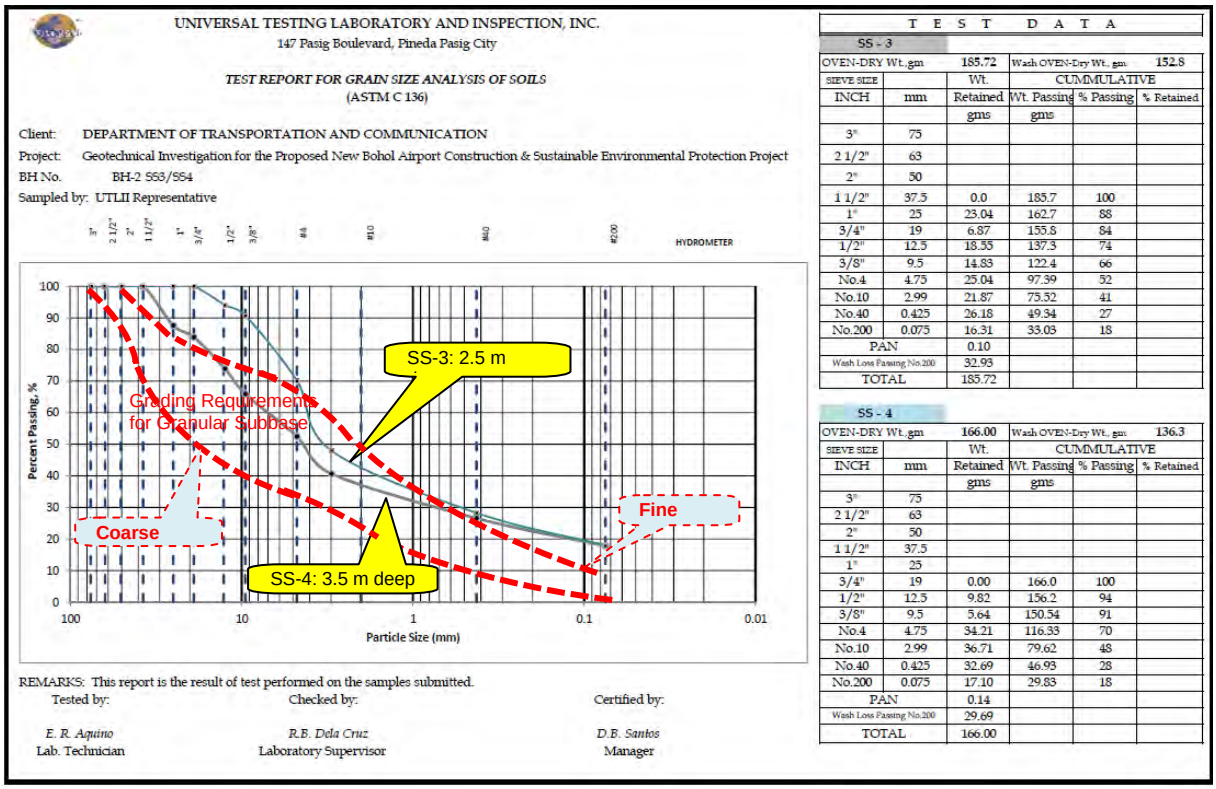
T E S T D A T A

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

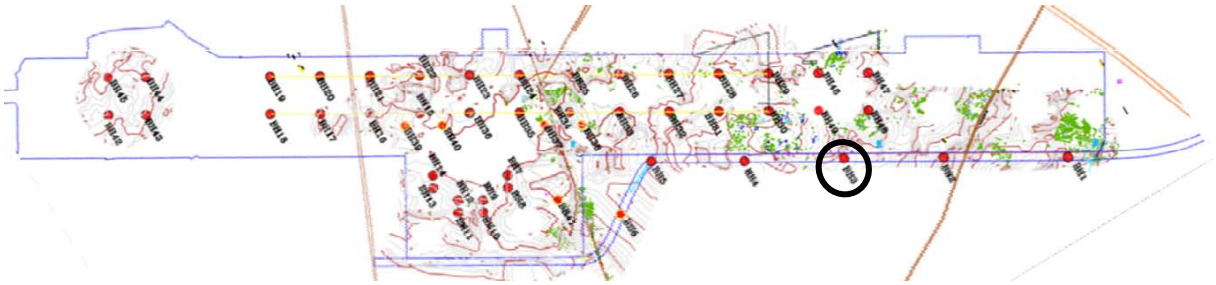
OVEN-DRY Wt.,gm		185.72	Wash OVEN-Dry Wt., gm		152.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	185.7	100	
1"	25	23.04	162.7	88	
3/4"	19	6.87	155.8	84	
1/2"	12.5	18.55	137.3	74	
3/8"	9.5	14.83	122.4	66	
No.4	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

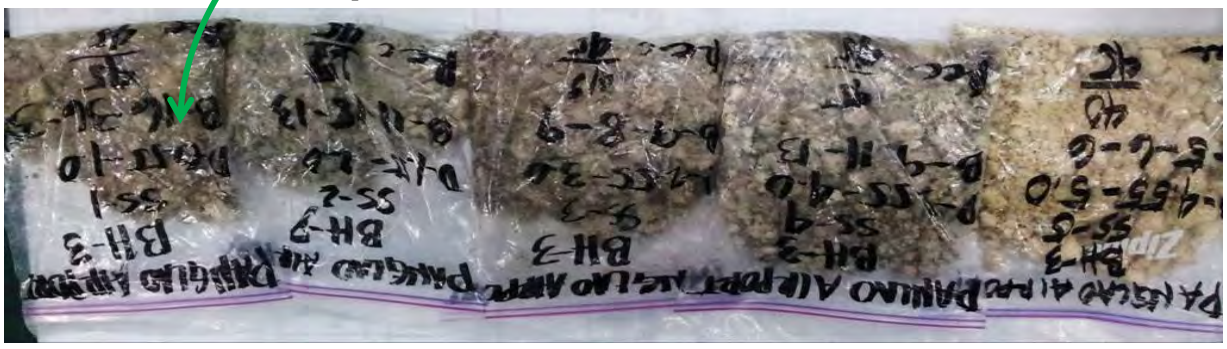
PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-3
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 2/25/2013 DATE FINISHED: 2/25/2013 WATER TABLE: DWT

DEPTH,m	SAMPLE NUMBER	% RECOVERY	% RQD	SAMPLE TYPE	LOG SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	N-VALUES SPT 15cm	15cm	15cm	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

GRAPH
Subgrade
Fill 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.	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)

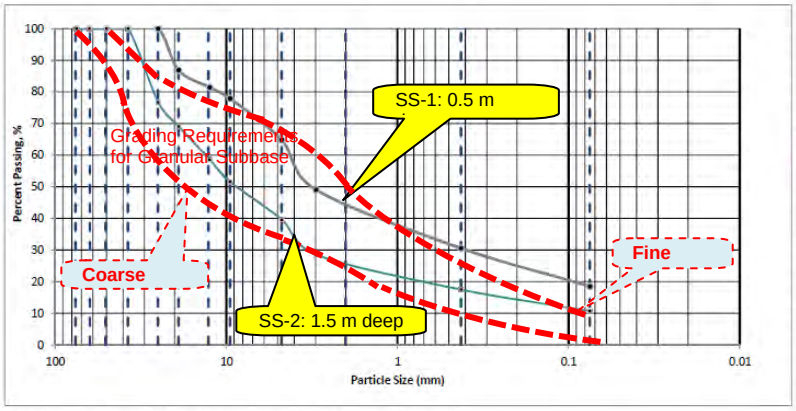
No fine topsoil exists. No large cavity exists. N-value drops to 10 at 5-m deep.

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: *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		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			

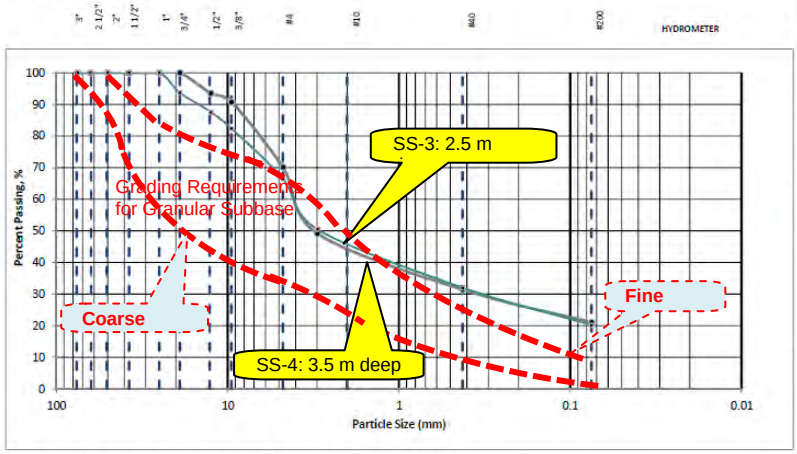
SS - 2

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: *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

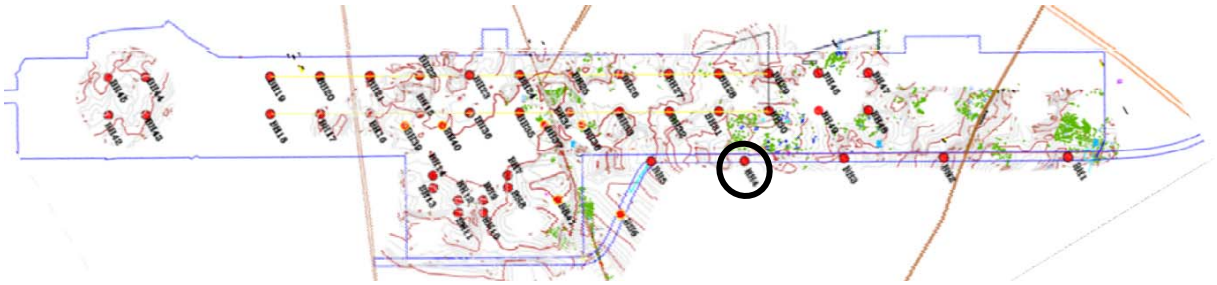
OVEN-DRY Wt.,gm		159.21	Wash OVEN-Dry Wt., gm		125.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	159.2	100	
1"	25	0.00	159.2	100	
3/4"	19	0.00	159.2	100	
1/2"	12.5	10.38	148.8	93	
3/8"	9.5	4.28	144.6	91	
No.4	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

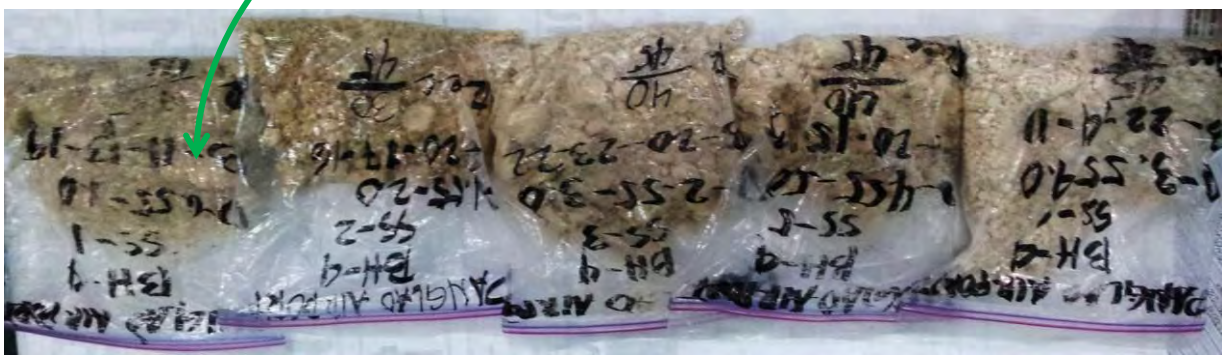


FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

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	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	43		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)

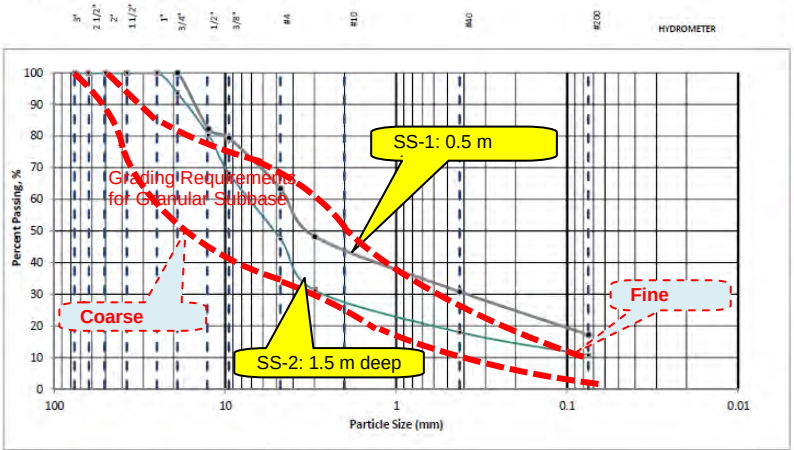
No fine topsoil exists. No large cavity exists.

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:	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		185.68	Wash OVEN-Dry Wt., gm		154.0
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	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			

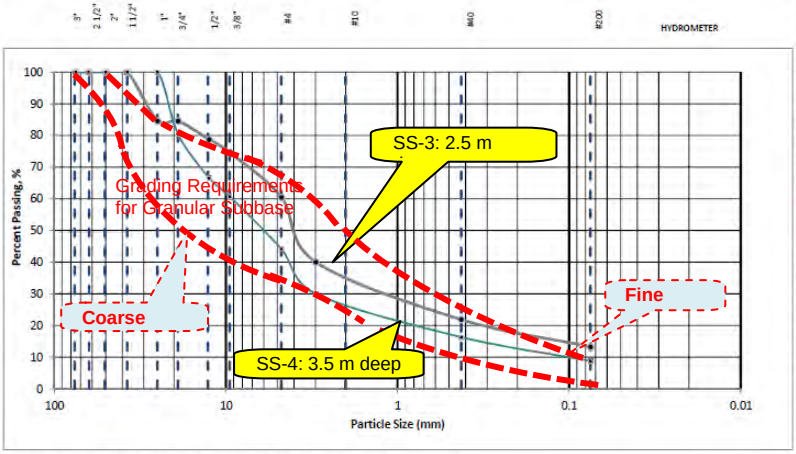
SS - 2

OVEN-DRY Wt.,gm		162.47	Wash OVEN-Dry Wt., gm		145.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
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:	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

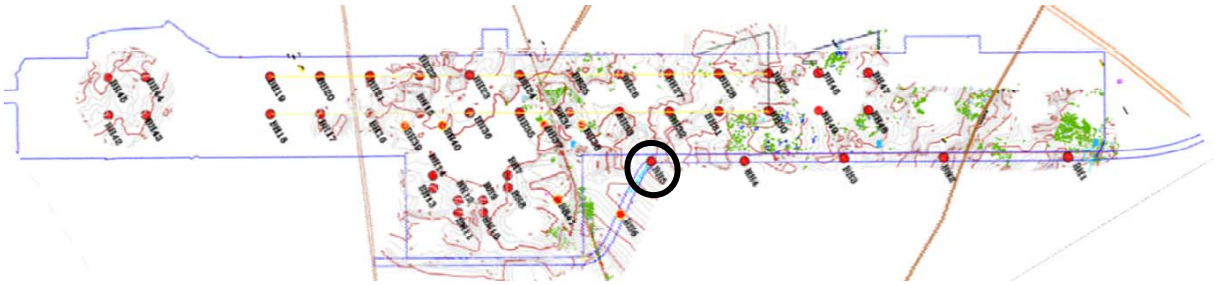
OVEN-DRY Wt.,gm		149.49	Wash OVEN-Dry Wt., gm		129.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	149.5	100	
1"	25	23.10	126.39	85	
3/4"	19	0.00	126.39	85	
1/2"	12.5	8.73	117.66	79	
3/8"	9.5	6.09	111.57	75	
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	Wt. Passing	% Passing	% Retained
		gms	gms		
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
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	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	70	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)

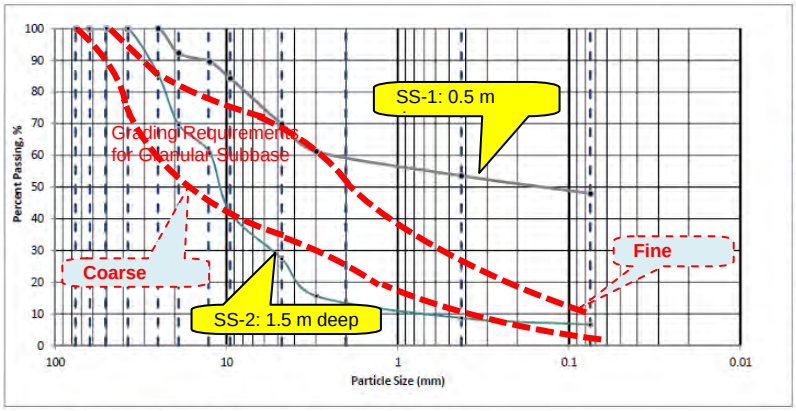
Fine topsoil exists. No large cavity exists.

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			

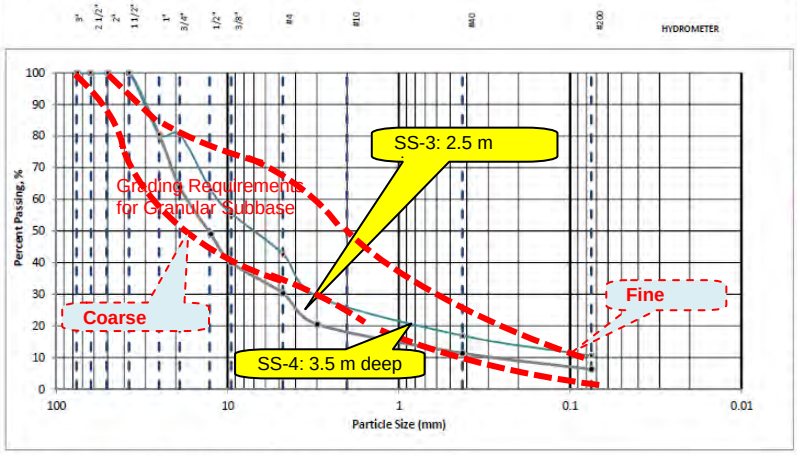
SS - 2

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

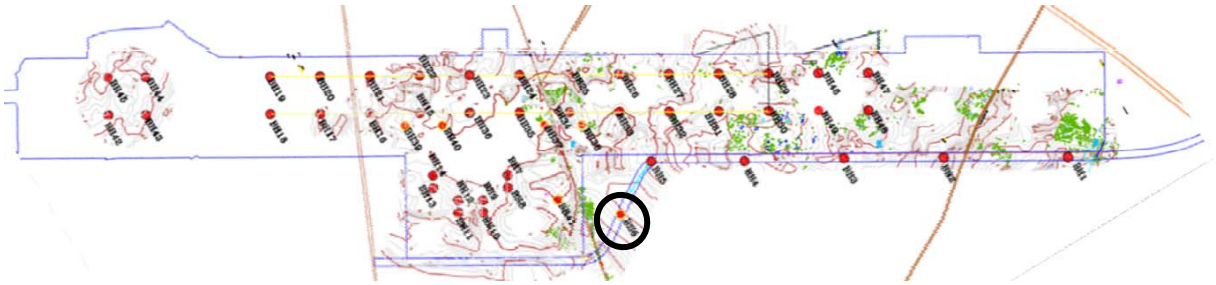
OVEN-DRY Wt.,gm		154.82	Wash OVEN-Dry Wt., gm		145.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	154.8	100	
1"	25	30.37	124.45	80	
3/4"	19	25.63	98.82	64	
1/2"	12.5	22.93	75.89	49	
3/8"	9.5	13.87	62.02	40	
No.4	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 — 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				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)

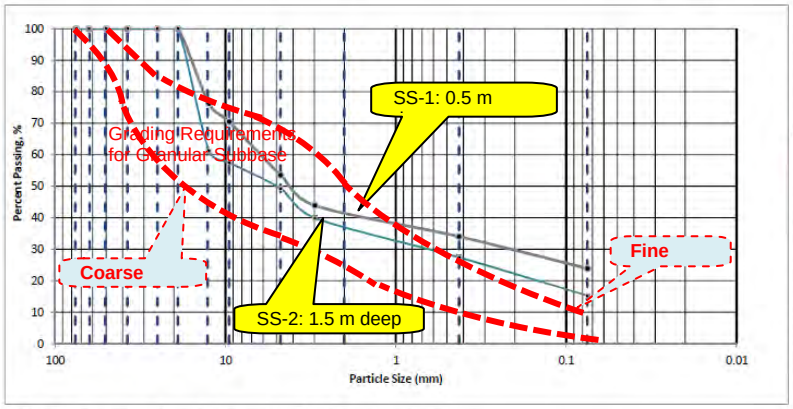
No fine topsoil exists. No large cavity exists.

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			

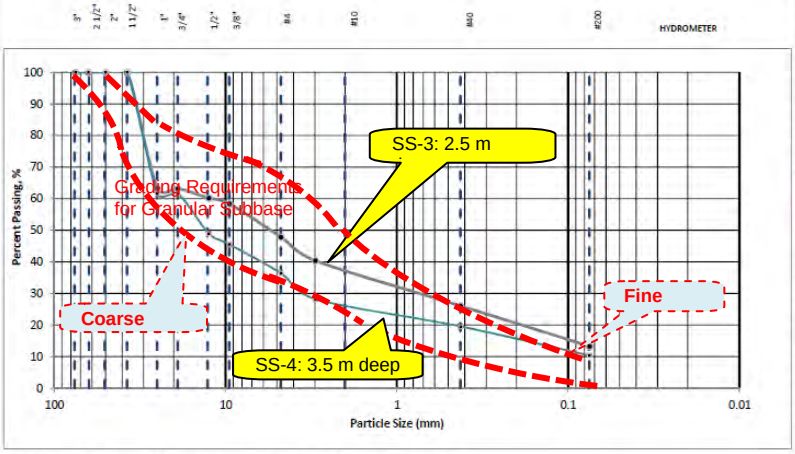
SS - 2

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



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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

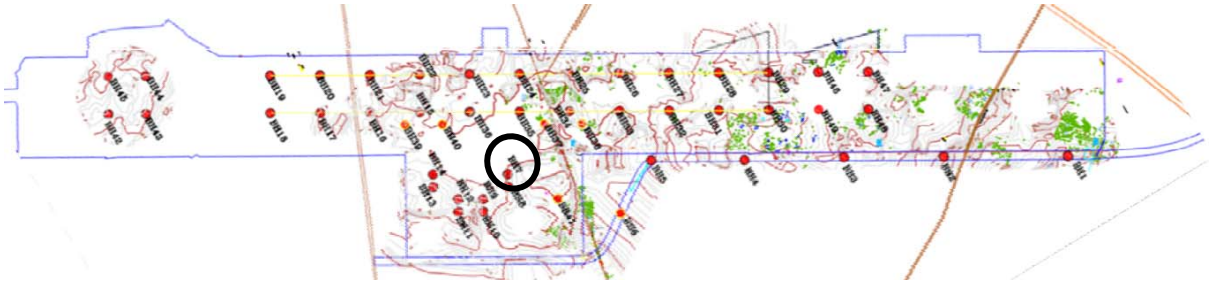
OVEN-DRY Wt.,gm		105.51	Wash OVEN-Dry Wt., gm		91.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	105.5	100	
1"	25	38.85	66.66	63	
3/4"	19	0.00	66.66	63	
1/2"	12.5	3.15	63.51	60	
3/8"	9.5	1.90	61.61	58	
No.4	4.75	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		84.5
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	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
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	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)

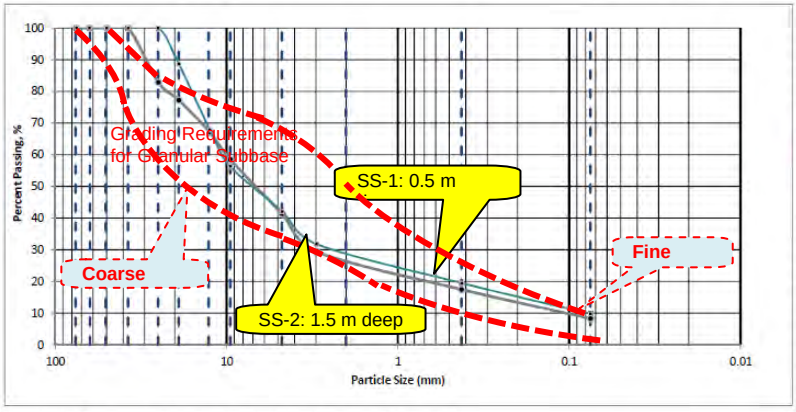
No fine topsoil exists. No large cavity exists.

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



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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		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			

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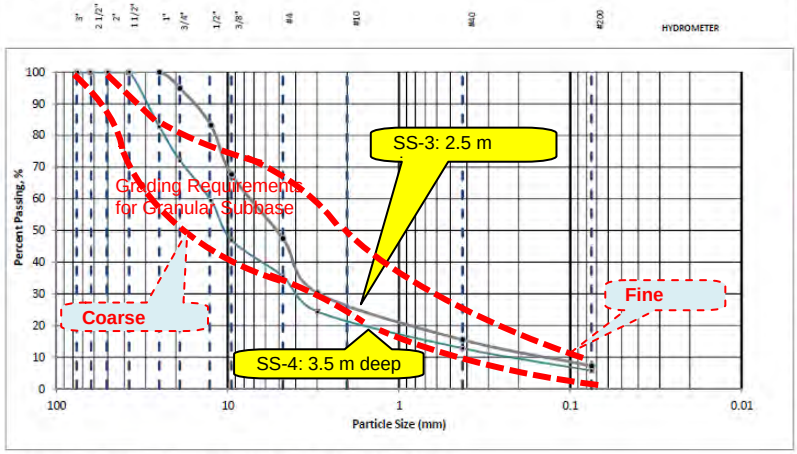
Client: DEPARTMENT OF TRANSPORTATION AND COMMUNICATION
Project: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
BH No. BH-7 SS3/SS4
Sampled by: UTLII Representative



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

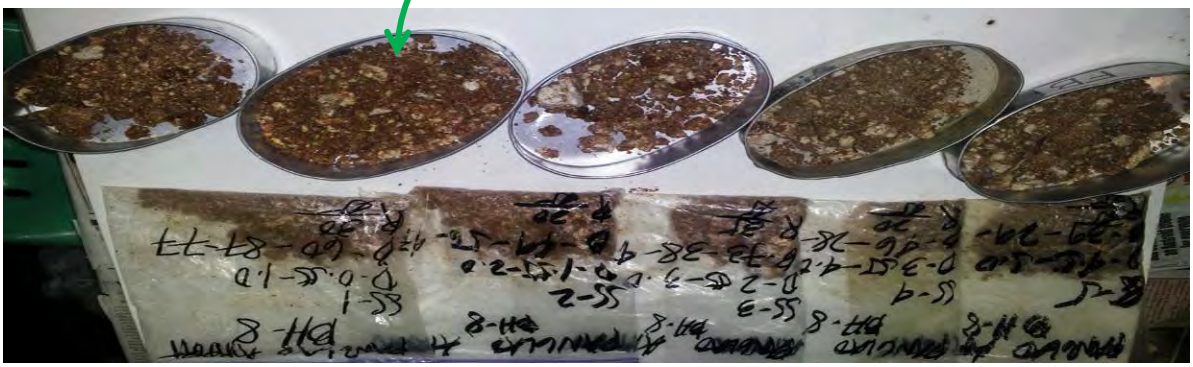
PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-8
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
DATE DRILLED: 3/2/2013 DATE FINISHED: 3/2/2013 WATER TABLE: DWT

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.

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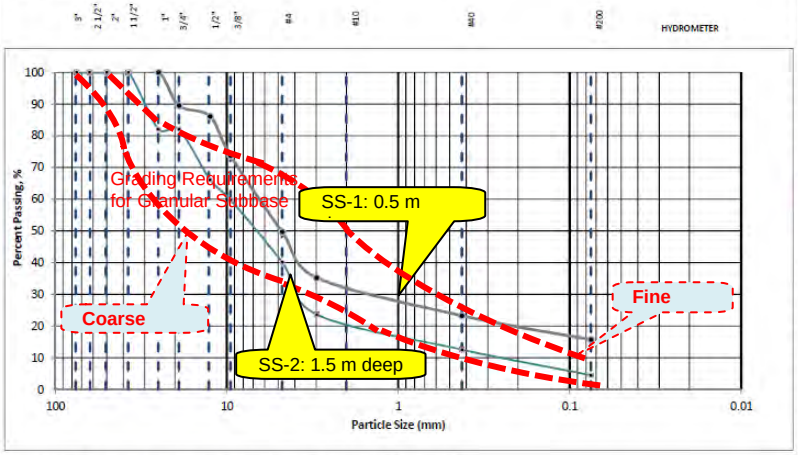
147 Pasig Boulevard, Pineda Pasig City

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			

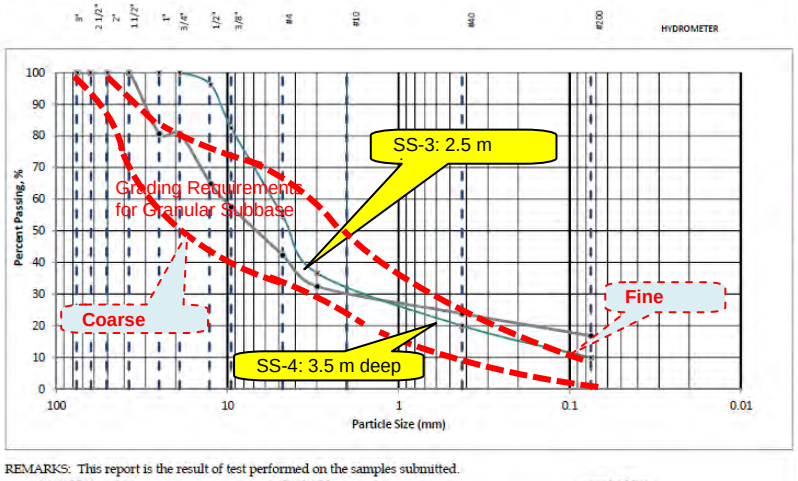
SS - 2

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



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Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

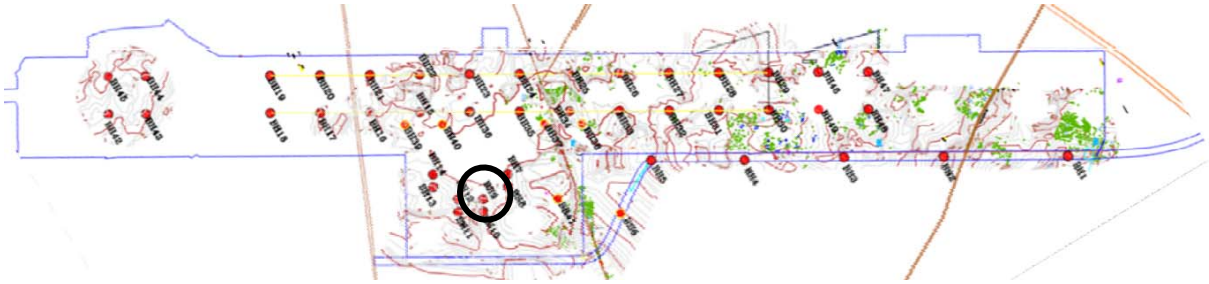
OVEN-DRY Wt.,gm		113.70	Wash OVEN-Dry Wt., gm		94.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	113.7	100	
1"	25	21.97	91.73	81	
3/4"	19	0.00	91.73	81	
1/2"	12.5	17.94	73.79	65	
3/8"	9.5	8.36	65.43	58	
No.4	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	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	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																

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

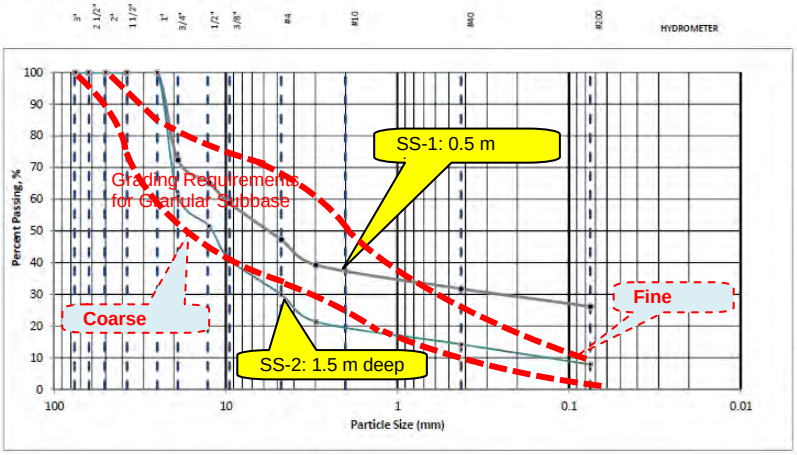
No fine topsoil exists. No large cavity exists.

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.

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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		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			

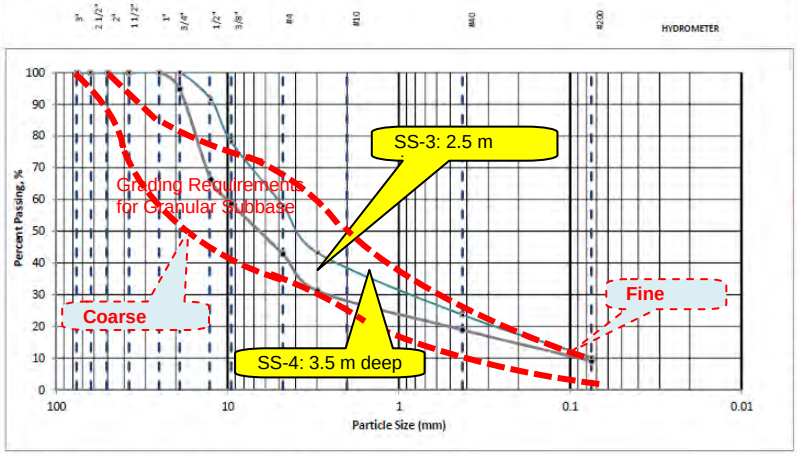
SS - 2

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.

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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).

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147 Pasig Boulevard, Pineda Pasig City

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

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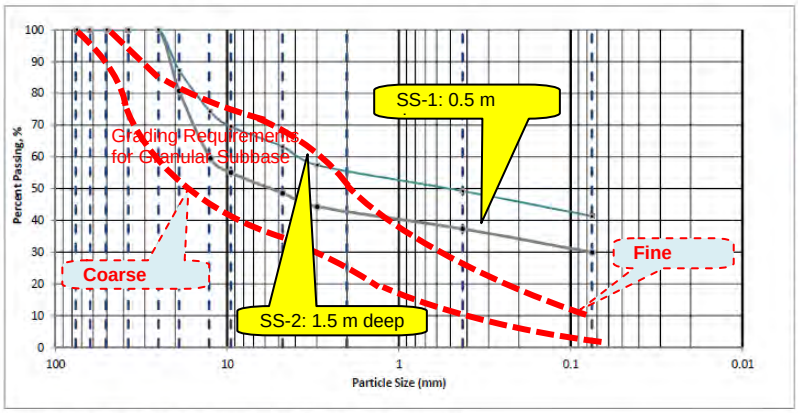
BH No. BH-10 SS1/SS2
Sampled by: UTLII Representative



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Lab. Technician	Laboratory Supervisor	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			

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

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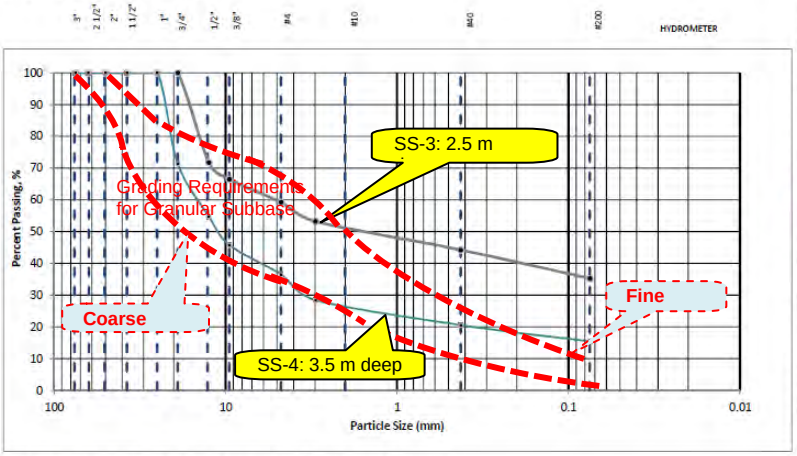
BH No. BH-10 SS3/SS4
Sampled by: UTLII Representative



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Lab. Technician	Laboratory Supervisor	Manager

T E S T D A T A

SS - 3

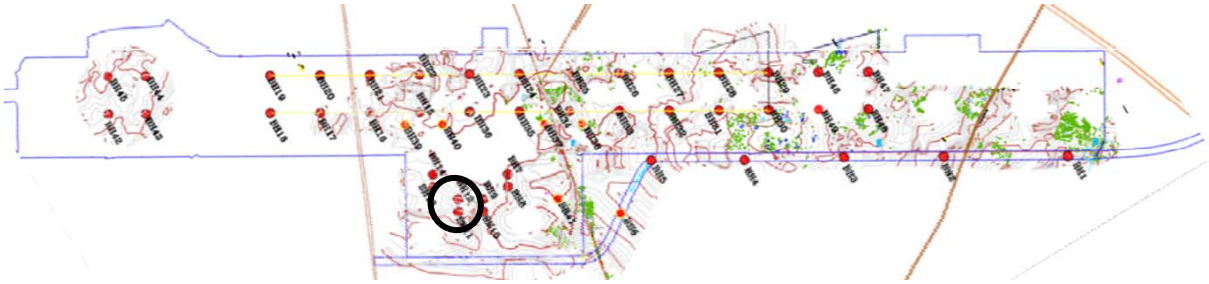
OVEN-DRY Wt.,gm		232.72	Wash OVEN-Dry Wt., gm		150.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	232.7	100	
1"	25	0.00	232.7	100	
3/4"	19	0.00	232.7	100	
1/2"	12.5	65.80	166.9	72	
3/8"	9.5	12.16	154.8	67	
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																
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

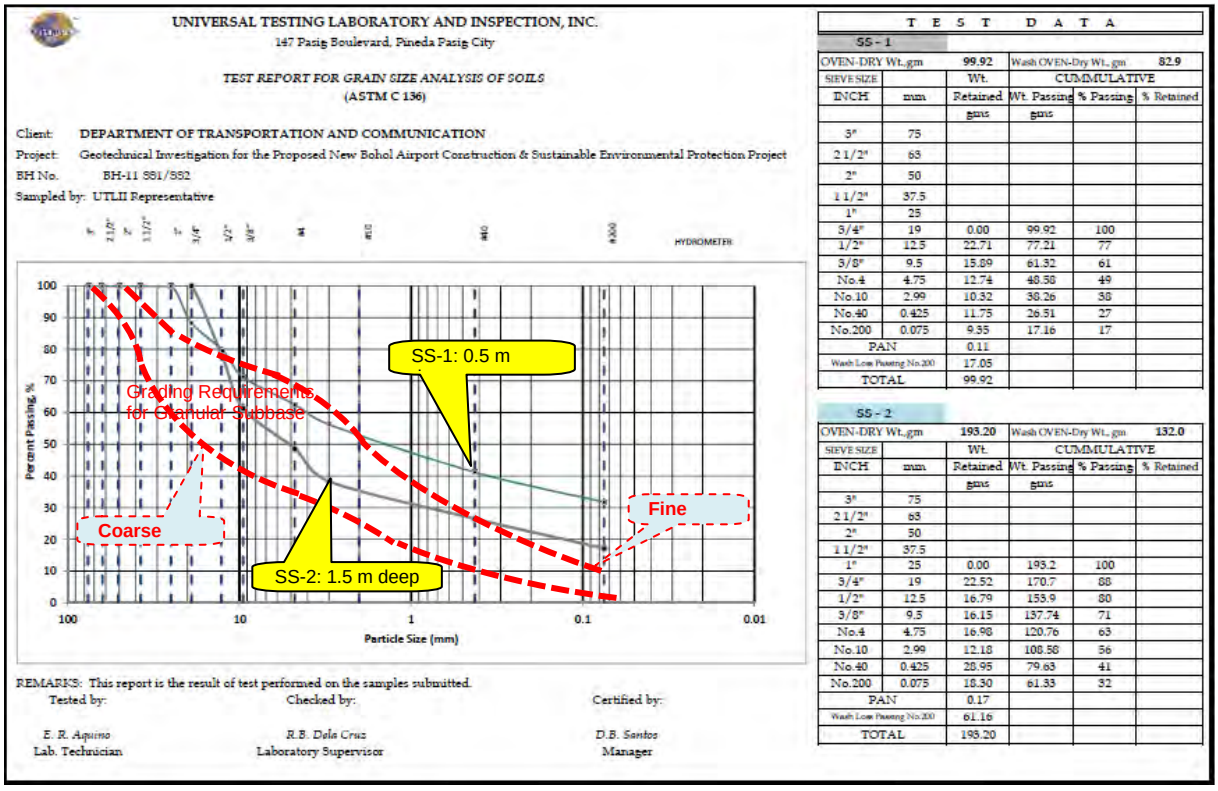
Moisture contents of disturbed soil samples

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

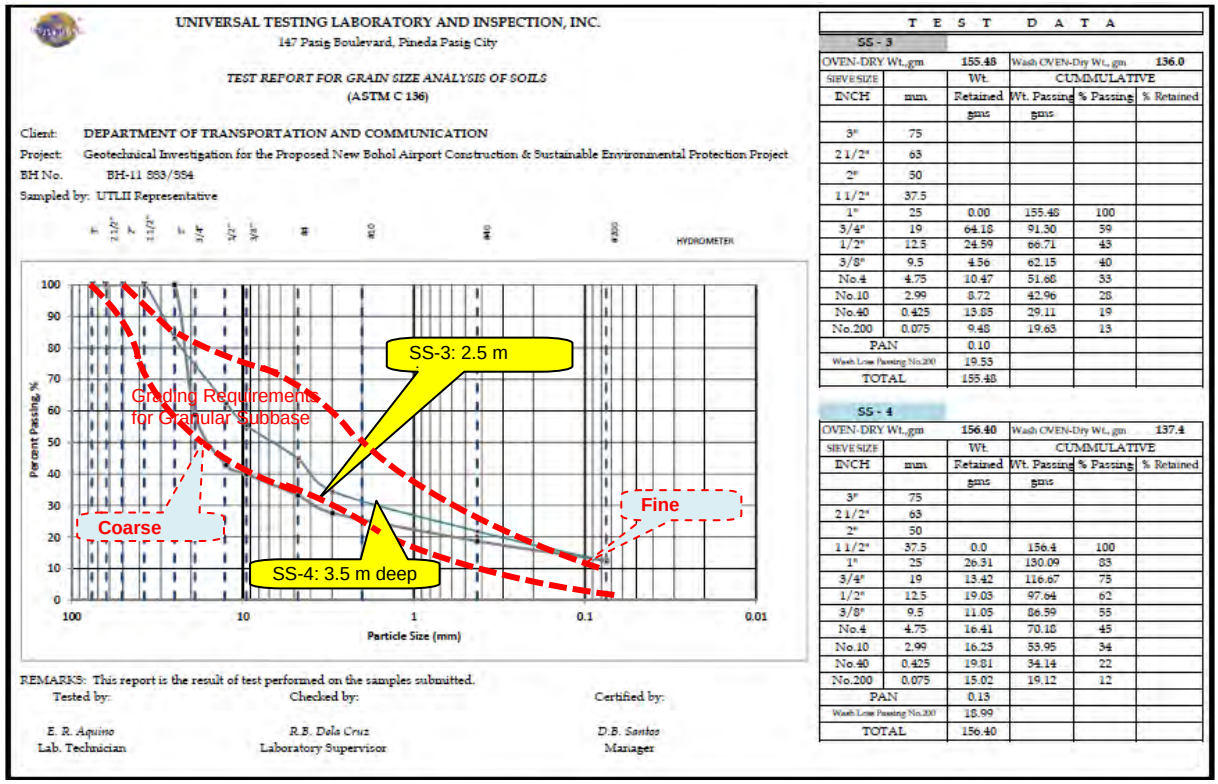
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		99.92	Wash OVEN-Dry Wt., gm		82.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained 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	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 gms	Wt. Passing gms	% Passing	% Retained
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

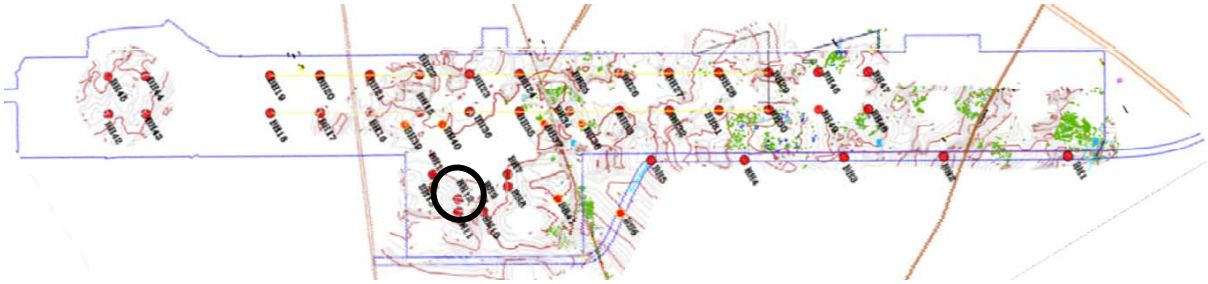
OVEN-DRY Wt.,gm		155.48	Wash OVEN-Dry Wt., gm		136.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	155.48	100	
3/4"	19	64.18	91.30	59	
1/2"	12.5	24.59	66.71	43	
3/8"	9.5	4.56	62.15	40	
No.4	4.75	10.47	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 gms	Wt. Passing gms	% Passing	% Retained
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		18.99			
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



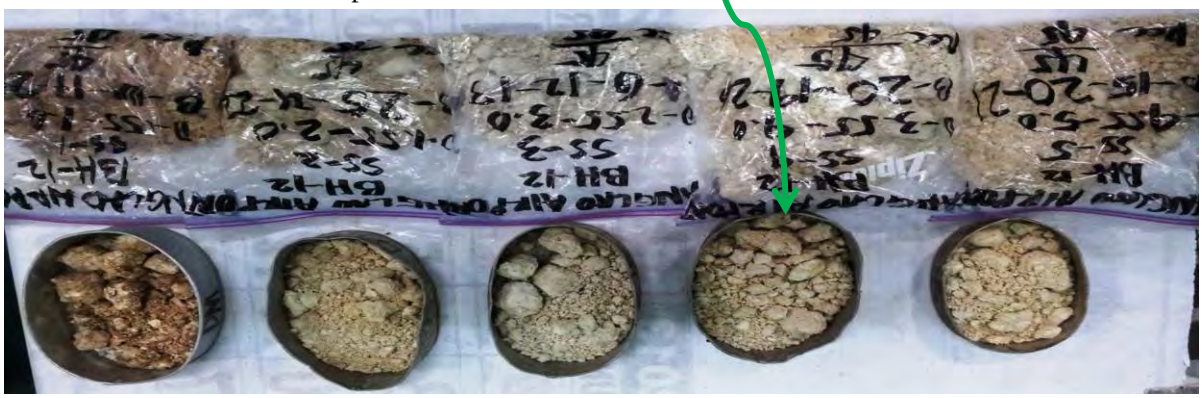
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-12
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, 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



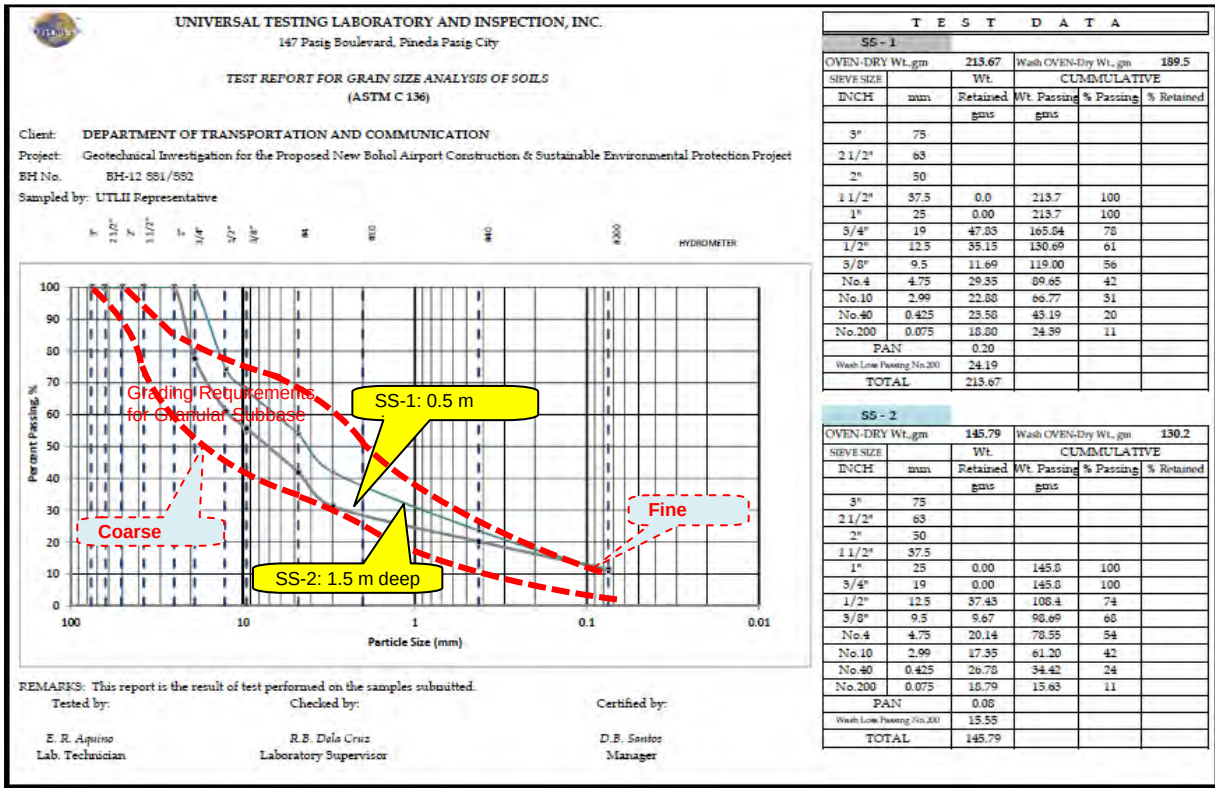
Moisture contents of disturbed soil samples

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

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

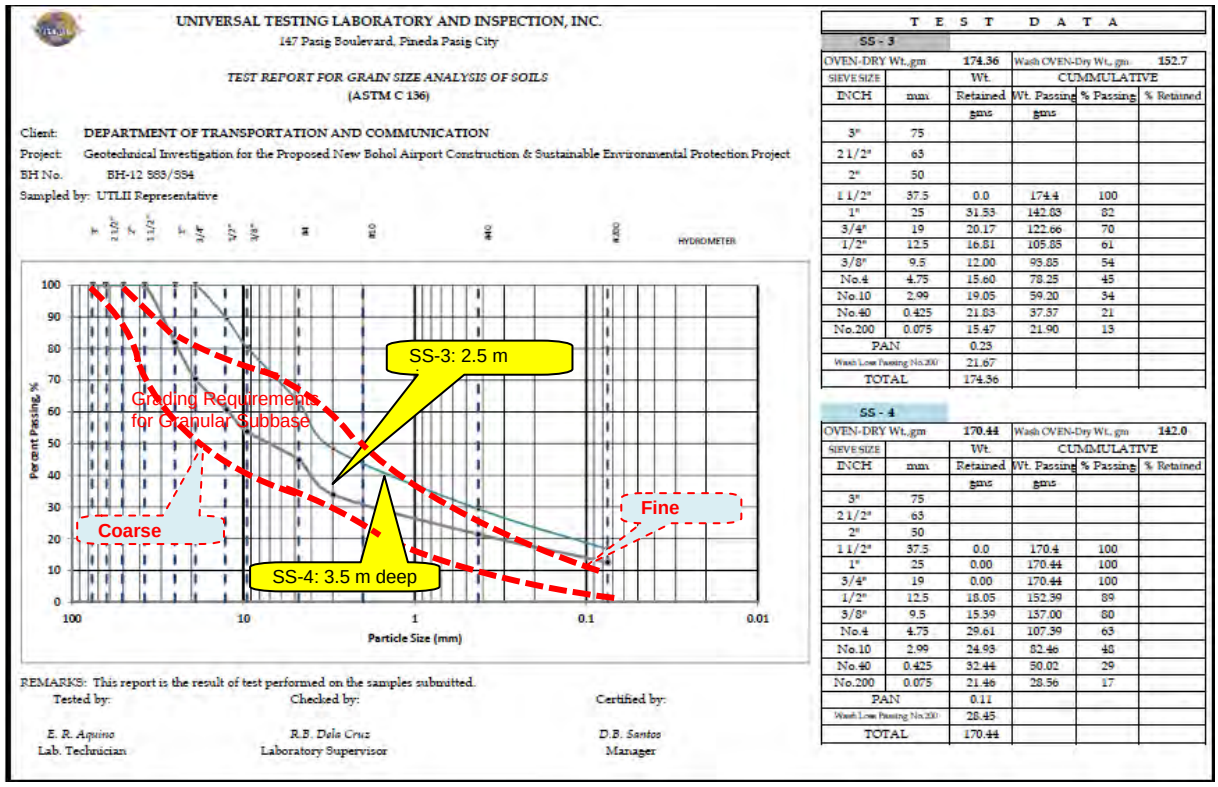
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		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			



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

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

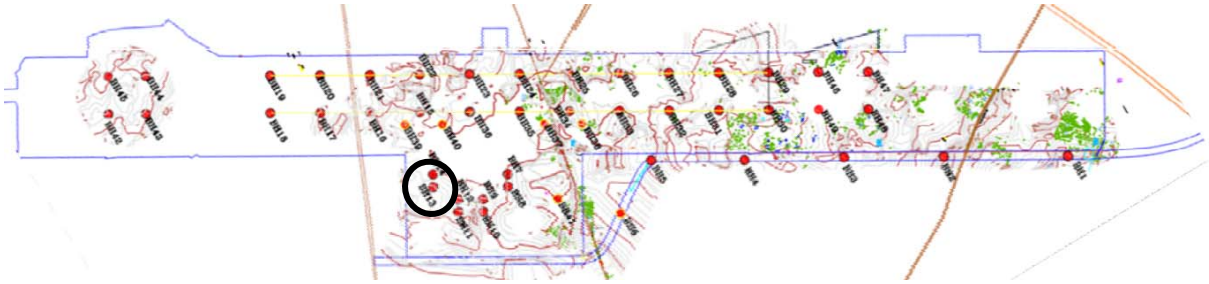
OVEN-DRY Wt.,gm		174.36	Wash OVEN-Dry Wt., gm		152.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	174.4	100	
1"	25	31.53	142.83	82	
3/4"	19	20.17	122.66	70	
1/2"	12.5	16.81	105.85	61	
3/8"	9.5	12.00	93.85	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			

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
		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		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	48	61	54	Subgrade Cut 1.7m	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																

Pictures of disturbed soil samples

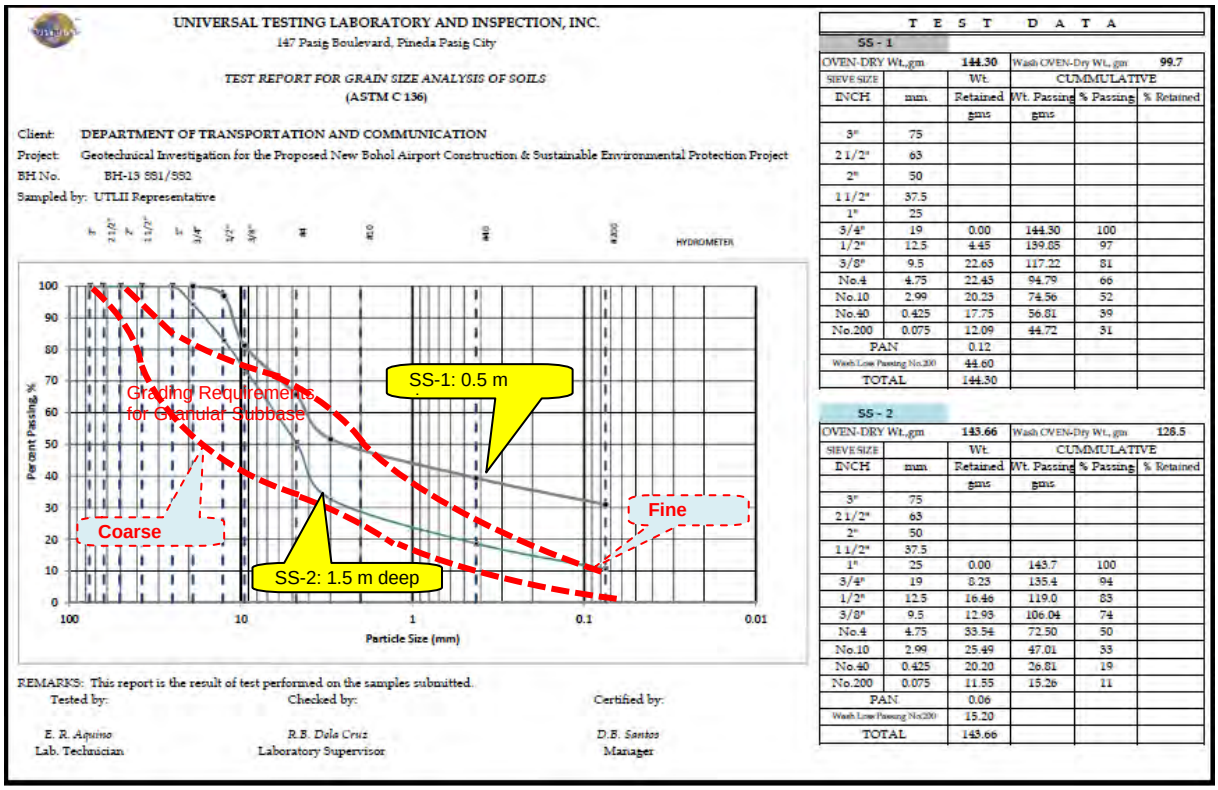
Moisture contents of disturbed soil samples

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

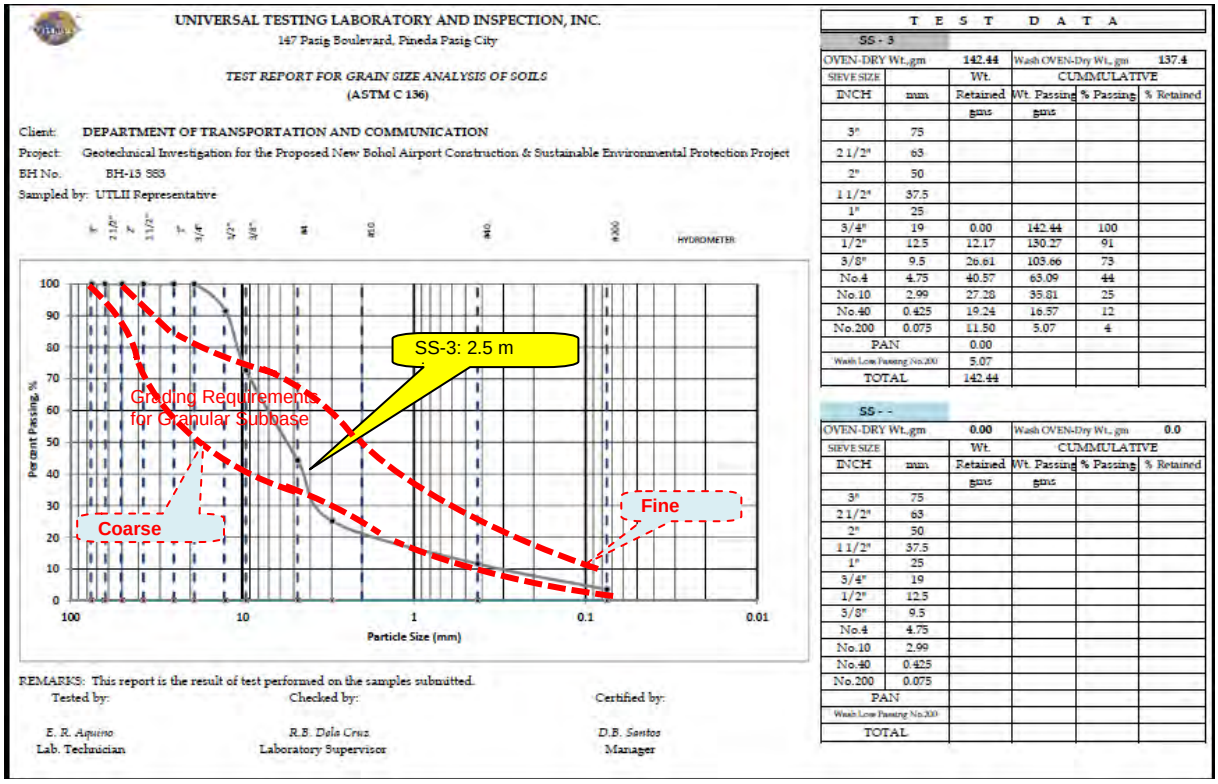
T E S T D A T A

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	22.63	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

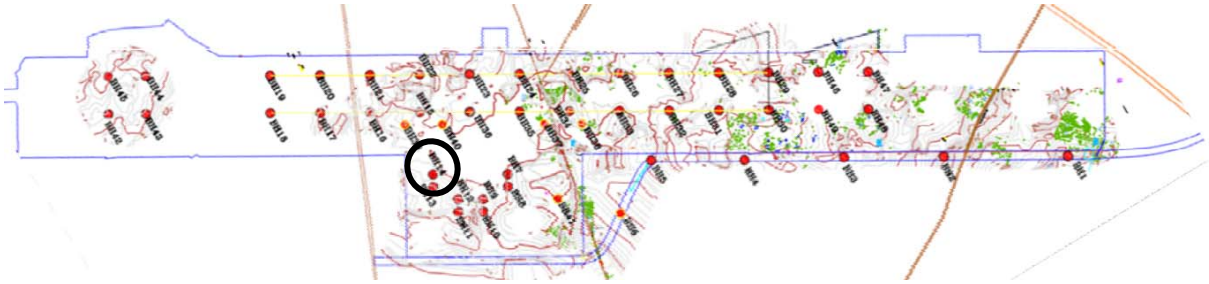
OVEN-DRY Wt.,gm		142.44	Wash OVEN-Dry Wt., gm		137.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	142.44	100	
1/2"	12.5	12.17	130.27	91	
3/8"	9.5	26.61	103.66	73	
No.4	4.75	40.57	63.09	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 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		ML	Dark brown, medium stiff silt with sand and gravel (broken corals with limestone) of no plasticity	21	7	1	Subgrade Cut 1.8m	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
							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)

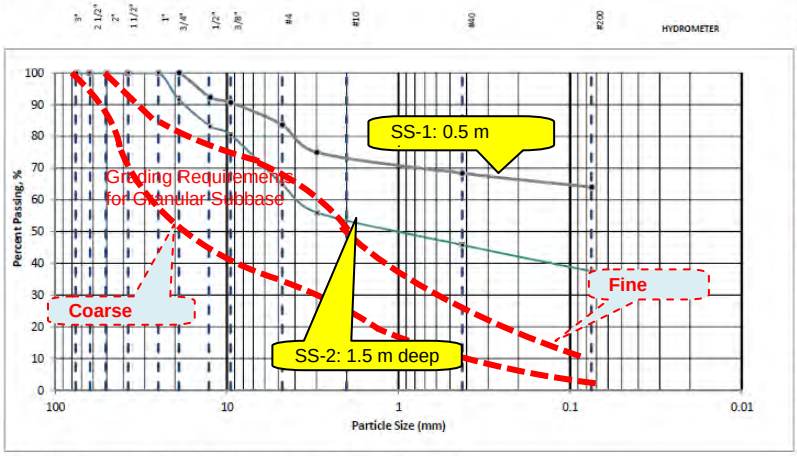
Fine topsoil exists. No large cavity exists. N-value is 13 at 1-m deep.

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:	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		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			

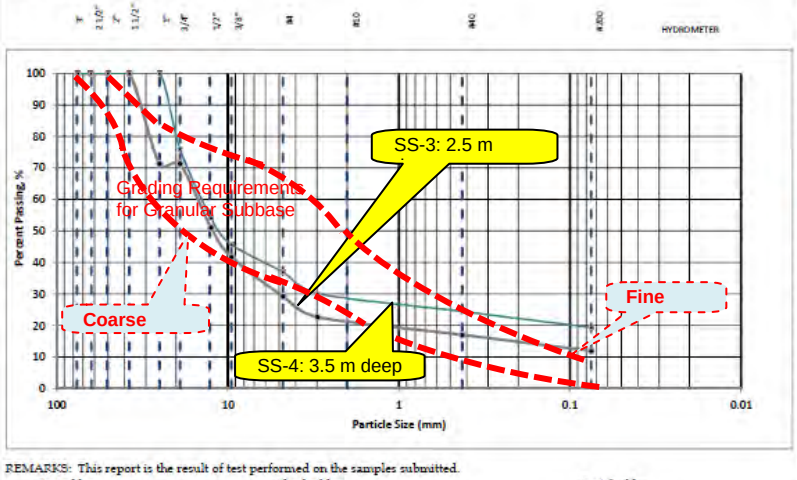
SS - 2

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:	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

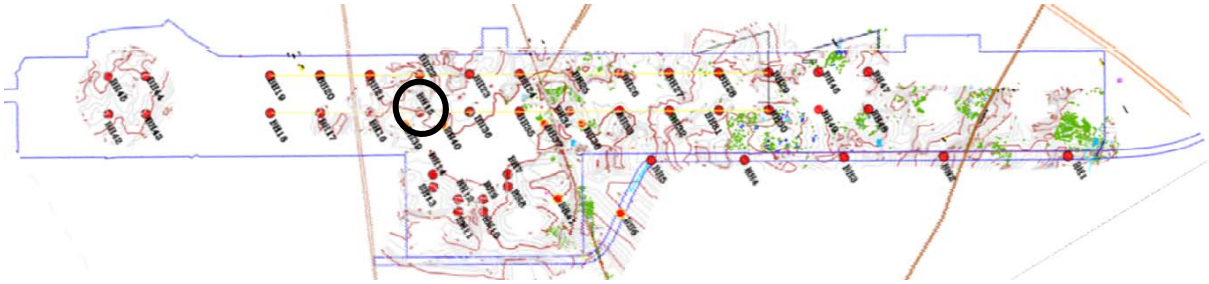
OVEN-DRY Wt., gm		117.97	Wash OVEN-Dry Wt., gm		103.9
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	118.0	100	
1"	25	33.04	84.13	71	
3/4"	19	0.00	84.13	71	
1/2"	12.5	23.92	60.21	51	
3/8"	9.5	10.99	49.22	42	
No.4	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

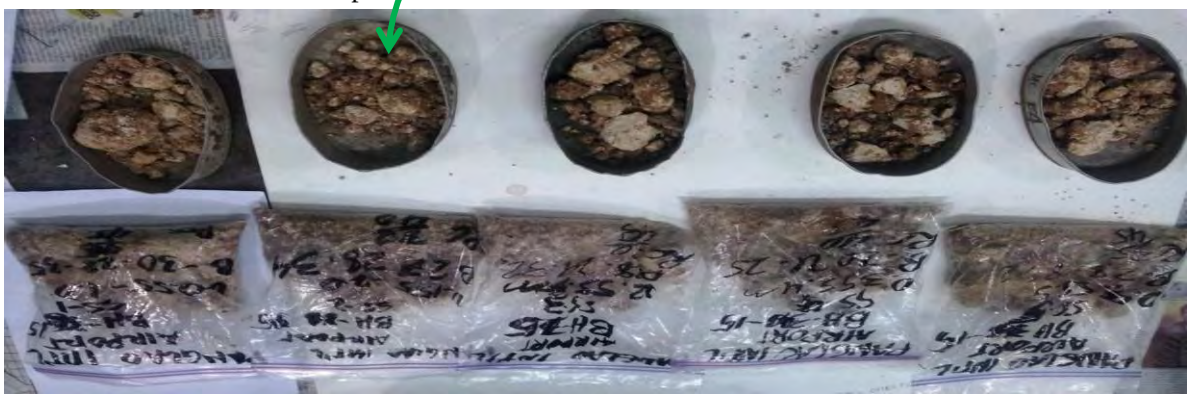


FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

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



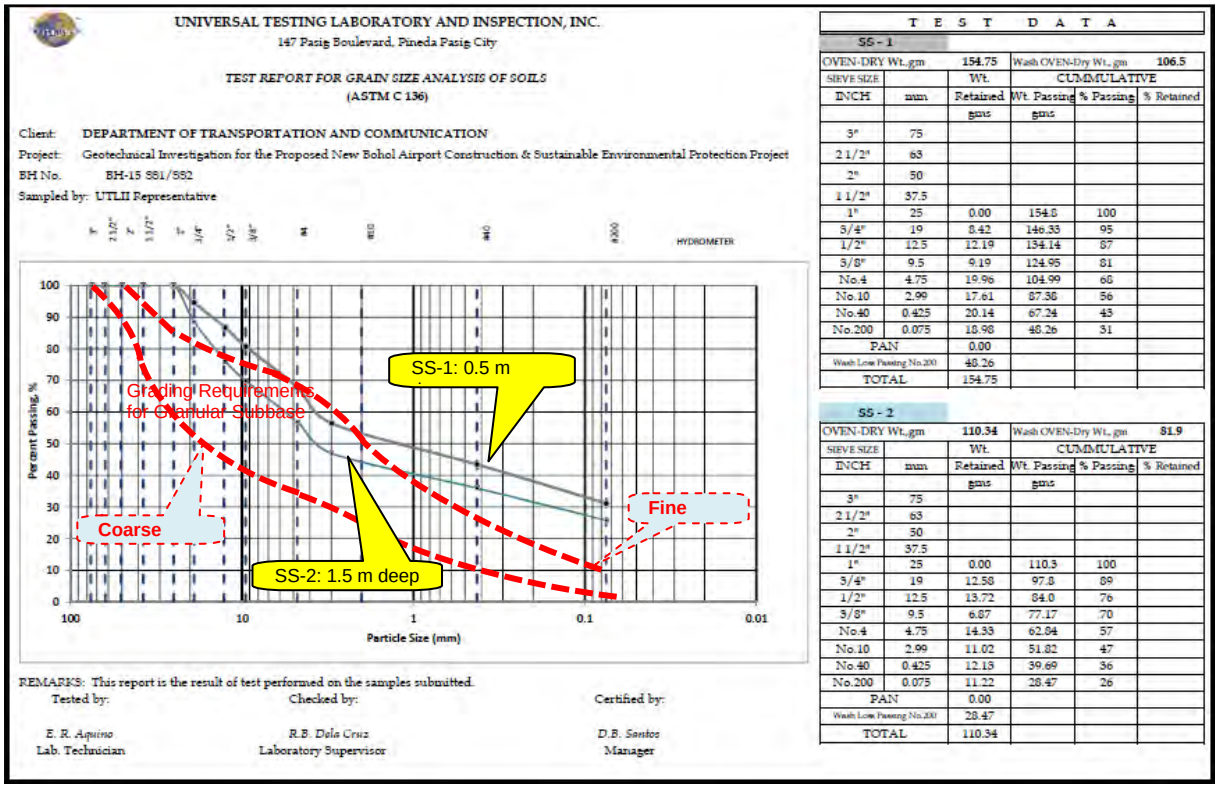
Moisture contents of disturbed soil samples

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.



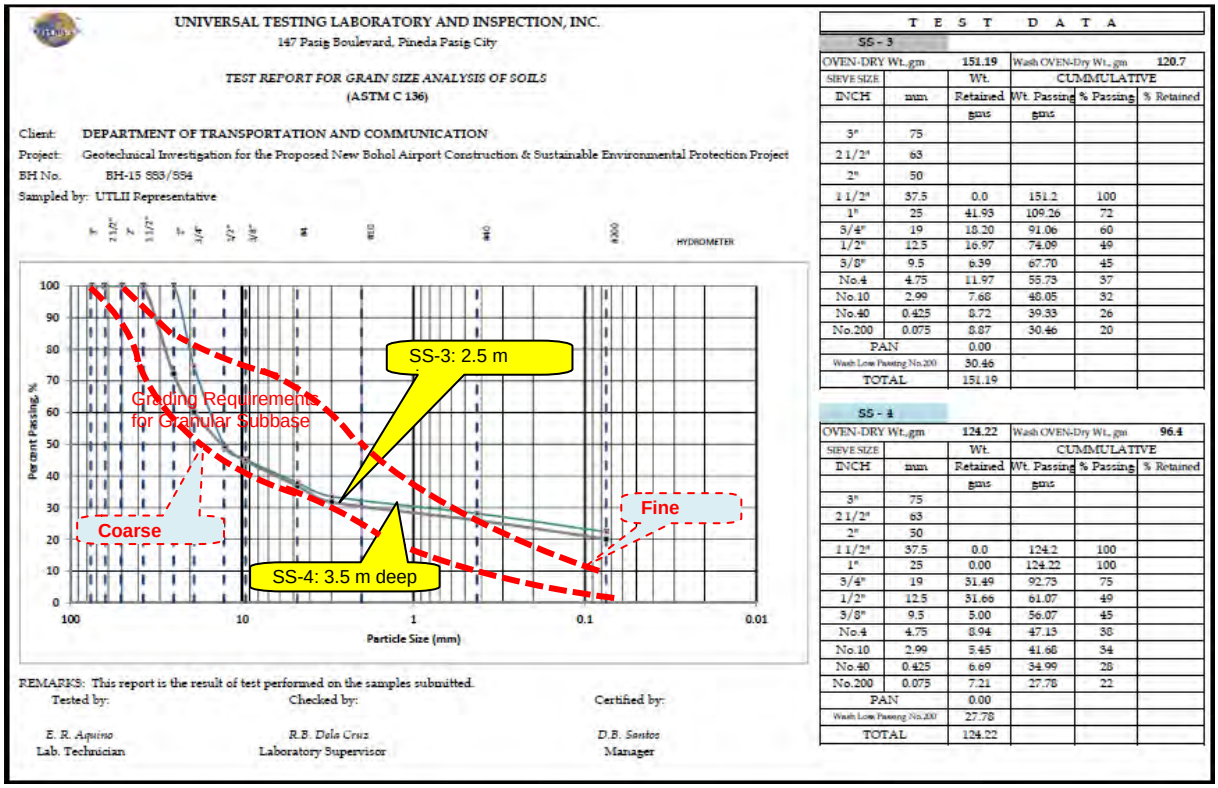
T E S T D A T A

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	146.38	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			



T E S T D A T A

SS - 3

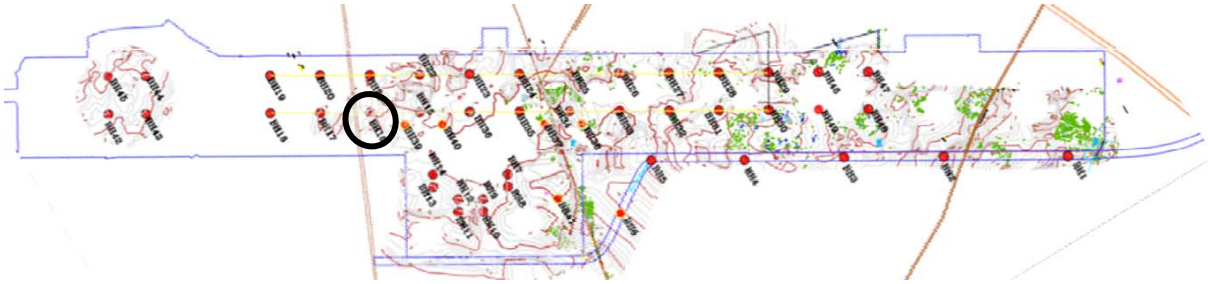
OVEN-DRY Wt., gm		151.19	Wash OVEN-Dry Wt., gm		120.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	151.2	100	
1"	25	41.93	109.26	72	
3/4"	19	18.20	91.06	60	
1/2"	12.5	16.97	74.09	49	
3/8"	9.5	6.39	67.70	45	
No.4	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
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	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

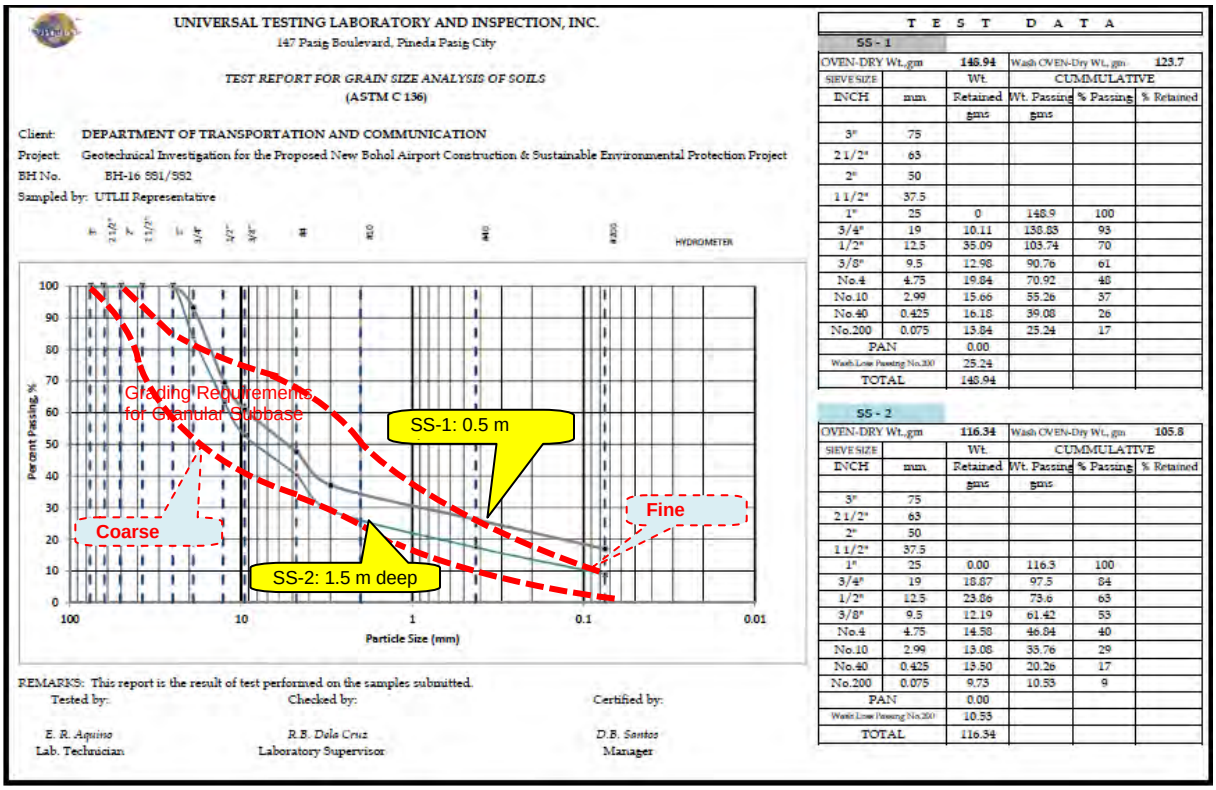
Moisture contents of disturbed soil samples

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

T E S T D A T A

SS - 1

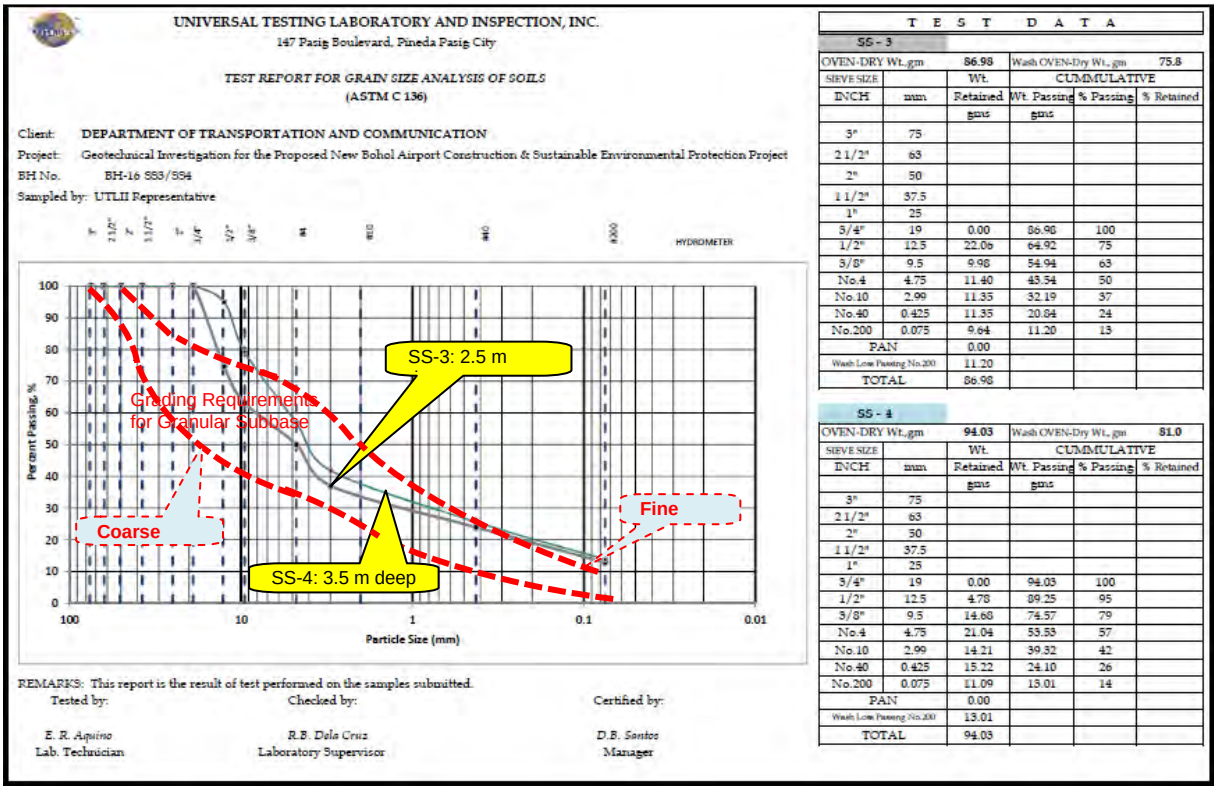
OVEN-DRY Wt.,gm		146.94	Wash OVEN-Dry Wt., gm		123.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	148.9	100	
3/4"	19	10.11	138.83	93	
1/2"	12.5	35.09	103.74	70	
3/8"	9.5	12.98	90.76	61	
No.4	4.75	19.84	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			

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-16 SS3/SS4
Sampled by: UTLII Representative

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

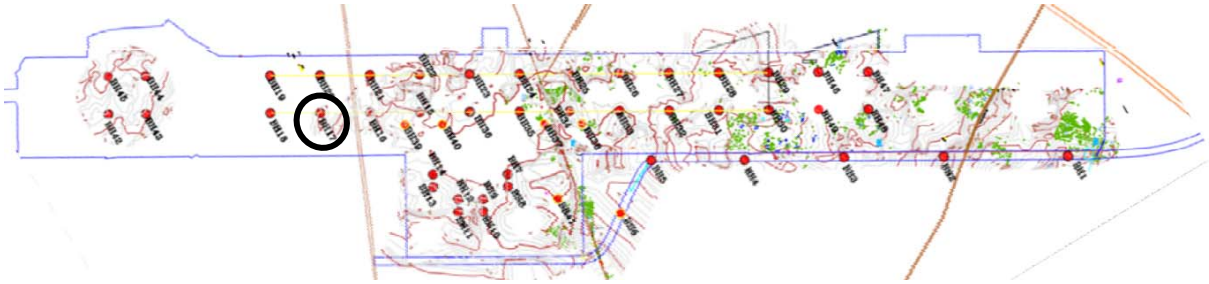
OVEN-DRY Wt.,gm		94.03	Wash OVEN-Dry Wt., gm		81.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	94.03	100	
1/2"	12.5	4.78	89.25	95	
3/8"	9.5	14.68	74.57	79	
No.4	4.75	21.04	53.53	57	
No.10	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			

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-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
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		GW	Dark brown, dense well graded gravel (broken corals with limestone) of no plasticity	63	42	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

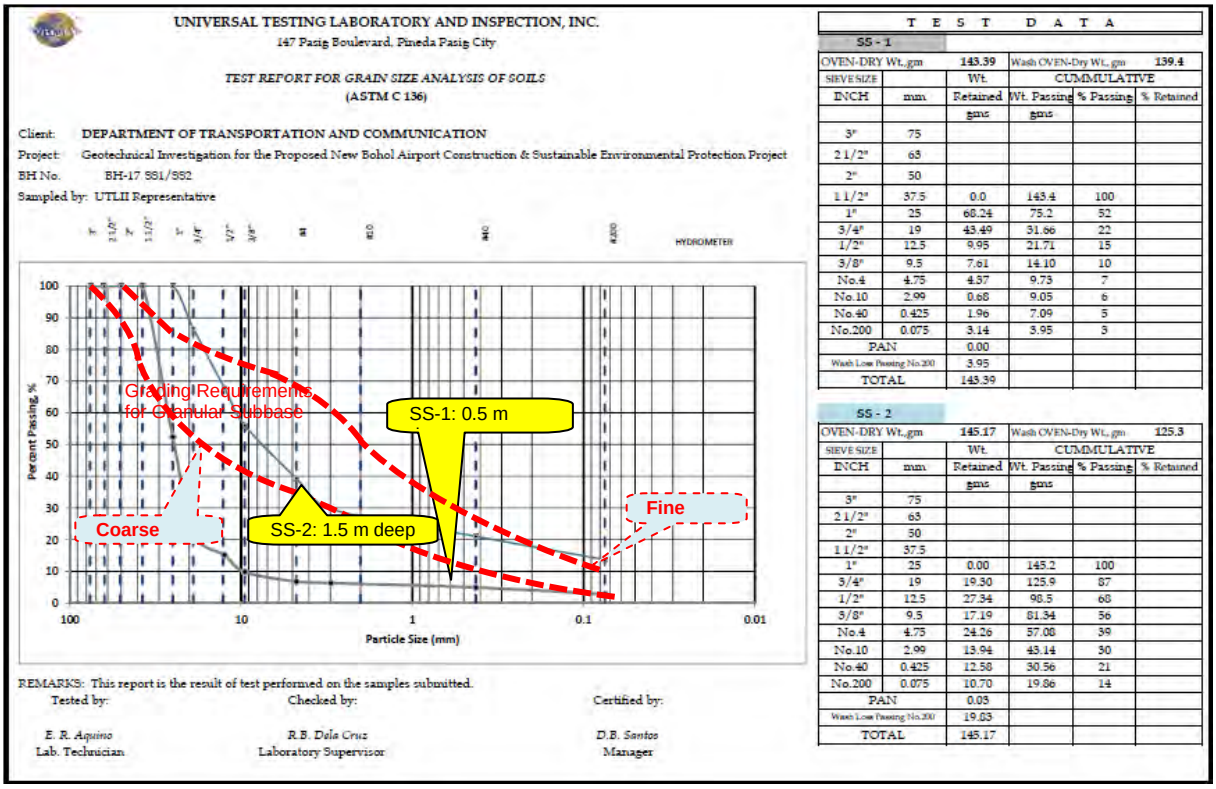
Moisture contents of disturbed soil samples

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

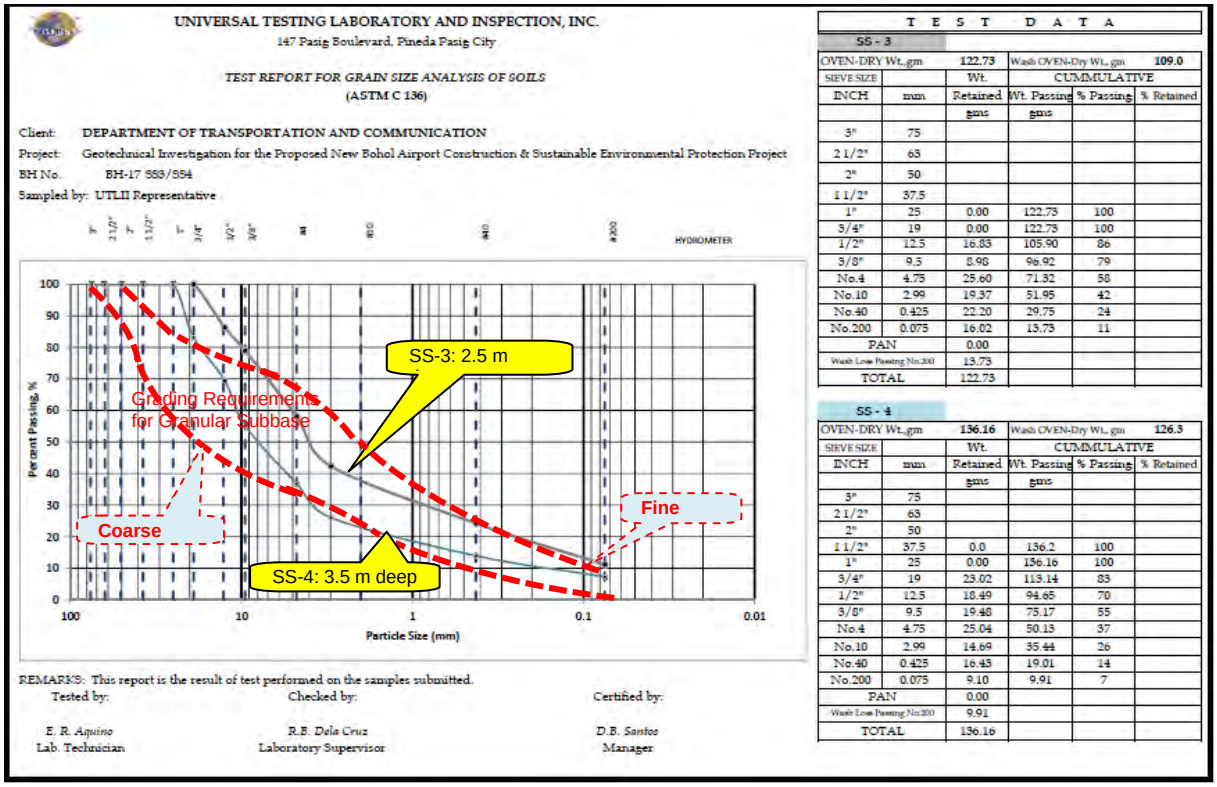
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		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		19.03			
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: *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

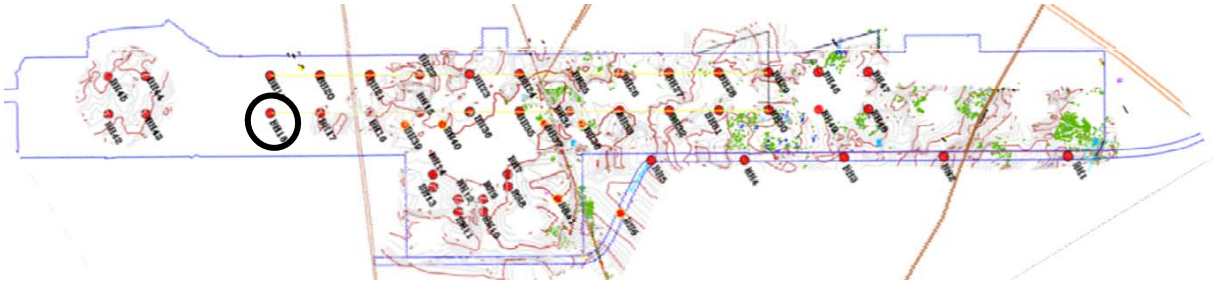
OVEN-DRY Wt.,gm		122.73	Wash OVEN-Dry Wt., gm		109.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	122.73	100	
3/4"	19	0.00	122.73	100	
1/2"	12.5	16.83	105.90	86	
3/8"	9.5	8.98	96.92	79	
No.4	4.75	25.60	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	Subgrade Cut 1.2m	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 26 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 84 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 28 7
							END OF BOREHOLE								

Pictures of disturbed soil samples

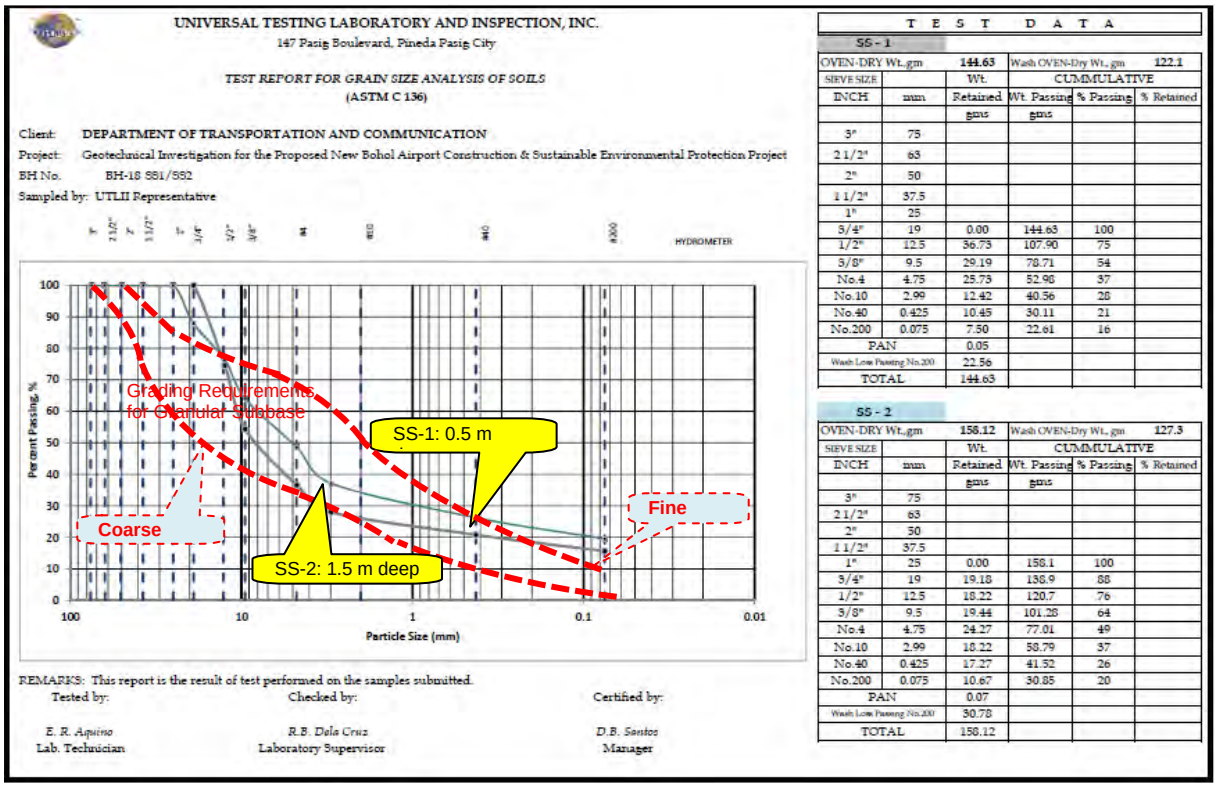
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	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.



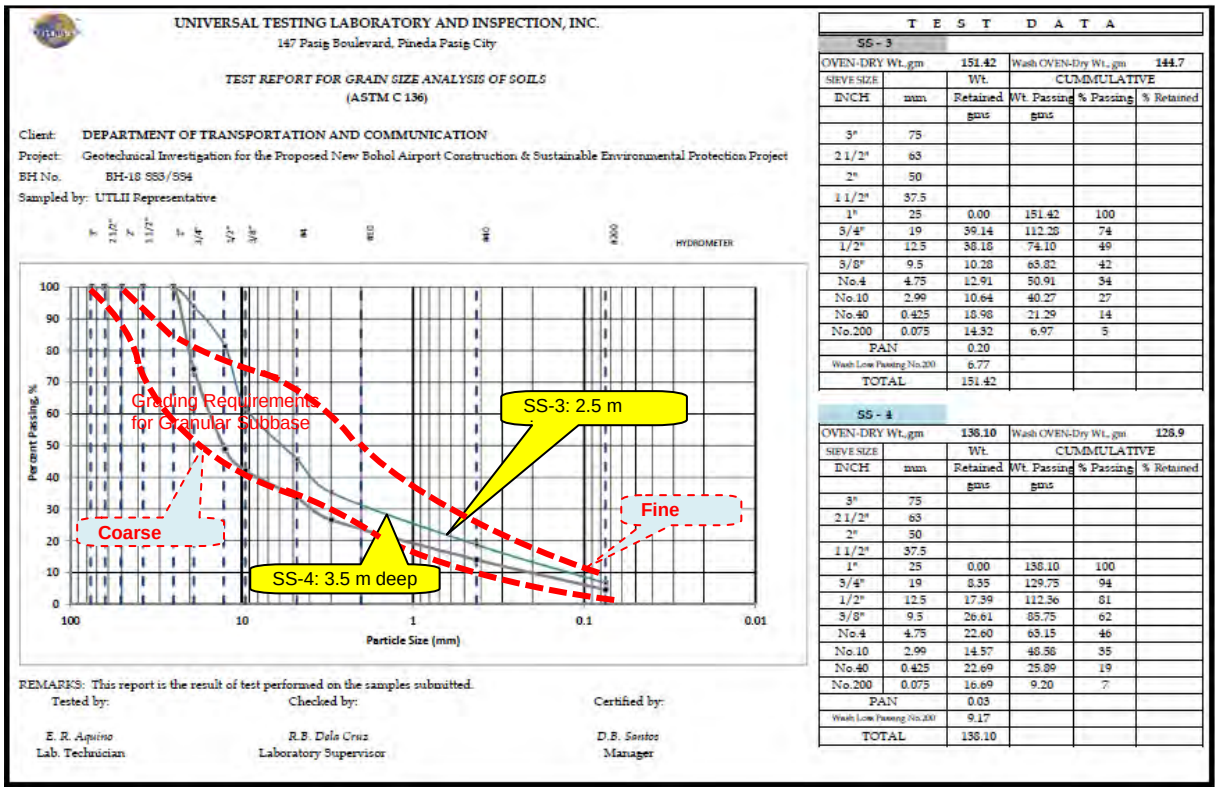
T E S T D A T A

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			



T E S T D A T A

SS - 3

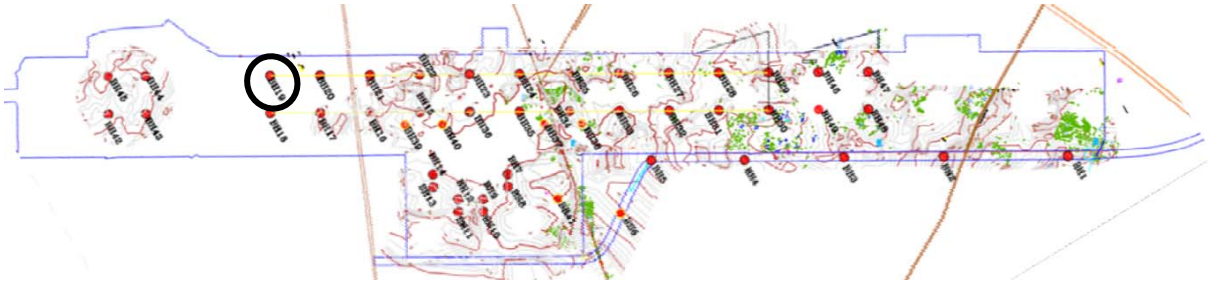
OVEN-DRY Wt.,gm		151.42	Wash OVEN-Dry Wt., gm		144.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	151.42	100	
3/4"	19	39.14	112.28	74	
1/2"	12.5	38.18	74.10	49	
3/8"	9.5	10.28	63.82	42	
No.4	4.75	12.91	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		138.10	Wash OVEN-Dry Wt., gm		128.9
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	138.10	100	
3/4"	19	8.35	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		138.10			

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

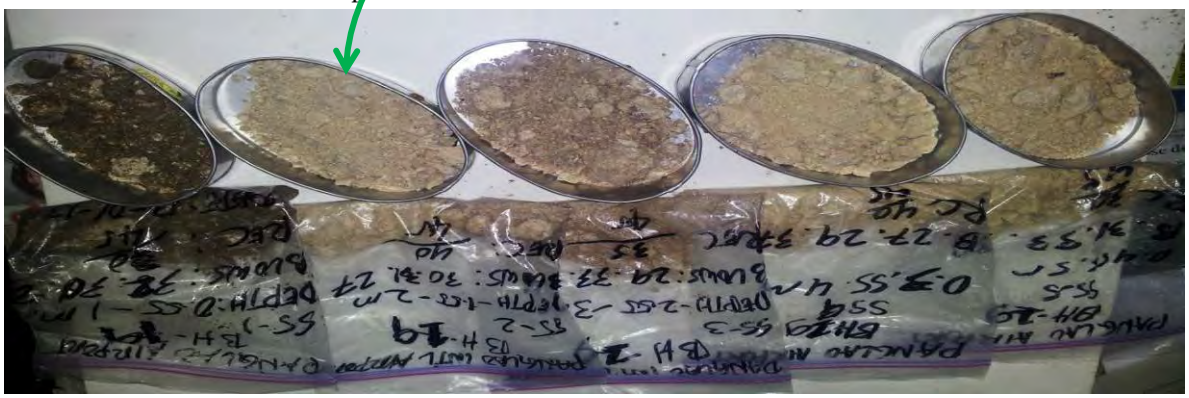


FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

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



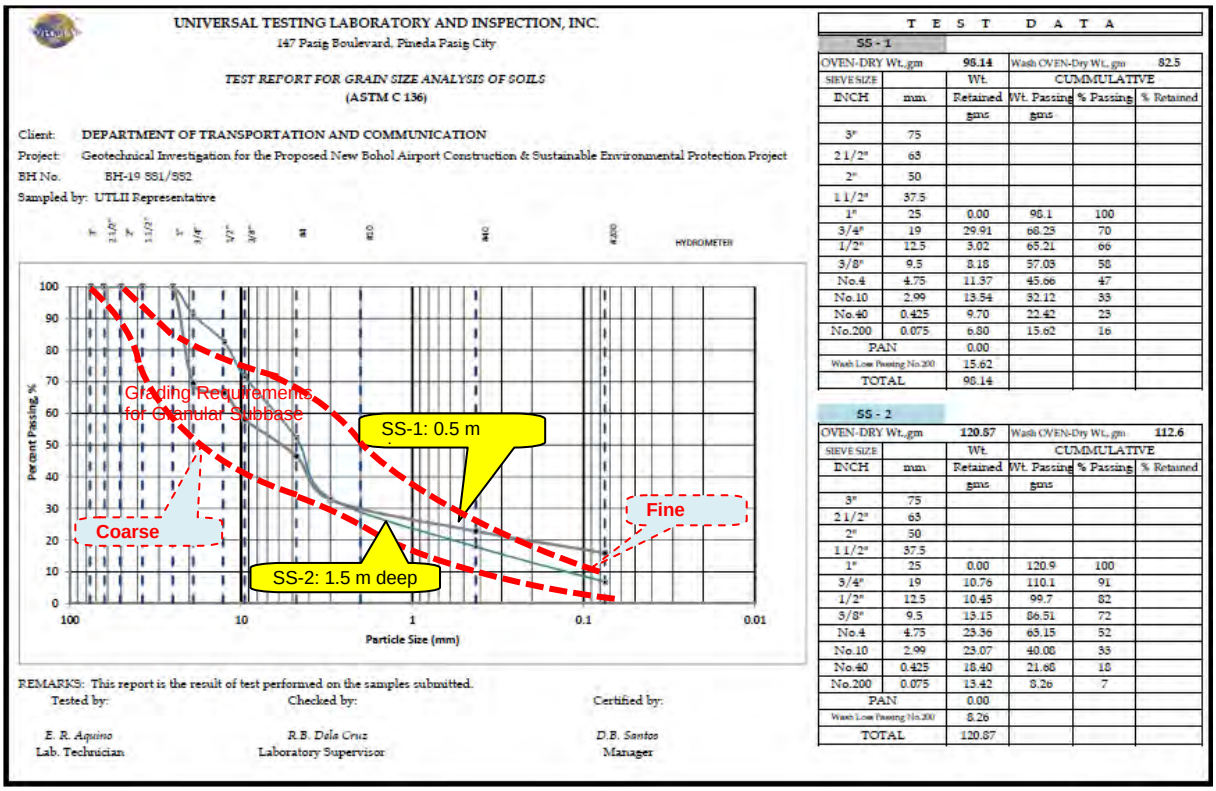
Moisture contents of disturbed soil samples

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.



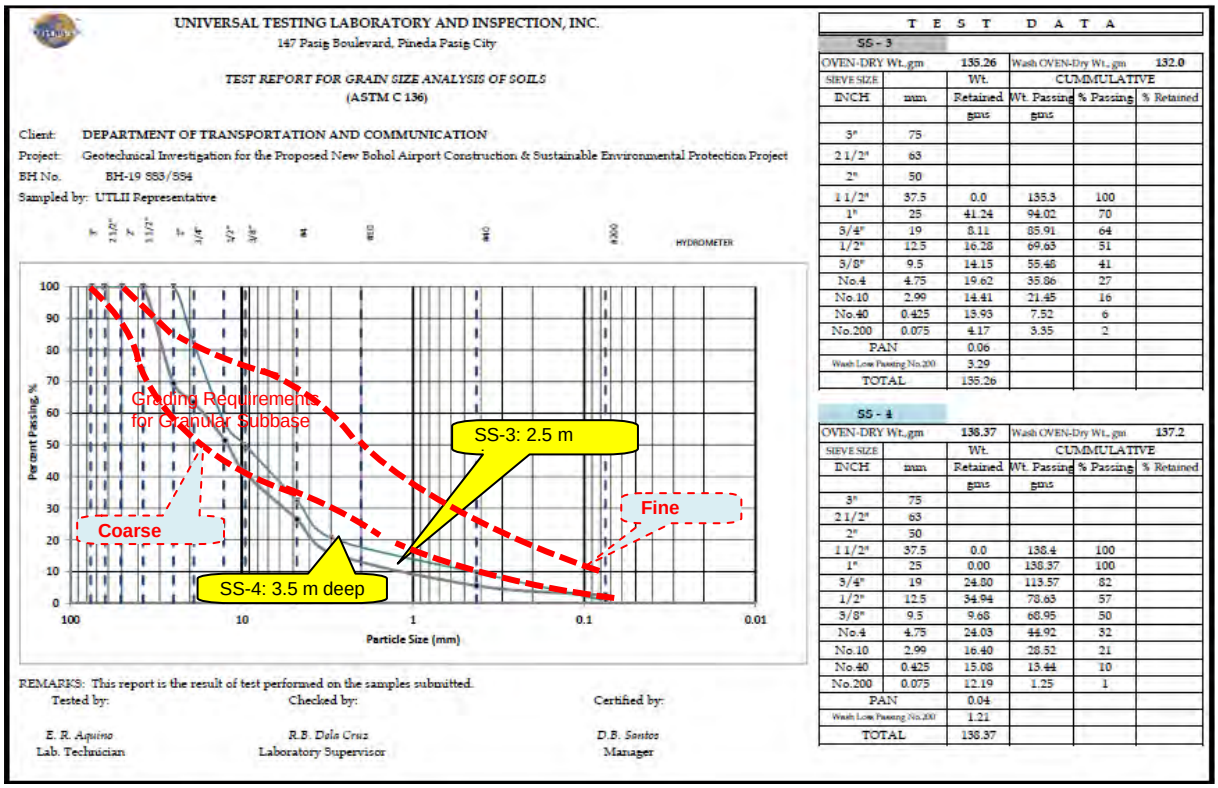
T E S T D A T A

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	13.15	86.51	72	
No.4	4.75	23.36	65.15	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			



T E S T D A T A

SS - 3

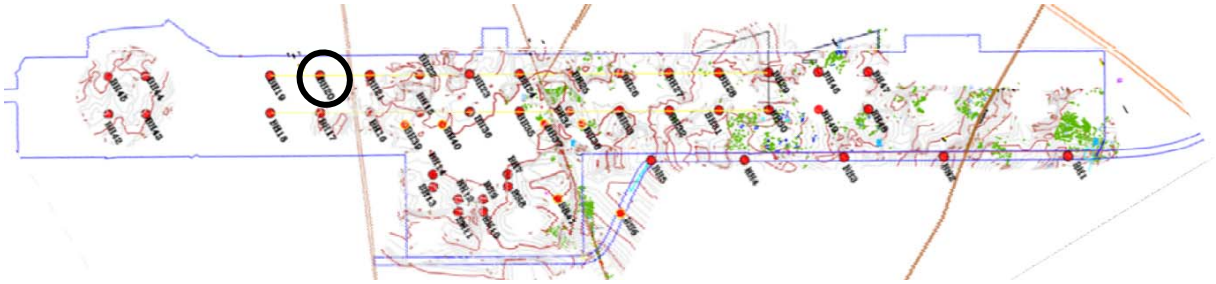
OVEN-DRY Wt.,gm		135.26	Wash OVEN-Dry Wt., gm		132.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	135.3	100	
1"	25	41.24	94.02	70	
3/4"	19	8.11	85.91	64	
1/2"	12.5	16.28	69.63	51	
3/8"	9.5	14.15	55.48	41	
No.4	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
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	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

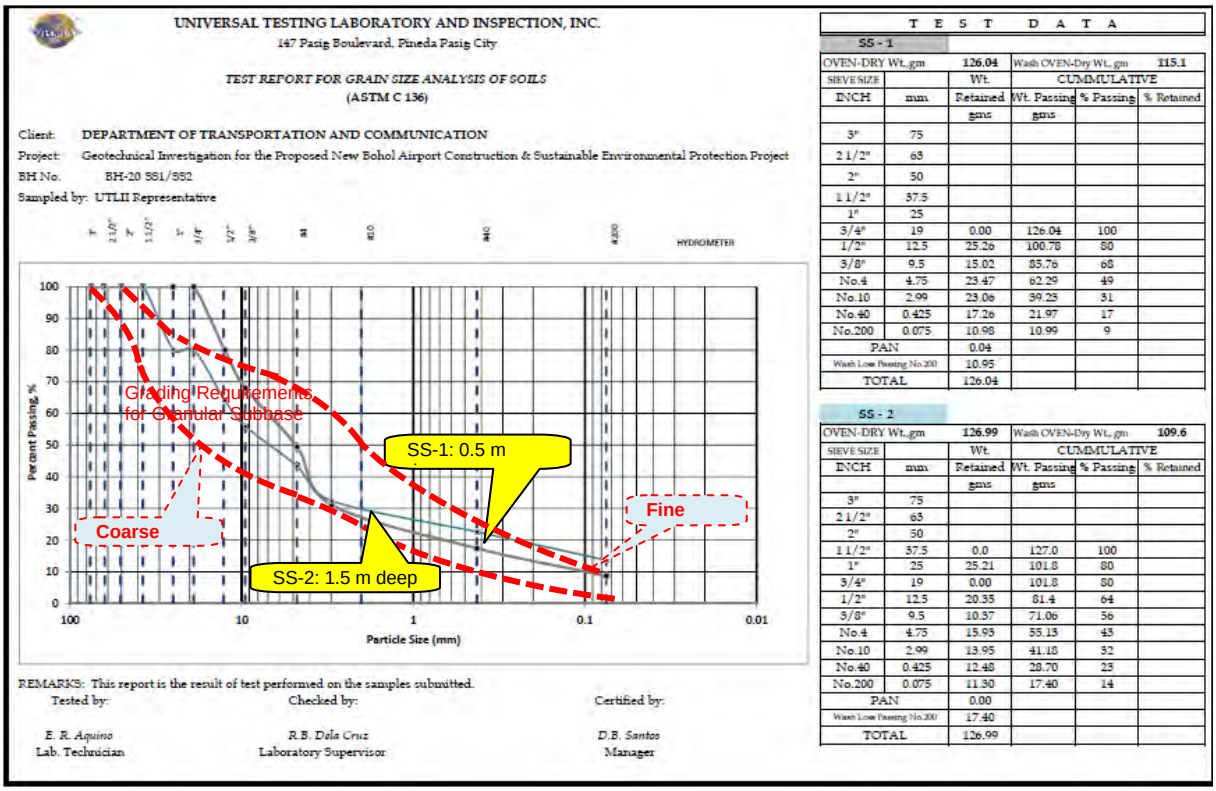
Moisture contents of disturbed soil samples

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.



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-20 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

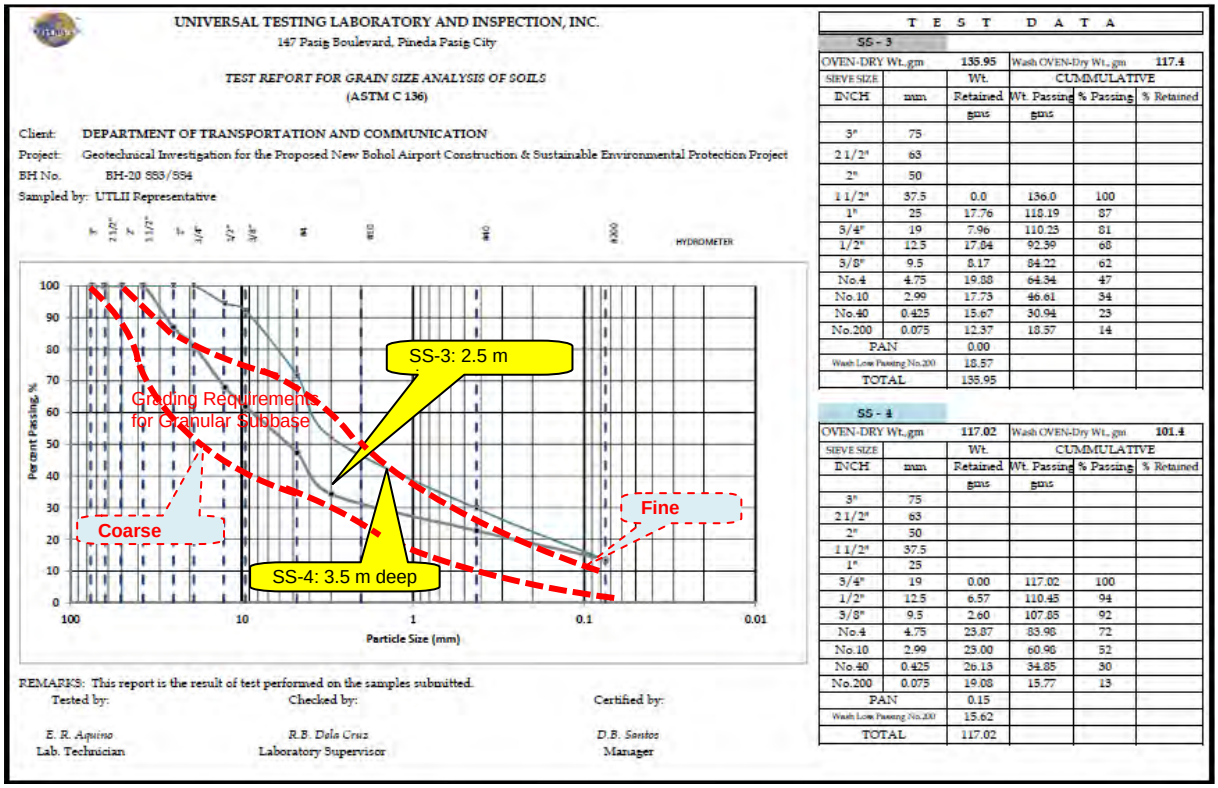
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		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			



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-20 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

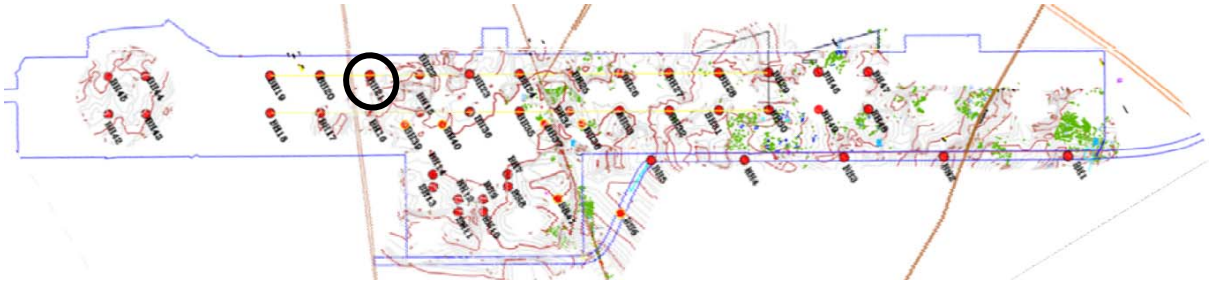
OVEN-DRY Wt.,gm		135.95	Wash OVEN-Dry Wt., gm		117.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	136.0	100	
1"	25	17.76	118.19	87	
3/4"	19	7.96	110.23	81	
1/2"	12.5	17.84	92.39	68	
3/8"	9.5	8.17	84.22	62	
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

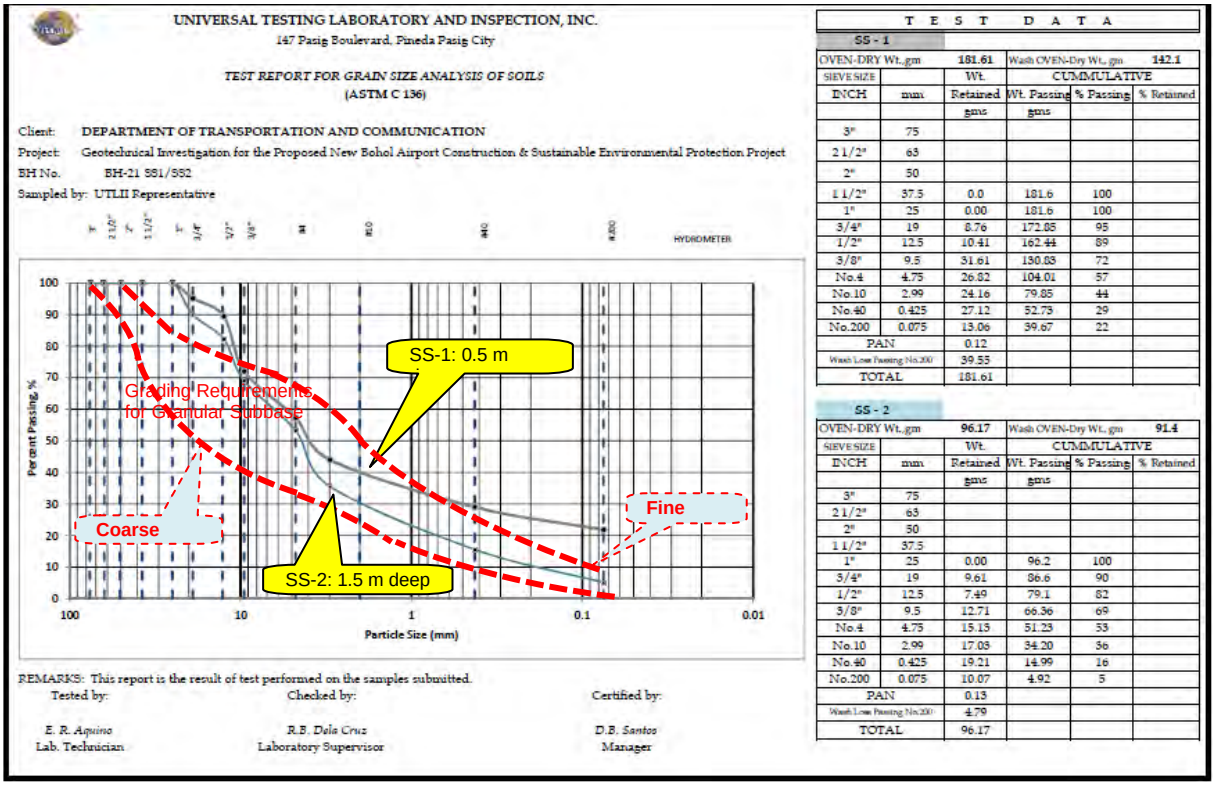
Moisture contents of disturbed soil samples

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

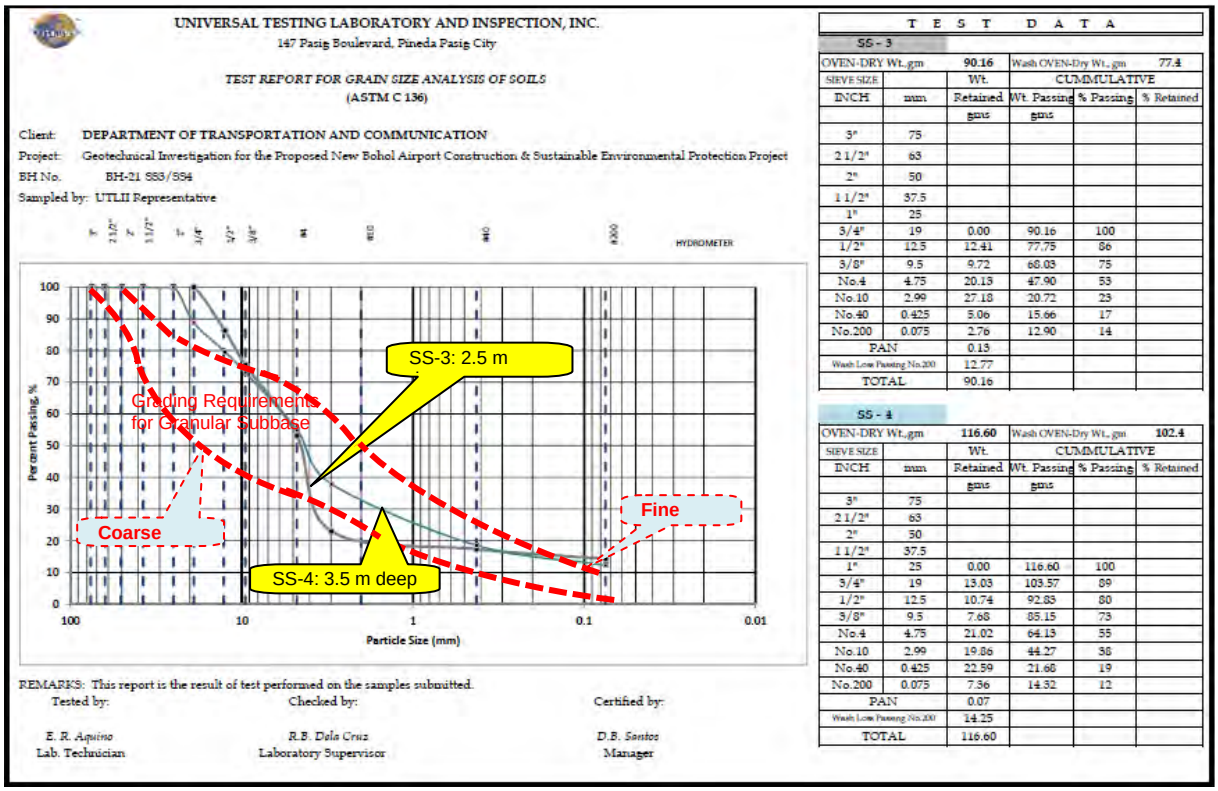
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		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: *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

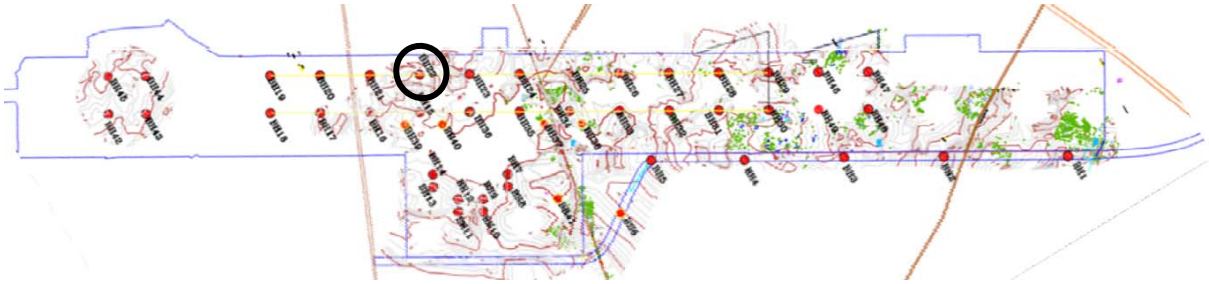
OVEN-DRY Wt.,gm		90.16	Wash OVEN-Dry Wt., gm		77.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	90.16	100	
1/2"	12.5	12.41	77.75	86	
3/8"	9.5	9.72	68.03	75	
No.4	4.75	20.13	47.90	53	
No.10	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
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
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				10 20 30 40												
1	1	67	-	SS		GM	Yellowish brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	36	67	7	Subgrade Cut 1.0m	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

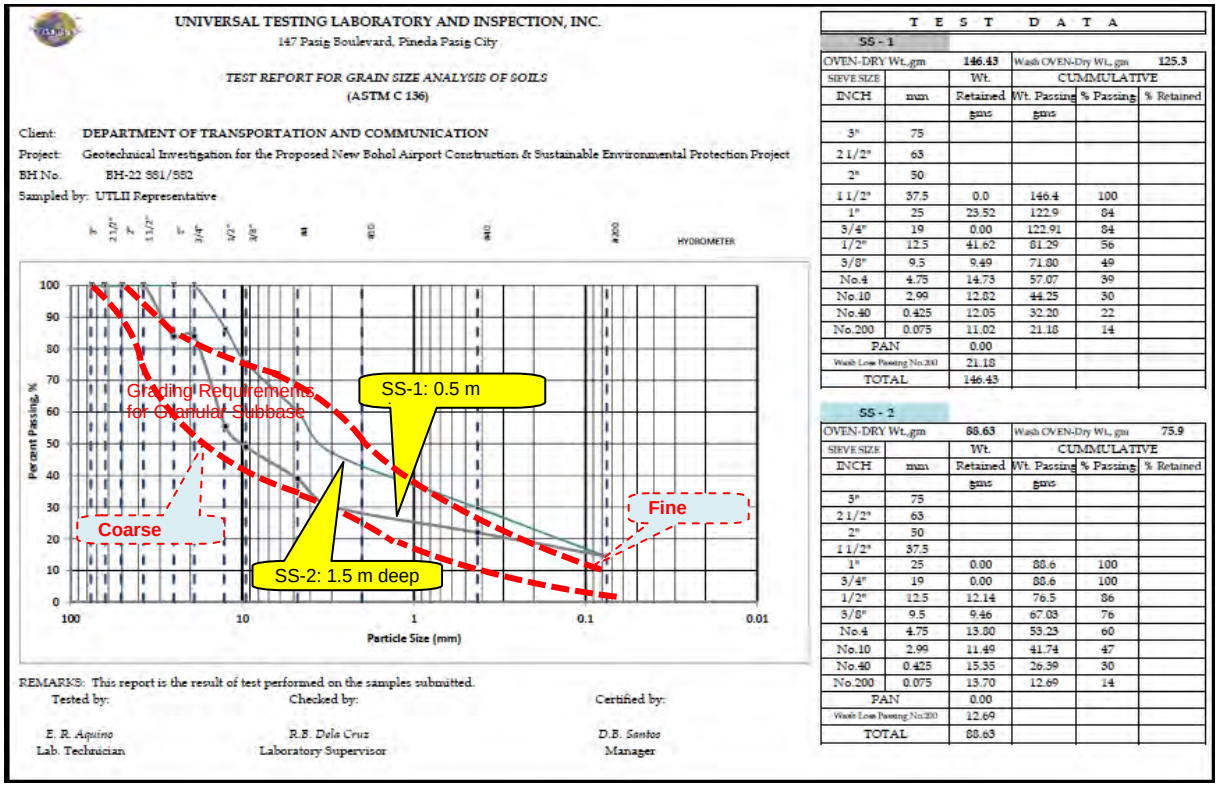
Moisture contents of disturbed soil samples

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

T E S T D A T A

SS - 1

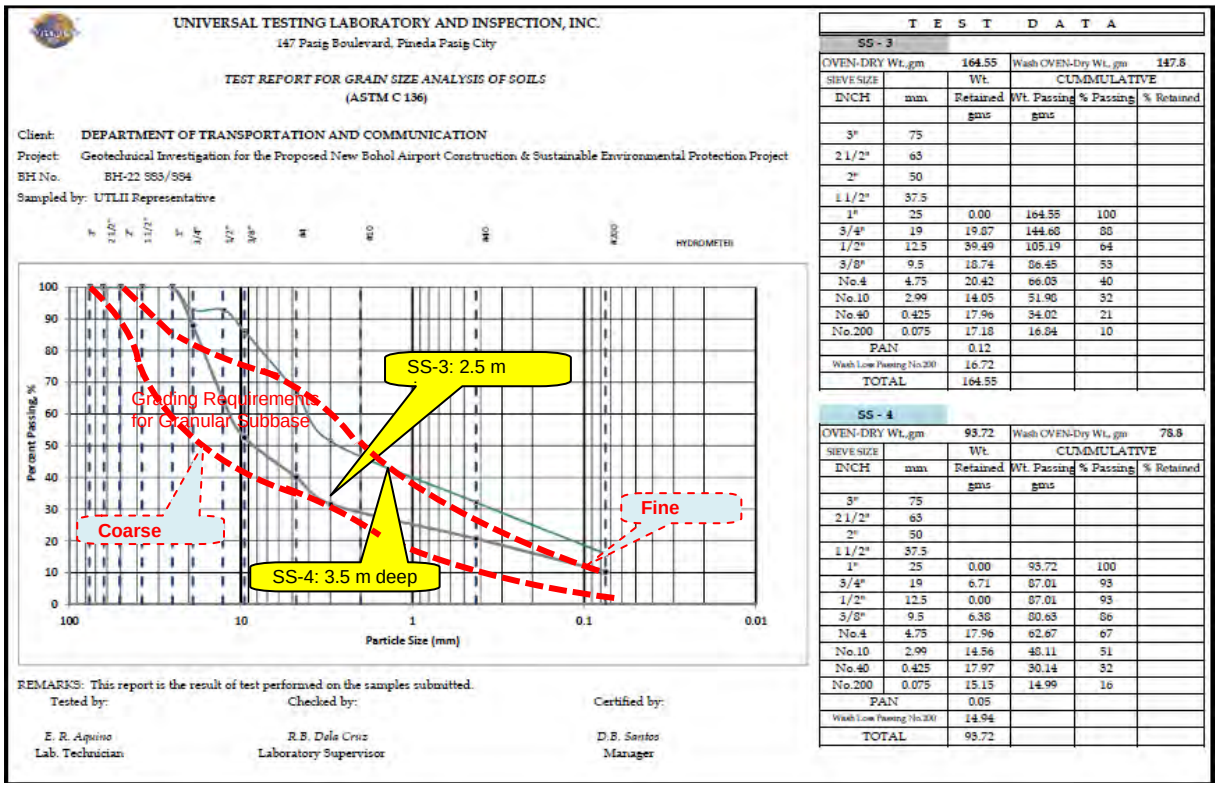
OVEN-DRY Wt.,gm		146.43	Wash OVEN-Dry Wt., gm		125.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	146.4	100	
1"	25	23.52	122.9	84	
3/4"	19	0.00	122.91	84	
1/2"	12.5	41.62	81.29	56	
3/8"	9.5	9.49	71.80	49	
No.4	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			

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-22 SS3/SS4
Sampled by: UTLII Representative

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	51.96	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			

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-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

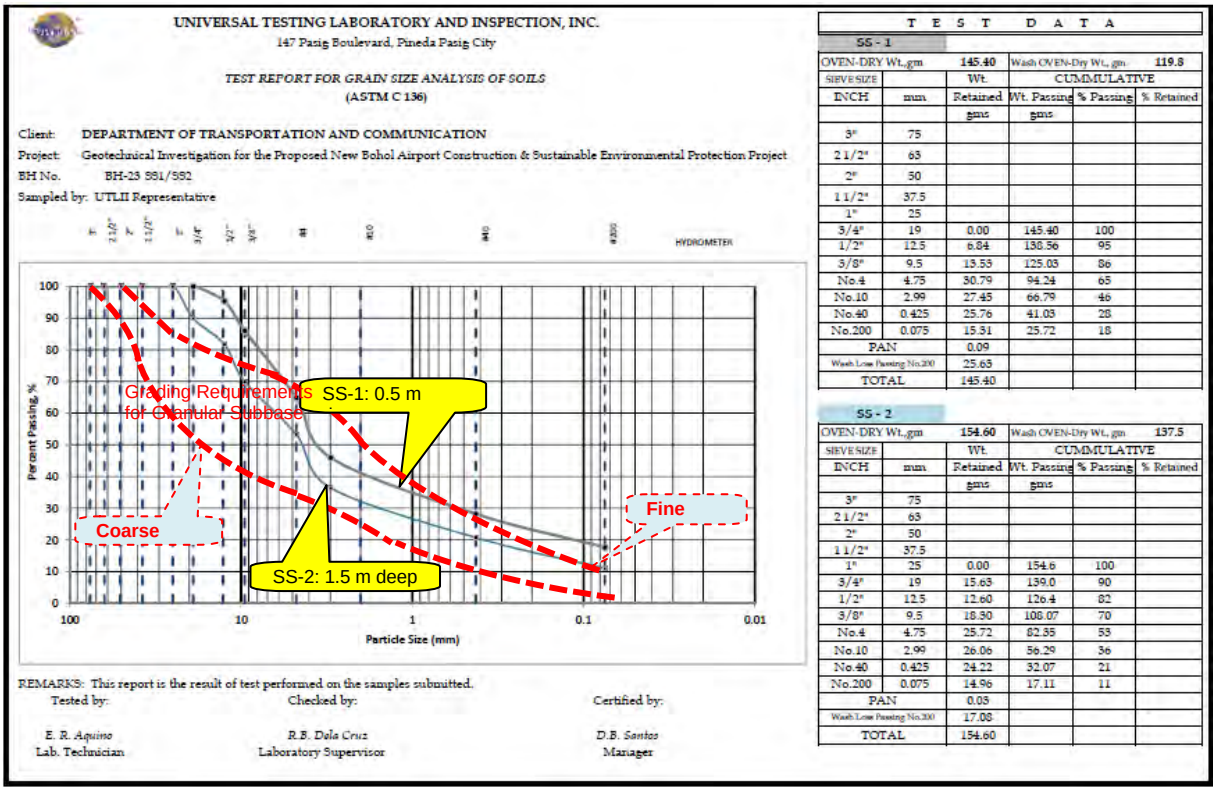
Moisture contents of disturbed soil samples

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.



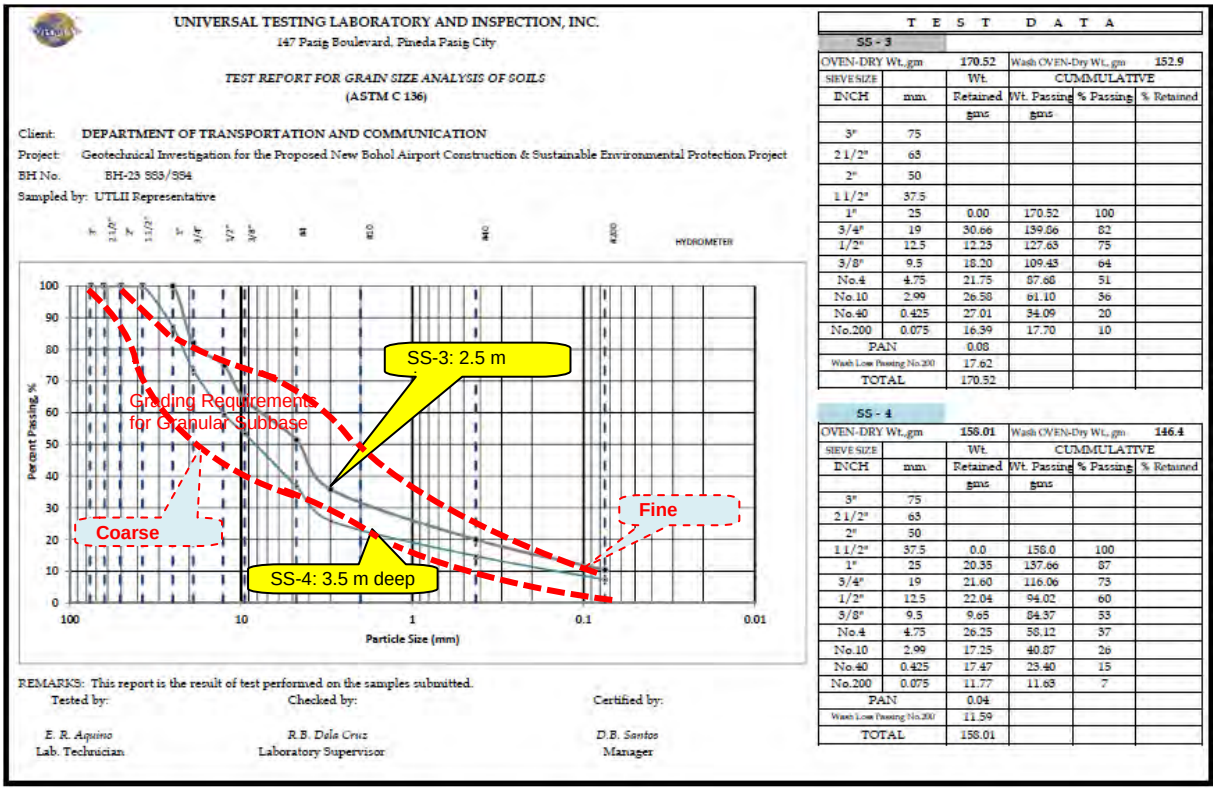
T E S T D A T A

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			



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				Subgrade Cut 0.2m												
1	1	100	-	SS		GM	Light brown, very dense silty gravel with sand (broken corals with limestone) of no plasticity	13	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	30	39	27		14.79	NP	NP		100	93	84	70	57	45	25	11
							END OF BOREHOLE																

Pictures of disturbed soil samples

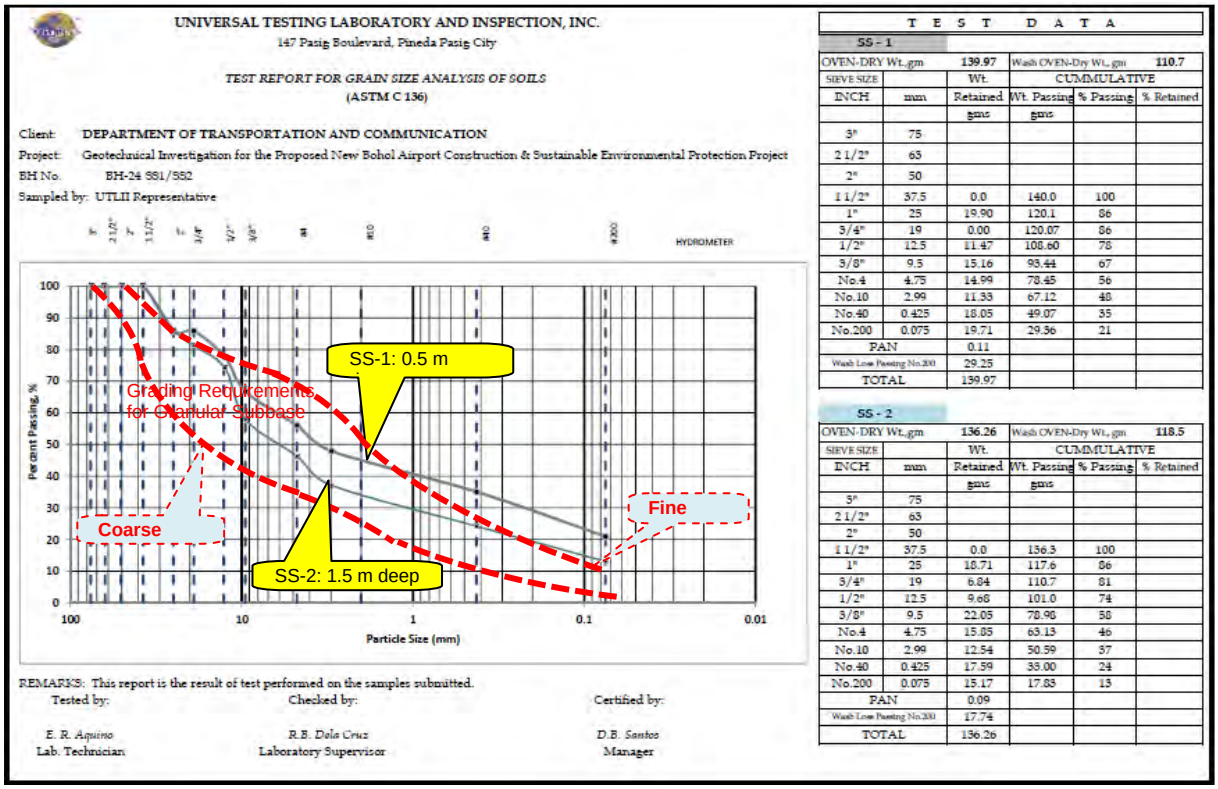
Moisture contents of disturbed soil samples

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

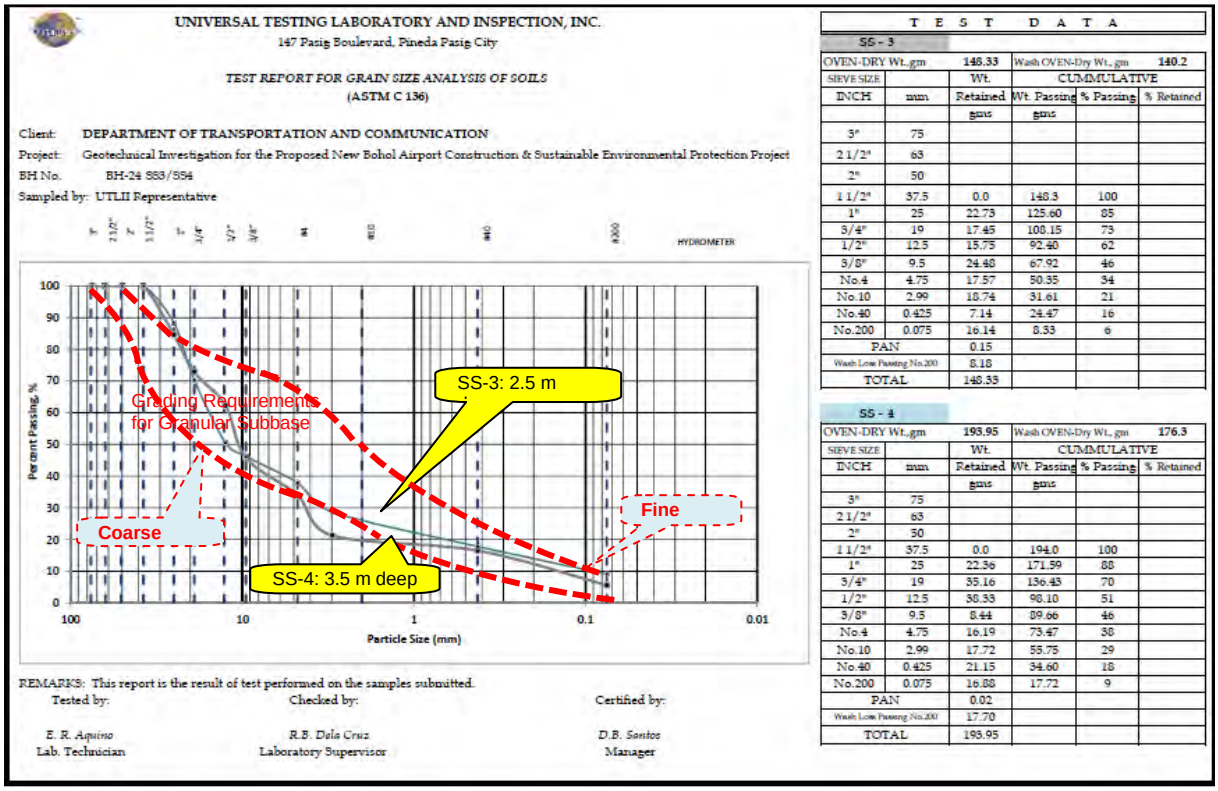
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		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: *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		148.33	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
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	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, 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

Subgrade Cut 0.2m

END OF BOREHOLE

Pictures of disturbed soil samples

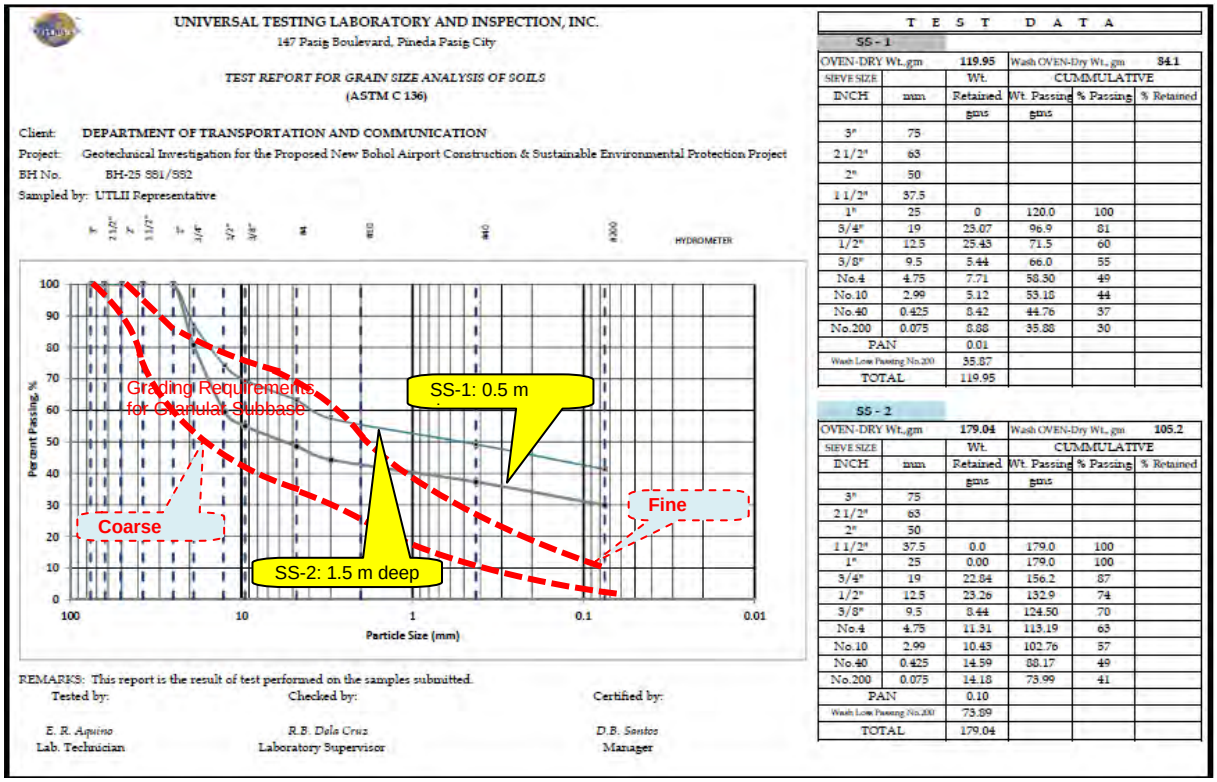
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	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

T E S T D A T A

SS - 1

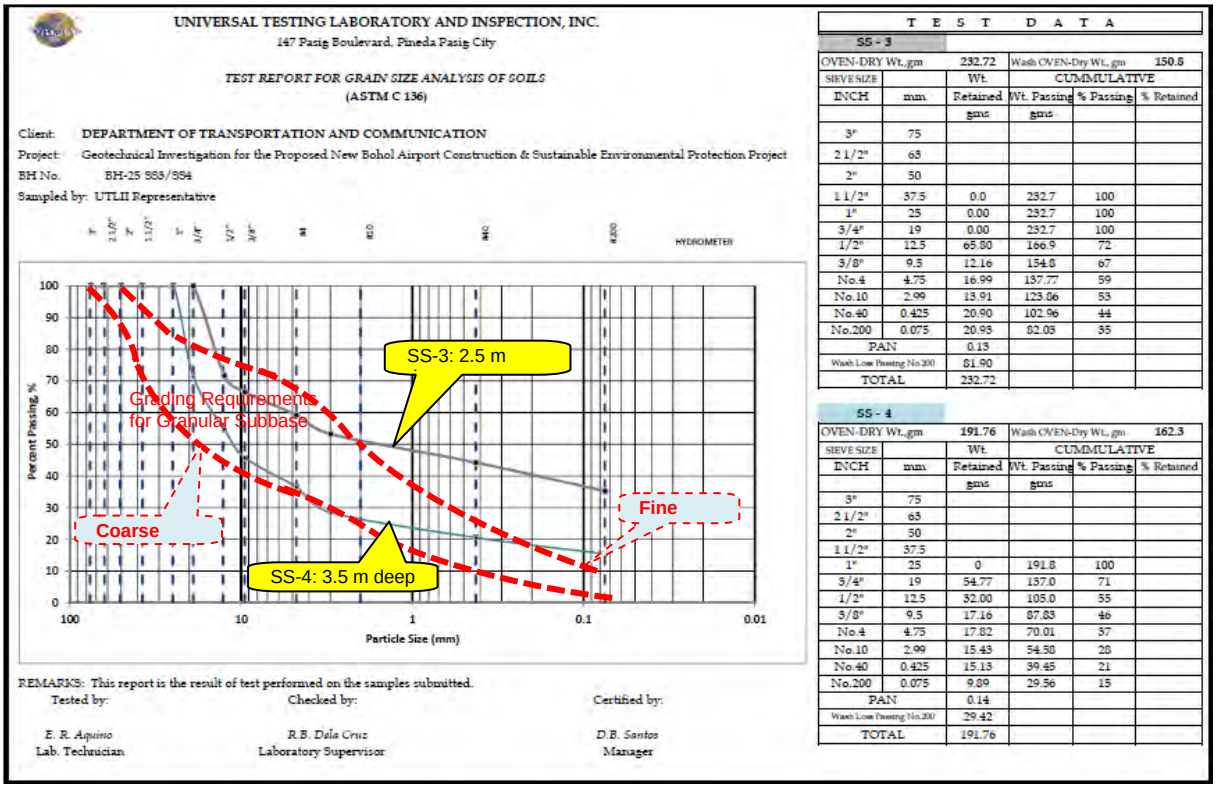
OVEN-DRY Wt.,gm		119.95	Wash OVEN-Dry Wt., gm		84.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0	120.0	100	
3/4"	19	23.07	96.9	81	
1/2"	12.5	25.43	71.5	60	
3/8"	9.5	5.44	66.0	55	
No.4	4.75	7.71	58.30	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			

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-25 SS3/SS4
Sampled by: UTLII Representative

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			

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-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
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	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	2	9	10		23.38	NP	NP					100	98	91	71	57
							END OF BOREHOLE																

Subgrade Cut 0.6 m

Pictures of disturbed soil samples

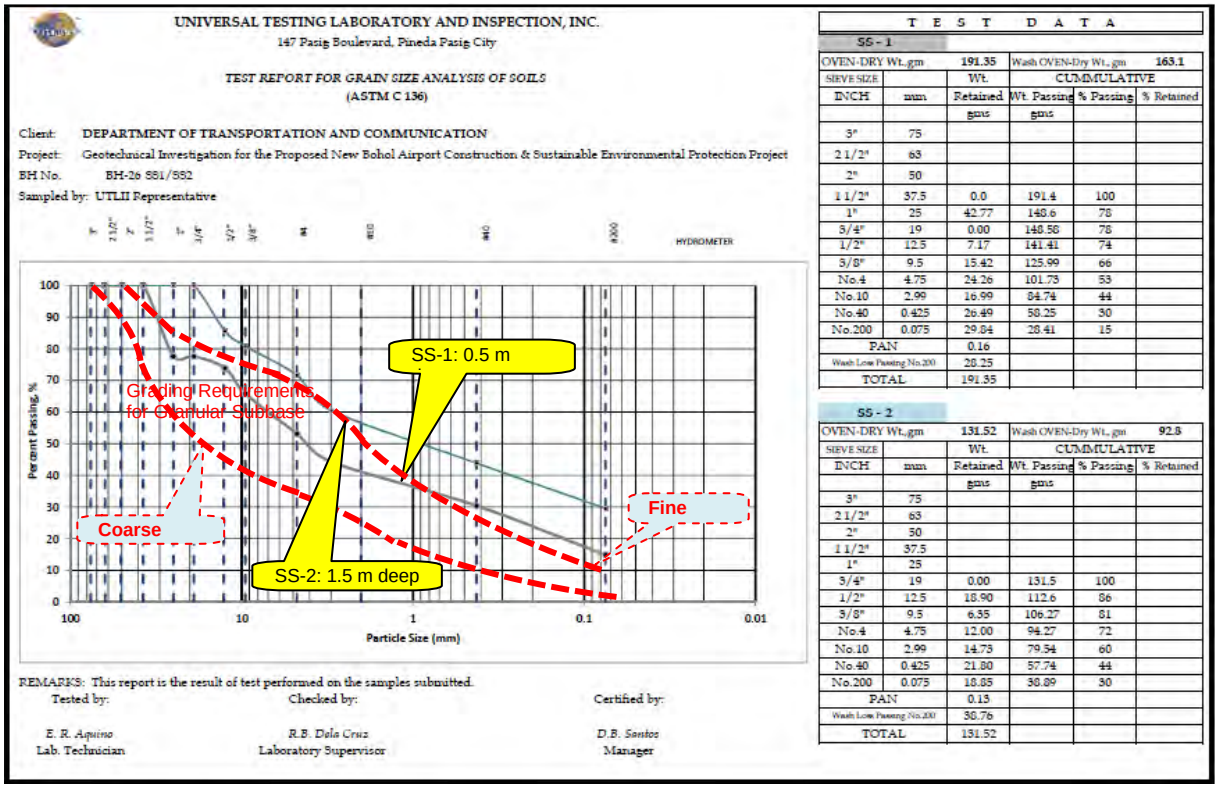
Moisture contents of disturbed soil samples

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

T E S T D A T A

SS - 1

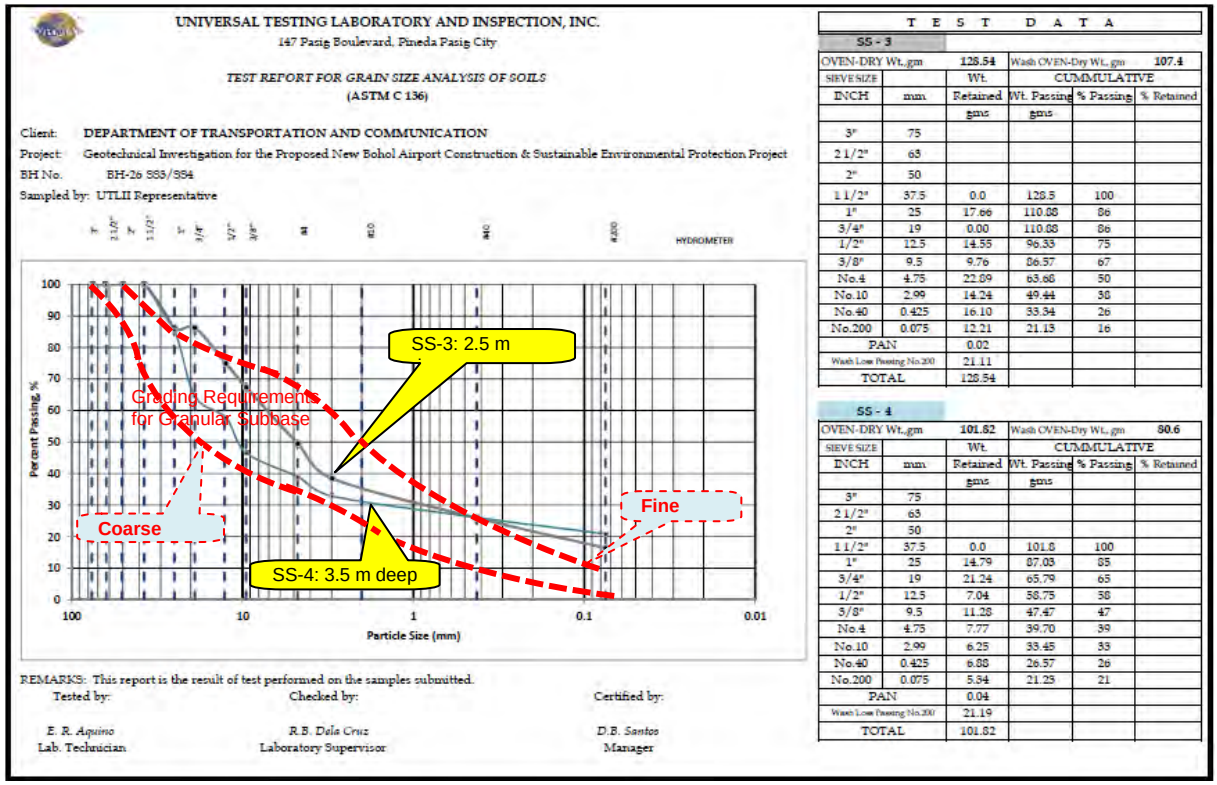
OVEN-DRY Wt.,gm		191.35	Wash OVEN-Dry Wt., gm		163.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	191.4	100	
1"	25	42.77	148.6	78	
3/4"	19	0.00	148.58	78	
1/2"	12.5	7.17	141.41	74	
3/8"	9.5	15.42	125.99	66	
No.4	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			

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-26 SS3/SS4
Sampled by: UTLII Representative

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	21.25	21	
PAN		0.04			
Wash Loss Passing No.200		21.19			
TOTAL		101.82			

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-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 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

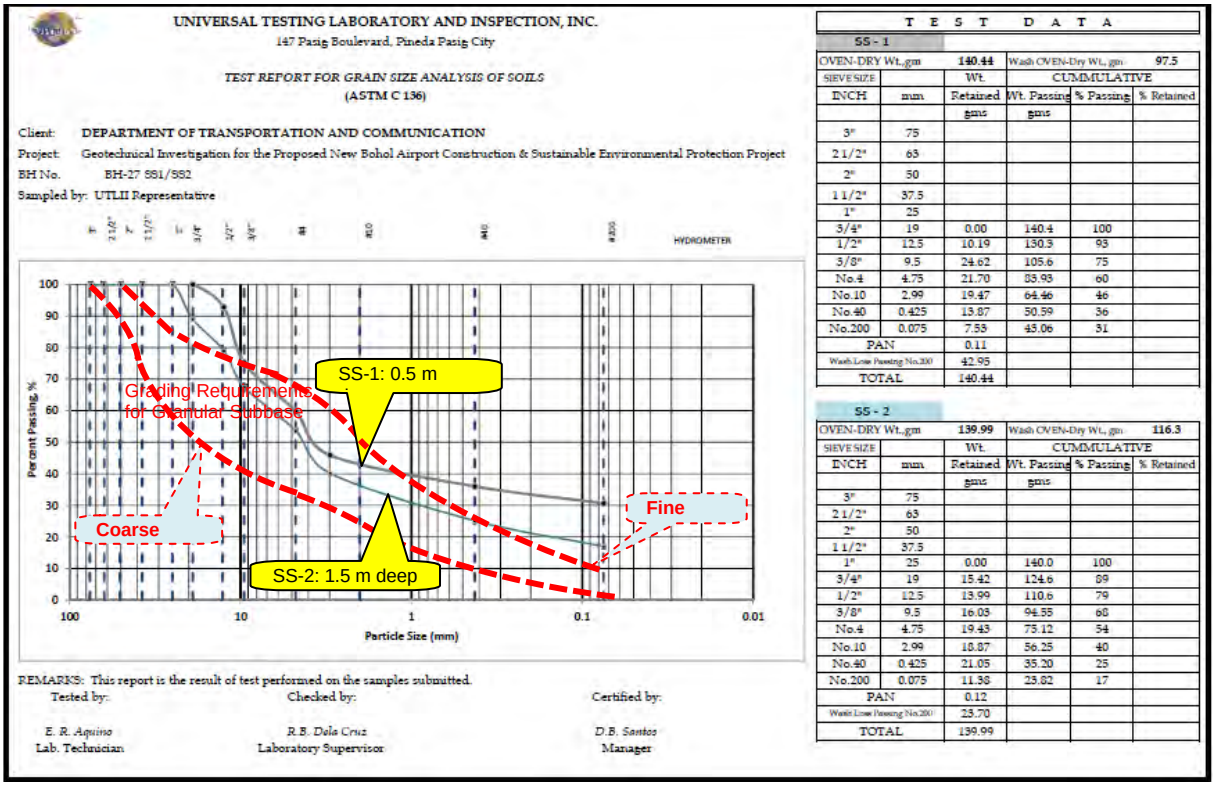
Moisture contents of disturbed soil samples

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

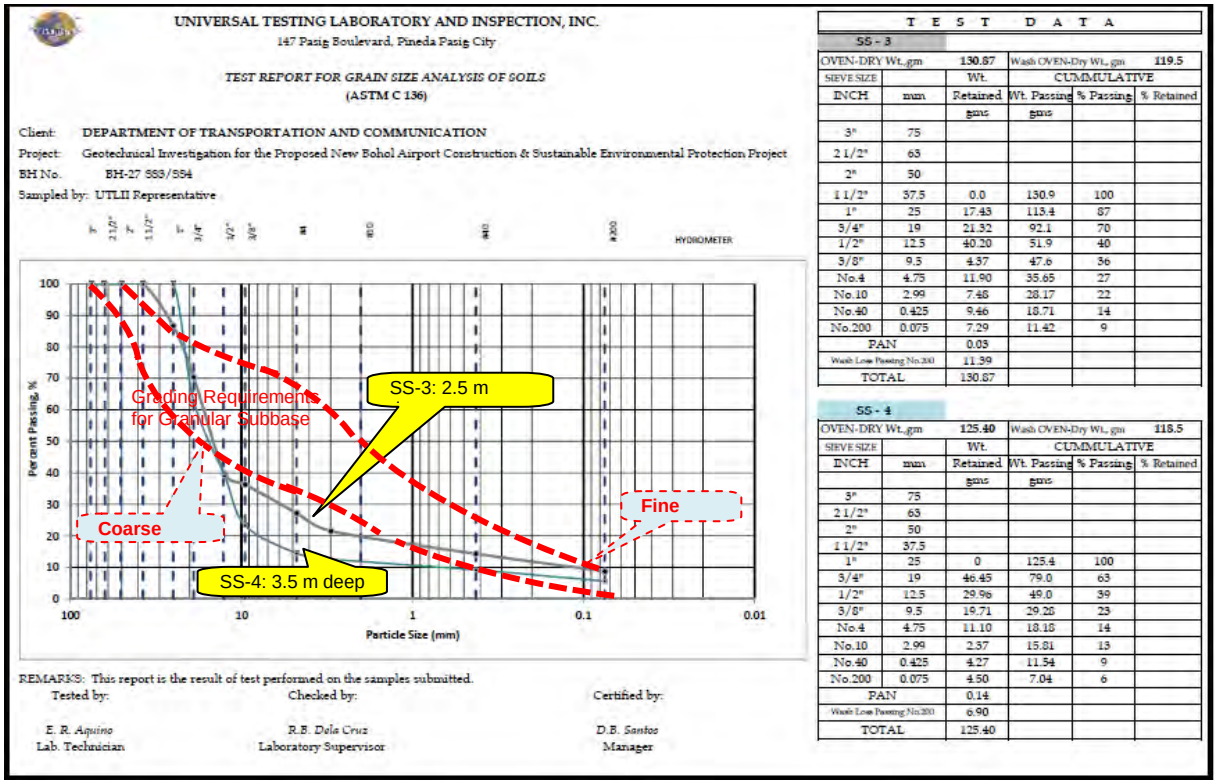
T E S T D A T A

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 Lose 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	11.36	23.82	17	
PAN		0.12			
Wash Lose 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 Lose 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 Lose 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
							END OF BOREHOLE																

Subgrade Cut: 1.2m

Pictures of disturbed soil samples

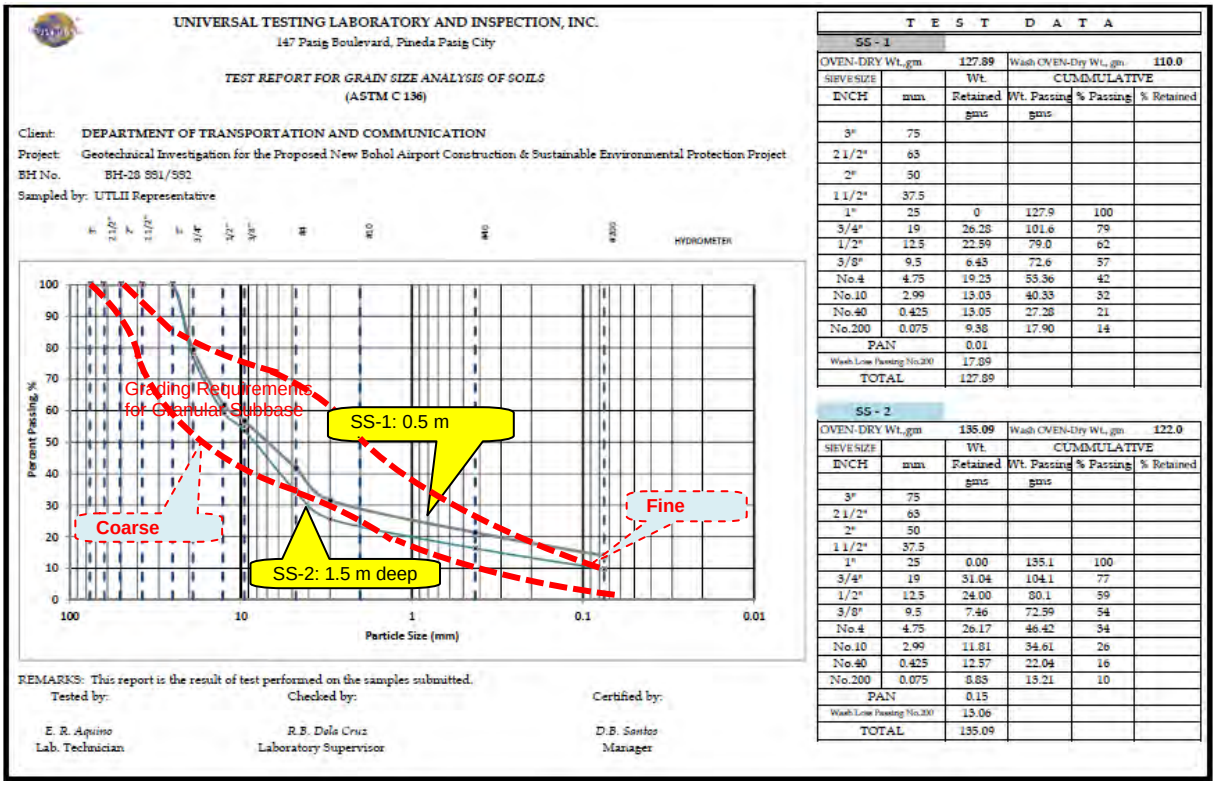
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	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.



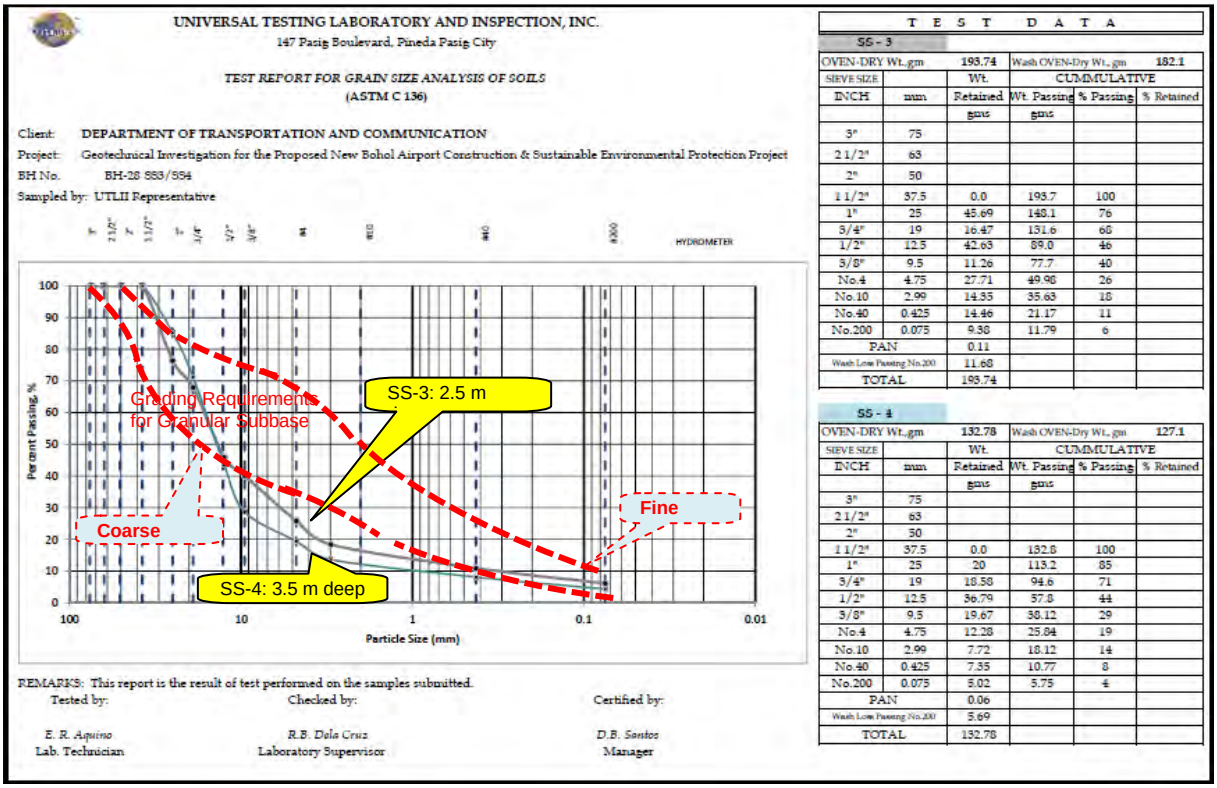
TEST DATA

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	8.83	13.21	10	
PAN		0.15			
Wash Loss Passing No.200		13.06			
TOTAL		135.09			



TEST DATA

SS - 3

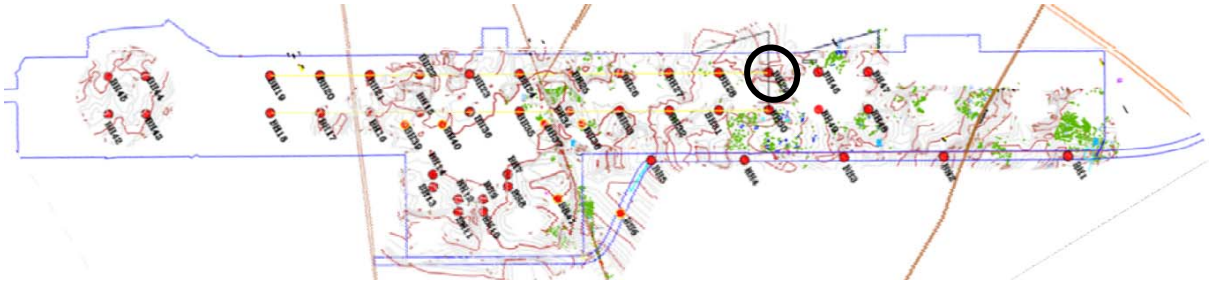
OVEN-DRY Wt.,gm		193.74	Wash OVEN-Dry Wt., gm		182.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	193.7	100	
1"	25	45.69	148.1	76	
3/4"	19	16.47	131.6	68	
1/2"	12.5	42.63	89.0	46	
3/8"	9.5	11.26	77.7	40	
No.4	4.75	27.71	49.98	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
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 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 (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	65	57	65		7.69	NP	NP		100	94	75	67	47	35	23	15
							END OF BOREHOLE																

Pictures of disturbed soil samples

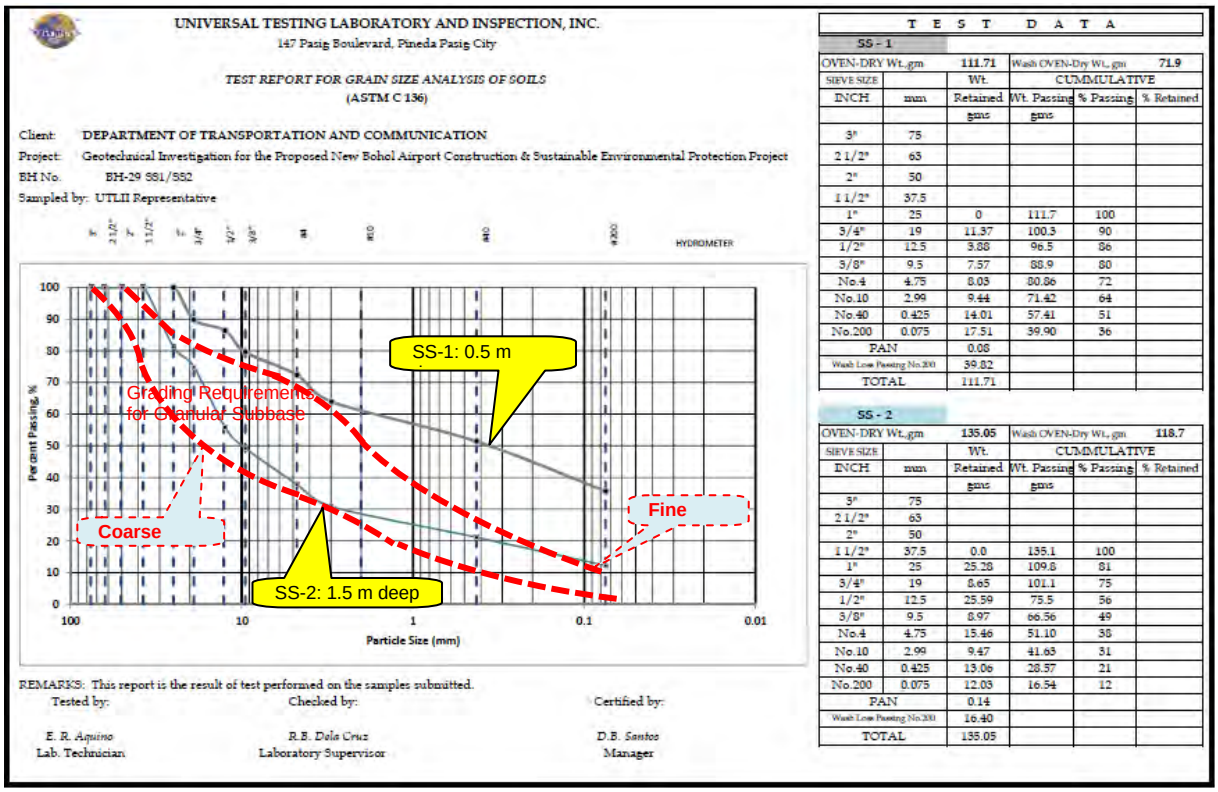
Moisture contents of disturbed soil samples

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

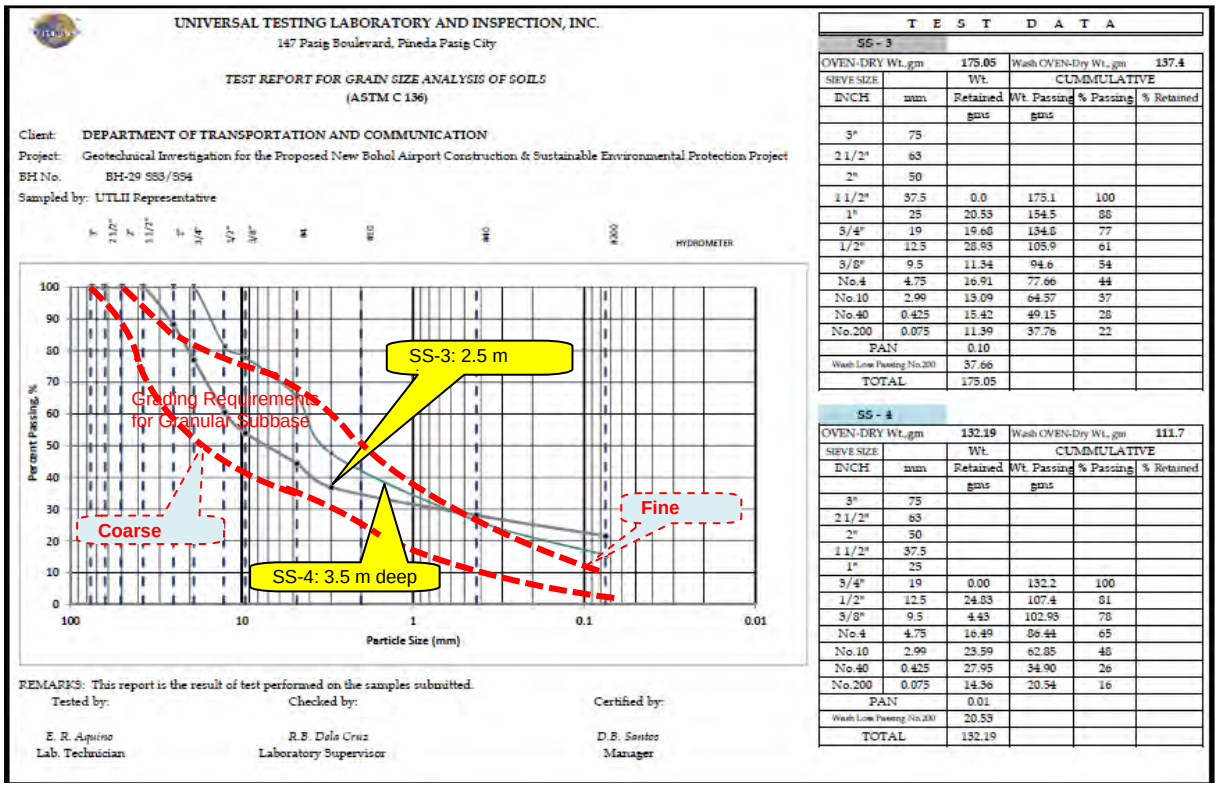
T E S T　D A T A

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	13.06	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

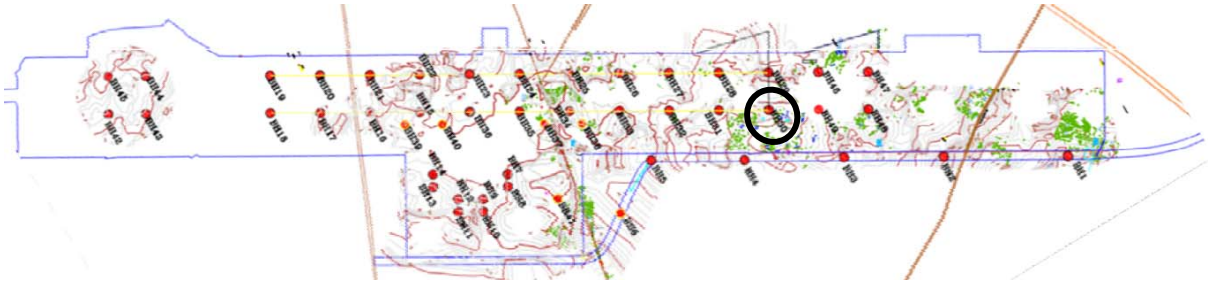
OVEN-DRY Wt.,gm		175.05	Wash OVEN-Dry Wt., gm		137.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	175.1	100	
1"	25	20.53	154.5	88	
3/4"	19	19.68	134.8	77	
1/2"	12.5	28.93	105.9	61	
3/8"	9.5	11.34	94.6	54	
No.4	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	102.98	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
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 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	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	1[illegible]	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	1[illegible]	24	19	10.15	NP	NP			100	71	62	43	35	25	17

GRAPH: Subgrade / Fill 0.2m

END OF BOREHOLE

Pictures of disturbed soil samples

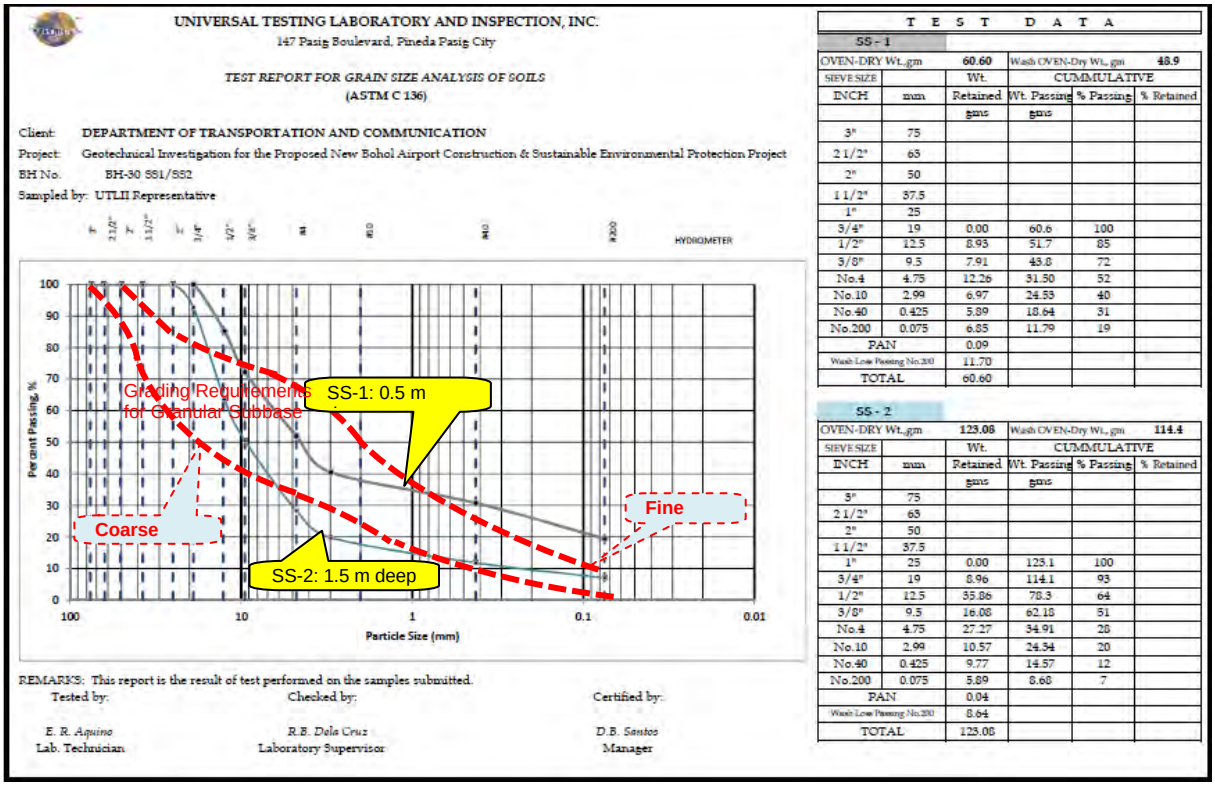
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	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.



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-30 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

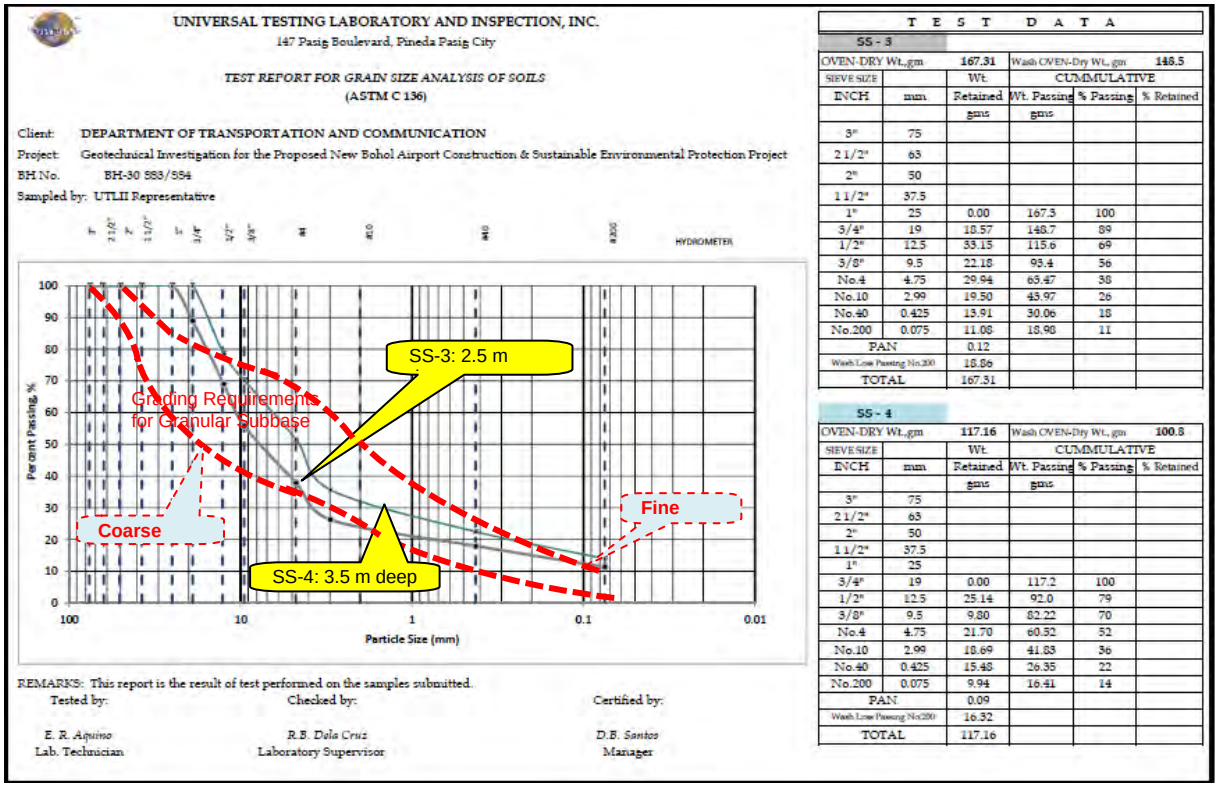
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		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			



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-30 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

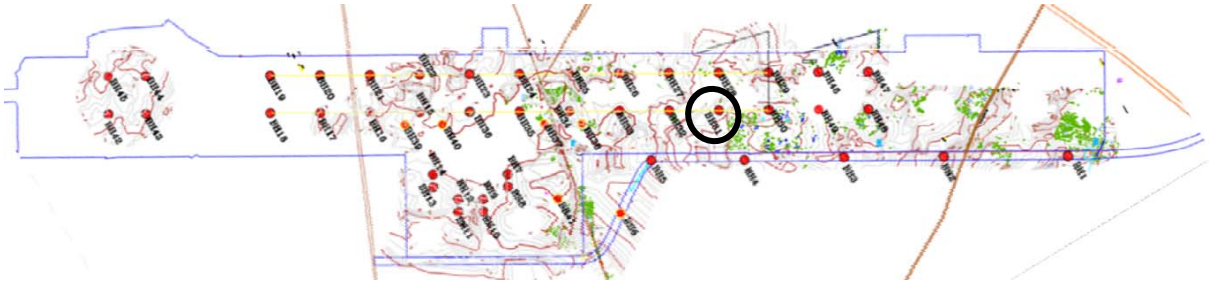
OVEN-DRY Wt.,gm		167.31	Wash OVEN-Dry Wt., gm		148.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	167.3	100	
3/4"	19	18.57	148.7	89	
1/2"	12.5	33.15	115.6	69	
3/8"	9.5	22.18	93.4	56	
No.4	4.75	29.94	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	11.08	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

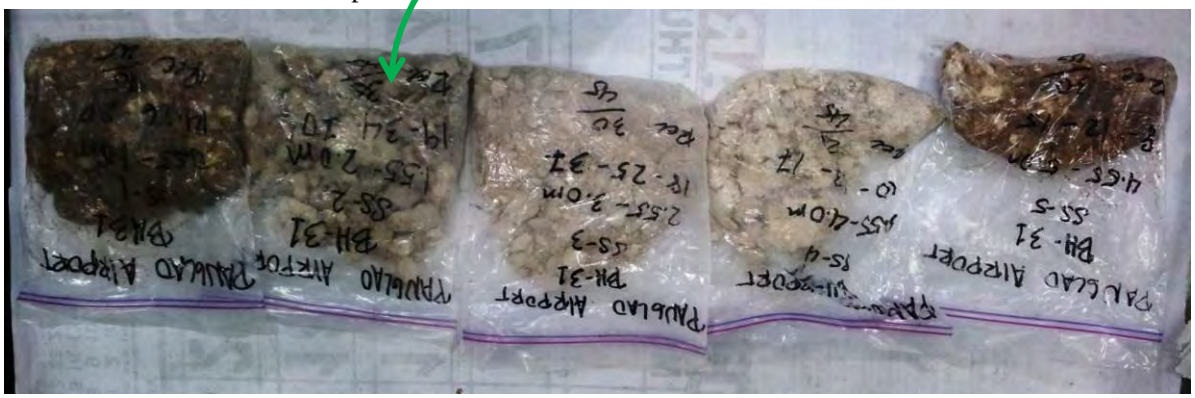


FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

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



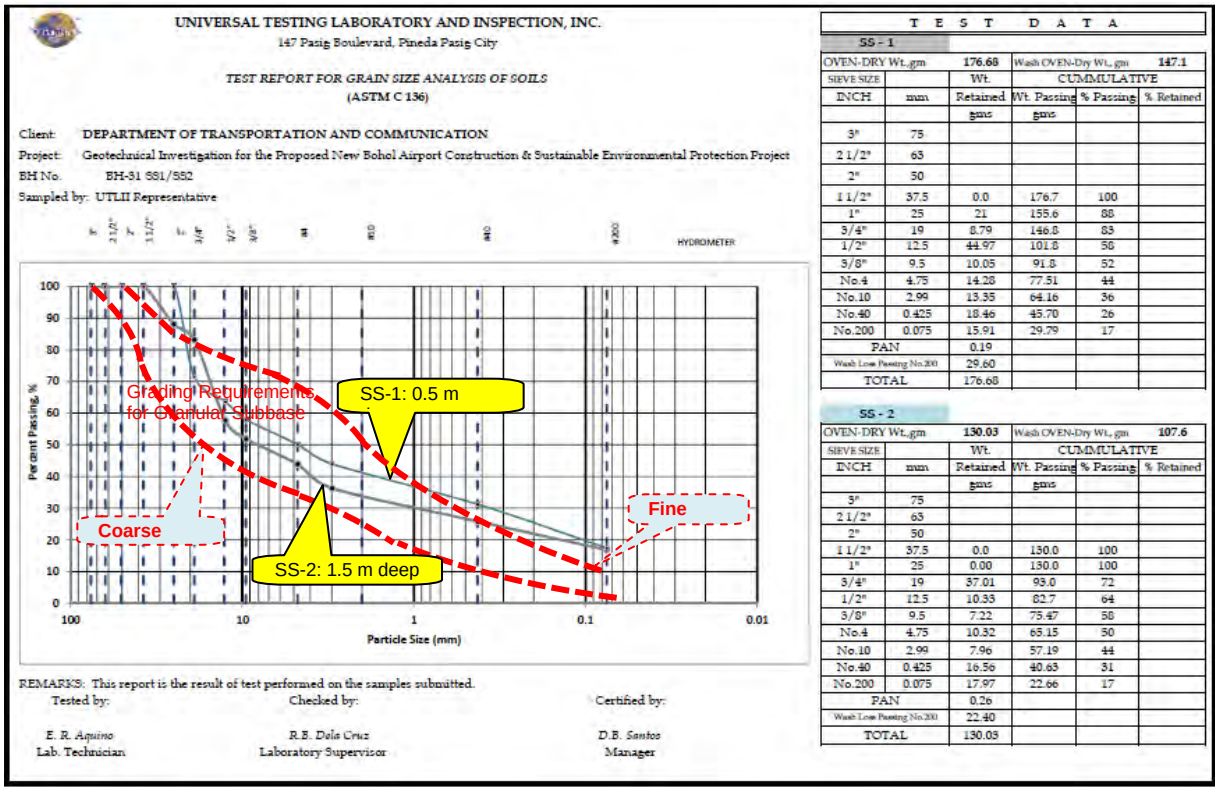
Moisture contents of disturbed soil samples

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.



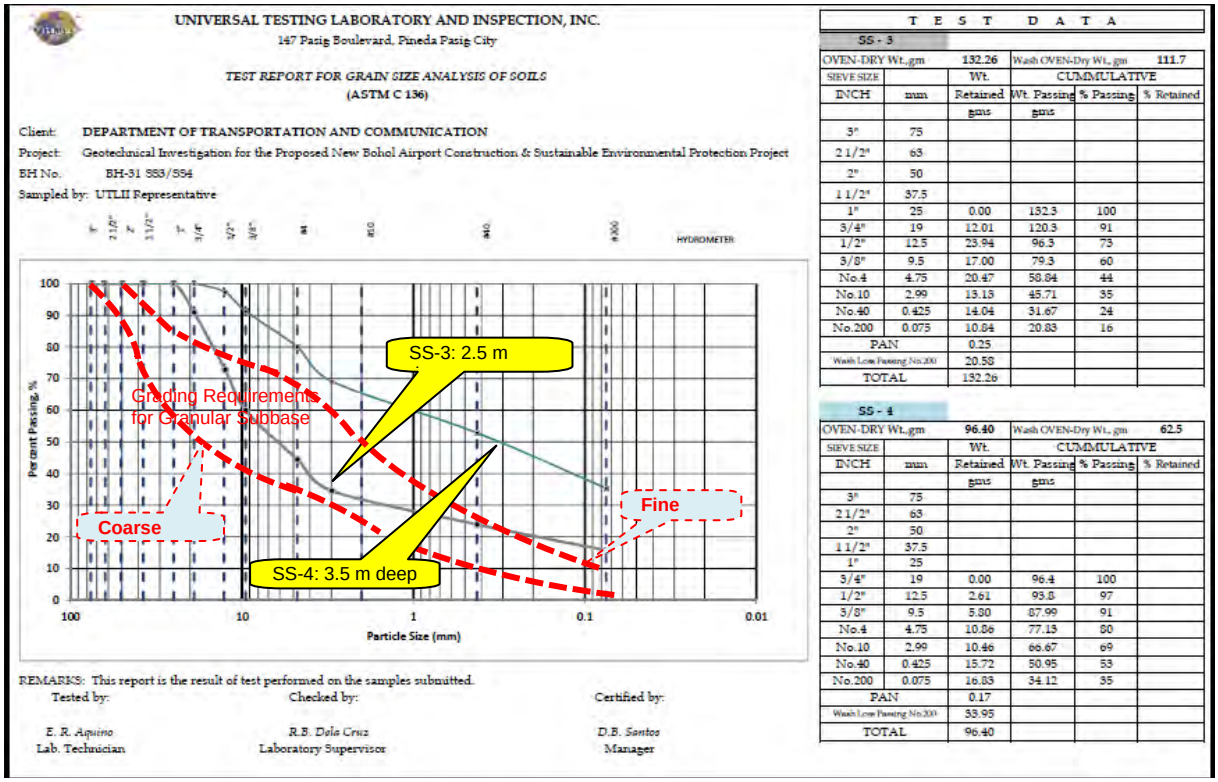
T E S T D A T A

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			



T E S T D A T A

SS - 3

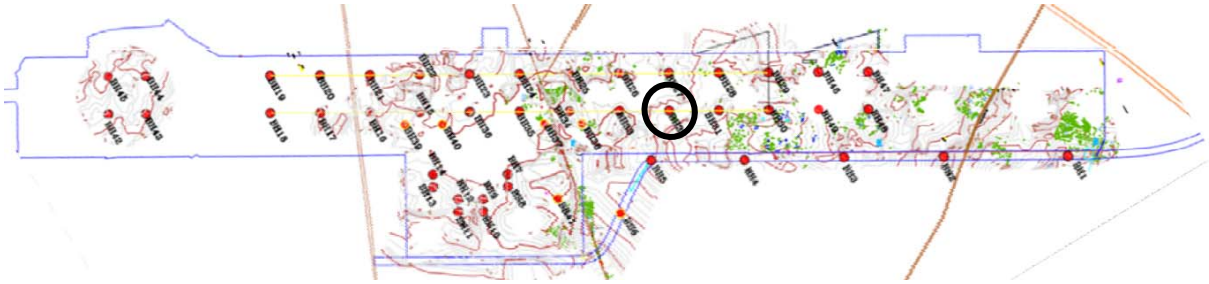
OVEN-DRY Wt.,gm		132.26	Wash OVEN-Dry Wt., gm		111.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	132.3	100	
3/4"	19	12.01	120.3	91	
1/2"	12.5	23.94	96.3	73	
3/8"	9.5	17.00	79.3	60	
No.4	4.75	20.47	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	10.84	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		53.95			
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				10 20 30 40												
1	1	100	-	SS		GM	Brown, dense silty gravel with sand (broken corals with limestone) of no plasticity	12	29	14	Subgrade Cut 1.4m	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	12		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																

Pictures of disturbed soil samples

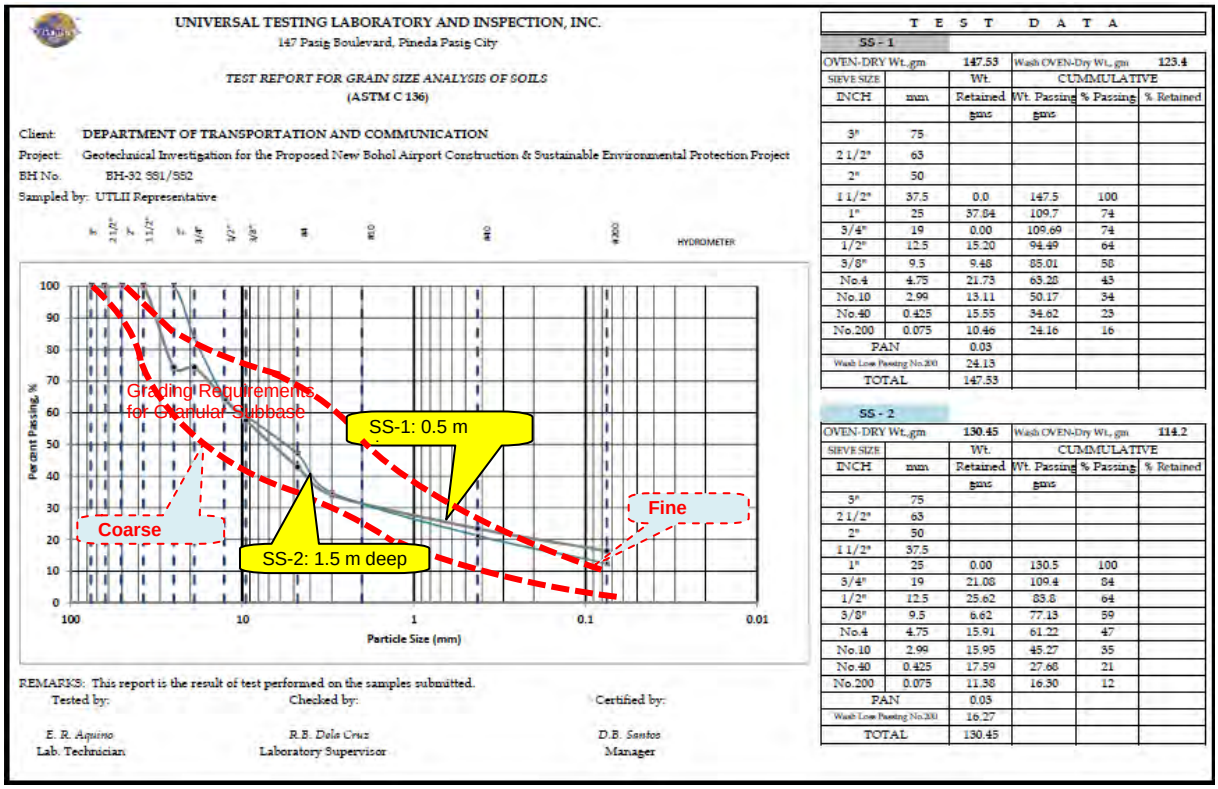
Moisture contents of disturbed soil samples

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

T E S T D A T A

SS - 1

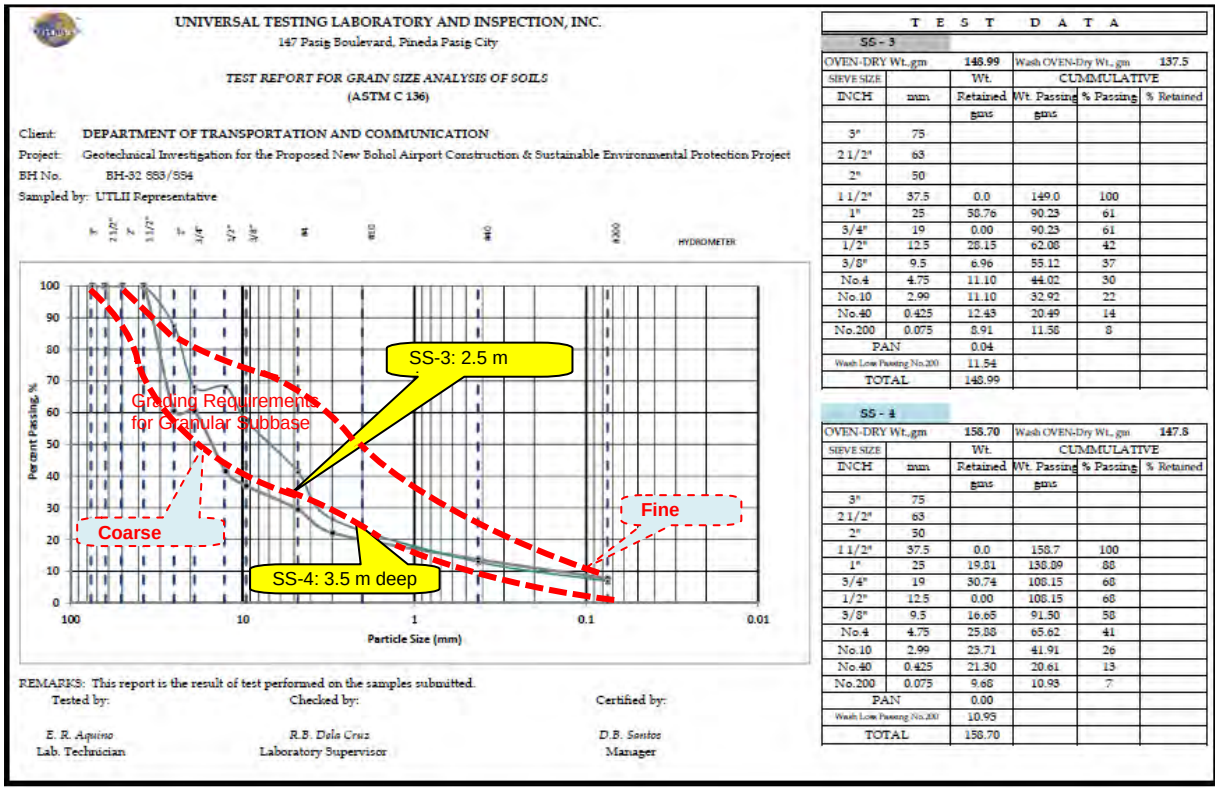
OVEN-DRY Wt.,gm		147.53	Wash OVEN-Dry Wt., gm		123.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	147.5	100	
1"	25	37.84	109.7	74	
3/4"	19	0.00	109.69	74	
1/2"	12.5	15.20	94.49	64	
3/8"	9.5	9.48	85.01	58	
No.4	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 gms	Wt. Passing gms	% Passing	% Retained
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			

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-32 SS3/SS4
Sampled by: UTLII Representative

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 gms	Wt. Passing gms	% Passing	% Retained
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 gms	Wt. Passing gms	% Passing	% Retained
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			

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-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

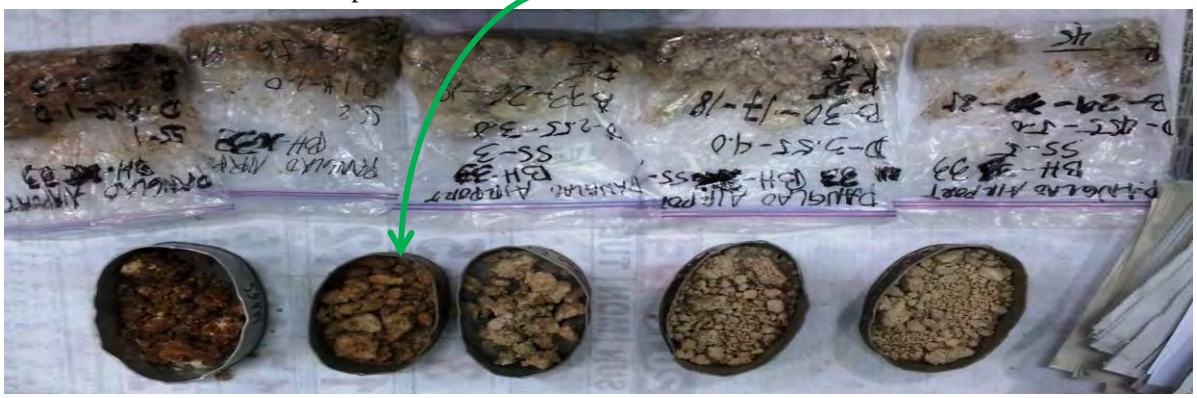
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-33
		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				10 20 30 40												
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



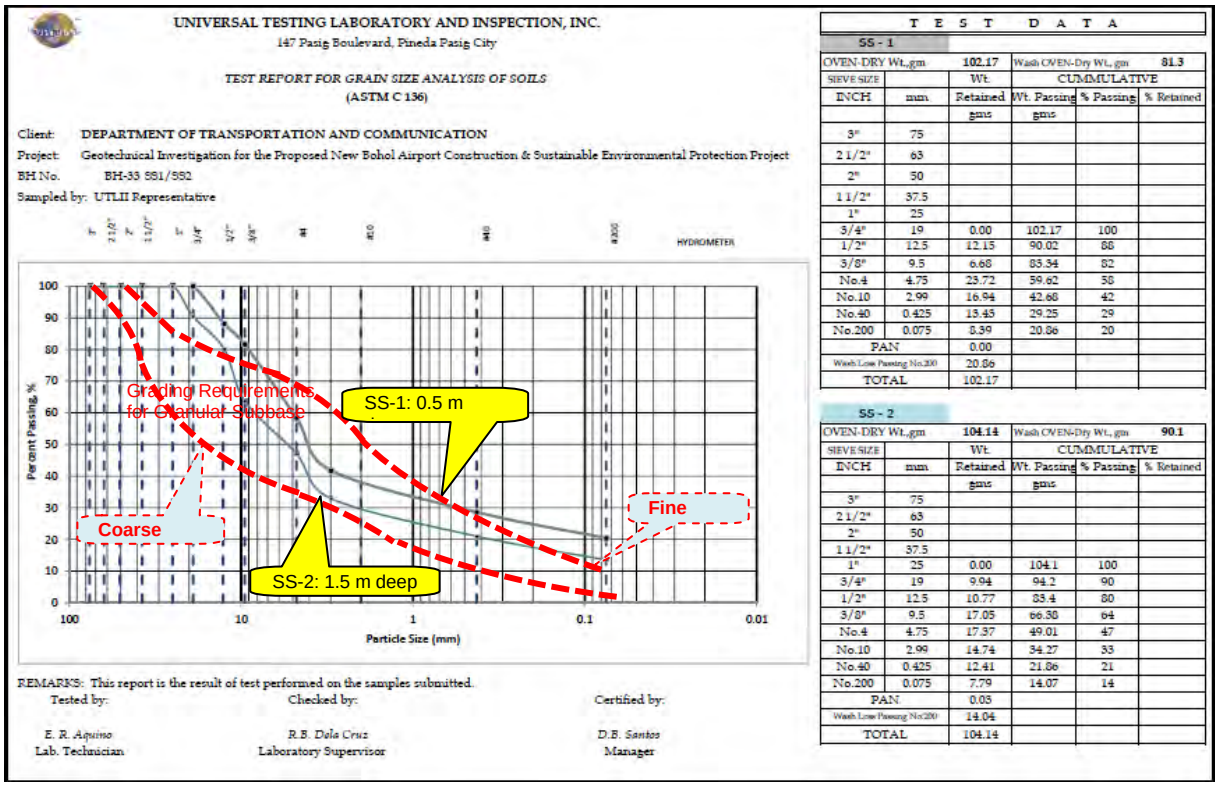
Moisture contents of disturbed soil samples

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.



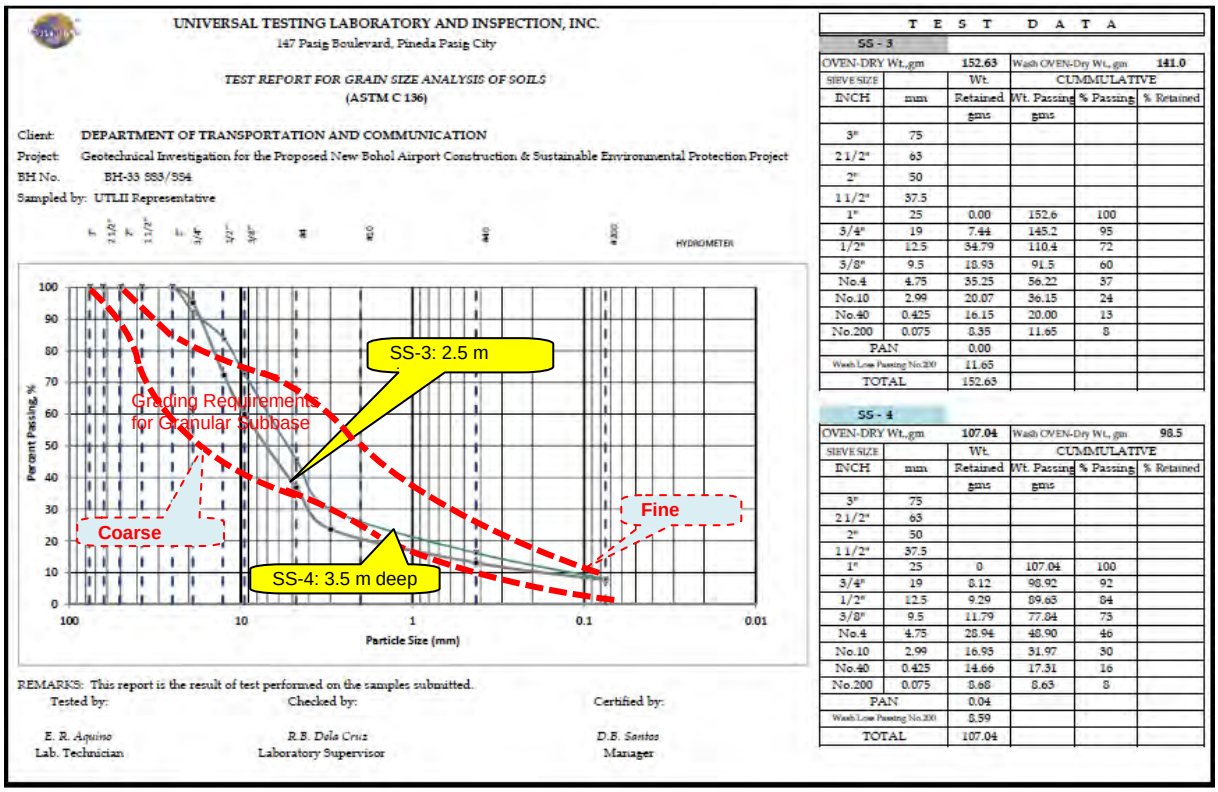
T E S T D A T A

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	13.45	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			



T E S T D A T A

SS - 3

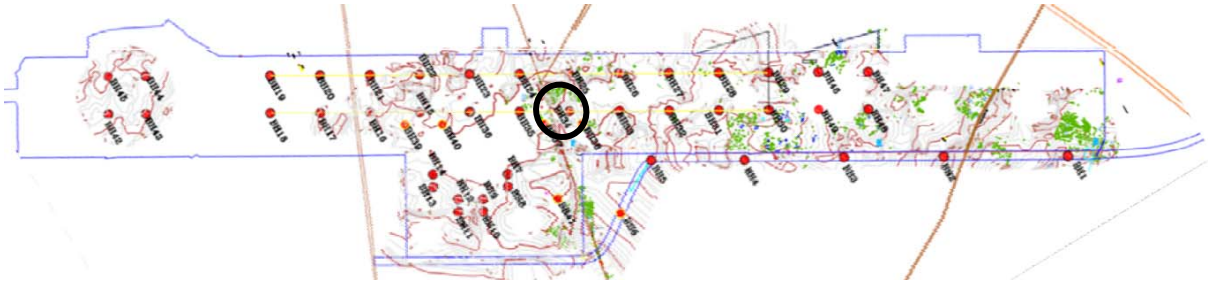
OVEN-DRY Wt.,gm		152.63	Wash OVEN-Dry Wt., gm		141.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	152.6	100	
3/4"	19	7.44	145.2	95	
1/2"	12.5	34.79	110.4	72	
3/8"	9.5	18.93	91.5	60	
No.4	4.75	35.25	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
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				10 20 30 40												
1	1	100	-	SS		SM	Light brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	41	47	57	Subgrade Cut 1.0m	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																

Pictures of disturbed soil samples

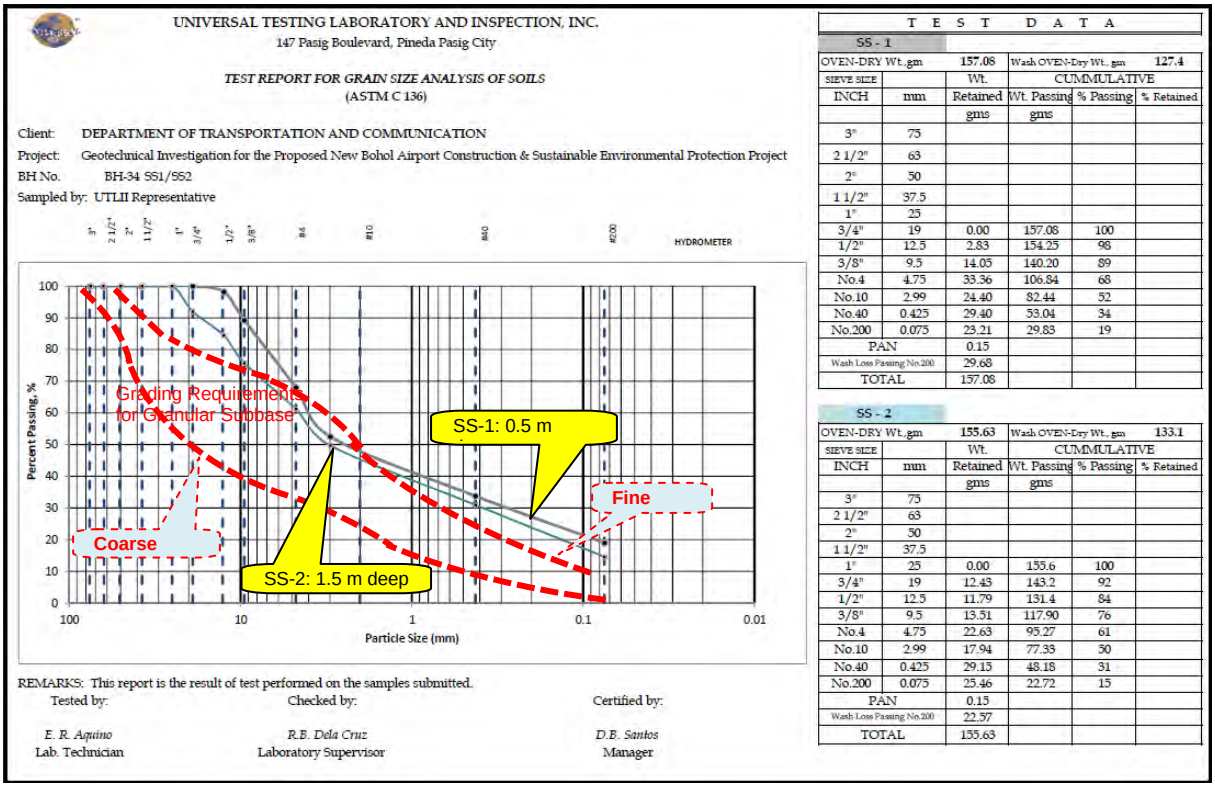
Moisture contents of disturbed soil samples

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

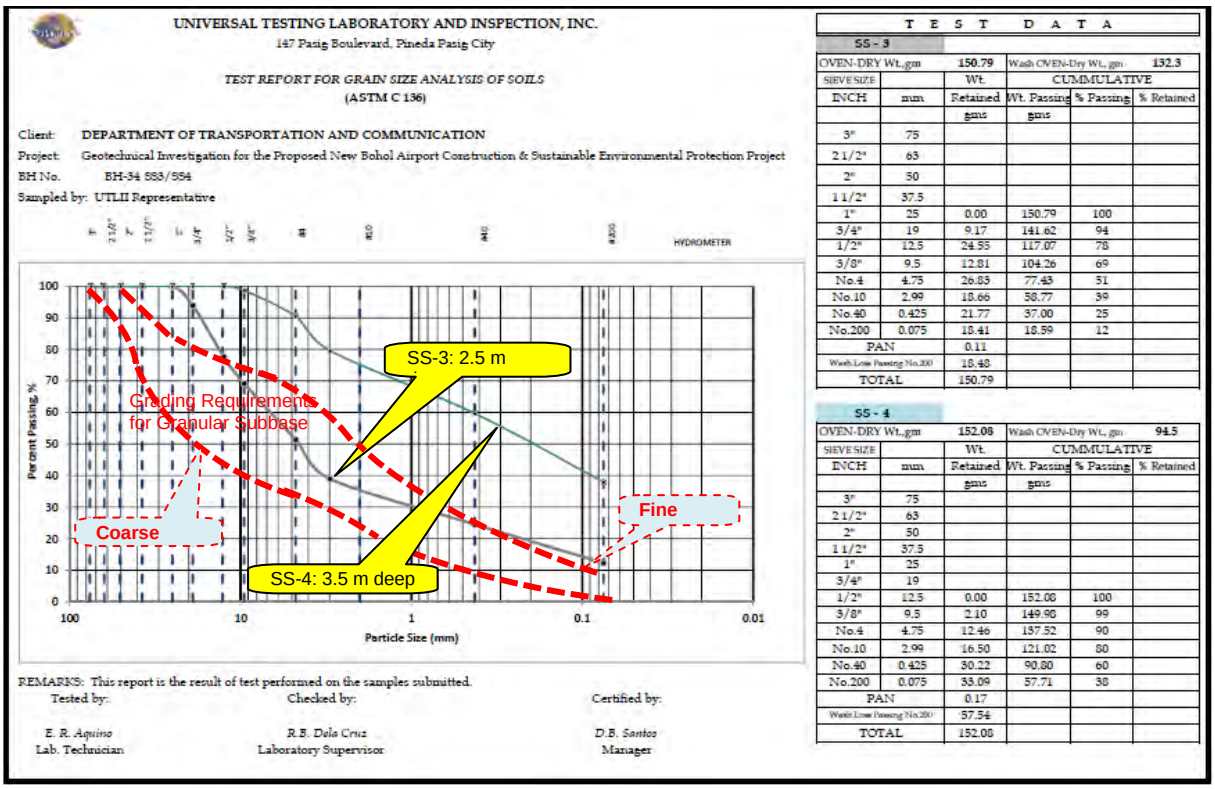
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		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:	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

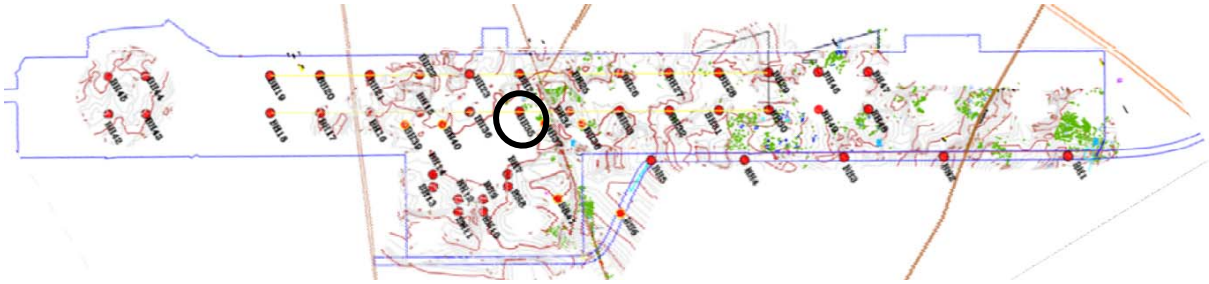
OVEN-DRY Wt.,gm		150.79	Wash OVEN-Dry Wt., gm		132.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	150.79	100	
3/4"	19	9.17	141.62	94	
1/2"	12.5	24.55	117.07	78	
3/8"	9.5	12.81	104.26	69	
No.4	4.75	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

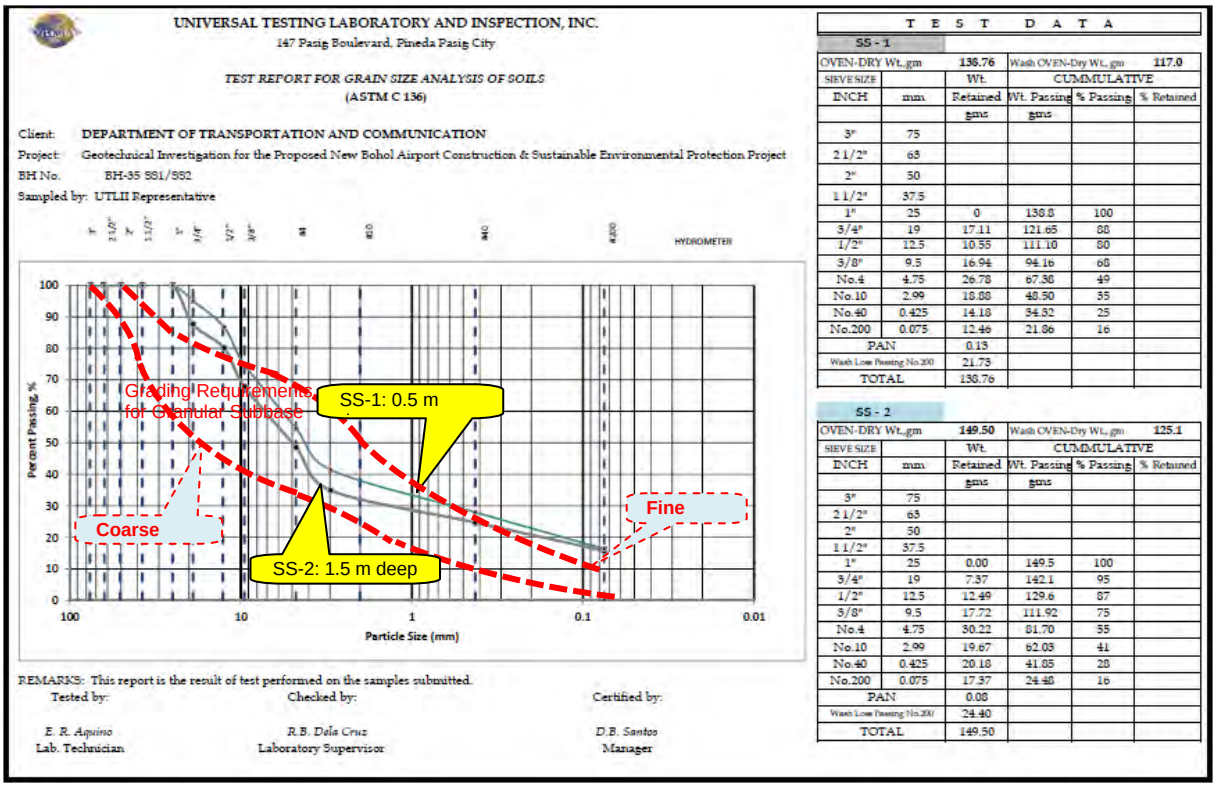
Moisture contents of disturbed soil samples

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

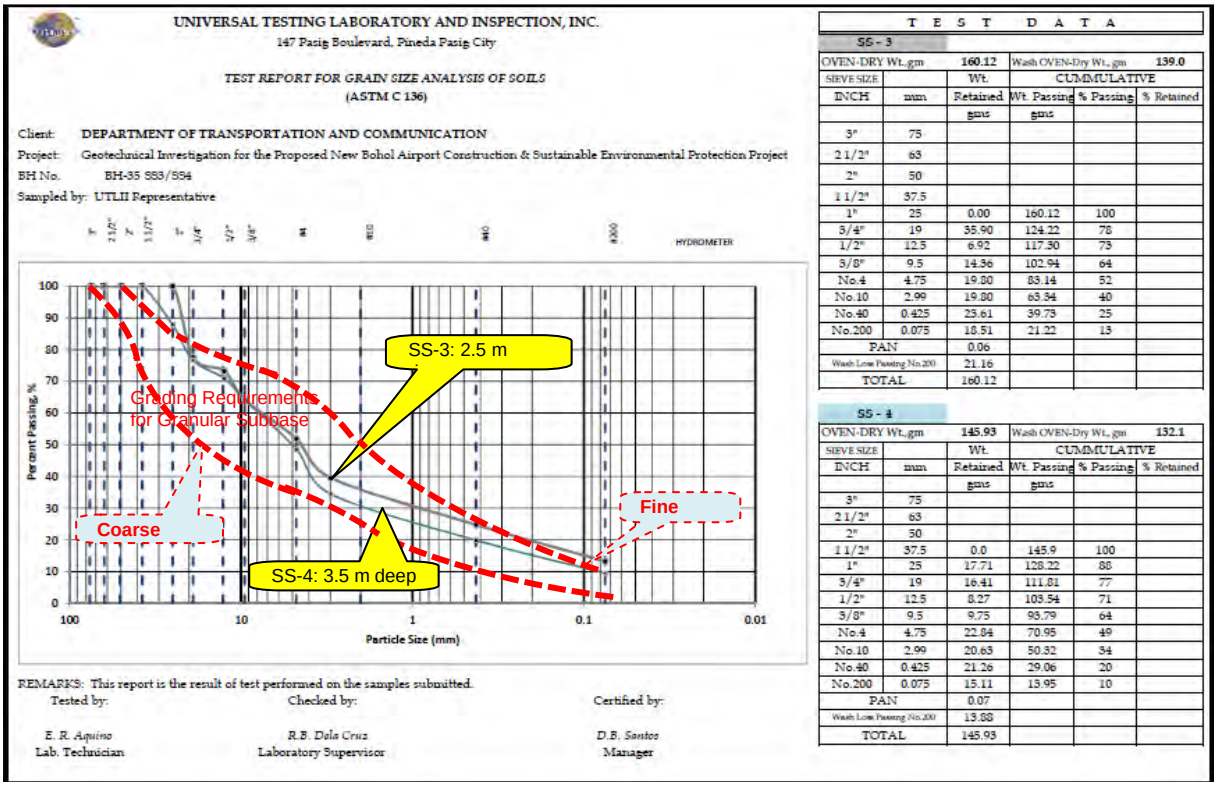
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		138.76	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	138.8	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	67.38	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		138.76			

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:	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		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

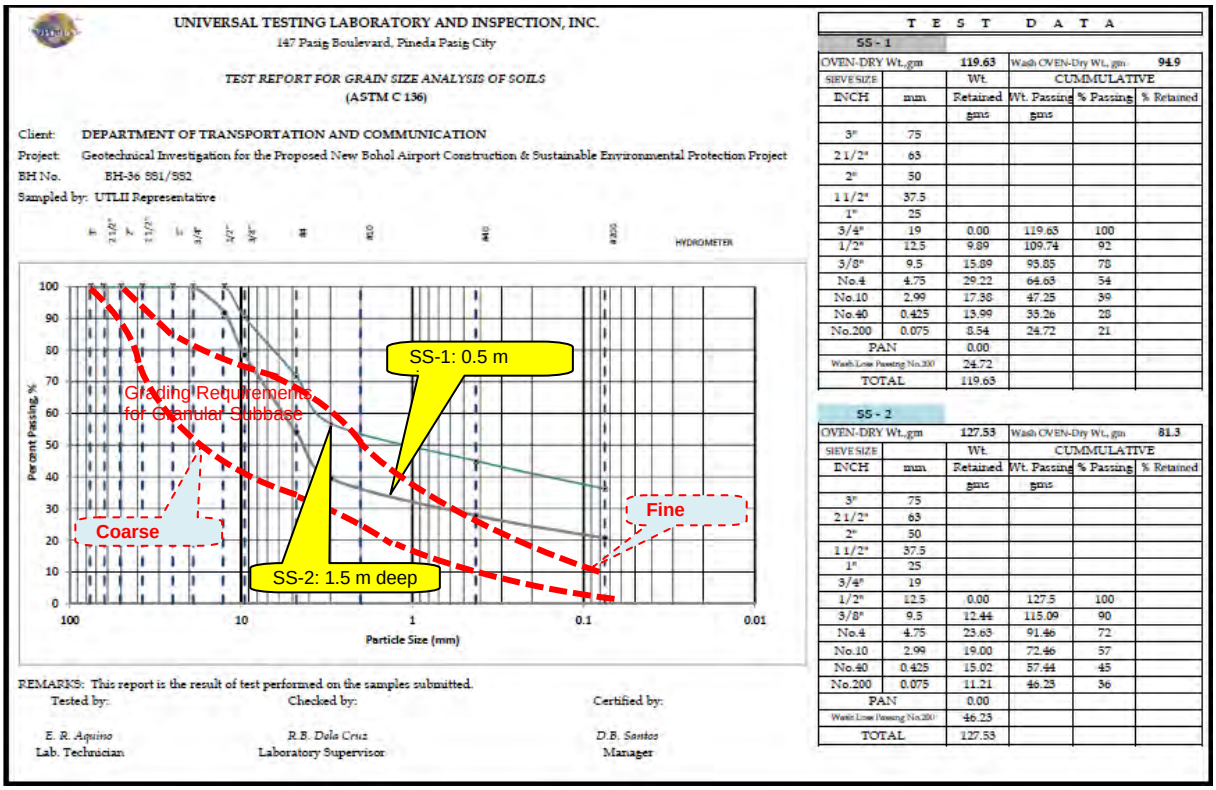
Moisture contents of disturbed soil samples

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.



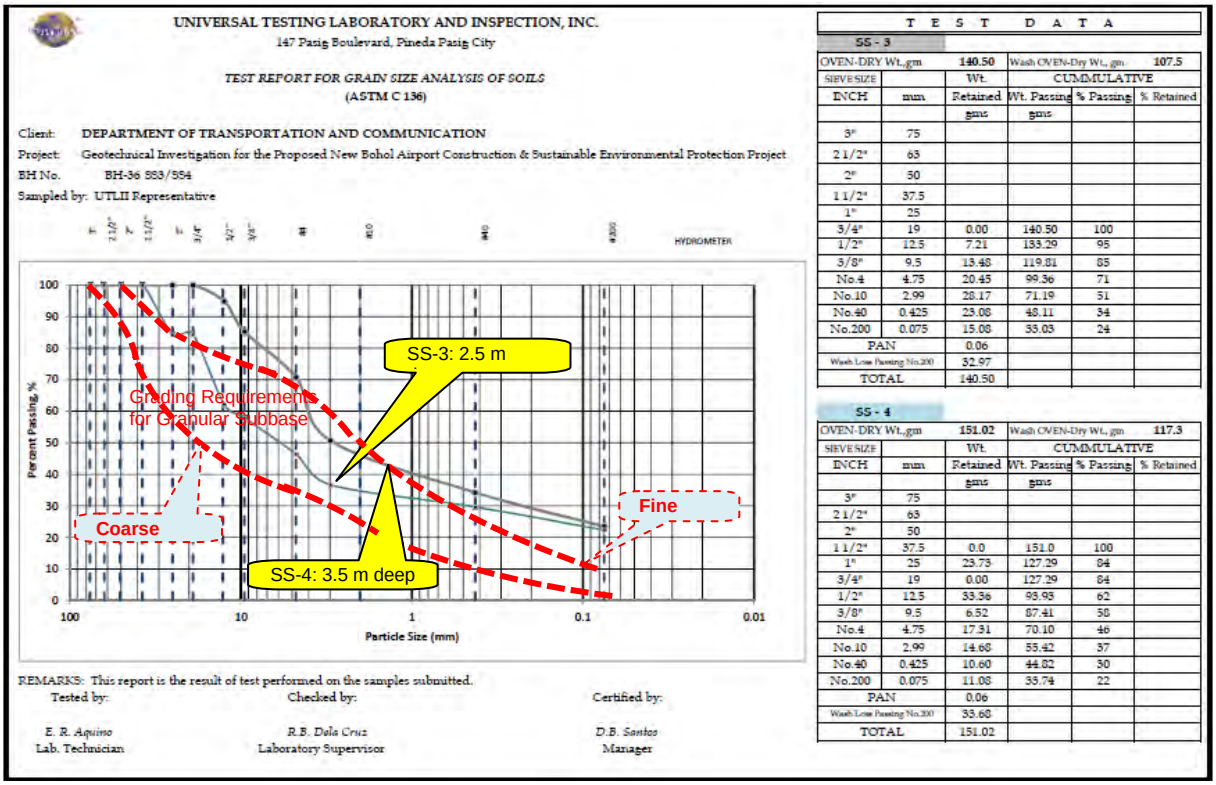
T E S T D A T A

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	15.09	95.85	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 Loss 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 Loss Passing No.200		46.23			
TOTAL		127.53			



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 Loss 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 Loss 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		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

Subgrade Cut 1.4m

END OF BOREHOLE

Pictures of disturbed soil samples

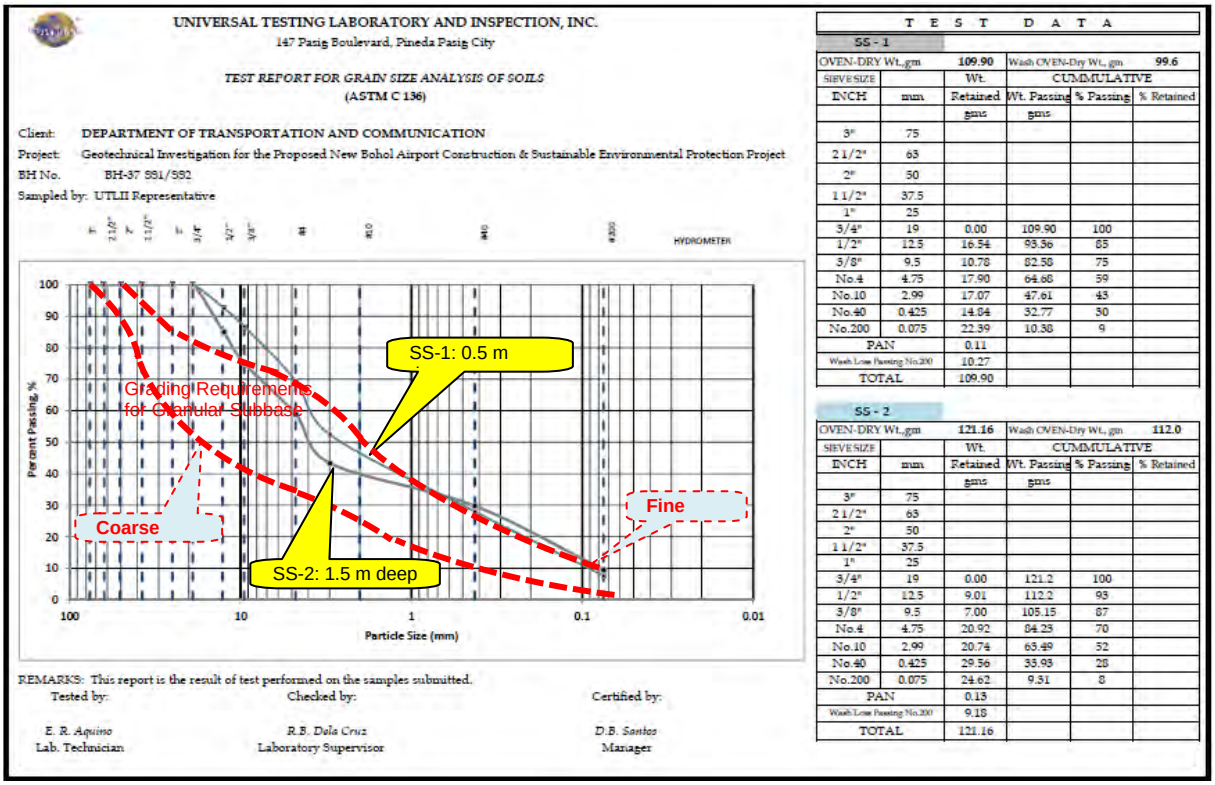
Moisture contents of disturbed soil samples

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-37 551/552
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

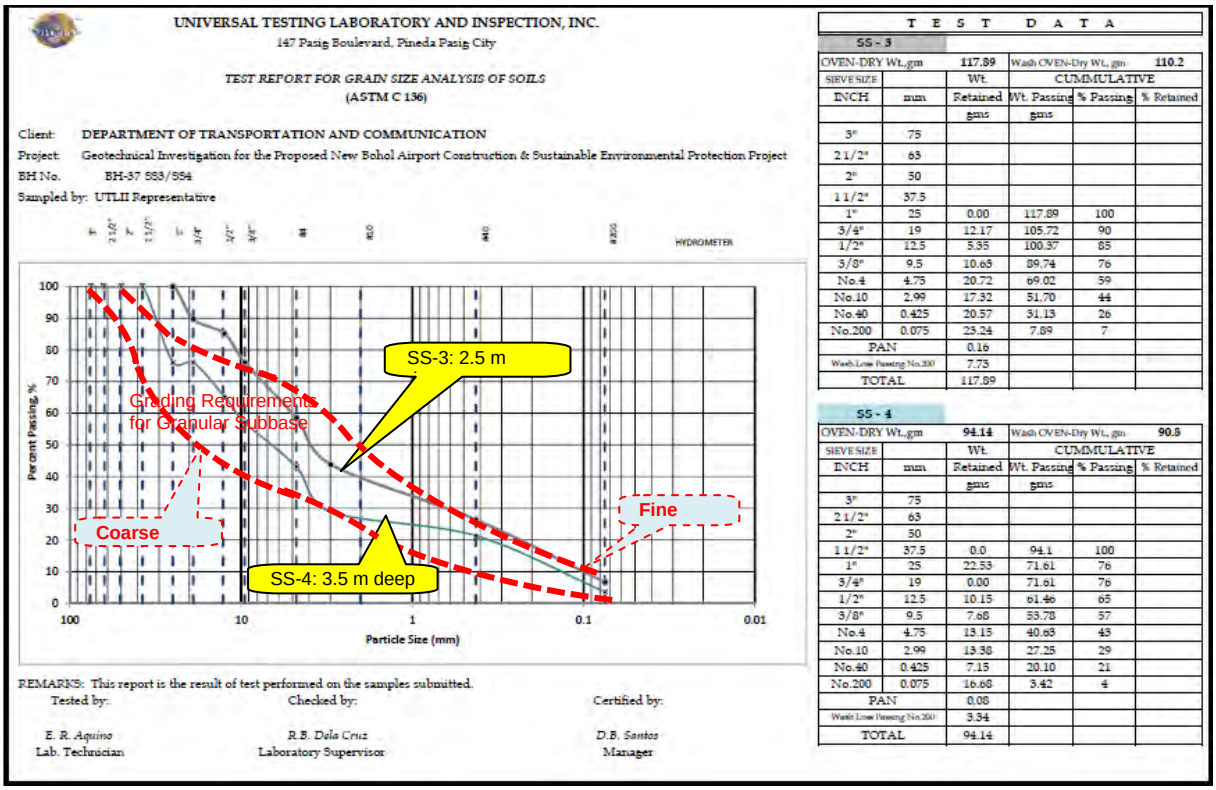
T E S T D A T A

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-37 553/554
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	10.63	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				10 20 30 40												
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	Subgrade Cut 1.2m	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
5							END OF BOREHOLE																

Pictures of disturbed soil samples

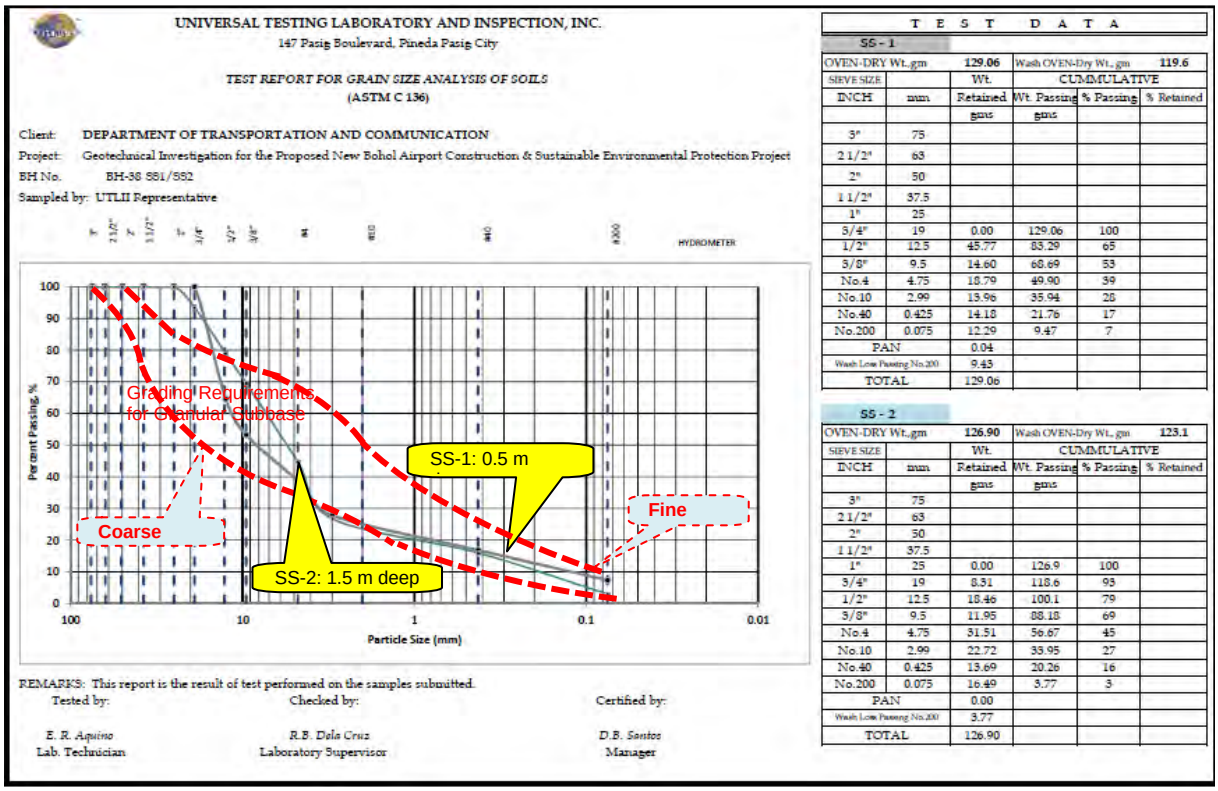
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	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.



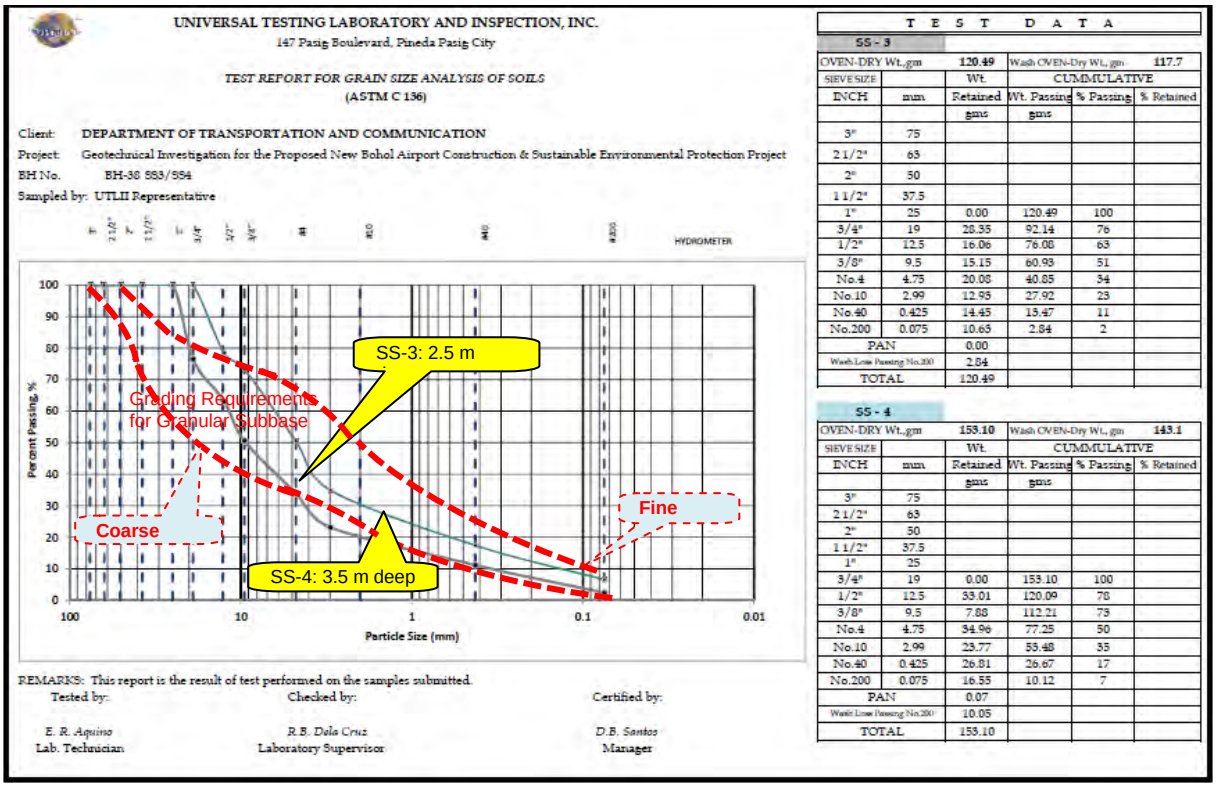
TEST DATA

SS - 1

OVEN-DRY Wt.,gm		129.06	Wash OVEN-Dry Wt., gm		119.6
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	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 gms	Wt. Passing gms	% Passing	% Retained
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			



TEST DATA

SS - 3

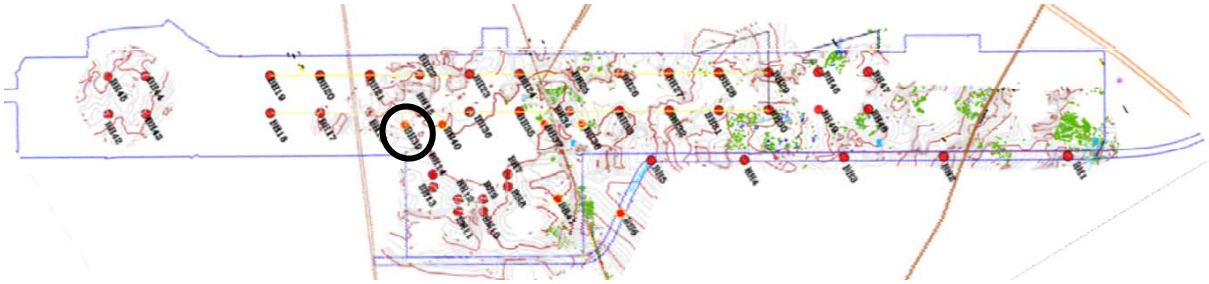
OVEN-DRY Wt.,gm		120.49	Wash OVEN-Dry Wt., gm		117.7
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	120.49	100	
3/4"	19	28.35	92.14	76	
1/2"	12.5	16.06	76.08	63	
3/8"	9.5	15.15	60.93	51	
No.4	4.75	20.08	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 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	153.10	100	
1/2"	12.5	53.01	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

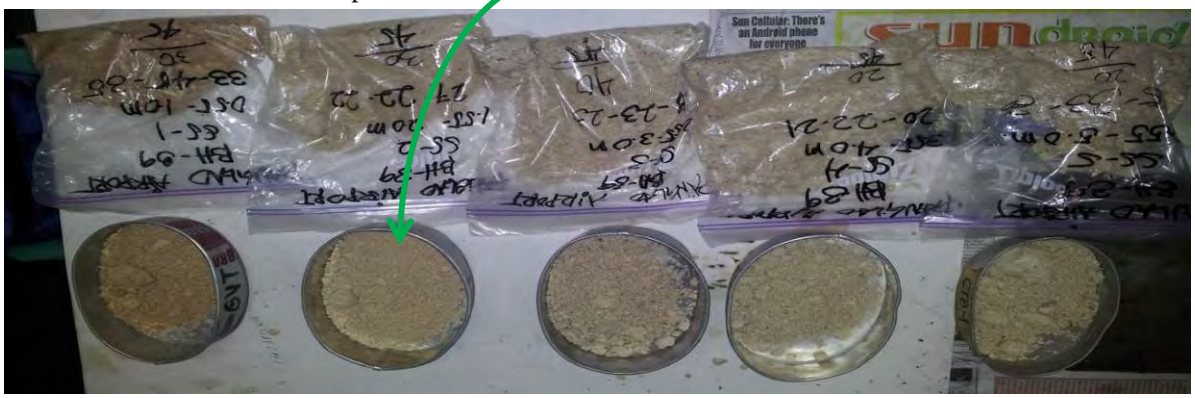


FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT: Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project
HOLE NO.: BH-39
DEPTH: 5.0 m
LOCATION: Panglao, Bohol
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				10 20 30 40												
1	1	67	-	SS		SM	Brown, very dense silty sand with gravel (broken corals with limestone) of no plasticity	33	45	35	Subgrade Cut 1.6m	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																

Pictures of disturbed soil samples



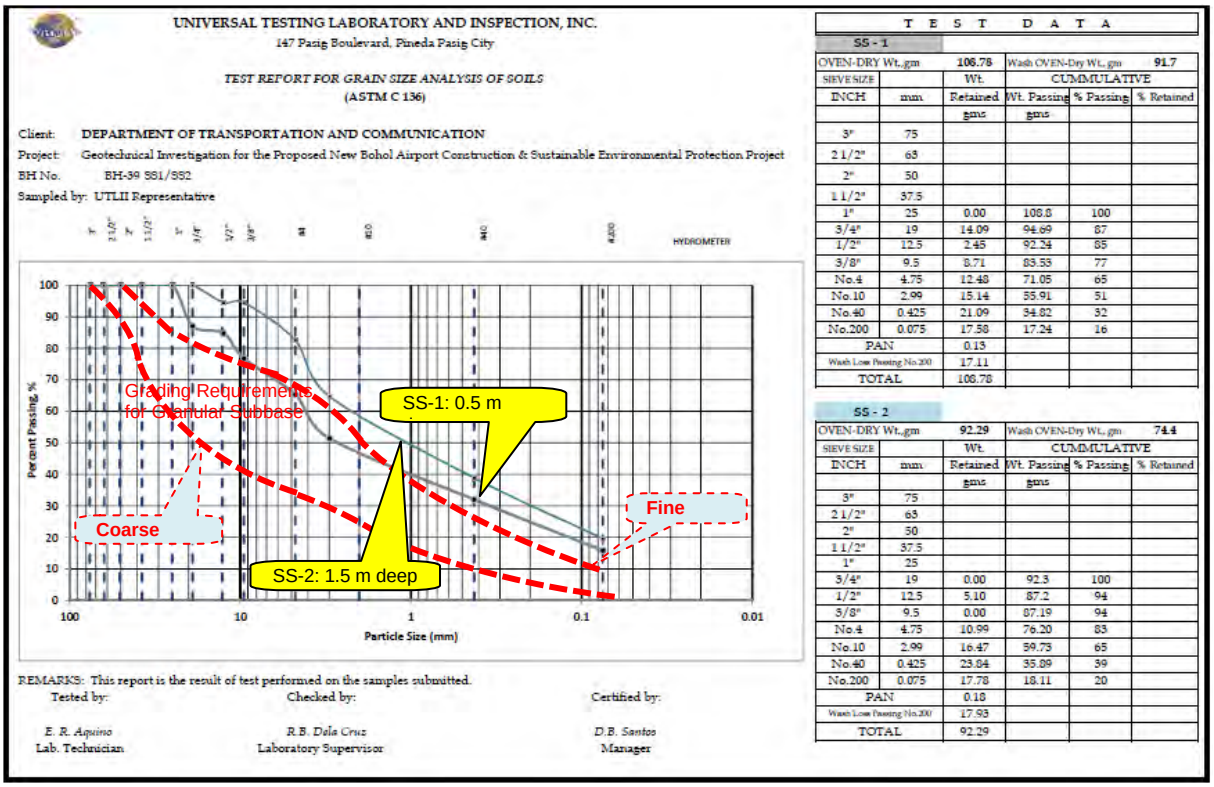
Moisture contents of disturbed soil samples

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

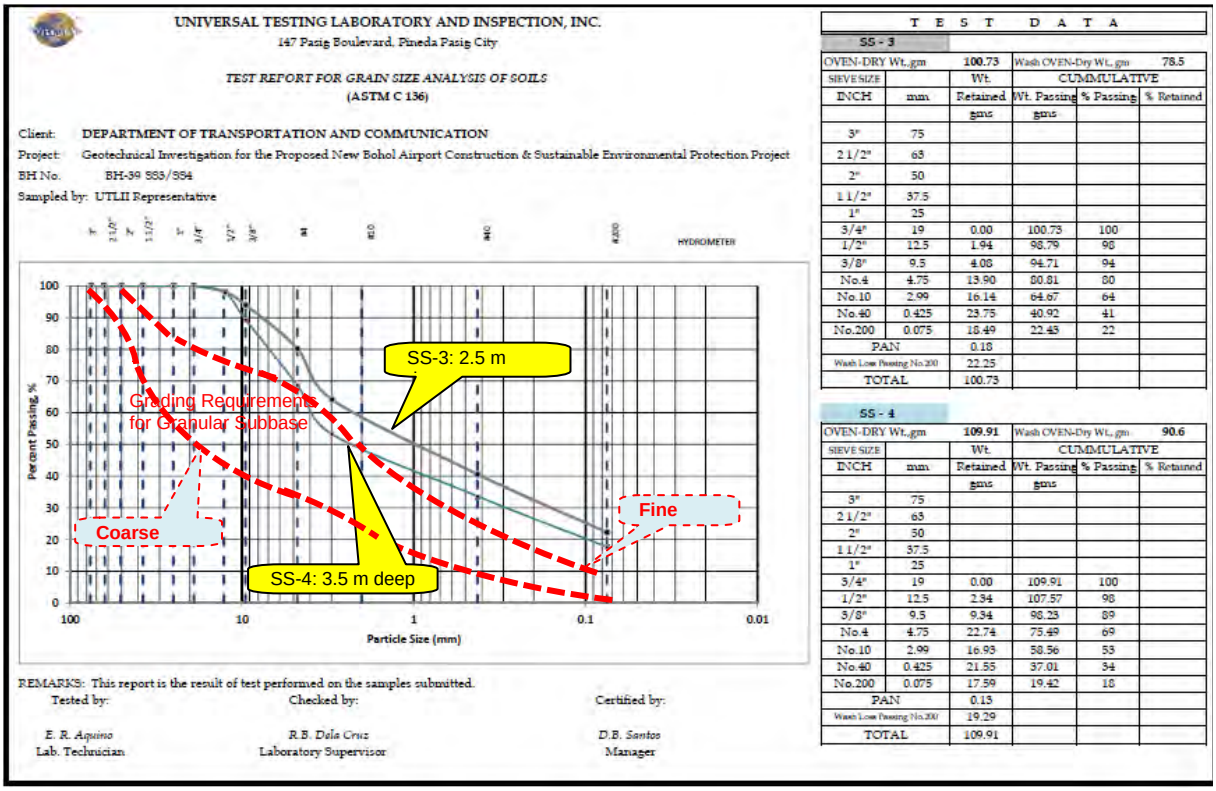
T E S T D A T A

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	23.64	35.09	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

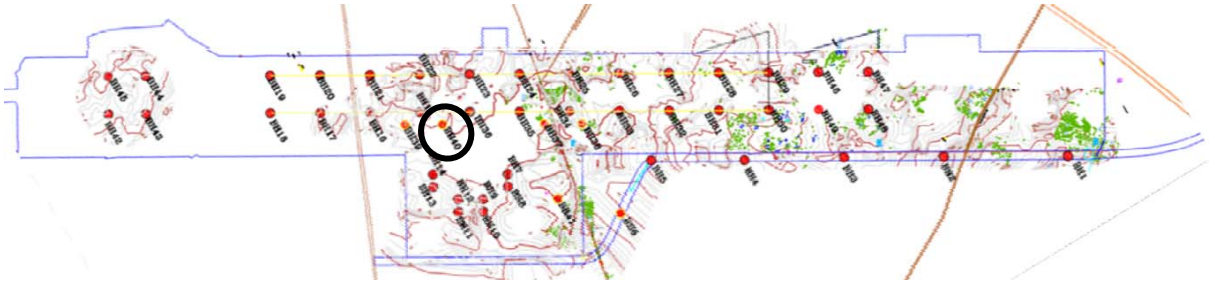
OVEN-DRY Wt.,gm		100.73	Wash OVEN-Dry Wt., gm		78.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	100.73	100	
1/2"	12.5	1.94	98.79	98	
3/8"	9.5	4.08	94.71	94	
No.4	4.75	13.90	80.81	80	
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
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																
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

Subgrade Cut 1.2m

END OF BOREHOLE

Pictures of disturbed soil samples

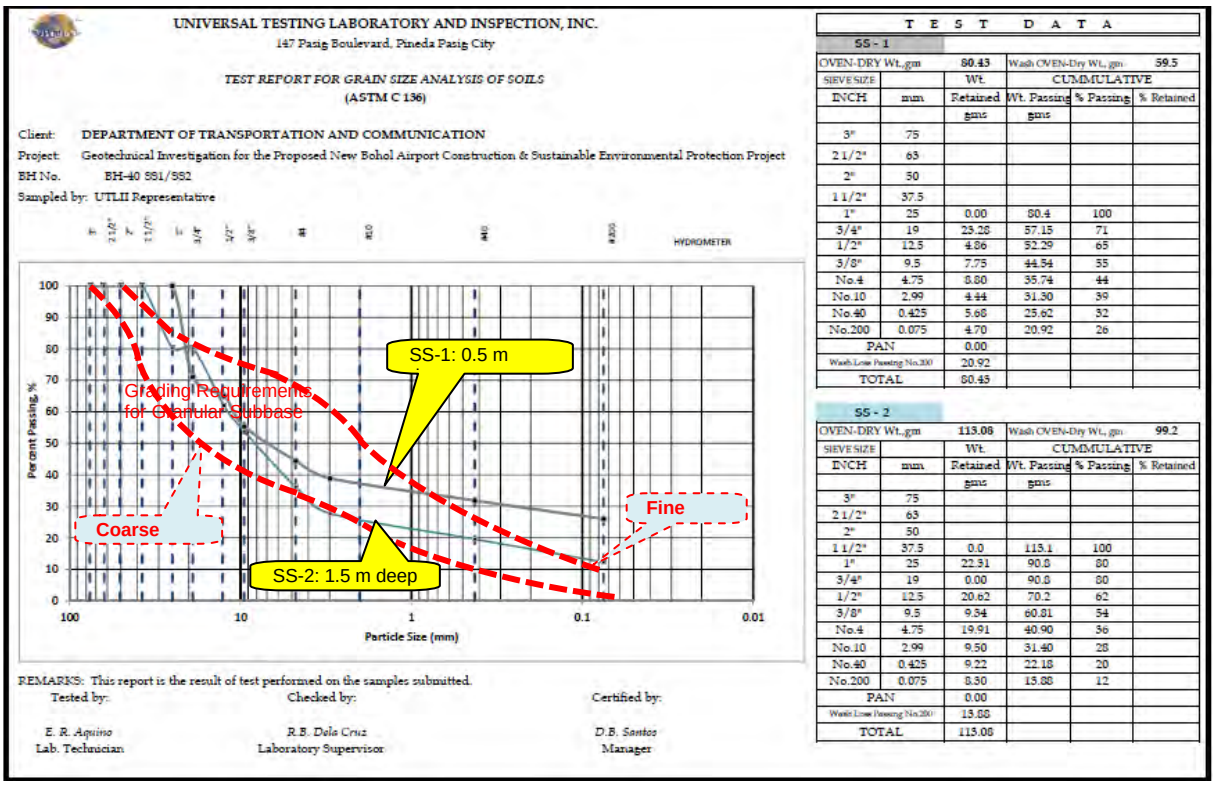
Moisture contents of disturbed soil samples

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.



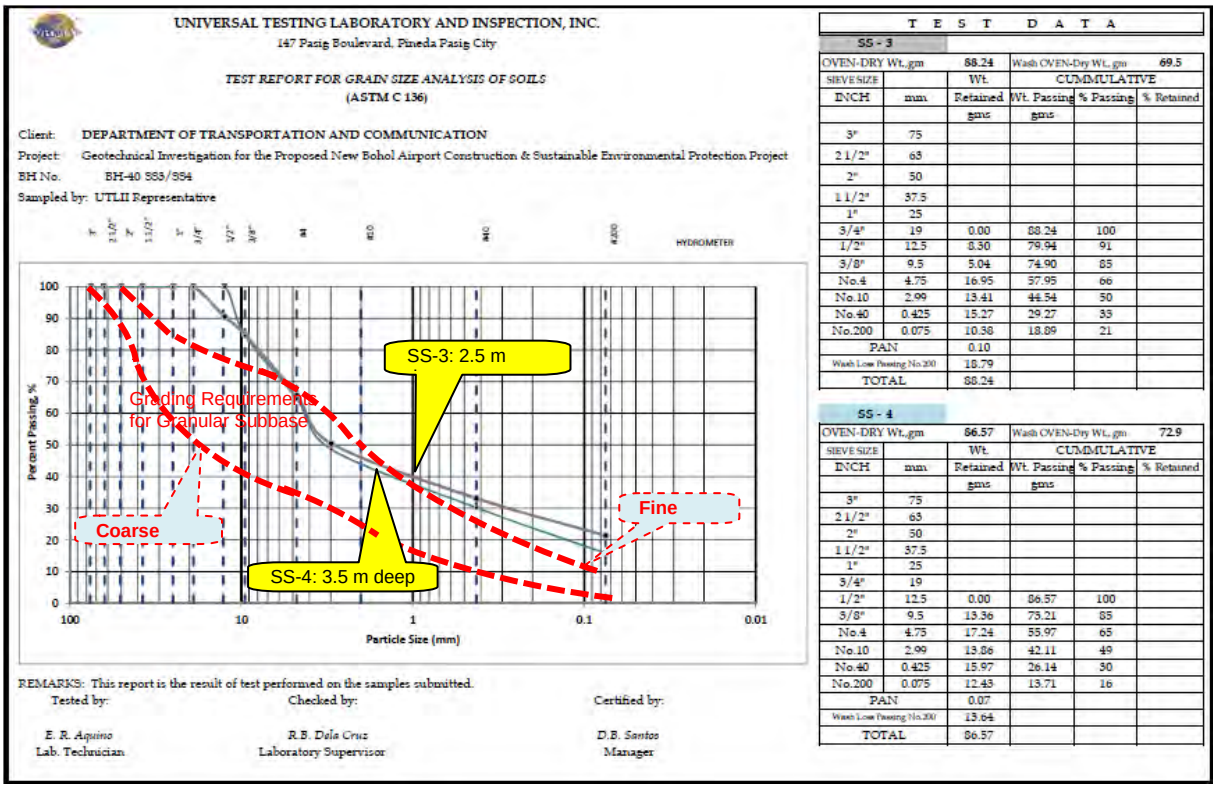
T E S T D A T A

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 Loss 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 Loss Passing No.200		13.88			
TOTAL		113.08			



T E S T D A T A

SS - 3

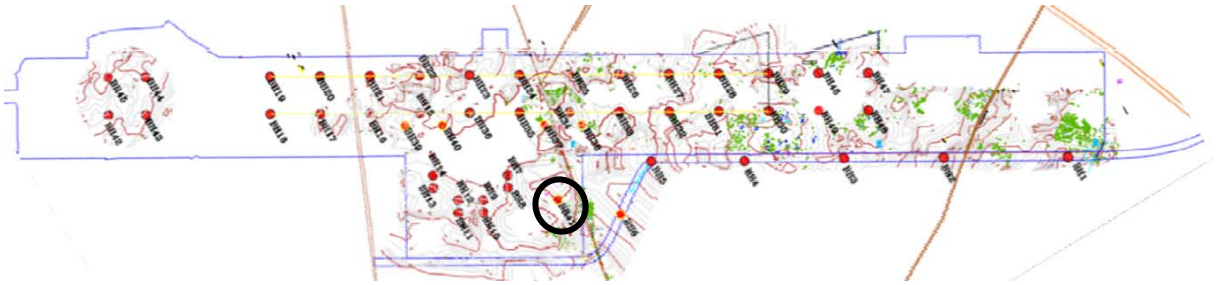
OVEN-DRY Wt.,gm		88.24	Wash OVEN-Dry Wt., gm		69.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	88.24	100	
1/2"	12.5	8.30	79.94	91	
3/8"	9.5	5.04	74.90	85	
No.4	4.75	16.95	57.95	66	
No.10	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 Loss 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 Loss 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



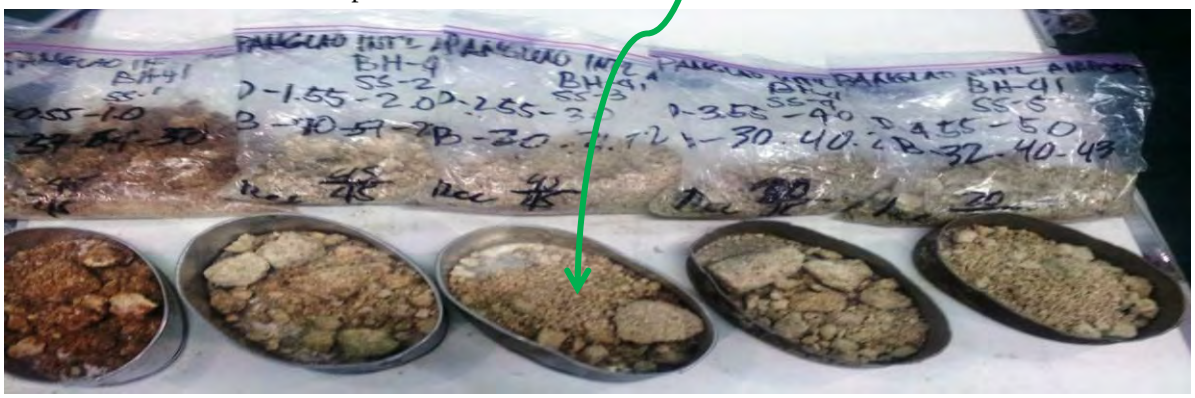
FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

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		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																

Footing Cut 2.5 m

Pictures of disturbed soil samples



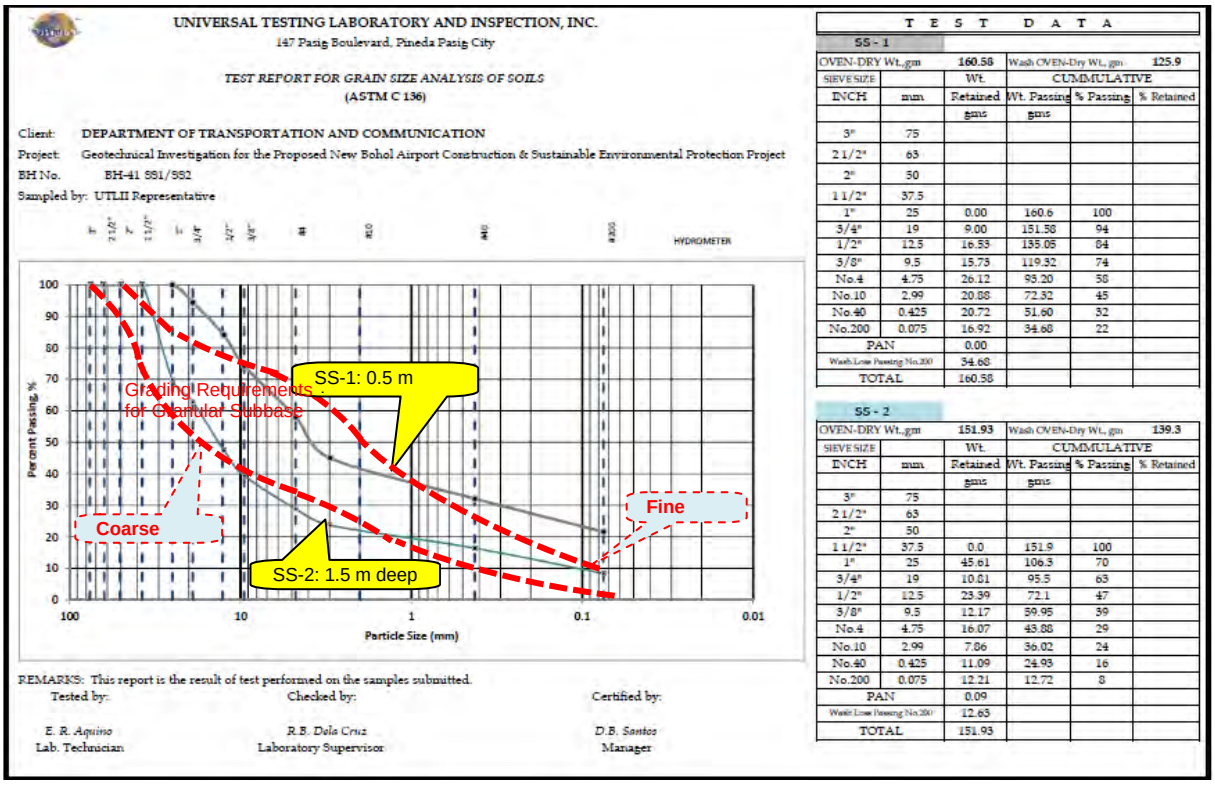
Moisture contents of disturbed soil samples

Location	SS1	SS2	SS3	SS4	SS5
Can Number	1	2	3	4	5
Weight of can & wet soil, g.	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

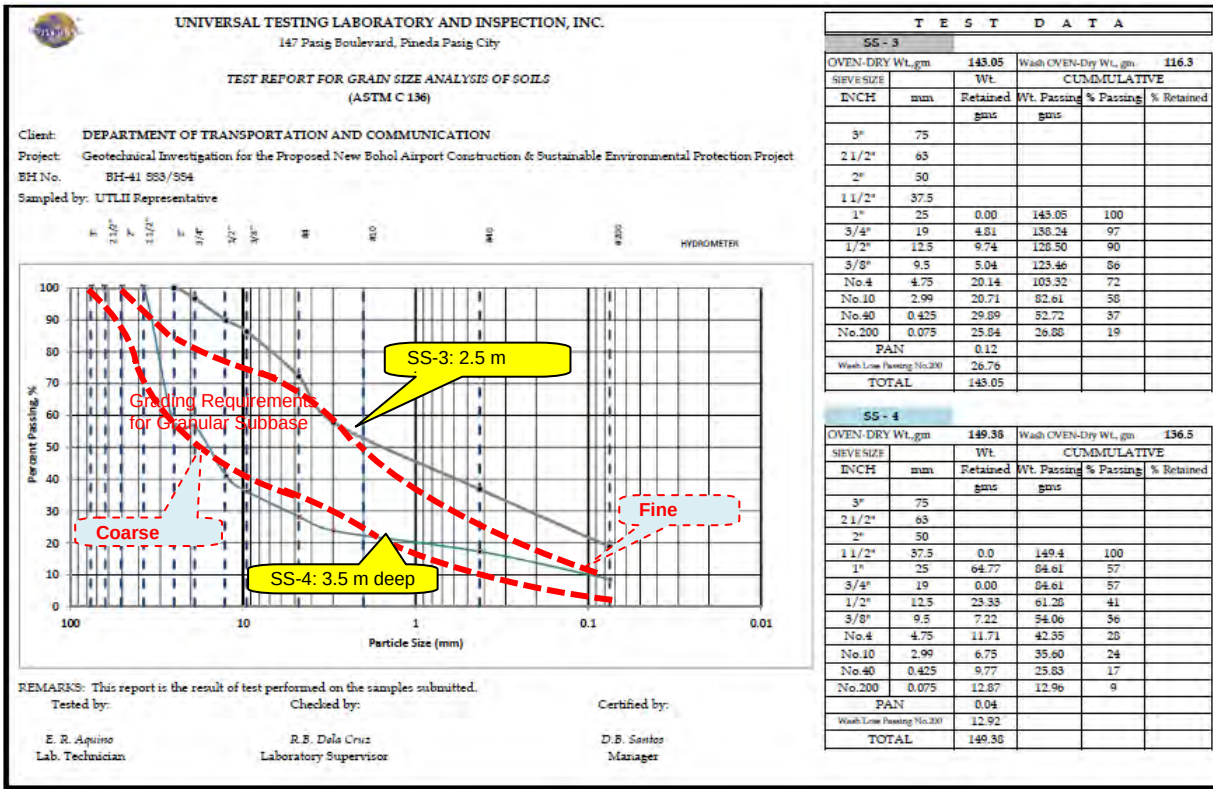
T E S T D A T A

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 Lose 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 Lose Passing No.200		12.65			
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

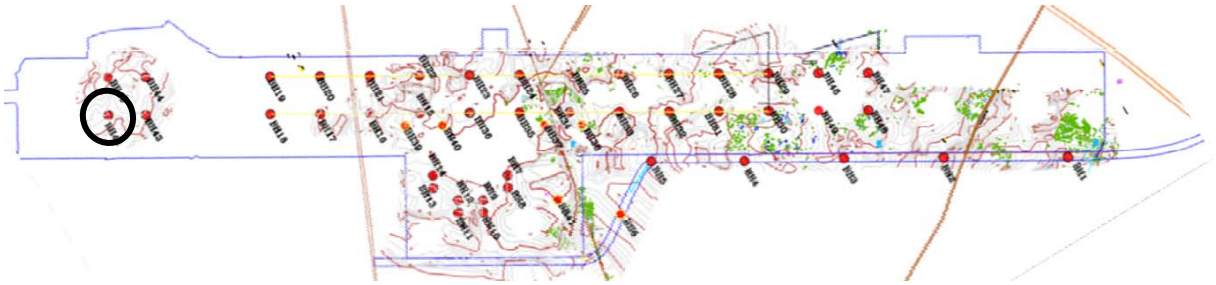
OVEN-DRY Wt.,gm		143.05	Wash OVEN-Dry Wt., gm		116.3
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	143.05	100	
3/4"	19	4.81	138.24	97	
1/2"	12.5	9.74	128.50	90	
3/8"	9.5	5.04	123.46	86	
No.4	4.75	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 Lose 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 Lose 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
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				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]	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

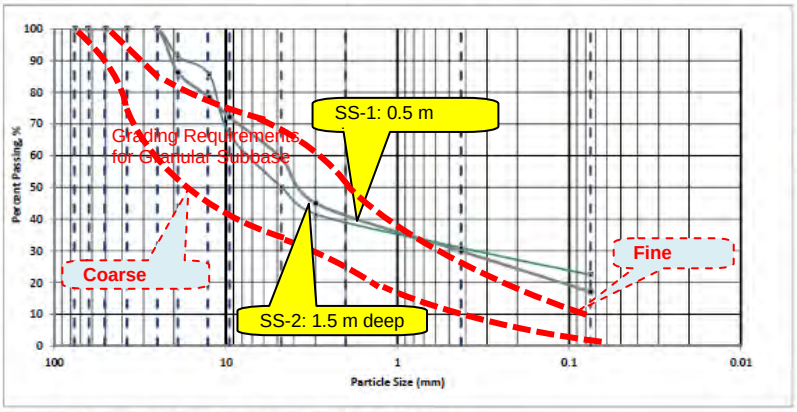
No fine topsoil exists. No large cavity exists.

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



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

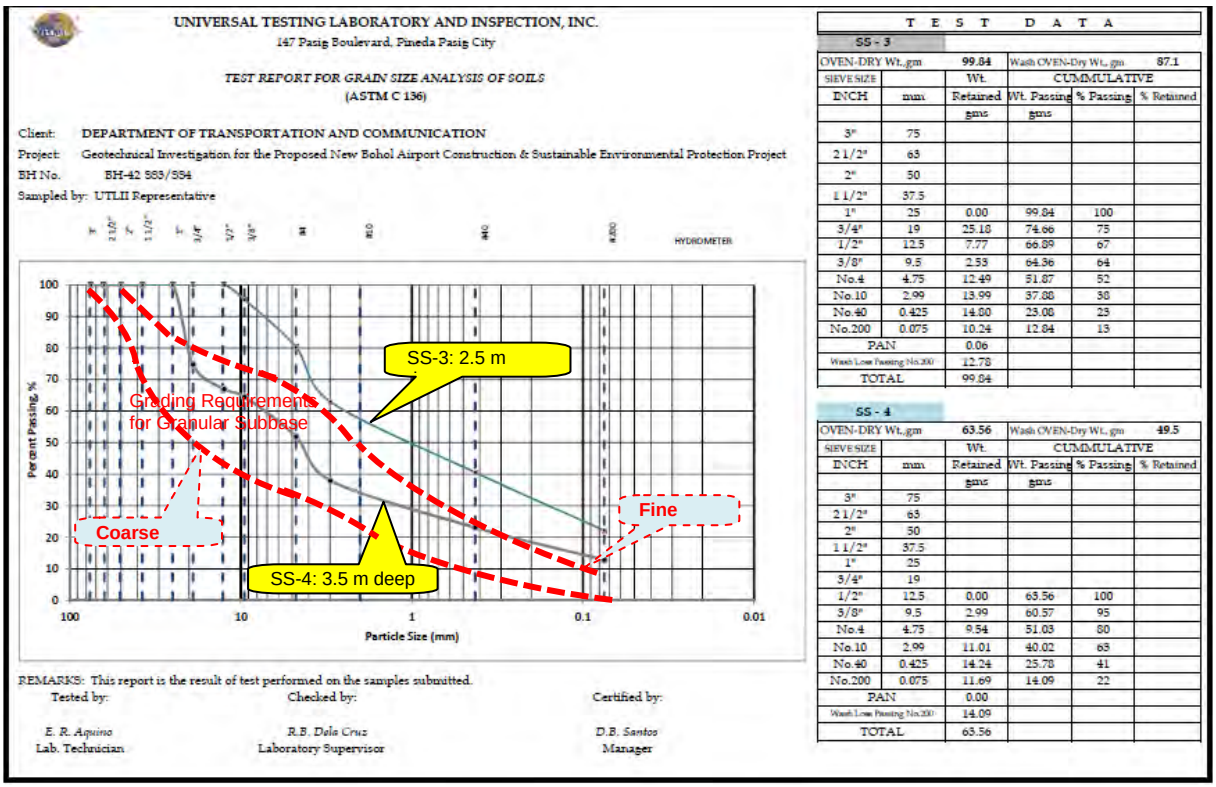
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		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			



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

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

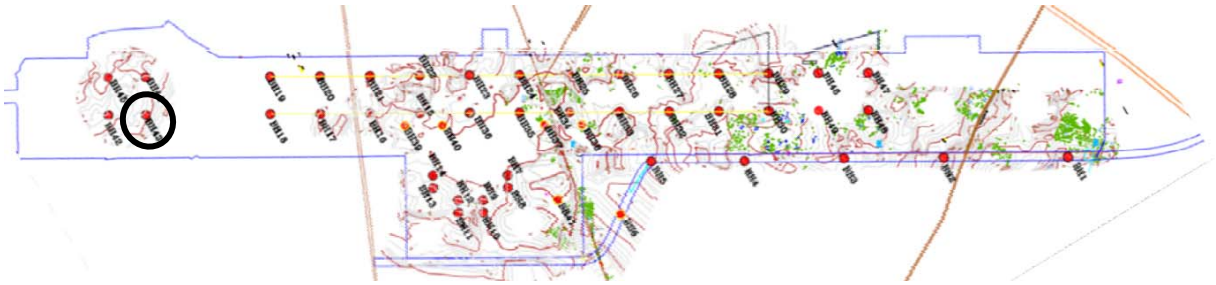
OVEN-DRY Wt.,gm		99.84	Wash OVEN-Dry Wt., gm		87.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	99.84	100	
3/4"	19	25.18	74.66	75	
1/2"	12.5	7.77	66.89	67	
3/8"	9.5	2.53	64.36	64	
No.4	4.75	12.49	51.87	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			

Borehole BH-43 – Soaking Yard

Existing Grade: 2.6 m Finished Grade: 2.0 m Cut height: 0.6 m

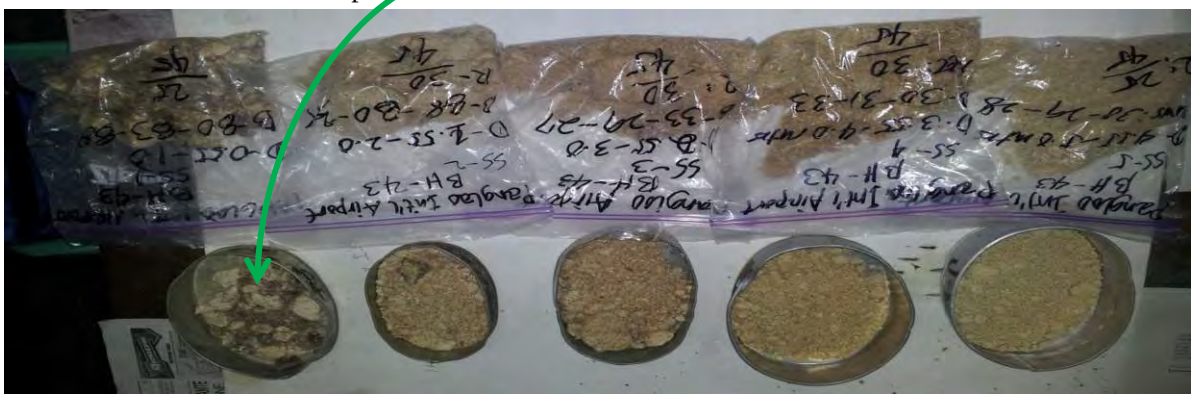


FINAL BOREHOLE LOG AND SUMMARY OF TEST RESULTS

PROJECT:	Geotechnical Investigation for the Proposed New Bohol Airport Construction & Sustainable Environmental Protection Project	HOLE NO.:	BH-43
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	56	-	SS		GW-GM	Brown, very dense well graded gravel with silt and sand (broken corals with limestone) of no plasticity	80	80	59	Cut 0.6m	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[illegible]		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	[illegible]	28		11.01	NP	NP			100	87	84	66	53	34	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.	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

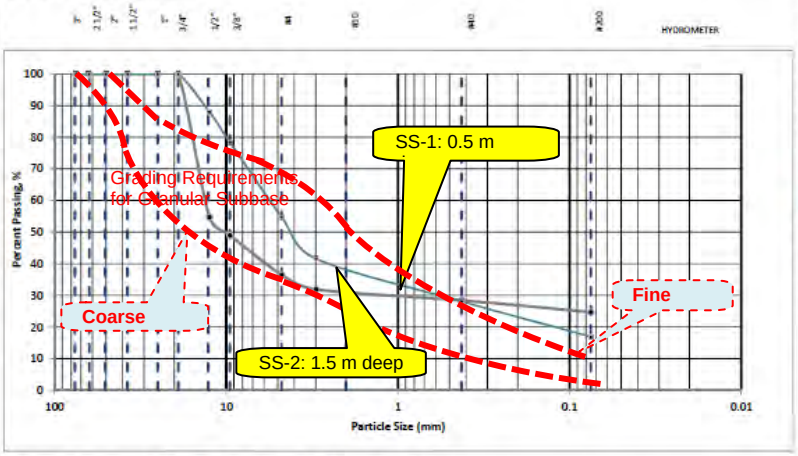
No fine topsoil exists. No large cavity exists.

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



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	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	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	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	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			

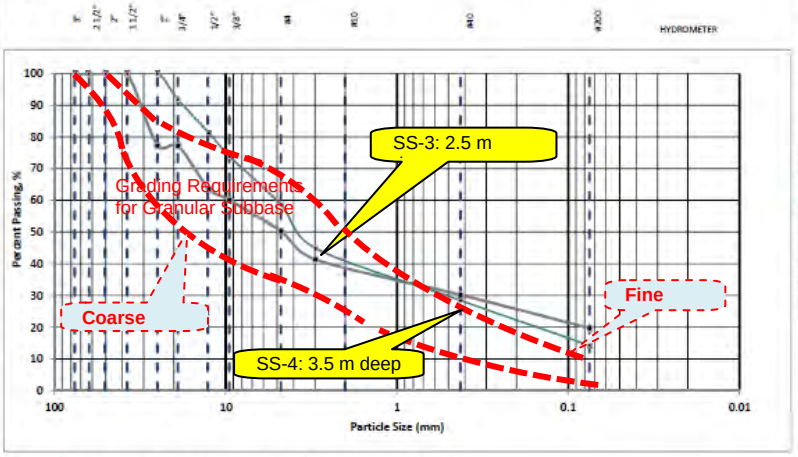
REMARKS: This report is the result of test performed on the samples submitted.

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 & SustainableEnvironmental Protection Project
BH No. BH-43 SS3/SS4
Sampled by: UTLII Representative



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	Wt. Passing	% Passing	% Retained
		gms	gms		
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

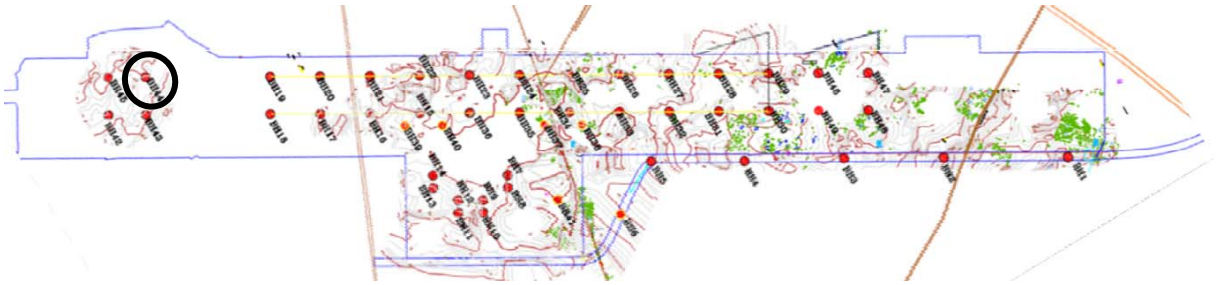
OVEN-DRY Wt.,gm		127.52	Wash OVEN-Dry Wt., gm		109.5
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	127.52	100	
3/4"	19	10.42	117.10	92	
1/2"	12.5	13.45	103.65	81	
3/8"	9.5	9.37	94.28	74	
No.4	4.75	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			

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-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
		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	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	35		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

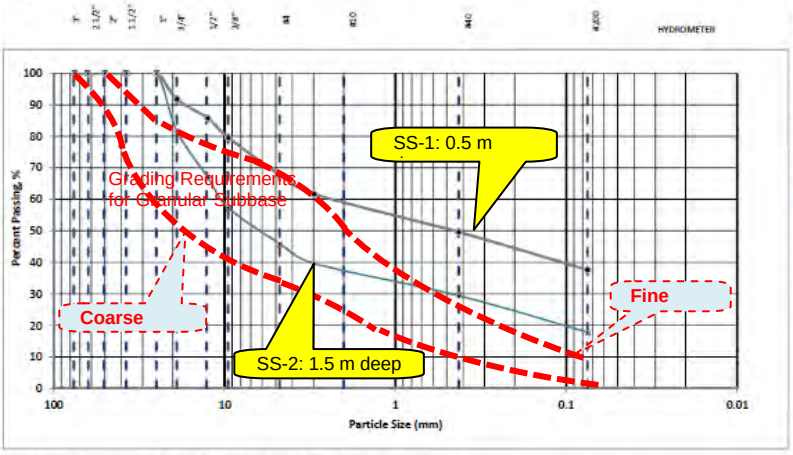
No fine topsoil exists. No large cavity exists.

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



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			

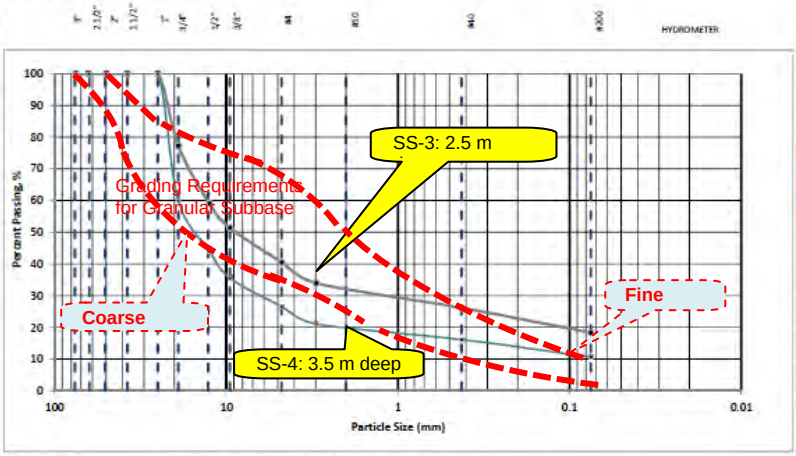
REMARKS: This report is the result of test performed on the samples submitted.

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-44 SS3/SS4
Sampled by: UTLII Representative



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

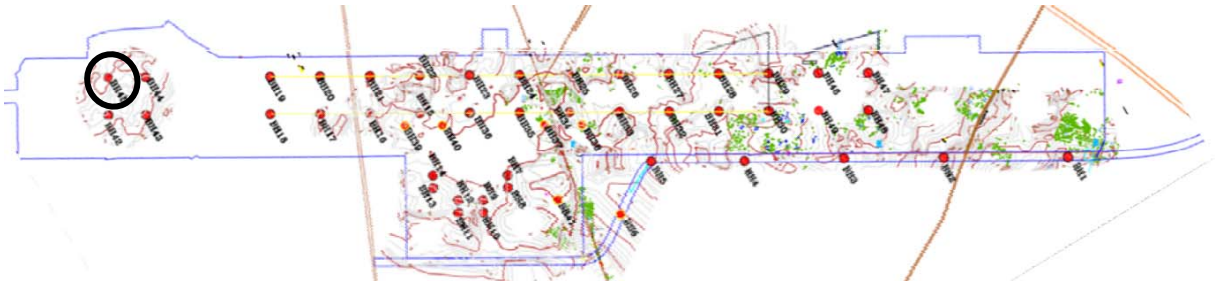
OVEN-DRY Wt.,gm		132.19	Wash OVEN-Dry Wt., gm		116.1
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	132.19	100	
3/4"	19	52.86	79.33	60	
1/2"	12.5	21.13	58.20	44	
3/8"	9.5	11.18	47.02	36	
No.4	4.75	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			

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-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

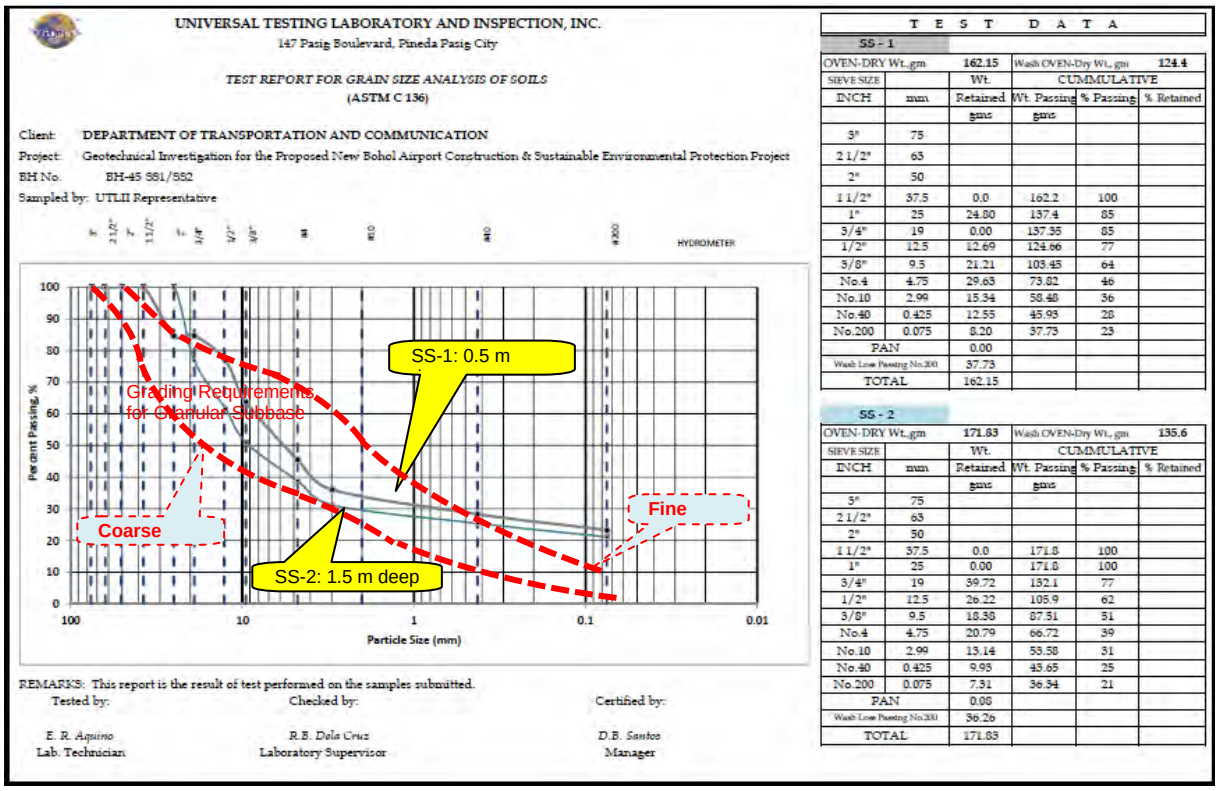
Moisture contents of disturbed soil samples

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

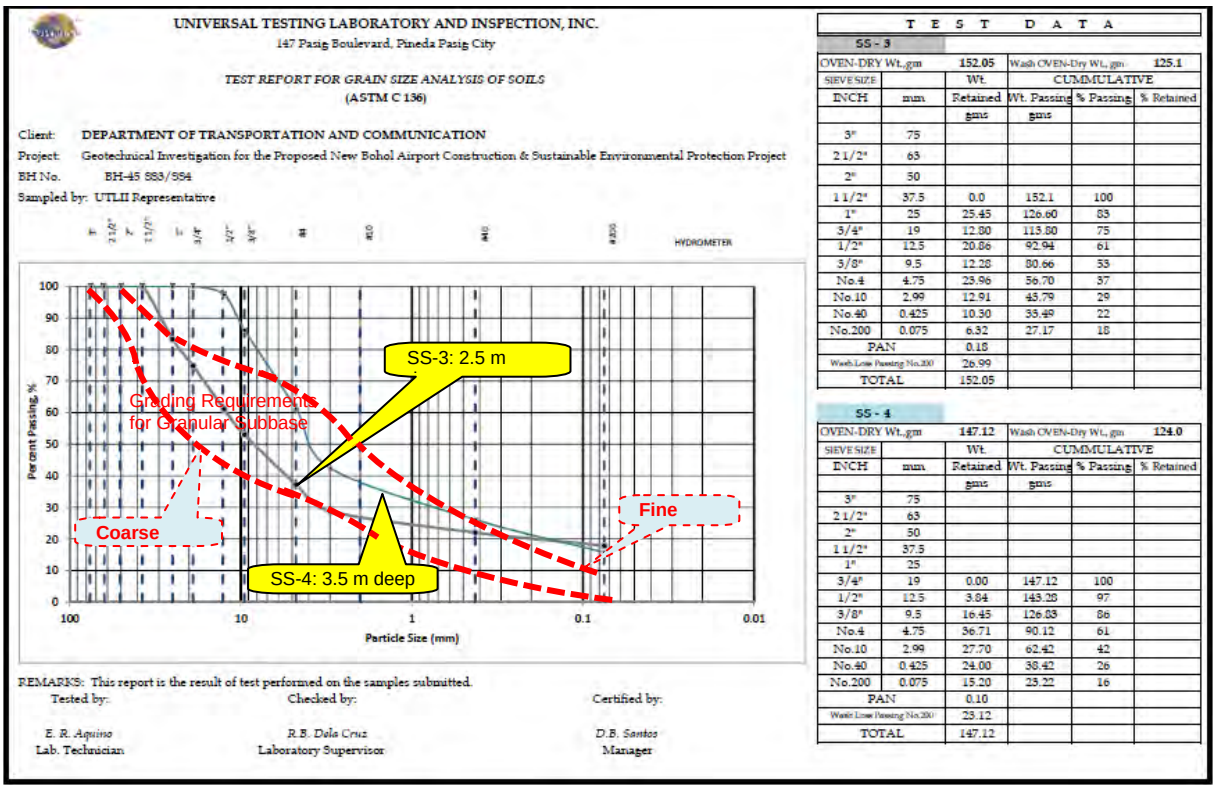
OVEN-DRY Wt.,gm		162.15	Wash OVEN-Dry Wt., gm		124.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	162.2	100	
1"	25	24.80	137.4	85	
3/4"	19	0.00	137.35	85	
1/2"	12.5	12.69	124.66	77	
3/8"	9.5	21.21	103.45	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		0.06			
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

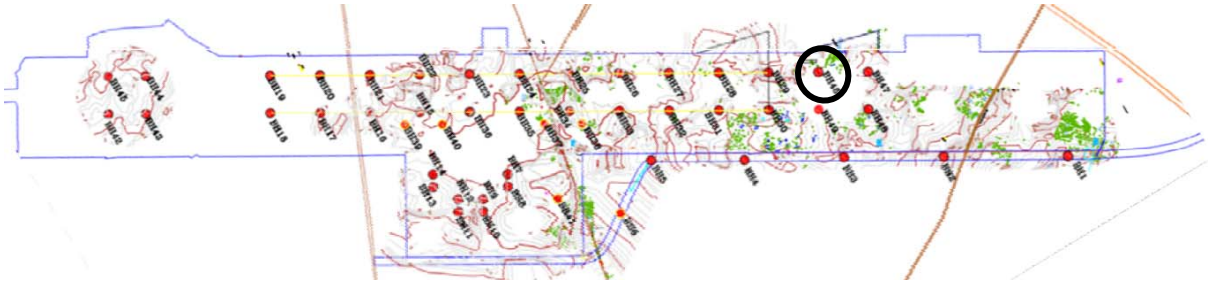
OVEN-DRY Wt.,gm		147.12	Wash OVEN-Dry Wt., gm		124.0
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained	Wt. Passing	% Passing	% Retained
		gms	gms		
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	147.12	100	
1/2"	12.5	3.84	143.28	97	
3/8"	9.5	16.45	126.83	86	
No.4	4.75	36.71	90.12	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
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
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																
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																

Pictures of disturbed soil samples

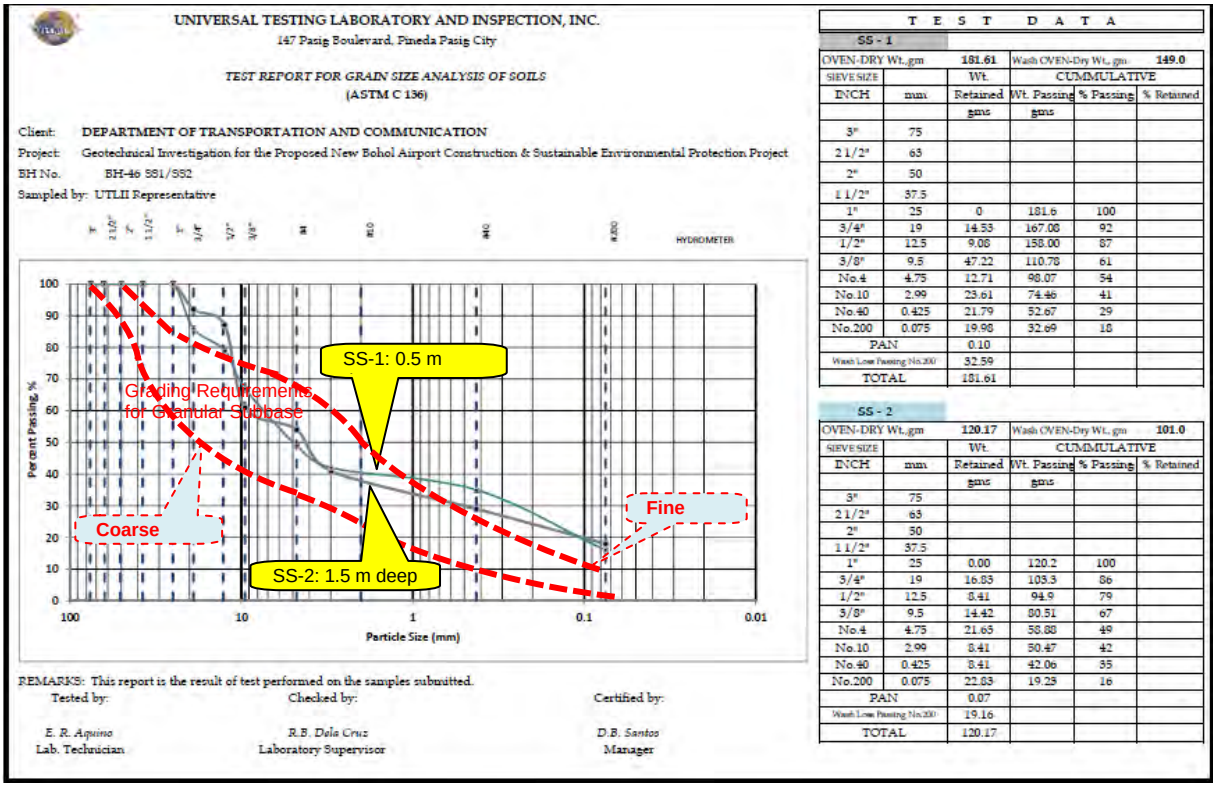
Moisture contents of disturbed soil samples

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.



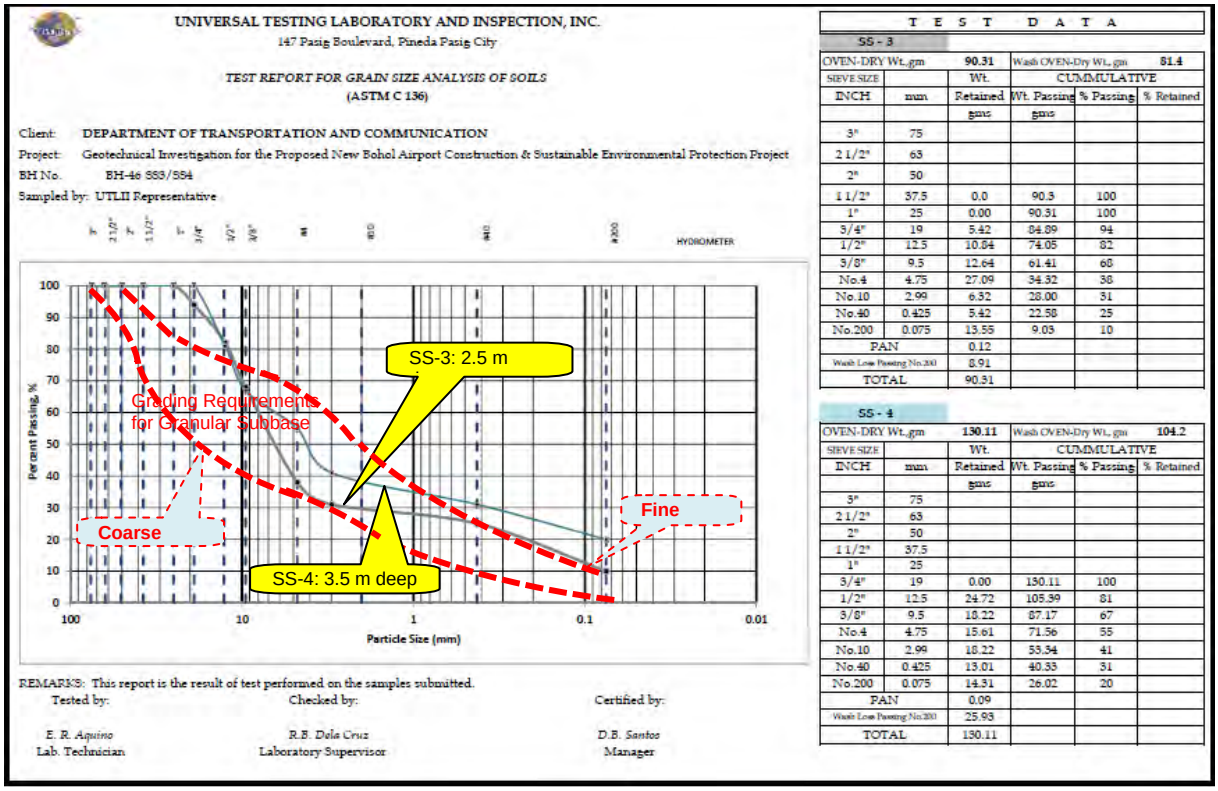
TEST DATA

SS - 1

OVEN-DRY Wt.,gm		181.61	Wash OVEN-Dry Wt., gm		149.0
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	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 gms	Wt. Passing gms	% Passing	% Retained
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	21.63	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			



TEST DATA

SS - 3

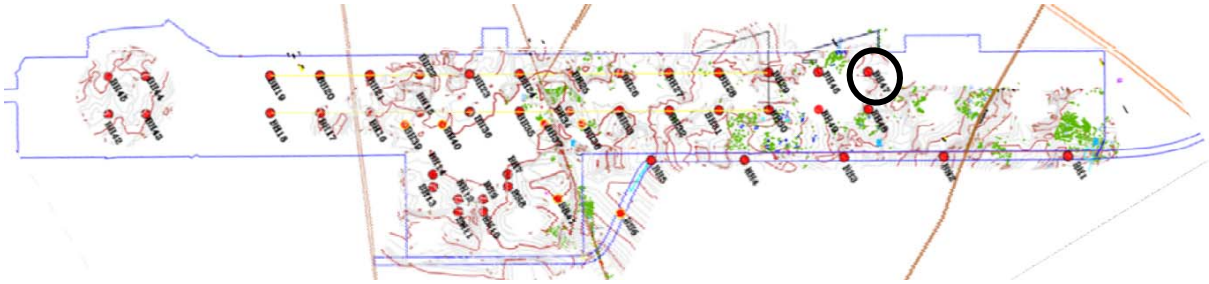
OVEN-DRY Wt.,gm		90.31	Wash OVEN-Dry Wt., gm		81.4
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5	0.0	90.3	100	
1"	25	0.00	90.31	100	
3/4"	19	5.42	84.89	94	
1/2"	12.5	10.84	74.05	82	
3/8"	9.5	12.64	61.41	68	
No.4	4.75	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 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	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 Cut 0.6m												
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	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	38		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

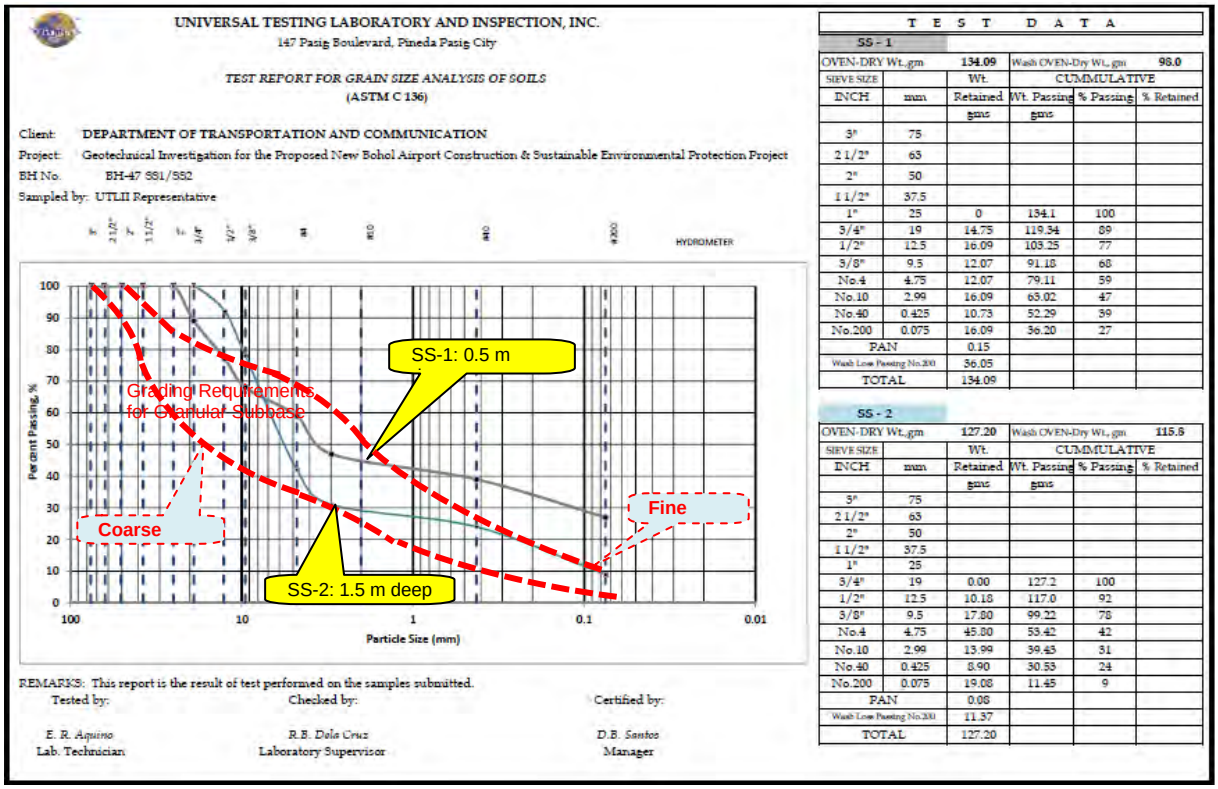
Moisture contents of disturbed soil samples

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

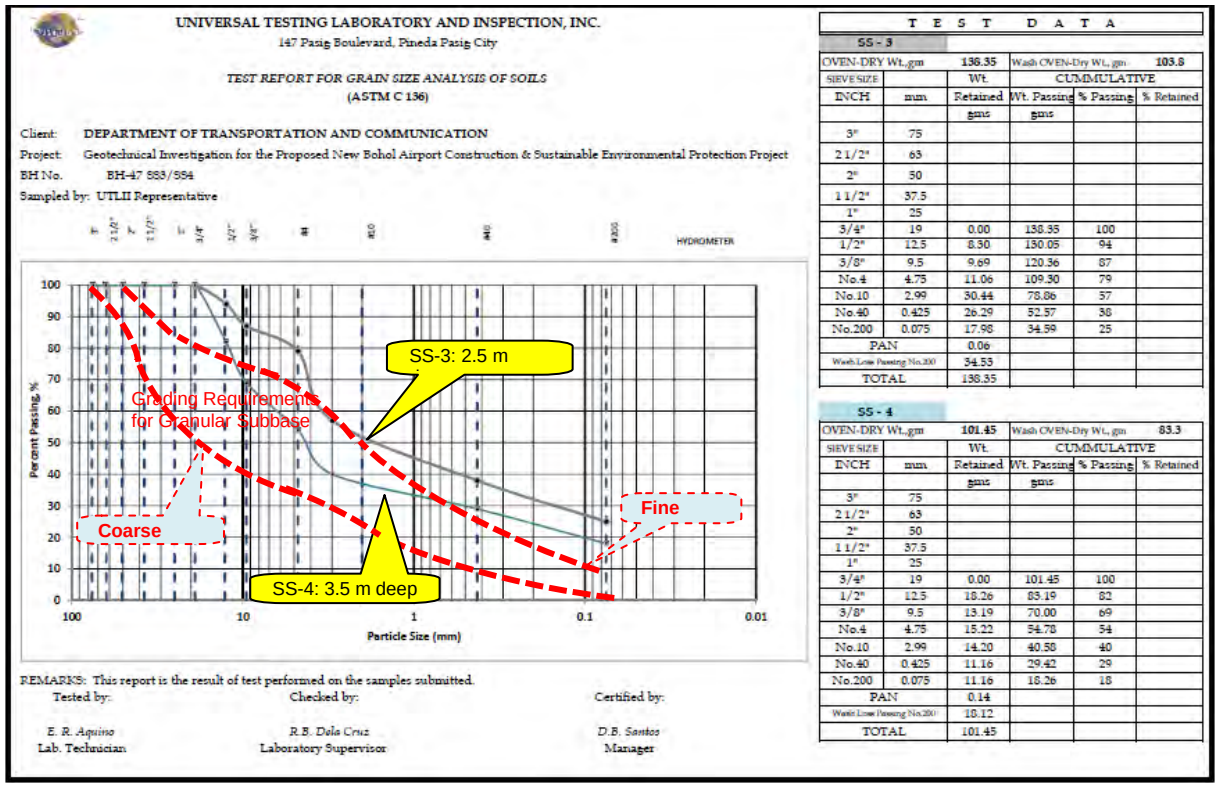
T E S T D A T A

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		115.5
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	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	39.43	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

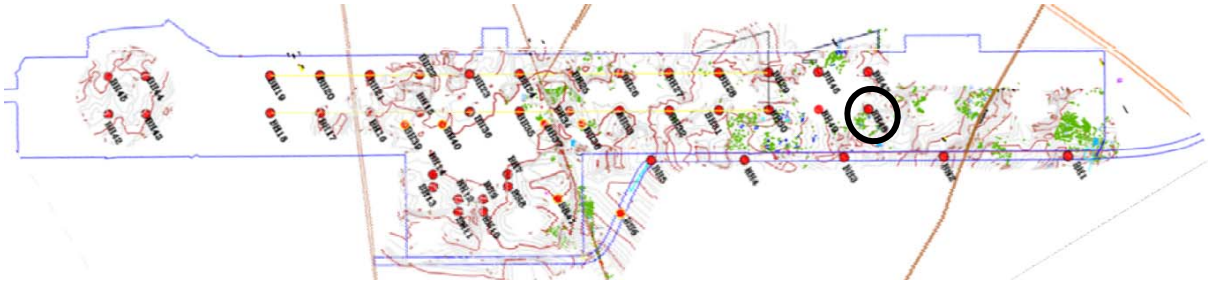
OVEN-DRY Wt.,gm		136.35	Wash OVEN-Dry Wt., gm		103.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25				
3/4"	19	0.00	136.35	100	
1/2"	12.5	8.30	130.05	94	
3/8"	9.5	9.69	120.36	87	
No.4	4.75	11.06	109.30	79	
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		10.12			
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
LOCATION:	Panglao, Bohol	DEPTH:	5.0 m
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	45		15.40	NP	NP		100	90	84	72	60	51	34	22
							END OF BOREHOLE																

Subgrade Cut 1.4m

Pictures of disturbed soil samples

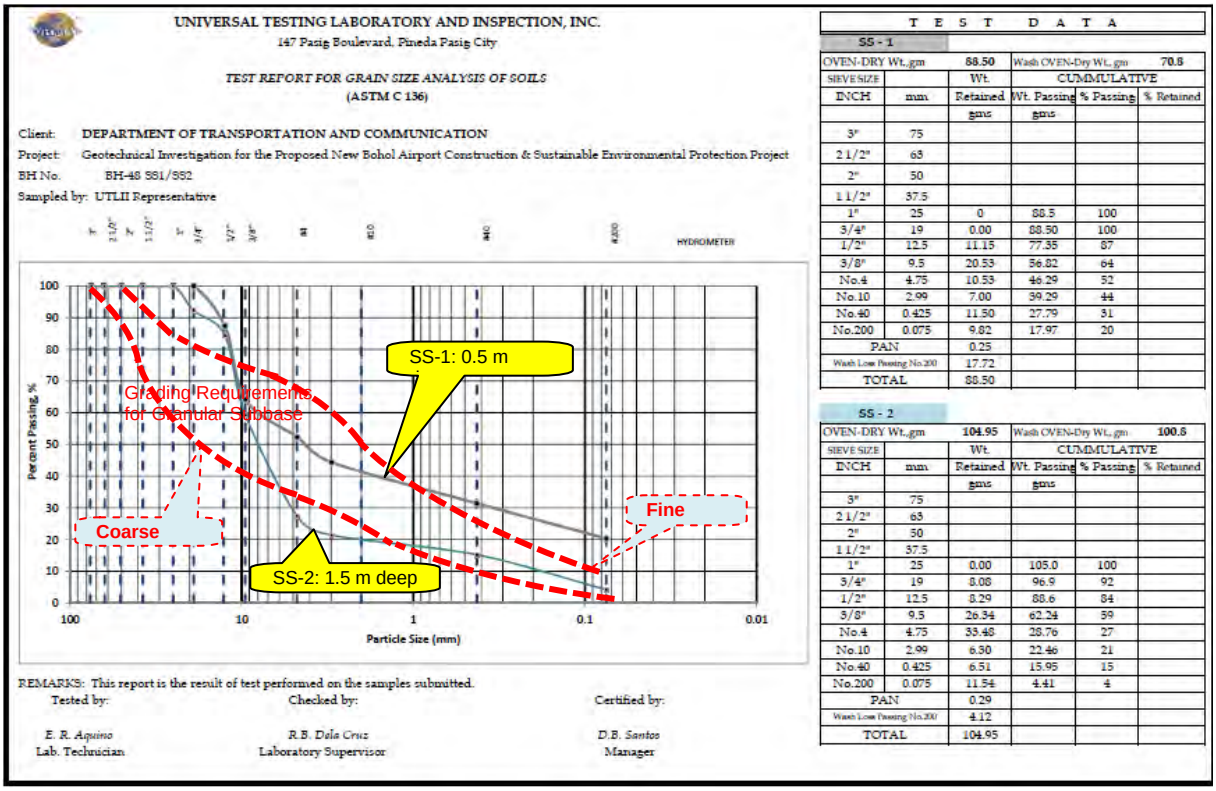
Moisture contents of disturbed soil samples

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.



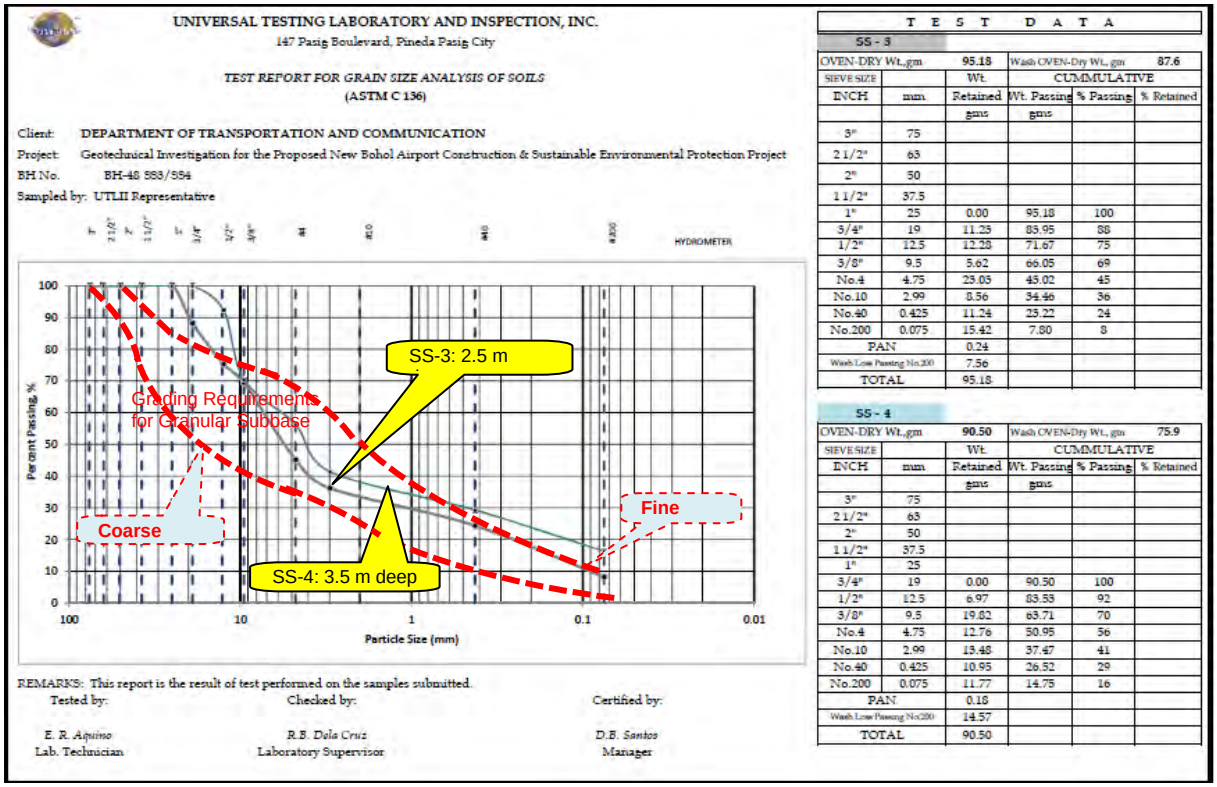
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		88.50	Wash OVEN-Dry Wt., gm		70.8
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
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 gms	Wt. Passing gms	% Passing	% Retained
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			



T E S T D A T A

SS - 3

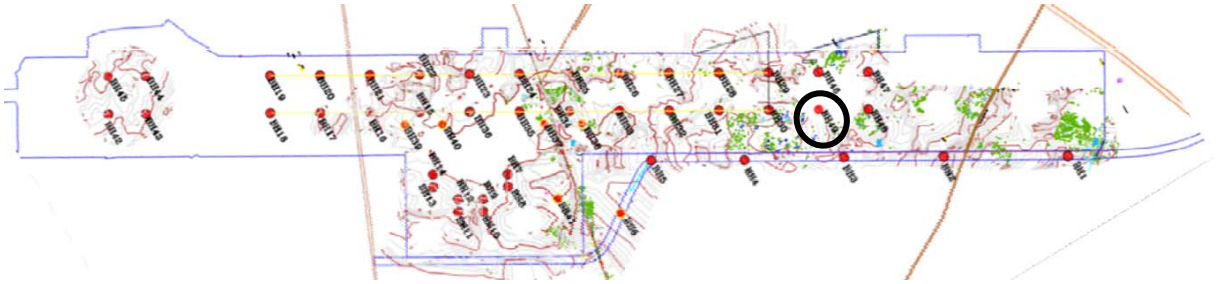
OVEN-DRY Wt.,gm		95.18	Wash OVEN-Dry Wt., gm		87.6
SIEVE SIZE		Wt.	CUMMULATIVE		
INCH	mm	Retained gms	Wt. Passing gms	% Passing	% Retained
3"	75				
2 1/2"	63				
2"	50				
1 1/2"	37.5				
1"	25	0.00	95.18	100	
3/4"	19	11.23	83.95	88	
1/2"	12.5	12.28	71.67	75	
3/8"	9.5	5.62	66.05	69	
No.4	4.75	23.03	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 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	90.50	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. 11/2	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

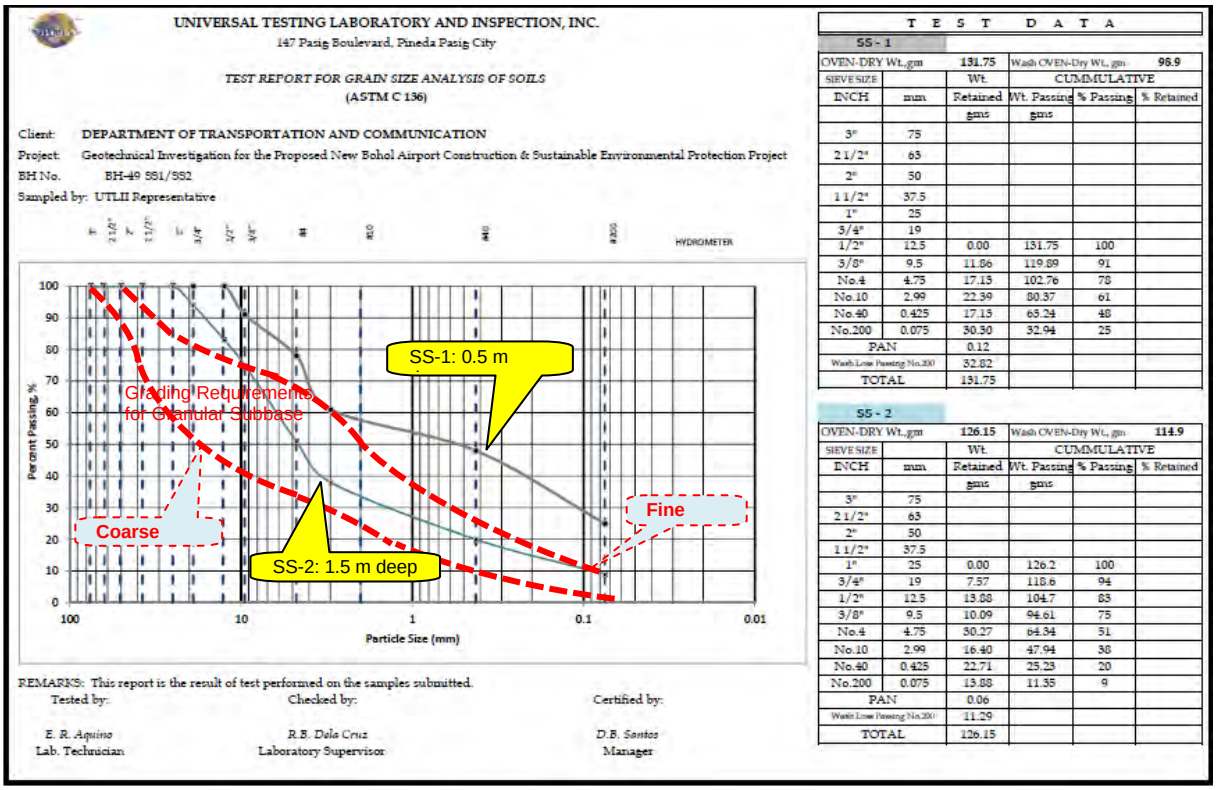
Moisture contents of disturbed soil samples

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.



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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

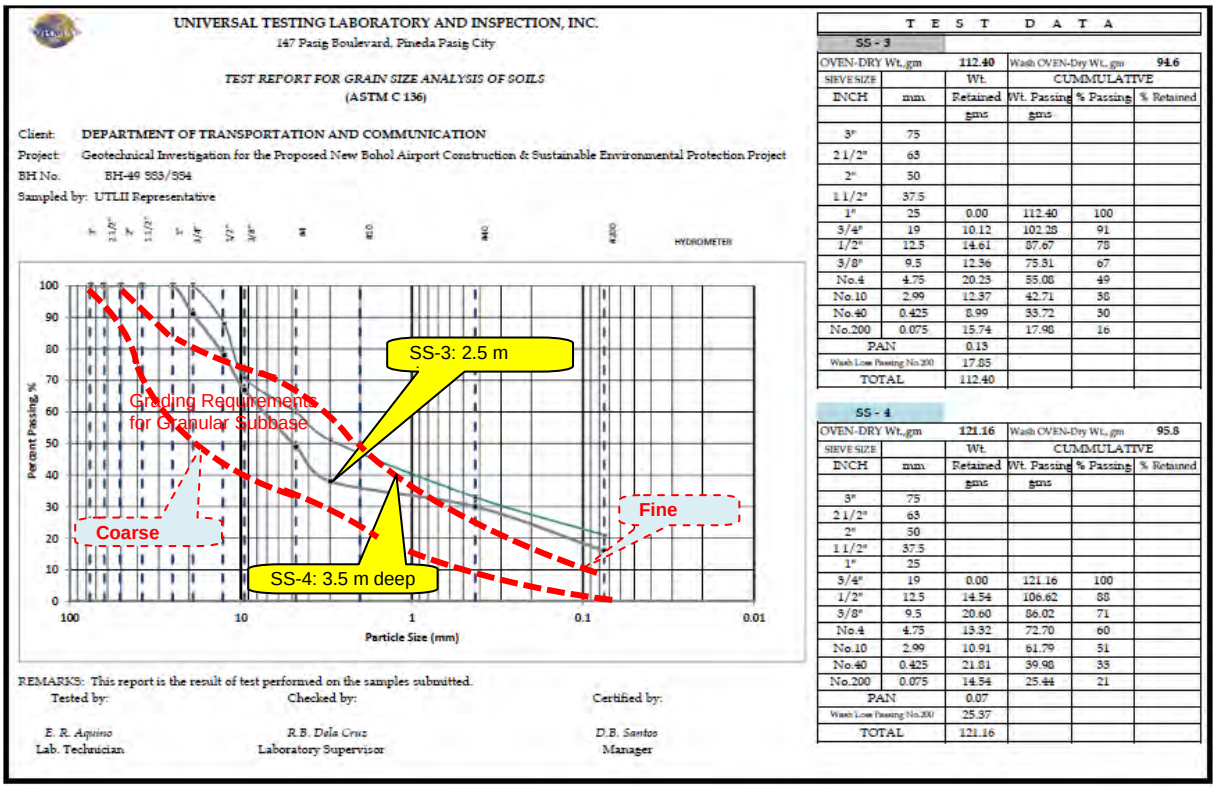
T E S T D A T A

SS - 1

OVEN-DRY Wt.,gm		131.75	Wash OVEN-Dry Wt., gm		98.9
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	131.75	100	
3/8"	9.5	11.86	119.89	91	
No.4	4.75	17.13	102.76	78	
No.10	2.99	22.39	80.37	61	
No.40	0.425	17.13	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 gms	Wt. Passing gms	% Passing	% Retained
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			



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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-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 gms	Wt. Passing gms	% Passing	% Retained
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 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	121.16	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			

2.1.3. Observations and Findings

The Geological Survey Report (in Apr 2013; by Universal Testing Laboratory and Inspection) recommends that:

a) Plasticity Index (PI) of soil is 6 to 10

b) Bearing capacity is 500 kPa (50 ton/ m^2)

c) Slope gradient should not steeper than 1(V) : 1(H)

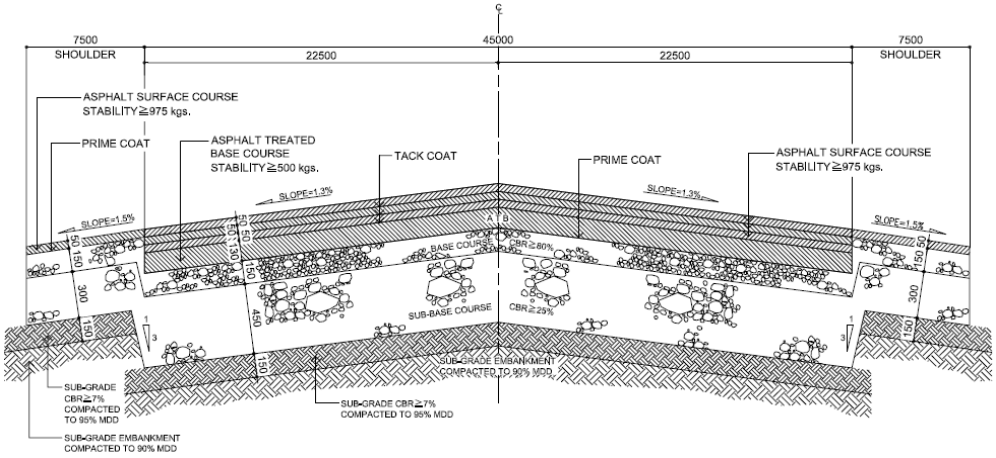
d) Subgrade Reaction (K) is 54 MN/m^3 (200 pci) for pavement or slab-on grade

The above b) is based on the actual results of borehole investigations, which concurred with a generally-known relationship between N-value and bearing strength as shown in Table 2.1-1, i.e. the value of bearing strength in ton/m^2 is equivalent to N Value (50). Because of the high value of the bearing capacity (50 ton/ m^2), building foundation is planned to be sustained by RC footings (without piling)

Table 2.1-1 General Relationship between N-value and Subsoil Bearing Strength

Classification of Soil		Bearing Strength (t/m2)	N value
Sand	dense	30	30～50
	medium	20	20～30
		10	10～20
	loose	5	5～10
Clay	dense	10	8～15
	medium	5	4～ 8
	loose	3	2～ 4

Given in Chapter 4, the runway pavement thickness is designed to be 88 cm with minimum 15-cm thick well compacted subgrade (i.e. 1.03 m thick n total).

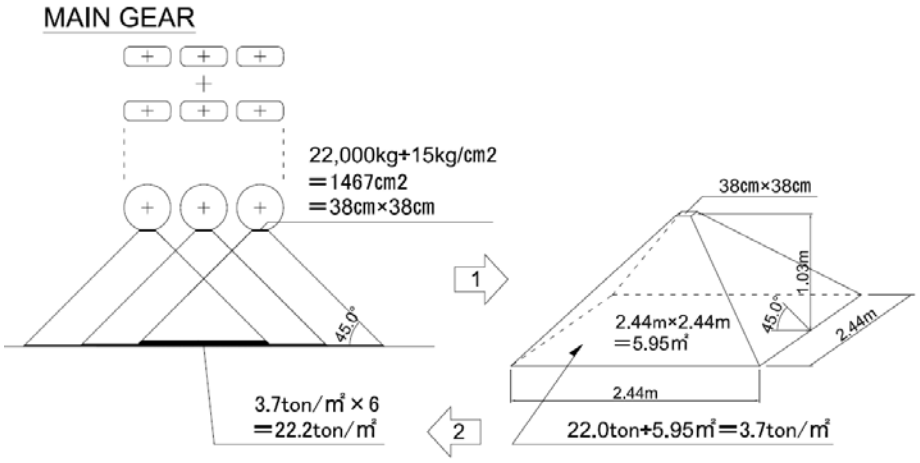


Source: JICA Study Team

Figure 2.1-5 Runway Pavement Structure

Principle of asphalt pavement design is based on the assumption that the load of main gear is vertically distributed to the depth to the bottom of pavement with a horizontal distribution of 45-degree below the surface. The main gear of B777-300 consists of 6

tires (dual triple-tandem configuration), and maximum tire pressure of B777 is 15 kg.cm^2 which requires 38 cm square (1,467 cm^2) of the pavement top surface. Consequently, the area of the load at the bottom of the 1.03-m thick pavement structure is 2.44 m square (or 5.95 m^2). The load of a main gear at pavement surface is 22 tons (loaded at the surface area of 1,467 cm^2) and the same load measured at the bottom of the pavement is 3.70 tons/m^2 (equally loaded at the area of 5.95 m^2). The center of the main gear is affected by the same load of 6 accumulated tires, which is 22.2 tons/m^2 (i.e.3.7 tons/m^2 x 6 tires) in total. This philosophy is explained in Figure 2.1-6:



Source: JICA Study Team

Figure 2.1-6 Philosophy of Design Load for Asphalt Pavement (B777-300)

Considering the fact that N-value of natural subgrade level is more than 30 (equivalent to bearing strength of at least 30 tons/m^2), the natural subsoil is assumed to be capable of sustaining B777.

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.

2.2. Weather Conditions

Monthly rainfall recorded from 1998 to 2008 is summarized as shown in Table 2.2-1.

Table 2.2-1 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) to 2108 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 area, Visayas area has an average rainfall through the year (i.e., no rainy or dray seasons). The number of days on which more than 5-mm rain falls is 183. Those features for each month are shown in Table 2.2-1.

Table 2.2-2 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 2.2-3 (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			
Sea Level Pressure		Temperature	
Highest	**1012.7 MBS**	Highest	**36.5°C**
Date	**6/22/10 1330 Z**	Date	**6/04/10 0700 Z**
Lowest	**1007.0 MBS**	Lowest	**23.0°C**
Date	**6/04/10 0700 Z**	Date	**6/25/10 1935 Z**
Mean	**1009.5 MBS**	Mean	**29.8°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	
0	**14**	**13**	**4**	**1**	**1**	**0**

MONTHLY PSYCHOMETRIC VALUES	
Dew Point Temperature (°C)	**25.5**
Relative Humidity (%)	**81**
Vapor Pressure (mmHg)	**33.61**

MEAN CLOUDNESS IN OKTAS		
Number of days with:		
0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
0	**19**	**11**

Table 2.2-3 (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 2.2-3 (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					
	(1)	Station Pressure (2a)	Mean Sea Level Pressure (2)	Dry Bulb (3)	Web Bulb (4)	Maximum (5)	Minimum (6)	Mean (7)	Mean Dew Point (8)	(9)	(10)	Average Speed(mps) (11)	Prevailing Direction (degrees) (12)	Maximum Speed(mps) (13)	Direction of Maximum Speed (14)	Time of Maximum Wind(UTC) (15)	Minutes (16)	Precentage of Maximum Possible (17)	(18)	Smoke/Haze/ Smaze (19)	Fog (20)	Rain/Drizzle (21)	Hail (22)	Thunderstorm (23)	Lightning (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		
Sea Level Pressure		Temperature											Number of days with:		
Highest	**1012.2 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)	**25.1**	0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
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 2.2-3 (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**												
Date	**9/30/10 0830 Z**	Date	**9/25/10 2345 Z**	**0**	**13**	**12**	**6**	**3**	**1**	**0**	Vapor Pressure (mmHg)	**31.66**	**0**	**10**	**20**
Mean	**1009.3 MBS**	Mean	**28.1°C**												

Table 2.2-3 (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	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	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		
Sea Level Pressure		Temperature											Number of days with:		
Highest	**1011.6 MBS**	Highest	**34.5°C**	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
Date	**10/11/10 0130 Z**	Date	**10/22/10 0635 Z**								Relative Humidity (%)	**84**			
Lowest	**1004.2 MBS**	Lowest	**23.2°C**												
Date	**10/18/10 0745 Z**	Date	**10/31/10 2200 Z**	**1**	**19**	**17**	**6**	**4**	**2**	**0**	Vapor Pressure (mmHg)	**31.66**	**0**	**4**	**27**
Mean	**1008.3 MBS**	Mean	**28.8°C**												

Table 2.2-3 (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)	Mnutes	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 2.2-3 (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**												
Date	**12/05/10 0830 Z**	Date	**12/24/10 2215 Z**	**2**	**18**	**15**	**10**	**3**	**1**	**0**	Vapor Pressure (mmHg)	**31.66**	**0**	**12**	**19**
Mean	**1007.2 MBS**	Mean	**28.4°C**												

Table 2.2-3 (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**												
Date	**01/10/11 0700 Z**	Date	**01/18/11 2300 Z**	**3**	**23**	**21**	**10**	**7**	**2**	**0**	Vapor Pressure (mmHg)	**29.82**	**0**	**3**	**28**
Mean	**1008.9 MBS**	Mean	**27.4°C**												

Table 2.2-3 (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					
	(1)	Station Pressure (2a)	Mean Sea Level Pressure (2)	Dry Bulb (3)	Web Bulb (4)	Maximum (5)	Minimum (6)	Mean (7)	Mean Dew Point (8)	(9)	(10)	Average Speed(mps) (11)	Prevailing Direction (degrees) (12)	Maximum Speed(mps) (13)	Direction of Maximum Speed (14)	Time of Maximum Wind(UTC) (15)	Minutes (16)	Precentage of Maximum Possible (17)	(18)	Smoke/Haze/ Smaze (19)	Fog (20)	Rain/Drizzle (21)	Hail (22)	Thunderstorm (23)	Lightning (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 2.2-3 (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					
	(1)	Station Pressure (2a)	Mean Sea Level Pressure (2)	Dry Bulb (3)	Web Bulb (4)	Maximum (5)	Minimum (6)	Mean (7)	Mean Dew Point (8)	(9)	(10)	Average Speed(mps) (11)	Prevailing Direction (degrees) (12)	Maximum Speed(mps) (13)	Direction of Maximum Speed (14)	Time of Maximum Wind(UTC) (15)	Minutes (16)	Precentage of Maximum Possible (17)	(18)	Smoke/Haze/ Smaze (19)	Fog (20)	Rain/Drizzle (21)	Hail (22)	Thunderstorm (23)	Lightning (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		Trace	0.1 or more	1.0 or more	25 or more	50 or more	100 or more				Number of days with:		
Highest	**1013.5 MBS**	Highest	**33.2°C**										0 - 1 Okta	2 - 6 Oktas	7 - 8 Oktas
Date	**03/09/11 0200 Z**	Date	**03/22/11 0450 Z**								Dew Point Temperature (°C)	**24.5**			
Lowest	**1007.3 MBS**	Lowest	**22.5°C**								Relative Humidity (%)	**86**			
Date	**03/13/11 0800 Z**	Date	**03/12/11 2330 Z**	**1**	**27**	**22**	**8**	**4**	**1**	**0**			**0**	**5**	**26**
Mean	**1009.2 MBS**	Mean	**27.8°C**								Vapor Pressure (mmHg)	**29.82**			

Table 2.2-3 (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					
	(1)	Station Pressure (2a)	Mean Sea Level Pressure (2)	Dry Bulb (3)	Web Bulb (4)	Maximum (5)	Minimum (6)	Mean (7)	Mean Dew Point (8)	(9)	(10)	Average Speed(mps) (11)	Prevailing Direction (degrees) (12)	Maximum Speed(mps) (13)	Direction of Maximum Speed (14)	Time of Maximum Wind(UTC) (15)	Minutes (16)	Precentage of Maximum Possible (17)	(18)	Smoke/Haze/ Smaze (19)	Fog (20)	Rain/Drizzle (21)	Hail (22)	Thunderstorm (23)	Lightning (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**												
Date	**04/18/11 0840 Z**	Date	**04/02/11 2200 Z**	**2**	**13**	**9**	**1**	**0**	**0**	**0**	Vapor Pressure (mmHg)	**31.66**	**0**	**10**	**20**
Mean	**1009.7 MBS**	Mean	**28.3°C**												

Table 2.2-3 (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

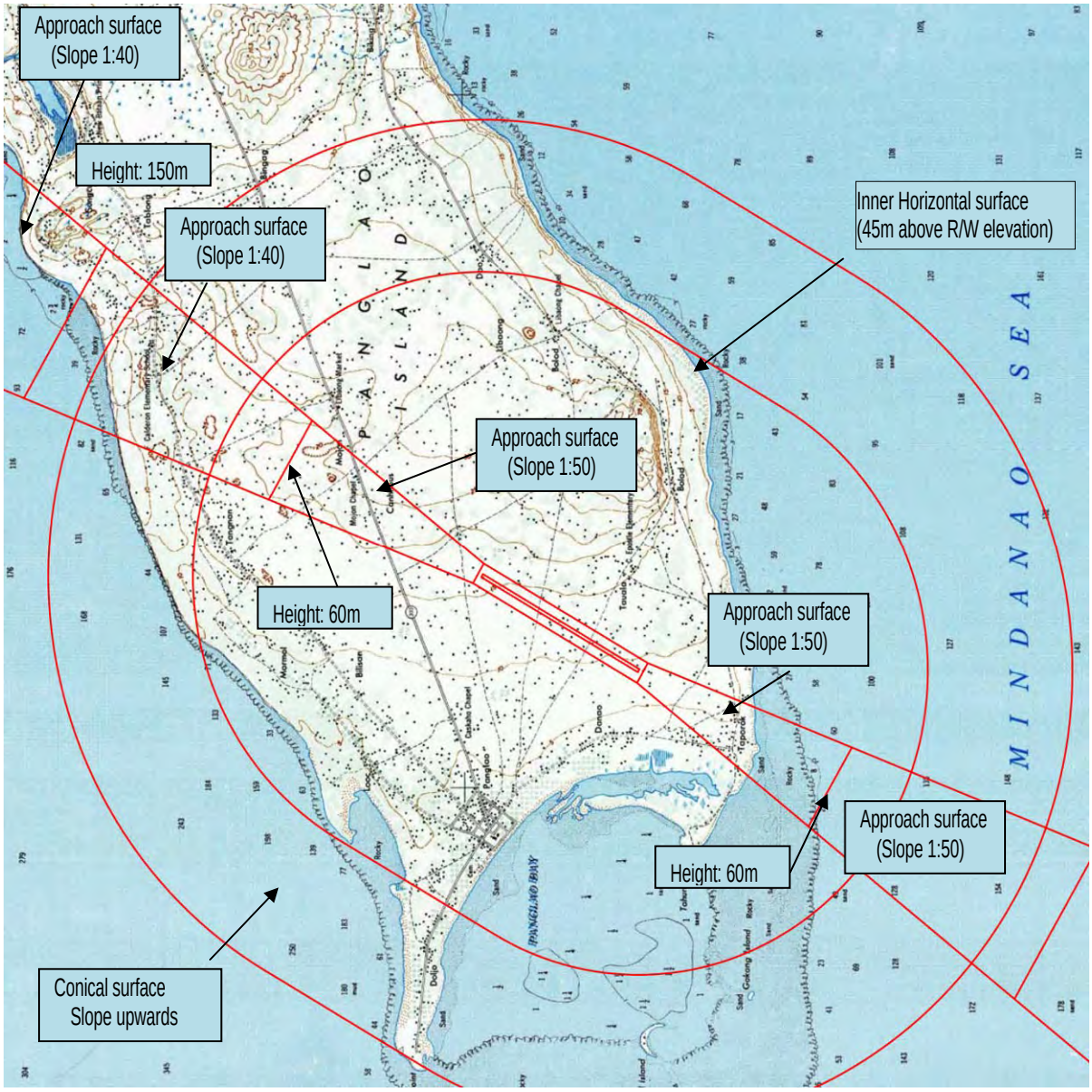
Day of the Month		PRESSURE (hPa)		TEMPERATURE (°C)						Mean Relative Humidity	Rainfall (mm)	WIND					SUNSHINE		Mean Cloudiness (Oktas)	MISCELLANEOUS METEORS					
	(1)	Station Pressure (2a)	Mean Sea Level Pressure (2)	Dry Bulb (3)	Web Bulb (4)	Maximum (5)	Minimum (6)	Mean (7)	Mean Dew Point (8)	(9)	(10)	Average Speed(mps) (11)	Prevailing Direction (degrees) (12)	Maximum Speed(mps) (13)	Direction of Maximum Speed (14)	Time of Maximum Wind(UTC) (15)	Minutes (16)	Precentage of Maximum Possible (17)	(18)	Smoke/Haze/ Smaze (19)	Fog (20)	Rain/Drizzle (21)	Hail (22)	Thunderstorm (23)	Lightning (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**												

2.3. Airspace Conditions

2.3.1. Obstacle Limitation Surfaces

Based on ICAO Annex 14 and the Airport Service Manual part 6, Obstacle Limitation are established as shown in the Figures 2.3-1 and 2.

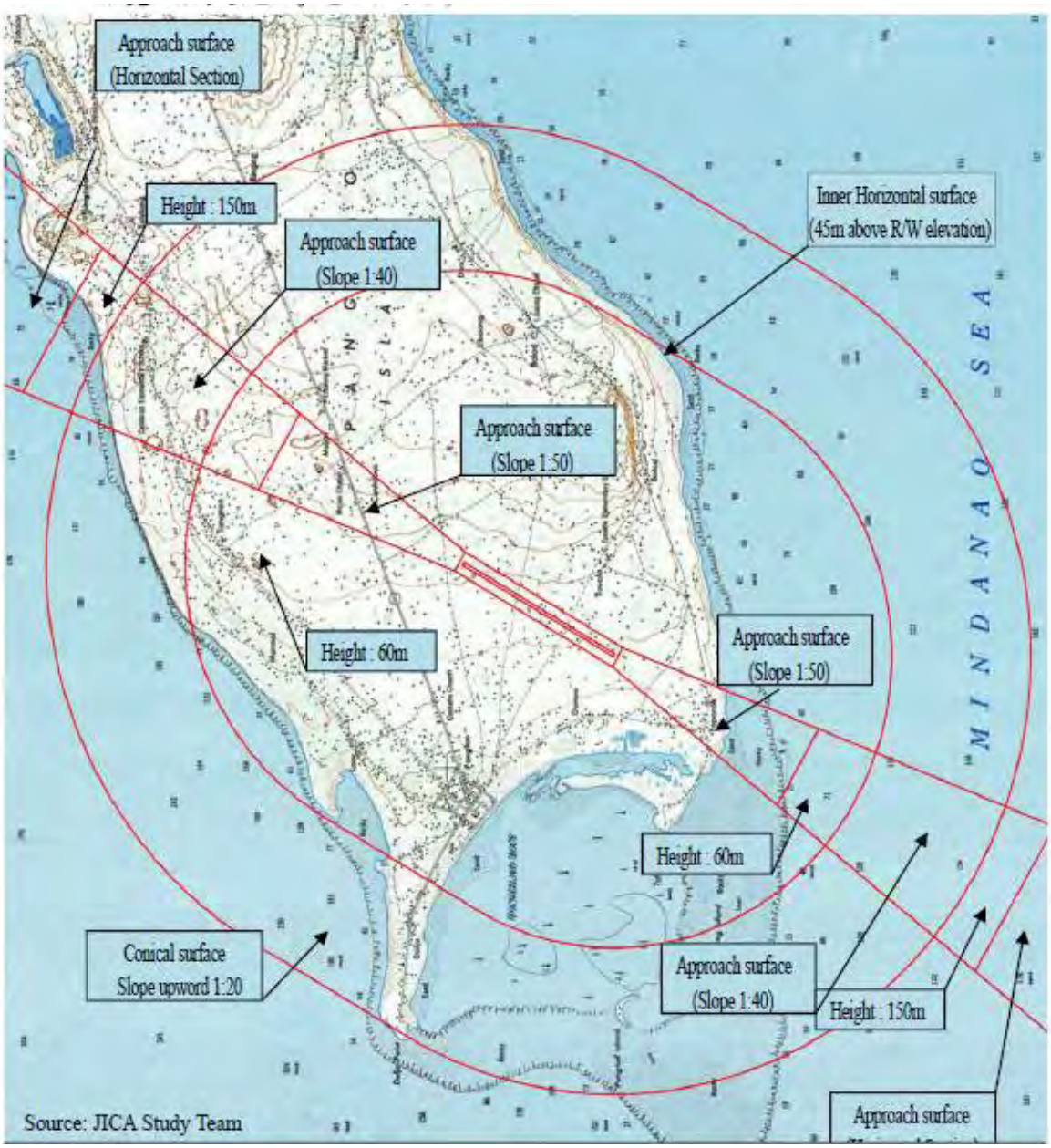


The screening of obstacles is examined by following conditions:

- ✓ Terrain condition by topographic maps of scale 1/50,000 and 1/250,000.
- ✓ The expected airport elevation is located 8.3 m above the sea level.
- ✓ To the height of screened terrain (mountains, hills), the height of 30 m trees shall be added

Source: JICA Study Team.

Figure 2.3-1 Obstacle Limitation Surface (1)



Source: JICA Study Team

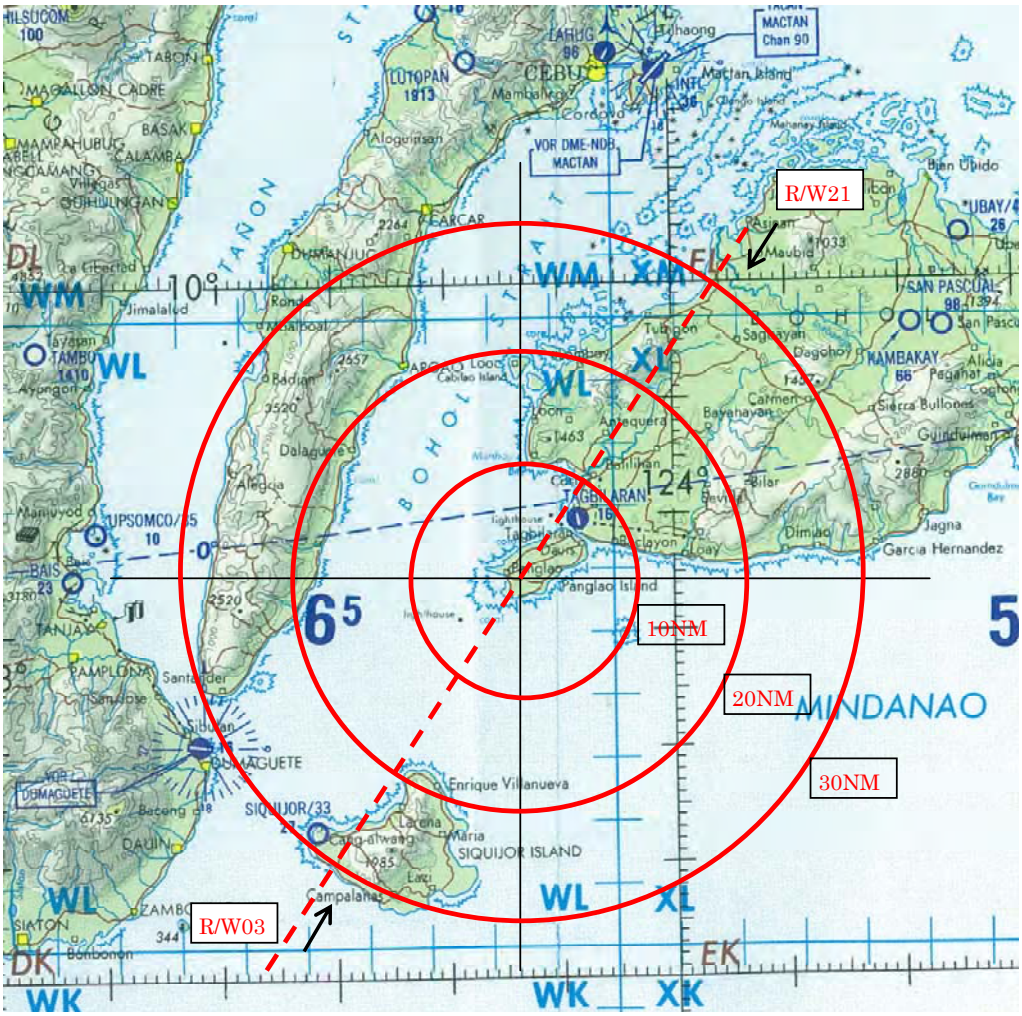
Figure 2.3-2 Obstacle Limitation Surface (2)

As a result of the examination of terrain obstacles, there is not any particular natural obstruction such as hills or mountains that actually affect the operations of aircraft around the new airport site; neither is existing terrain obstacles above these surfaces observed on the topographical maps.

With regard to artificial obstacles such as buildings and towers surrounding the site, these should be examined using the aerial photo maps and actual measured locations by GPS meter and height by handy level meter in a further site reconnaissance stage in future.

2.3.2. Topography and Navigation Warnings

Panglao Island is located southwest of the island of Bohol with an area of 80.5 km^2, and has an almost plain terrain with elevations of up to 10 to 30 m. Hilly to mountainous areas of up to an elevation of 100 to 160 m are located at the northeast part of island. The new airport site will be located at the southwest part of the island. Figure 2.3-3 shows a general topographical map around Panglao Island with a marked distance of approximately 30 NM from the new airport.



Source: JICA Study Team

Figure 2.3-3 Topography around Panglao Island

As mentioned before restricted, prohibited and dangerous areas are not found around the New Bohol Airport‘s specific area.

2.3.3. Air Traffic Flow

As the New Bohol Airport will be located at 14 km (7.5NM) south west of Tagbilaran Airport, it is desirable to maintain the existing arrival and departure routes for the new airport because the location of the new airport is comparatively near to the existing airport from the point of flight route and it is possible to use the existing reporting point of the Mactan TMA.

The assumed traffic flow for the new airport is as follows:

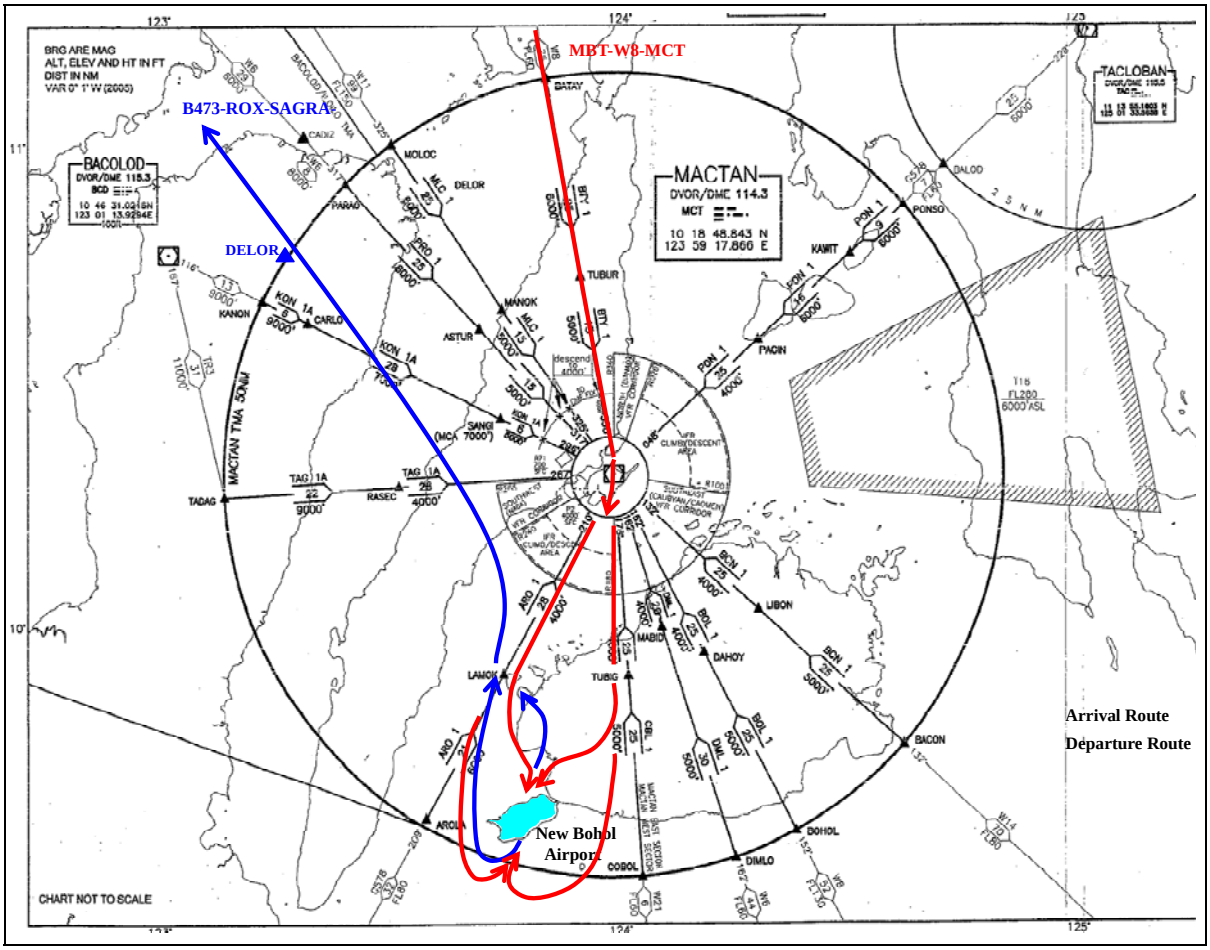
a) Arriving traffic from the north will be via the reporting point LAMOK or TUBIG.

b) Arriving traffic from the south will be via the reporting point AROLA or new point.

c) Departing traffic to the north will be via LAMOK.

d) Departing traffic to the south will be AROLA or a new point.

Figure 2.3-4 shows assumed air traffic flow of arrival and departure for the new airport.



Source: JICA Study Team

Figure 2.3-4 Assumed Traffic Flow for New Bohol Airport

2.3.4. Airspace Classification

The airspace classification for the new airport should be established in accordance with Appendix 4 of ICAO Annex 11, and the details of classification and requirements are shown in Tables 2.3-1to 3 respectively.

Table 2.3-1 Airspace Classification in Manila FIR

Within the Manila FIR, the airspace is divided into the following classes.		
Class	Airspace	Levels
A	Manila FIR Upper Control Area (except special use airspace)	FL200 – UNL
A	Oceanic Airspace	Lower Limit – UNL
A	ATS Routes outside TMA	MEA – UNL
A	ATS Routes inside TMA at FL130 and above	FL130 – FL200
D	ATS Routes inside TMA below FL130	1,500 – <FL130
D	TMA (excluding ATS Routes at FL130 and above)	1,500 – FL200
D	Control Zones (CTRs)	Surface – Upper Limit
B	Aerodrome Traffic Zones (ATZs)	Surface – Upper Limit
G	Aerodrome Advisory Zones (AAZ)	Surface – Upper Limit
G	Uncontrolled Airspace	Nil

Source: AIP Philippines MEL: Minimum en-route altitude

Table 2.3-2 Requirements for the flights within each class of airspace

Class	Type of flight	Separation provided	Service provided	Speed limitation	Radio communication requirement	Subject to an ATC clearance
A	IFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
B	IFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
D	IFR	IFR fm IFR	Air traffic control service, traffic information about VFR flights (and traffic avoidance advice on request)	250 kts IAS below 3050m (10,000ft) AMSL	Continuous two-way	Yes
	VFR	Nil	IFR/VFR and VFR/VFR traffic information (and traffic avoidance advice on request)	250 kts IAS below 3050m (10,000ft) AMSL	Continuous two-way	Yes
G	IFR	Nil	Flight information service	250 kts IAS below 3050m (10,000ft) AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	250 kts IAS below 3050m (10,000ft) AMSL	No	No

Source: AIP Philippines AMSL: Above mean sea level

Table 2.3-3 ATS Airspace Class-Services Provided & Flight Requirements: Class C, E, F – Appendix of ICAO Annex 11

Class	Type of flight	Separation provided	Service provided	Speed limitation	Radio communication requirement	Subject to an ATC clearance
C	IFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	VFR fm IFR	1) Air traffic control service for separation from IFR 2) VFR/VFR traffic information (and traffic avoidance advice on request)	250 kts IAS below 3050m (10,000ft) AMSL	Continuous two-way	Yes
E	IFR	IFR fm IFR	Air traffic control service and , as far as practical, traffic information about VFR flights	250 kts IAS below 3050m (10,000ft) AMSL	Continuous two-way	Yes
	VFR	Nil	Traffic information as far as practical	250 kts IAS below 3050m (10,000ft) AMSL	No	Yes
F	IFR	IFR fm IFR as far as practical	Air traffic advisory service; Flight information service	250 kts IAS below 3050m (10,000ft) AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	250 kts IAS below 3050m (10,000ft) AMSL	No	No

Source: Appendix 4 of ICAO Annex 11

As ILS, VOR/DME and Aeronautical Ground Rights are installed for the new airport, instrument approach and departure procedures will be established for safety aircraft operations under adverse weather conditions. In view of past results, the airspace for the new airport should be established as a similar classification as in the case of Bacolod and Iloilo Airport development planning.

With regard to the Terminal Control Area (TMA), as the new airport will be located within the existing Mactan TMA and congested air traffic is not expected, a new independent TMA for the new airport is not necessary to be established. However, it should be considered expanding Mactan TMA for establishment of approach and departure procedures as required due to the south end location of Mactan TMA.

Table 2.3-4 shows airspace classification of Bacolod and Iloilo Airport as reference.

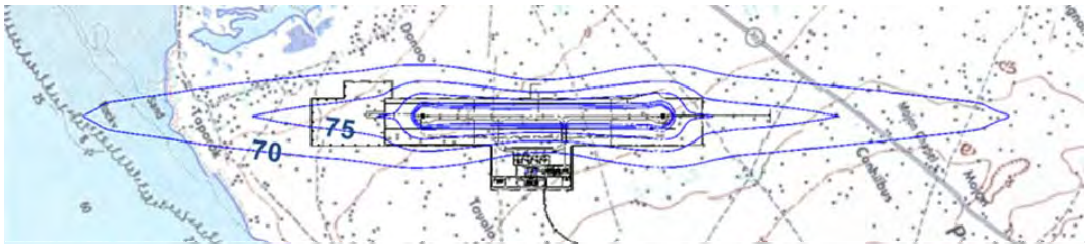
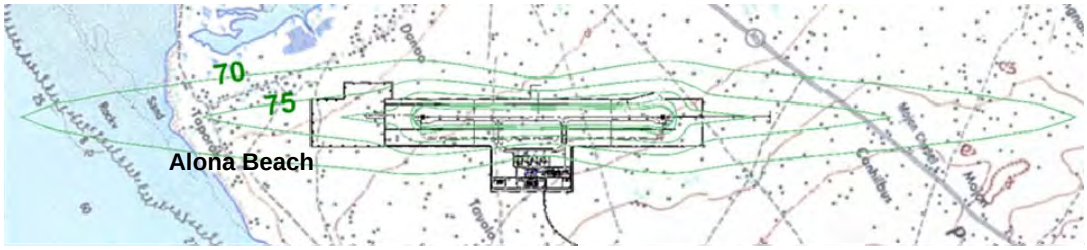
Table 2.3-4 Airspace Classification of Bacolod & Iloilo Airport

Airport	Airspace classification AIP, September 2004 (before new airport)	Airspace classification AIP, May 2008 (after new airport, latest)
Bacolod	E	ATZ – B, CTR – D TMA – D (ATS routes inside TMA below FL130) TMA – A (ATS routes inside TMA at FL130 & above)
Iloilo	E	ATZ – B, CTR – C TMA – E (ATS routes inside TMA below FL130) TMA – A (ATS routes inside TMA at FL130 & above)

Source: AIP Philippines

2.4. Noise Pollution Aspect

In the year 2020, there will be only a few residents affected by the noise level of more than WECPNL75 since ROW for the 1-km long Precision Approach Lighting System in the north-east, and wide areas for a Storm-water Soaking Yard in the south-west have already been acquired.

WECPNL for 2020	
WECPNL for 2030	

Source: JICA Study Team

Figure 2.4-1 Noise Contour (WECPNL) for New Bohol Airport at Panglao

In the year 2030, noise level of WECPNL75 may approach to the Alona Beach resort area, which however may be designated as commercial area (i.e. not residential area) thus not applied such noise level in this vicinity. It should be noted that main aircraft operations are designated in this Project from Runway 21 direction (i.e. approach and take-off from north-east to south-west) therefore such noise level to the Alona Beach may be somehow regulated, subject to ATC regulations.