

Ⅱ. 地形測量図／地質調査報告書

LOT 667	
THE LINE S84°48'W	277.16 M
from BLM #1 Cad-1163, LIBON	
LINE	BEARINGS DISTANCES
1-2	S70°51'E 27.04 M
2-3	S20°12'W 18.80 M
3-4	N89°29'W 26.93 M
4-1	N19°52'E 18.15 M
LOT 668	
THE LINE S84°48'W	277.16 M
from BLM #1 Cad-1163, LIBON	
LINE	BEARINGS DISTANCES
1-2	N18°53'E 46.15 M
2-3	S73°58'E 27.63 M
3-4	S19°32'W 47.85 M
4-1	N70°51'E 27.04 M
LOT 669	
THE LINE S84°48'W	277.16 M
from BLM #1 Cad-1163, LIBON	
LINE	BEARINGS DISTANCES
1-2	S73°58'E 27.63 M
2-3	S19°32'W 47.85 M
3-4	S19°52'W 7.55 M
4-5	S19°52'W 68.13 M
5-6	S19°52'W 8.54 M
6-7	S19°52'W 98.55 M
7-1	S19°52'W 46.15 M



LEGEND:



COCO TREE

TALISAY TREE

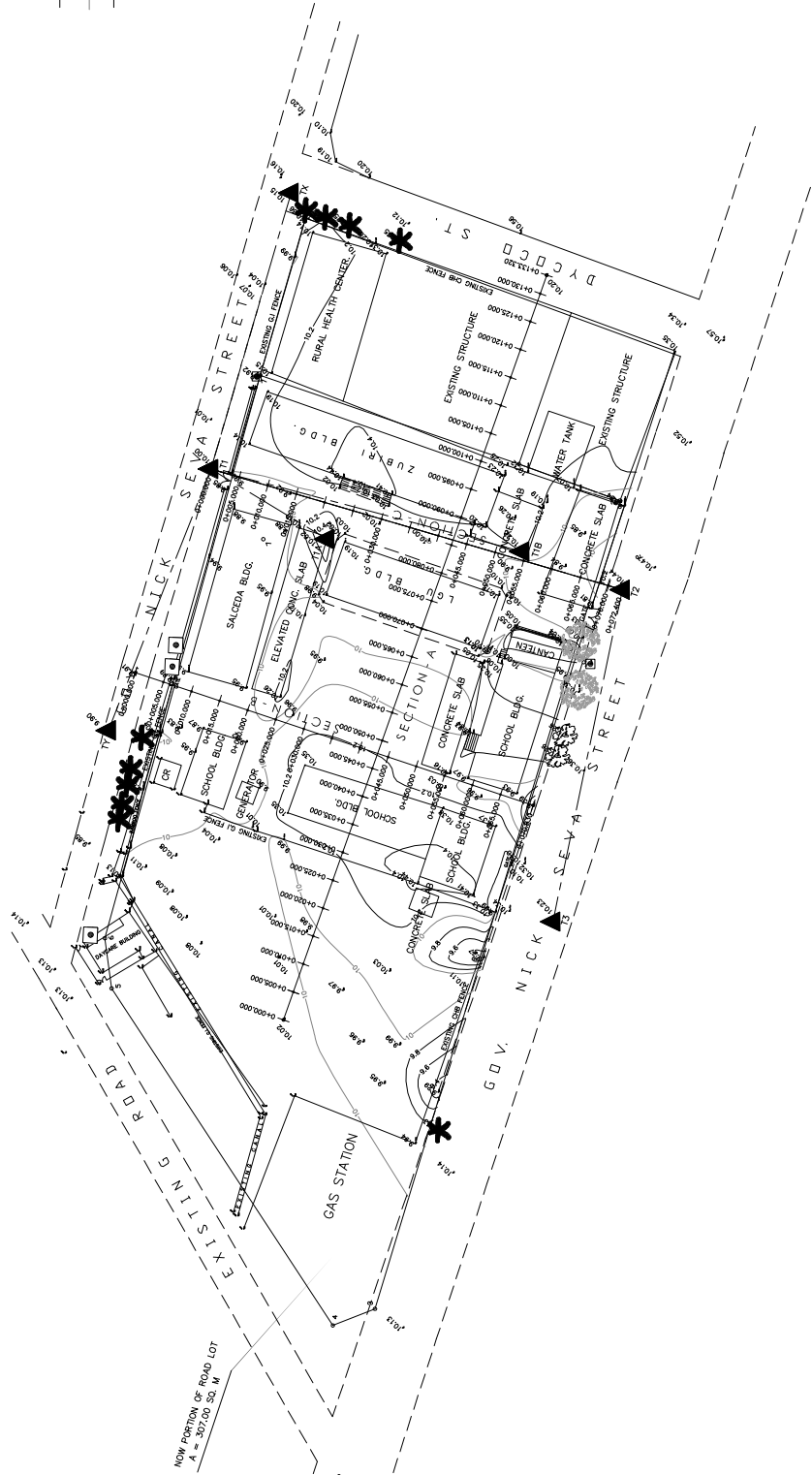
MANGO TREE

TRAVERSE LINE

CONTOUR LINE

SECTION LINE

ELECTRIC POST



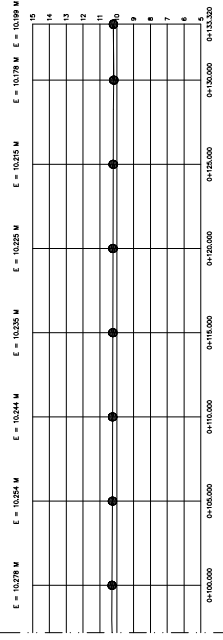
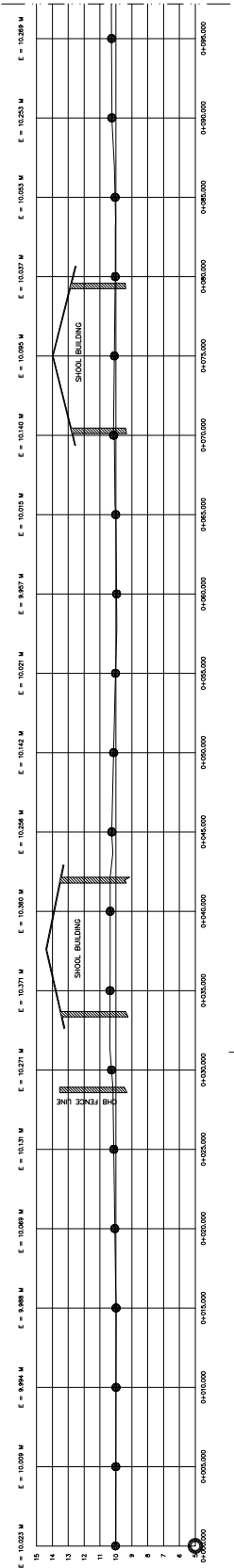
PREPARED BY: **RAINBOW GEO-SCIENTIFIC**
CORPORATION
 10th Floor, Legaspi Village, Makati City

CLIENT: **MOHRI, ARCHITECT & ASSOCIATES, INC.**
 3rd Floor, Cacho-Gonzales Bldg, 101 AGUIRRE CDR,
 TRASPIERA ST. LEGASPI VILLAGE, MAKATI CITY

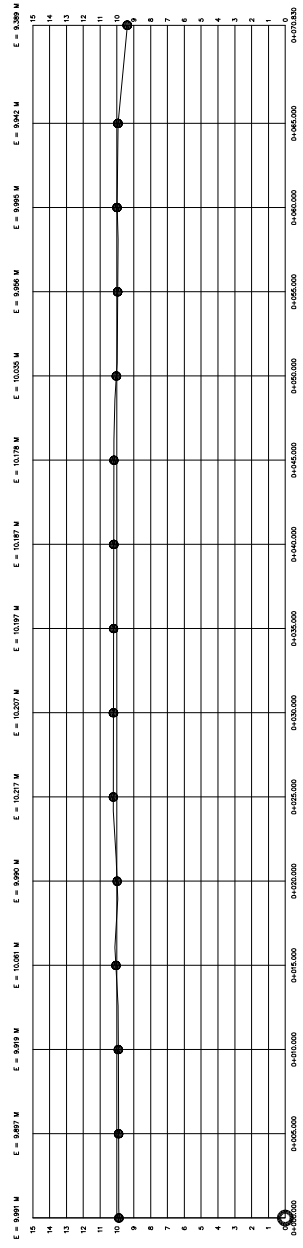
PROJECT: **TOPOGRAPHIC SURVEY**
OF LOT 669, Cad-1163, LIBON CADASTRE

ENGINEER: **BEDA C. MONDIBANUA**
 GEODETIC ENGINEER
 REG. CERT. NO. 88382-2
 LICENSE NO. 87-38-28

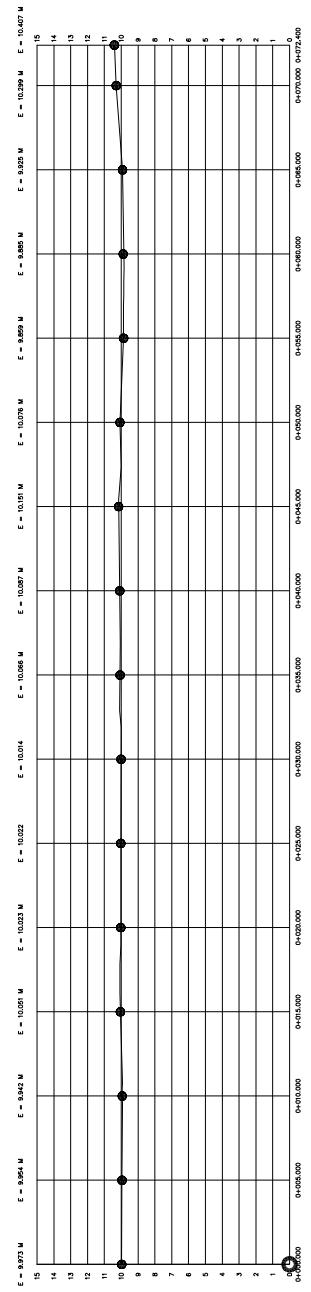
DATE SURVEYED: SEPTEMBER 16, 2010
 DATE PREPARED: SEPTEMBER 24, 2010
 CONTOUR INTERVAL: 0.20 M



SECTION - A (STA 0+000 - 0+133.320)



SECTION - B (STA 0+000 - 0+70.830)



SECTION - C (STA 0+000 - 0+72.400)

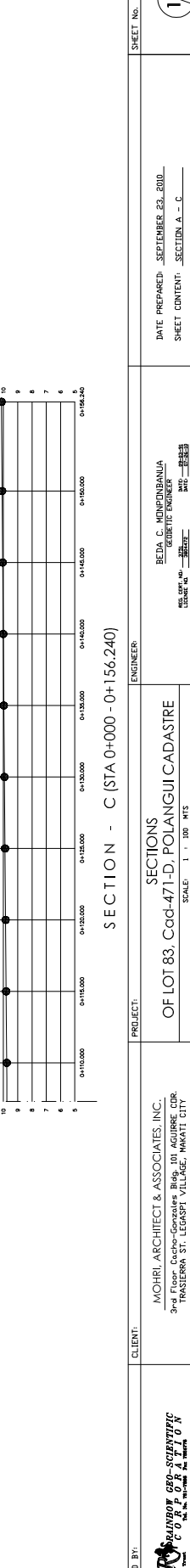
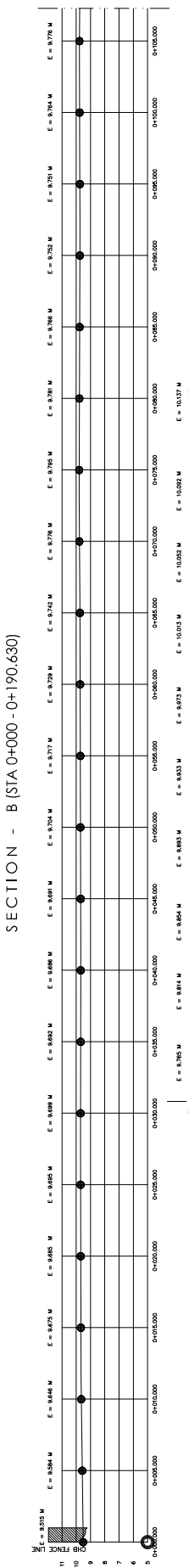
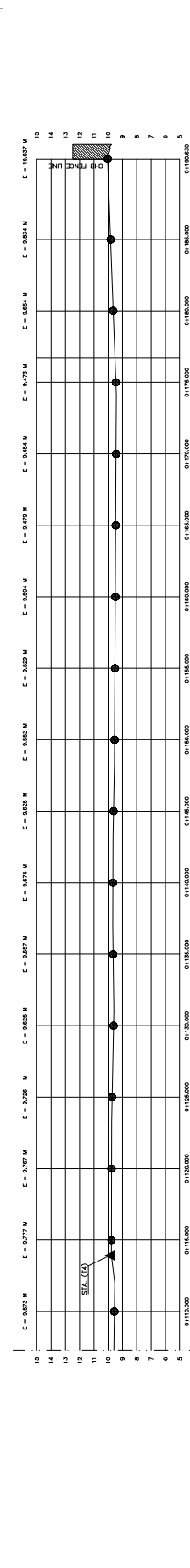
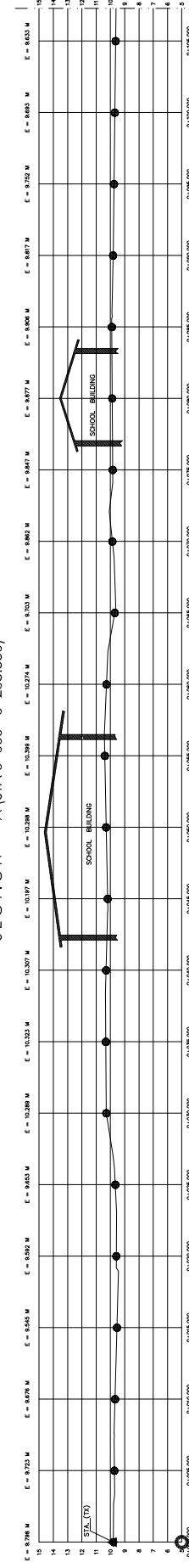
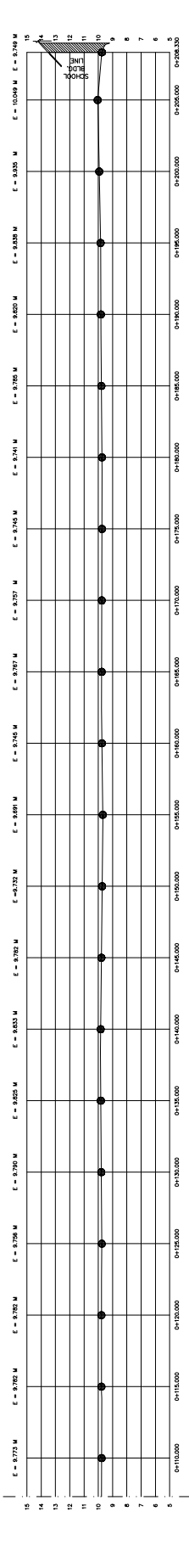
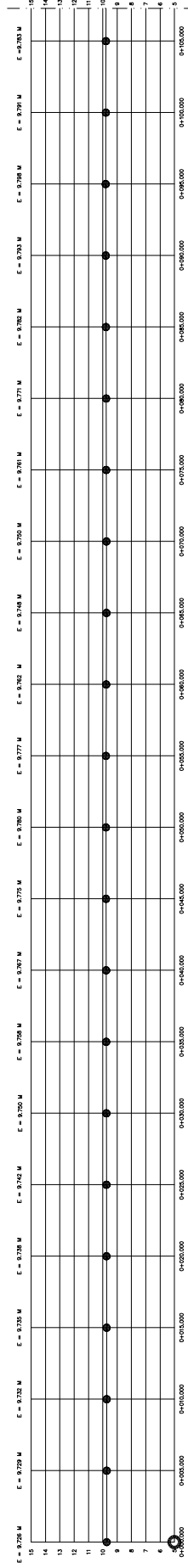
LINE	BEARING	DISTANCE
1-2	S 89° 58' 00" W	10.000 M
2-3	S 89° 58' 00" W	10.000 M
3-4	S 89° 58' 00" W	10.000 M
4-5	S 89° 58' 00" W	10.000 M
5-6	S 89° 58' 00" W	10.000 M
6-7	S 89° 58' 00" W	10.000 M
7-8	S 89° 58' 00" W	10.000 M
8-9	S 89° 58' 00" W	10.000 M
9-10	S 89° 58' 00" W	10.000 M
10-11	S 89° 58' 00" W	10.000 M
11-12	S 89° 58' 00" W	10.000 M
12-13	S 89° 58' 00" W	10.000 M
13-14	S 89° 58' 00" W	10.000 M
14-15	S 89° 58' 00" W	10.000 M
15-16	S 89° 58' 00" W	10.000 M
16-17	S 89° 58' 00" W	10.000 M
17-18	S 89° 58' 00" W	10.000 M
18-19	S 89° 58' 00" W	10.000 M
19-20	S 89° 58' 00" W	10.000 M
20-21	S 89° 58' 00" W	10.000 M
21-22	S 89° 58' 00" W	10.000 M
22-23	S 89° 58' 00" W	10.000 M
23-24	S 89° 58' 00" W	10.000 M
24-25	S 89° 58' 00" W	10.000 M
25-26	S 89° 58' 00" W	10.000 M
26-27	S 89° 58' 00" W	10.000 M
27-28	S 89° 58' 00" W	10.000 M
28-29	S 89° 58' 00" W	10.000 M
29-30	S 89° 58' 00" W	10.000 M
30-31	S 89° 58' 00" W	10.000 M
31-32	S 89° 58' 00" W	10.000 M
32-33	S 89° 58' 00" W	10.000 M
33-34	S 89° 58' 00" W	10.000 M
34-35	S 89° 58' 00" W	10.000 M
35-36	S 89° 58' 00" W	10.000 M
36-37	S 89° 58' 00" W	10.000 M
37-38	S 89° 58' 00" W	10.000 M
38-39	S 89° 58' 00" W	10.000 M
39-40	S 89° 58' 00" W	10.000 M
40-41	S 89° 58' 00" W	10.000 M
41-42	S 89° 58' 00" W	10.000 M
42-43	S 89° 58' 00" W	10.000 M
43-44	S 89° 58' 00" W	10.000 M
44-45	S 89° 58' 00" W	10.000 M
45-46	S 89° 58' 00" W	10.000 M
46-47	S 89° 58' 00" W	10.000 M
47-48	S 89° 58' 00" W	10.000 M
48-49	S 89° 58' 00" W	10.000 M
49-50	S 89° 58' 00" W	10.000 M
50-51	S 89° 58' 00" W	10.000 M
51-52	S 89° 58' 00" W	10.000 M
52-53	S 89° 58' 00" W	10.000 M
53-54	S 89° 58' 00" W	10.000 M
54-55	S 89° 58' 00" W	10.000 M
55-56	S 89° 58' 00" W	10.000 M
56-57	S 89° 58' 00" W	10.000 M
57-58	S 89° 58' 00" W	10.000 M
58-59	S 89° 58' 00" W	10.000 M
59-60	S 89° 58' 00" W	10.000 M
60-61	S 89° 58' 00" W	10.000 M
61-62	S 89° 58' 00" W	10.000 M
62-63	S 89° 58' 00" W	10.000 M
63-64	S 89° 58' 00" W	10.000 M
64-65	S 89° 58' 00" W	10.000 M
65-66	S 89° 58' 00" W	10.000 M
66-67	S 89° 58' 00" W	10.000 M
67-68	S 89° 58' 00" W	10.000 M
68-69	S 89° 58' 00" W	10.000 M
69-70	S 89° 58' 00" W	10.000 M
70-71	S 89° 58' 00" W	10.000 M
71-72	S 89° 58' 00" W	10.000 M
72-73	S 89° 58' 00" W	10.000 M
73-74	S 89° 58' 00" W	10.000 M
74-75	S 89° 58' 00" W	10.000 M
75-76	S 89° 58' 00" W	10.000 M
76-77	S 89° 58' 00" W	10.000 M
77-78	S 89° 58' 00" W	10.000 M
78-79	S 89° 58' 00" W	10.000 M
79-80	S 89° 58' 00" W	10.000 M
80-81	S 89° 58' 00" W	10.000 M
81-82	S 89° 58' 00" W	10.000 M
82-83	S 89° 58' 00" W	10.000 M
83-84	S 89° 58' 00" W	10.000 M
84-85	S 89° 58' 00" W	10.000 M
85-86	S 89° 58' 00" W	10.000 M
86-87	S 89° 58' 00" W	10.000 M
87-88	S 89° 58' 00" W	10.000 M
88-89	S 89° 58' 00" W	10.000 M
89-90	S 89° 58' 00" W	10.000 M
90-91	S 89° 58' 00" W	10.000 M
91-92	S 89° 58' 00" W	10.000 M
92-93	S 89° 58' 00" W	10.000 M
93-94	S 89° 58' 00" W	10.000 M
94-95	S 89° 58' 00" W	10.000 M
95-96	S 89° 58' 00" W	10.000 M
96-97	S 89° 58' 00" W	10.000 M
97-98	S 89° 58' 00" W	10.000 M
98-99	S 89° 58' 00" W	10.000 M
99-100	S 89° 58' 00" W	10.000 M

LEGEND:

- COCO TREE
- TREE
- MANGO TREE
- NARRA TREE
- WATER TANK
-
- TRAVERSE LINE
- CONTOUR LINE
- SECTION LINE



<p>PREPARED BY:</p> <p>G. S. & A. ENGINEERS AND ARCHITECTS 1000 P. O. BOX 1000 MARIKINA CITY, PHILIPPINES</p>	<p>CLIENT:</p> <p>MOHRI ARCHITECT & ASSOCIATES, INC. 3rd Floor Cacho-Gonzales Bldg. 101 AGUIRRE CDR. TRASERRA ST. LEGASPI VILLAGE, MAKATI CITY</p>	<p>PROJECT:</p> <p>TOPOGRAPHIC SURVEY OF LOT 83, Cad-471-D, POLANGUI CADASTRE</p> <p>SCALE: 1 : 500 HTS AREA: 4,028.00 SQ. M</p>	<p>ENGINEER:</p> <p>BEDIA C. MONFORANUA REGISTERED PROFESSIONAL ENGINEER No. 10112</p>
<p>DATE PREPARED: SEPTEMBER 22, 2010 CONTOUR INTERVAL: 0.20 M</p>		<p>SHEET No. 1/1</p>	



SECTION - A (STA 0+000 - 0+208.330)

SECTION - B (STA 0+000 - 0+190.630)

SECTION - C (STA 0+000 - 0+156.240)

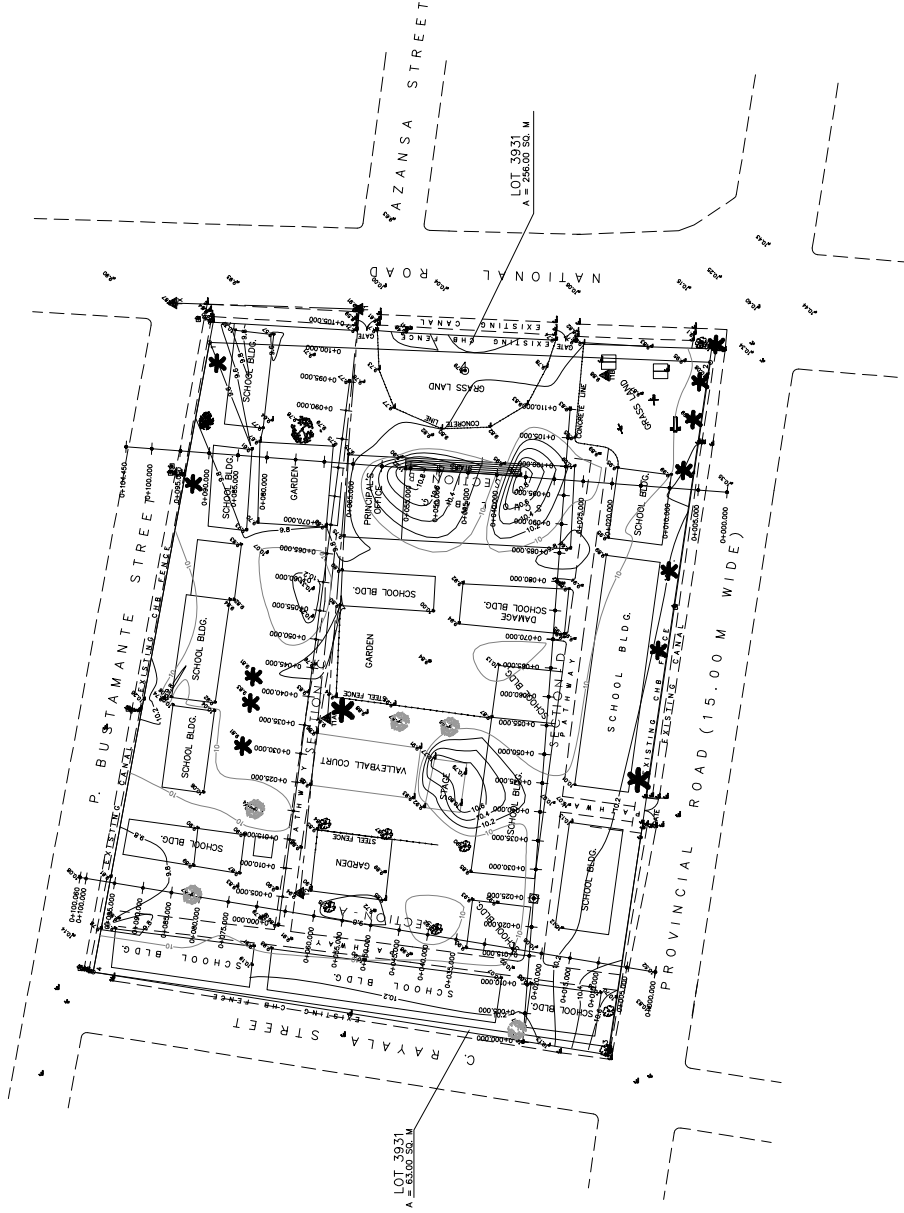
PREPARED BY: RAINBOW GEO-SCIENTIFIC INC. 3rd Floor, Decho-Gonzales Bldg, 101 Aguirre CDR, TRASERRA ST. LEGASPI VILLAGE, MAKATI CITY	CLIENT: MOHRI, ARCHITECT & ASSOCIATES INC. 3rd Floor, Decho-Gonzales Bldg, 101 Aguirre CDR, TRASERRA ST. LEGASPI VILLAGE, MAKATI CITY	PROJECT: SECTIONS OF LOT 83, Cad-471-D, POLANGUI CADASTRE SCALE: 1 : 100 MTS	ENGINEER: BEDA C. MONIBANUA GEODIC ENGINEER REG. NO. 12222 SEC. REG. NO. 12222	DATE PREPARED: SEPTEMBER 23, 2010 SHEET CONTENT: SECTION A - C	SHEET NO.
	NOTE				


THE LINE VARIATION, 3465.72 M	
From TBM # 1, OAS	
CADASTRE To corner 1	
1-1	6075.00
1-2	5075.00
2-1	6075.00
2-2	5075.00
3-1	6075.00
3-2	5075.00
4-1	6075.00
4-2	5075.00



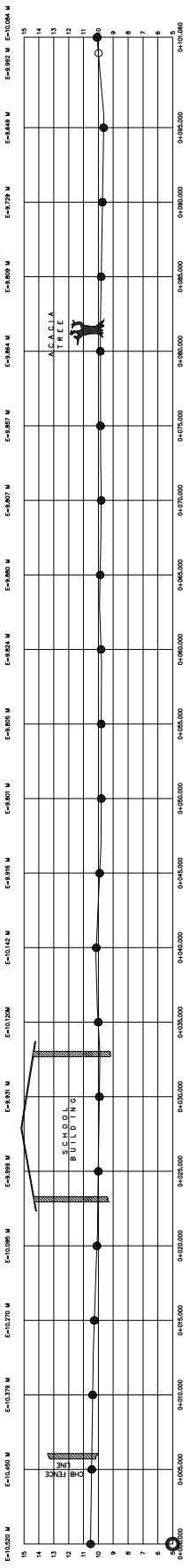
LEGEND:

- COCO TREE
- TALISAY TREE
- ACACIA TREE
- TRAVERSE LINE
- CONTOUR LINE
- SECTION LINE
- WATER TANK
- NARRA TREE
- CONCRETE ELECTRIC POST / LAMP POST

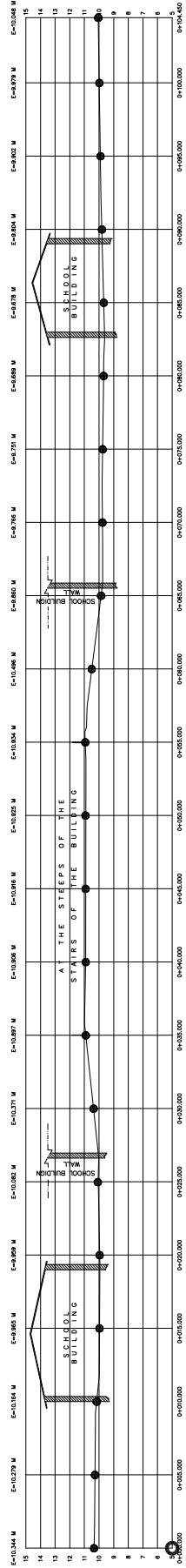


PREPARED BY: 	CLIENT: MOHRI, ARCHITECT & ASSOCIATES, INC. 3rd Floor, Cocho-Gonzales Bldg. 101, AGUIRRE COR. TRASIERRA ST., LEGASPI VILLAGE, MAKATI CITY	PROJECT: TOPOGRAPHIC SURVEY OF LOT 03676, PSC-4604	ENGINEER: BEDA C. MONPINBANUA GEODETIC ENGINEER REG. OFF. NO. 30247 ISSUE NO. 30247
DATE SURVEYED: SEPTEMBER 13 & 15, 2000 DATE PREPARED: SEPTEMBER 24, 2000 CONTOUR INTERVAL: 500 M		SHEET No. 1/1	

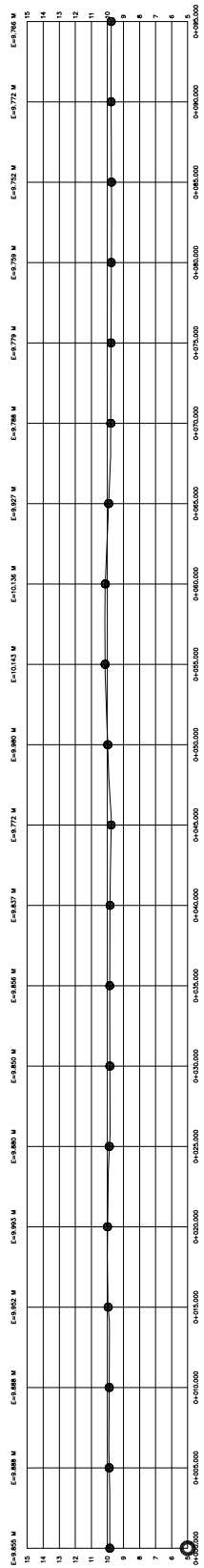
IV.013



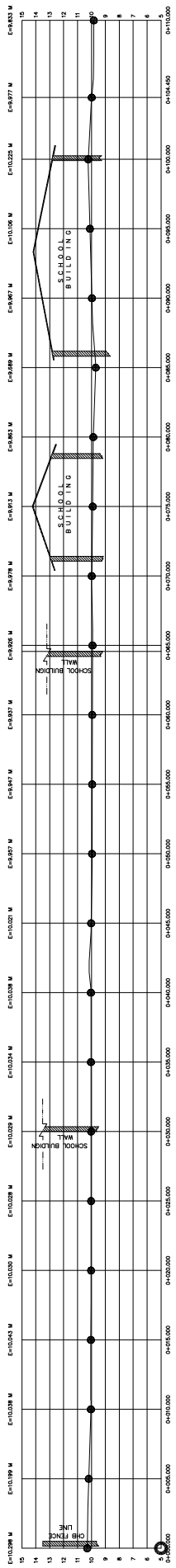
SECTION - A (STA 0+000 - 0+101.060)



SECTION - B (STA 0+000 - 0+104.450)

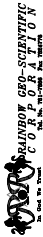


SECTION - C (STA 0+000 - 0+105.000)



SECTION - D (STA 0+000 - 0+105.000)

PREPARED BY:



CLIENT: MOHRI ARCHITECT & ASSOCIATES INC.
3rd Floor, Eco-Pro-Gonzales Bldg. 101 AGUIRRE CDR.
TRASERRA ST. LEGASPI VILLAGE, MAKATI CITY

PROJECT:

SECTIONS
OF LOT 03676, PSC-4604
SCALE: 1" = 100' HTS

ENGINEER:

BEDIA C. MENDOZANA
GEOTECHNICAL ENGINEER
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 00000000000000000000

DATE PREPARED: SEPTEMBER 29, 2010
SHEET CONTENT: SECTION A - D

SHEET NO.

1/1
HV-101.02A

THE LINE	BEARS AN	INDICED BY
1-2	05737.0 M	1.00
2-3	05738.0 M	1.00
3-4	05739.0 M	1.00
4-5	05740.0 M	1.00
5-6	05741.0 M	1.00
6-7	05742.0 M	1.00
7-8	05743.0 M	1.00
8-9	05744.0 M	1.00
9-10	05745.0 M	1.00
10-11	05746.0 M	1.00
11-12	05747.0 M	1.00
12-13	05748.0 M	1.00
13-14	05749.0 M	1.00
14-15	05750.0 M	1.00

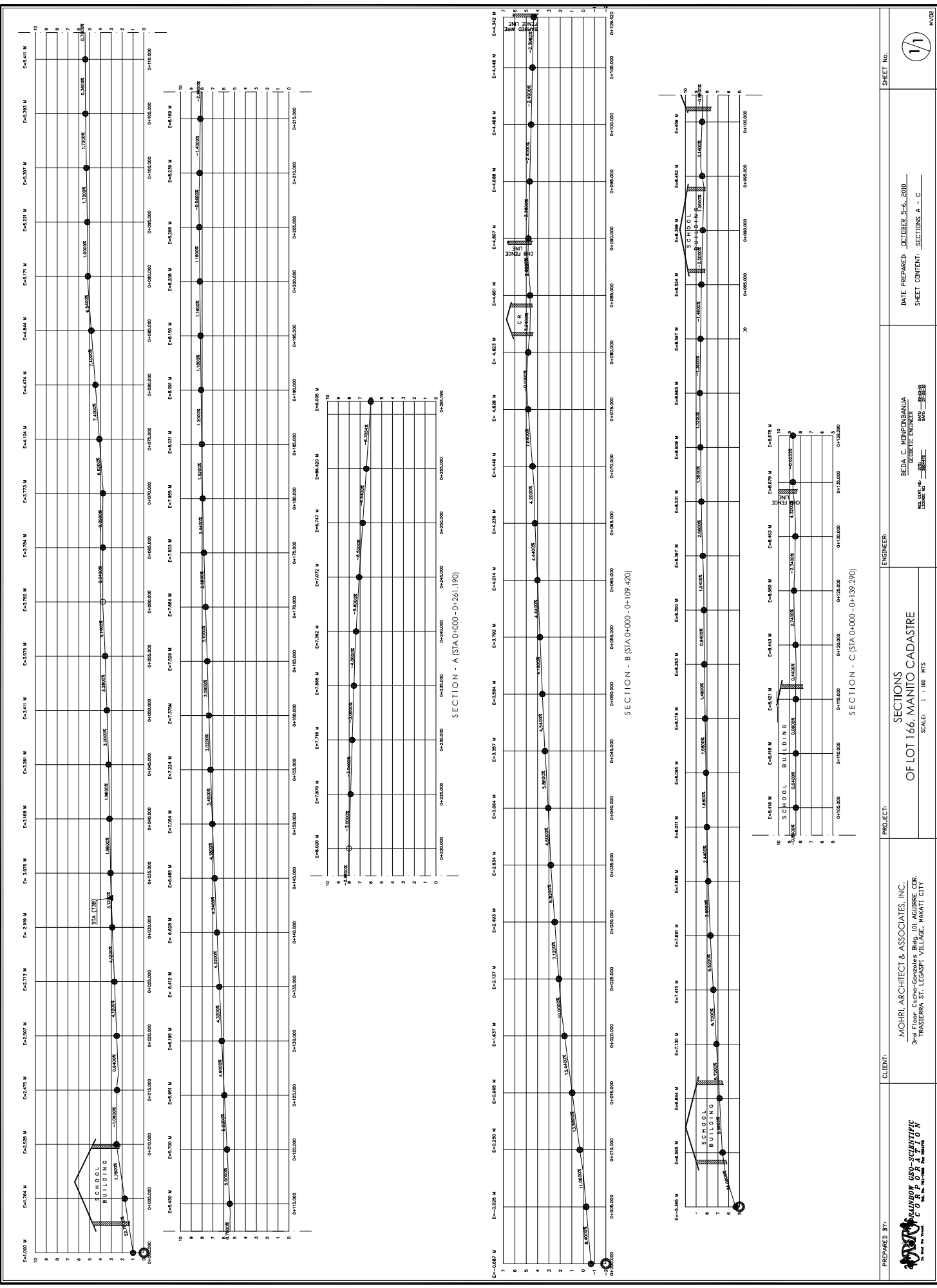


- LEGEND:
- BANANA TREE
 - TREE
 - ACACIA TREE
 - MANGROVE TREE
 - COTTAGE / HUT
 - ELECTRIC POST
 - ELECTRIC WIRE LINE
 - TRANSVERSE LINE
 - CONTOUR LINE
 - SECTION LINE
 - ELECTRIC WIRE LINE
 - WATER LINE
 - BOUNDARY LINE



NOTE:
 -All corners are in accordance with the...
 -The...
 -The...

<p>DATE SURVEYED: SEPTEMBER 10/11/73 & 18, 2000.</p> <p>DATE PREPARED: SEPTEMBER 23/24, 2000.</p> <p>CONTOUR INTERVAL: 0.20 M.</p>	<p>ENGINEER: BEDA C. MONDAPARANIA REGISTERED PROFESSIONAL ENGINEER REG. NO. 19086 PRC</p>	<p>SHEET No. 1/1</p>
<p>CLIENT: MOHRI, ARCHITECT & ASSOCIATES, INC. 3rd Floor, Caccho-Gonzales Bldg. 101 AGUIRRE CDR. TRINERIA ST. LEGASPI VILLAGE, MAKATI CITY</p>	<p>PROJECT: TOPOGRAPHIC SURVEY OF LOT 166, MANITO CADASTRE AREA: 28,192.00 SQ. M SCALE: 1 : 500 - 1/4" = 1' - 0"</p>	
<p>PREPARED BY: Beda C. Mondaparanja CIVIL ENGINEER REG. NO. 19086 PRC</p>	<p>ENGINEER: BEDA C. MONDAPARANIA REGISTERED PROFESSIONAL ENGINEER REG. NO. 19086 PRC</p>	

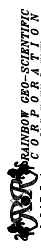


SECTION - A (STA 0+000-0+261.190)

SECTION - B (STA 0+000-0+109.420)

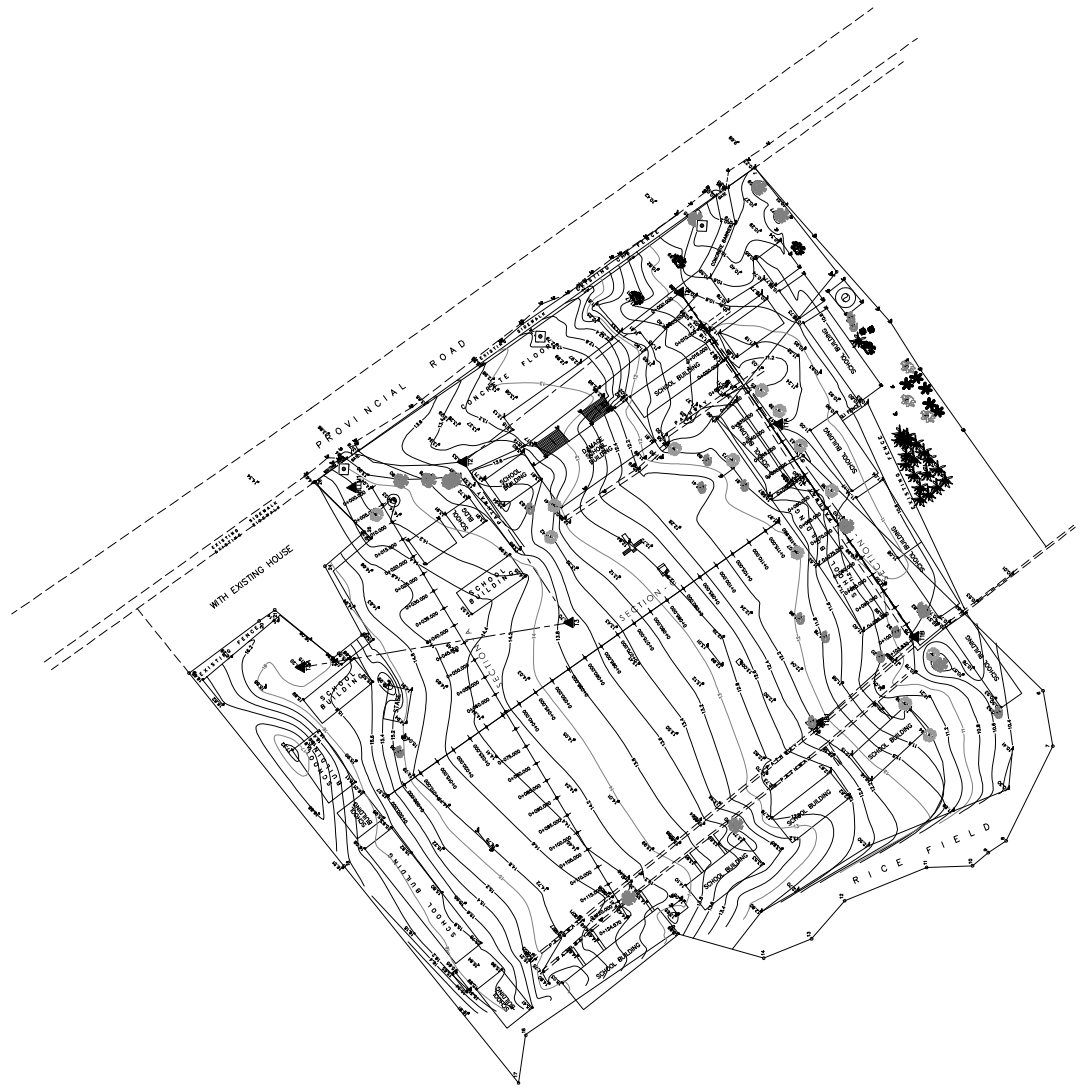
SECTION - C (STA 0+000-0+139.290)

PREPARED BY: RAINBOW GEO-SCIENTIFIC CONSULTING INC. 2nd Floor, Eco-Parade, Bldg. 101, Aguirre CDR, TRASERRA ST. LEGASPI VILLAGE, MAKATI CITY	PROJECT: SECTIONS OF LOT 166, MANITO CADASTRE ENGINEER: BEDA C. MONIBANUA REGISTERED PROFESSIONAL ENGINEER REG. NO. 100-100000-100000-100000-100000	SHEET NO. 1/1 DATE PREPARED: OCTOBER 5-6, 2010 SHEET CONTENT: SECTIONS A - C
---	--	---

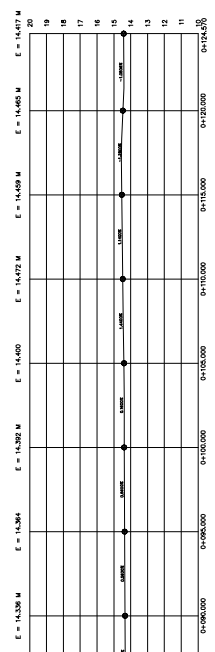
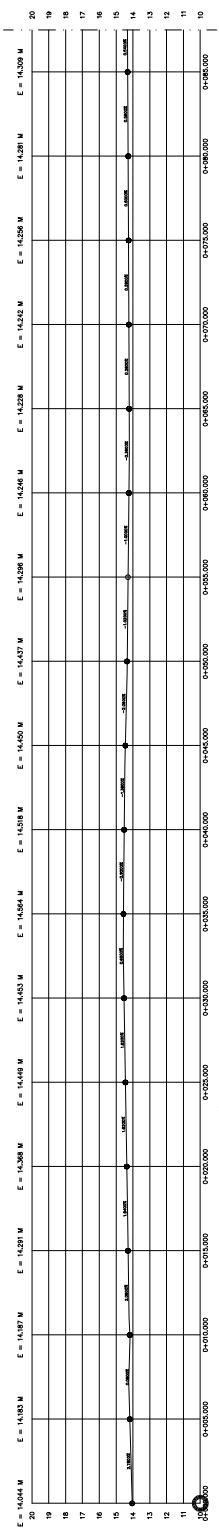


LINE NO.	DESCRIPTION	DATE	BY	CHECKED
1	STATIONING	09/14/2010
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

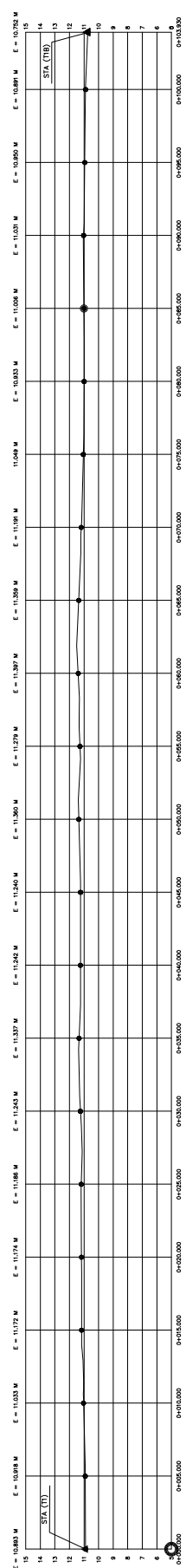
- LEGEND:
- ☉ WATER TANK
 - ☉ TREE
 - ☉ MANGO TREE
 - ☉ NARRA TREE
 - ☉ COCO TREE
 - ☉ CONCRETE ELECTRIC POST / LAMP POST
 - ☉ WATER TANK
 - ☉ KAMANS
 - ☉ BANANA TREE
 - ☉ JACKFRUIT TREE
 - ☉ TRAVERSE LINE
 - ☉ CONTOUR LINE
 - ☉ SECTION LINE



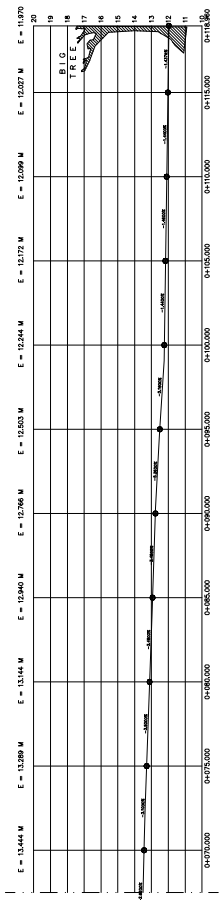
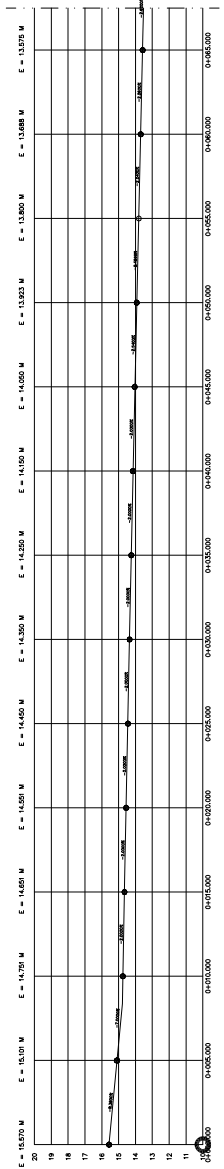
<p>PREPARED BY: RAJENDRA GAO-SCIENTIFIC <small>RAJENDRA GAO & ASSOCIATES, INC.</small></p>	<p>CLIENT: MOHRI, ARCHITECT & ASSOCIATES, INC. <small>3rd Floor, Castro-Gonzales Bldg. 301, AQUINER, CDR, TRINIDAD, ST. LEOPOLD VILLAGE, MANILA CITY</small></p>	<p>PROJECT: TOPOGRAPHIC SURVEY OF LOT 1651, Cad 488-D, STO. DOMINGO CADASTRE <small>AREA = 24,430.00 SQ. M SCALE = 1" = 500' MFS</small></p>	<p>ENGINEER: BEIDA C. MONTEPANANIA <small>REGISTERED PROFESSIONAL ENGINEER No. 10,974 - 1st Class - 2nd Class</small></p>	<p>DATE SURVEYED: <u>SEPTEMBER 14, 2010</u> DATE PREPARED: <u>SEPTEMBER 27-28, 2010</u> CONTOUR INTERVAL: <u>0.20 M</u></p>	<p>SHEET No. 1/1 NO. OF SHEETS</p>
--	---	--	--	---	--



SECTION - A (STA 0+000 - 0+124.570)



SECTION - B (STA 0+000 - 0+103.930)



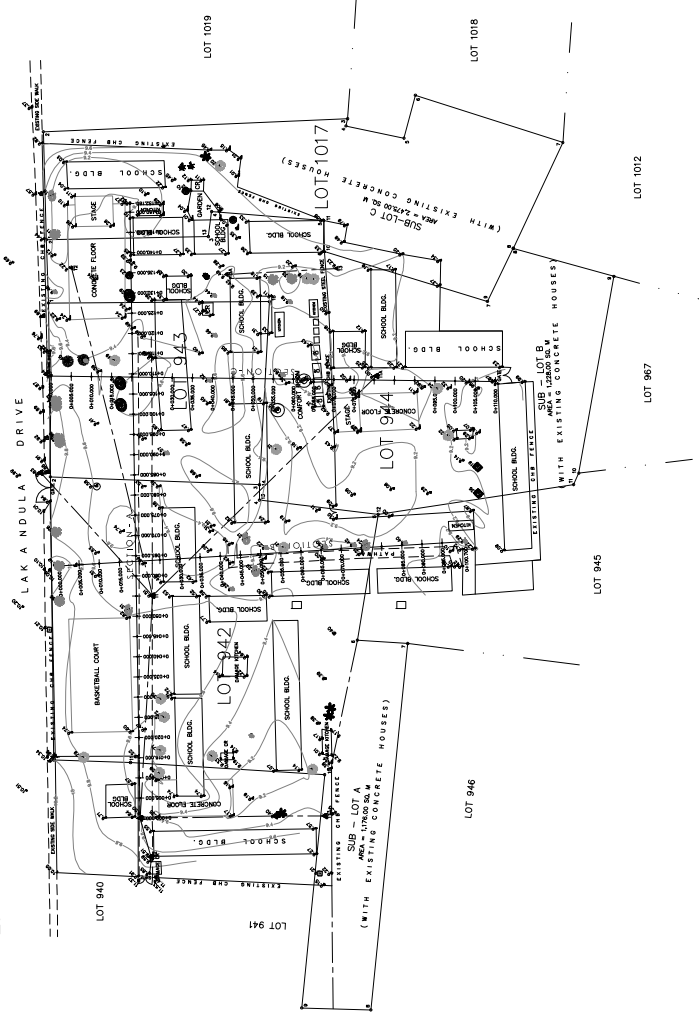
SECTION - C (STA 0+000 - 0+118.960)

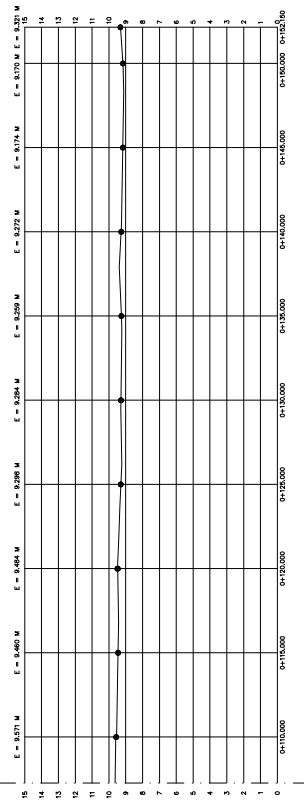
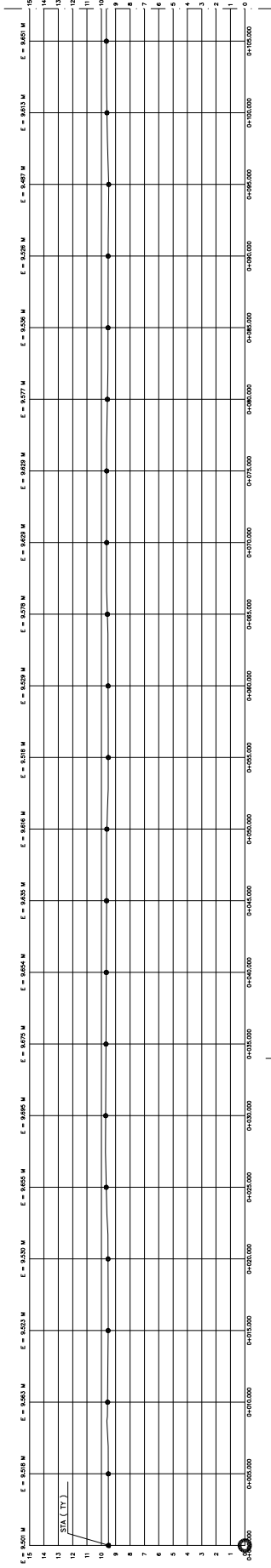
PREPARED BY: MOHRI ARCHITECT & ASSOCIATES INC. 3rd Floor, Pasco-Gonzales Bldg. 101, AGUIRRE CDR. TRASERRA ST. LEGASPI VILLAGE, MAKATI CITY	CLIENT: MOHRI ARCHITECT & ASSOCIATES INC. OF LOT 1651, Cad 488-D, STO. DOMINGO CADASTRE SCALED: 1 : 100 MTS	PROJECT: SECTIONS OF LOT 1651, Cad 488-D, STO. DOMINGO CADASTRE SCALED: 1 : 100 MTS	ENGINEER: BETA C. MONSERRATH LICENSED PROFESSIONAL ENGINEER REG. NO. 101-101-101-101-101
DATE PREPARED: OCTOBER 7-8, 2010 SHEET CONTENT: SECTION A - C			SHEET NO. 1/1 MVD010

LOT 942	LOT 943	LOT 944
AREA = 5,796.00 SQ. M	AREA = 5,796.00 SQ. M	AREA = 5,796.00 SQ. M
1-1	1-1	1-1
1-2	1-2	1-2
1-3	1-3	1-3
1-4	1-4	1-4
1-5	1-5	1-5
1-6	1-6	1-6
1-7	1-7	1-7
1-8	1-8	1-8
1-9	1-9	1-9
1-10	1-10	1-10
1-11	1-11	1-11
1-12	1-12	1-12
1-13	1-13	1-13
1-14	1-14	1-14
1-15	1-15	1-15
1-16	1-16	1-16
1-17	1-17	1-17
1-18	1-18	1-18
1-19	1-19	1-19
1-20	1-20	1-20
1-21	1-21	1-21
1-22	1-22	1-22
1-23	1-23	1-23
1-24	1-24	1-24
1-25	1-25	1-25
1-26	1-26	1-26
1-27	1-27	1-27
1-28	1-28	1-28
1-29	1-29	1-29
1-30	1-30	1-30
1-31	1-31	1-31
1-32	1-32	1-32
1-33	1-33	1-33
1-34	1-34	1-34
1-35	1-35	1-35
1-36	1-36	1-36
1-37	1-37	1-37
1-38	1-38	1-38
1-39	1-39	1-39
1-40	1-40	1-40
1-41	1-41	1-41
1-42	1-42	1-42
1-43	1-43	1-43
1-44	1-44	1-44
1-45	1-45	1-45
1-46	1-46	1-46
1-47	1-47	1-47
1-48	1-48	1-48
1-49	1-49	1-49
1-50	1-50	1-50

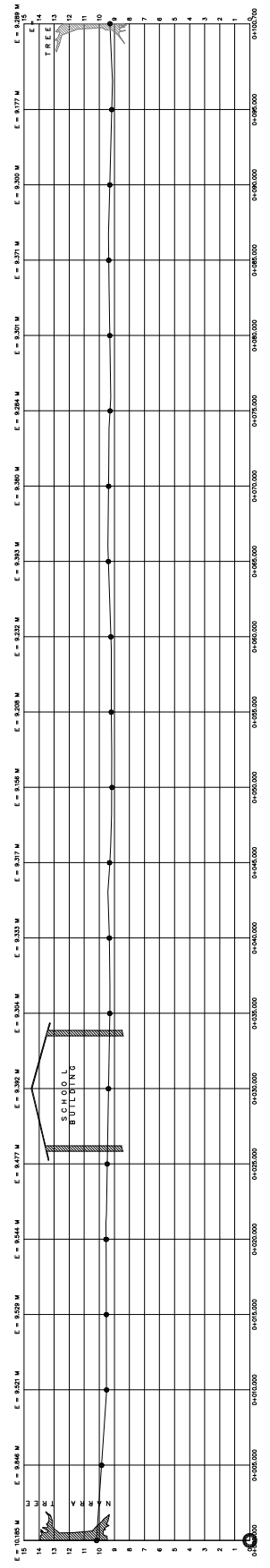
LEGEND

- COCO TREE
- ACACIA TREE
- MANGO TREE
- MARLA TREE
- BANASA TREE
- BANANA TREE
- FIG TREE
- JACKFRUIT TREE
- TREES
- TALSAY TREE
- CONCRETE ELECTRIC POST / LAMP POST
- WATER TANK
- HAND PUMP
- TRANSVERSE LINE
- CONTOUR LINE
- SECTION LINE

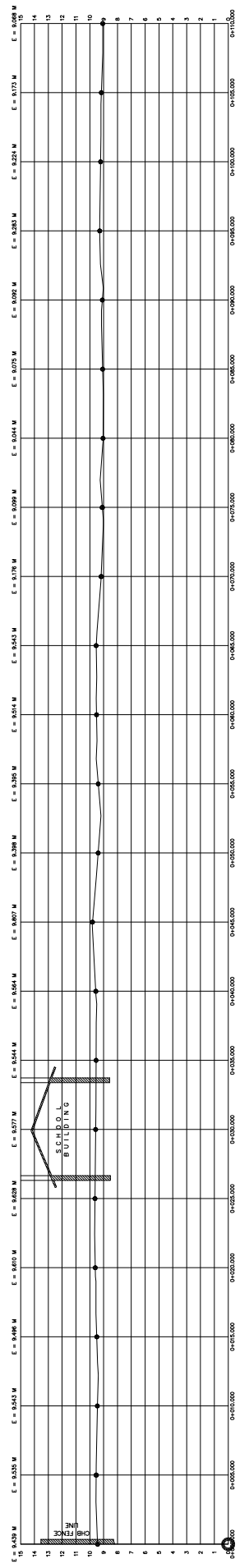




SECTION - A (STA 0+000 - 0+152.150)

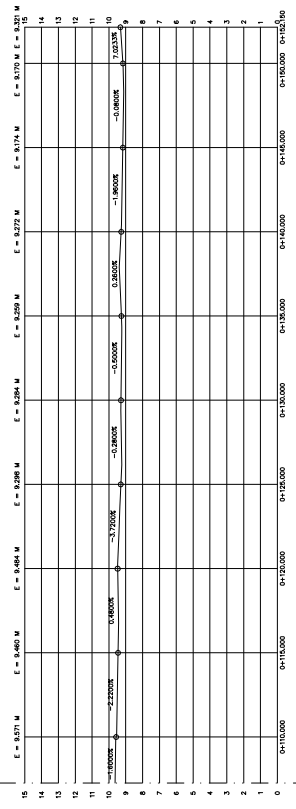
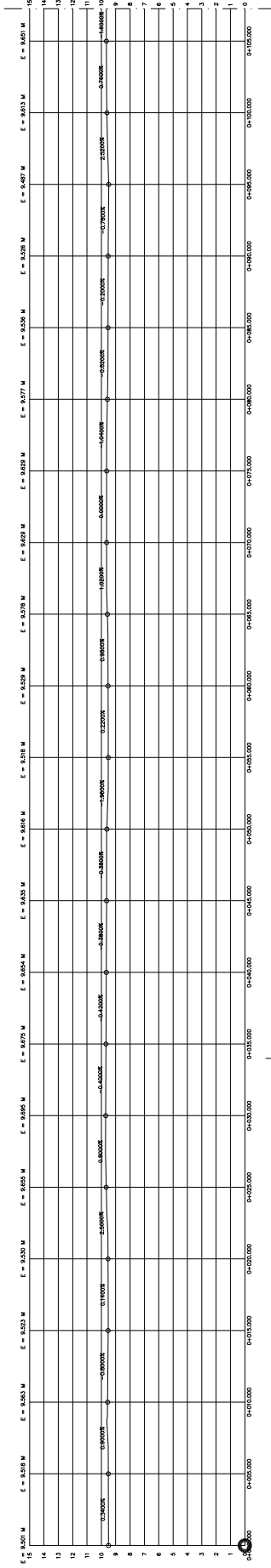


SECTION - B (STA 0+000 - 0+100.700)

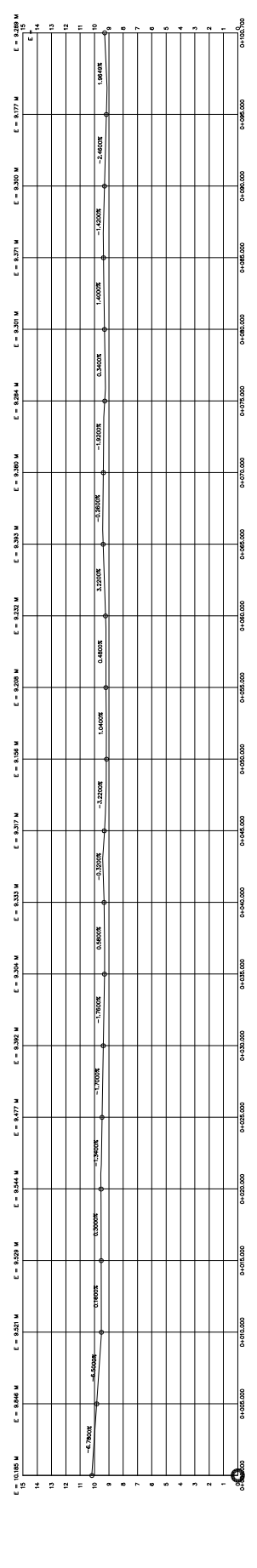


SECTION - C (STA 0+000 - 0+110.000)

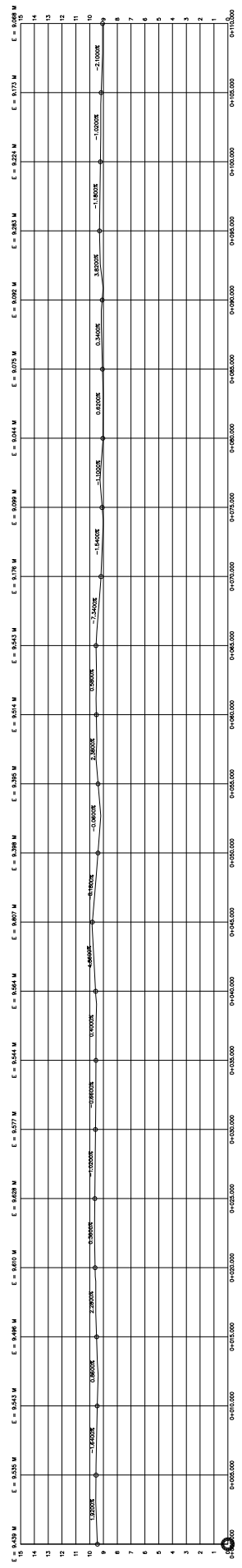
PREPARED BY: RAINBOW GEO-SCIENTIFIC CONSULTANTS 3rd Floor, Dacapo-Gonzales Bldg. 101 Aguirre CDR, TRASERRA ST. LEGASPI VILLAGE, MAKATI CITY	CLIENT: MOHRI ARCHITECT & ASSOCIATES INC. 3rd Floor, Dacapo-Gonzales Bldg. 101 Aguirre CDR, TRASERRA ST. LEGASPI VILLAGE, MAKATI CITY	PROJECT: SECTIONS OF GOGON ELEMENTARY SCHOOL SCALE: 1 : 100 MTS	ENGINEER: BETA C. MONSERRA LICENSED PROFESSIONAL CIVIL ENGINEER REG. NO. 100-100000	DATE PREPARED: OCTOBER 4-5, 2010 SHEET CONTENT: SECTION A - C	SHEET NO. 1/1 MVD010
--	--	---	--	--	--------------------------------



SECTION - A (STA 0+000 - 0+152.150)



SECTION - B (STA 0+000 - 0+100.700)



SECTION - C

PREPARED BY: RAINBOW GEO-SCIENTIFIC CONSULTANTS <small>INCORPORATED IN THE REPUBLIC OF SOUTH AFRICA</small>	CLIENT: MOHRI ARCHITECT & ASSOCIATES INC. <small>3rd Floor Decho-Gonzales Bldg, 101 AGUIRRE CDR, TRASPERRA ST. LEONARDO VILLAGE, MKATI CITY</small>	PROJECT: TOPOGRAPHIC SURVEY OF LOT 83, CAG-471-D <small>SCALE: 1 : 300 MTS AREA: 35,195.00 SQ. M</small>	ENGINEER: _____ DATE PREPARED: SEPTEMBER 22, 2010 CONTOUR INTERVAL: 0.50 M
			SHEET NO. 1/1

FINAL REPORT

SUBSURFACE INVESTIGATION
PROPOSED MAYON
EVACUATION CENTER
(3-STOREY)
LIBON COMMUNITY COLLEGE
BRGY. ZONE 4 LIBON, PROVINCE OF ALBAY

MOHRI, ARCHITECT & ASSOCIATES, INC.

OCTOBER 2010
JOB NO. 2209-10.R1



GEOTECHNICS PHILIPPINES, INC.
GEOTECHNICAL & FOUNDATION CONSULTANTS



DPWH-BRS Accredited

FINAL REPORT

TABLE OF CONTENTS

Contents	No. of Pages
1.0 INTRODUCTION.....	1
2.0 FIELD AND LABORATORY TEST PROCEDURES.....	2
3.0 SITE SOILS AND OBSERVATIONS.....	1
4.0 ENGINEERING ANALYSIS AND CONSIDERATIONS.....	2
5.0 CONSTRUCTION CONSIDERATIONS.....	1
6.0 CONCLUSIONS AND RECOMMENDATIONS.....	1
APPENDICES	
• Distribution of Active Faults and Trenches in the Philippines.....	1
• Photos.....	1
• Location Plan.....	1
• Soil Profile.....	1
• Final Boring Logs.....	2
• Summary of Test.....	1
• Natural Moisture Content/Atterberg Limit.....	4
• Atterberg Limit.....	1
• Grain Size Analysis.....	8





GEOTECHNICS PHILIPPINES, INC.
Geotechnical Contractor

119 Sauyo Road, Novaliches
Quezon City, Philippines

Business development : 9306555
Customer Service : 9382124/9353730
Fax : 4561140
Homepage : www.geophil.com
Email : jmcgpi@gmail.com

FINAL REPORT

**SUB-SURFACE INVESTIGATION FOR THE
PROPOSED MAYON EVACUATION CENTER (3-STOREY)
LOCATED AT BRGY. ZONE 4 LIBON, PROVINCE OF ALBAY**

1. INTRODUCTION

Geotechnics Philippines, Incorporated (GPI) completed the subsurface soil investigation for the proposed Mayon Evacuation Center. The proposed site explored is located at Brgy. Zone 4 Libon, Province of Albay.

Two (2) boreholes were drilled at the proposed site on October 16, 2010. Borings were undertaken down to 10m for both BH-1 and BH-2 below existing natural ground line. Borehole locations are as indicated on the accompanying Boring Plan and Soil Profile Sheets.

The subsurface soil exploration was undertaken upon the request of Mohri & PA Associates, Inc. in order to gain information on the subsurface conditions and bearing characteristics of the underlying soils at site.

The undersigned was tasked to evaluate the results of the completed subsurface soil exploration and to recommend a suitable foundation solution for the proposed structure.

This report embodies the undersigned's engineering analysis and recommendations based mainly on the results of the geotechnical soil borings and pertinent laboratory tests performed on extracted samples.

The results of geotechnical soil borings and laboratory tests can be referred to in the Attachments accompanying this report.

2. FIELD AND LABORATORY TEST PROCEDURES

Drilling Procedure

The boreholes were advanced by wash boring to the maximum boring depths. Standard Penetration Tests were conducted at every 1.5m interval or at change in soil formations. It consisted of driving a standard split spoon sampler of 5.08cm (2" O.D.) diameter in three (3) successive 15cm (6") intervals using a drop hammer of 64kg (140 lbs) weight from a height of 76cm (30"). The number of blows required to penetrate 15cm are recorded successively until the third interval is penetrated. The first interval blow count is called as the seating drive and is discarded. The last two blow counts are added to give the N-value, a measure of the density or consistency of the soil layer. SPT procedures are conducted in accordance with ASTM D-1586. Undisturbed soil samples were taken in soft to stiff soil deposits for Natural Moisture Content (NMC) testing and particle size analysis of soil.

f

2.2 LABORATORY TEST PROCEDURES

The following laboratory tests were performed on the soil samples taken from the site;

- | | |
|--|-------------|
| a. Classification of Soils (USCS) for Engineering Purposes | ASTM D 2487 |
| b. Particle Size Analysis of Soil | ASTM D 422 |
| c. Determination of Moisture Content of Soils | ASTM D 2216 |
| d. Liquid Limit of Soils | ASTM D 4318 |
| e. Plastic Limit of Soils | ASTM D 4318 |

3. SITE SOILS AND OBSERVATIONS

The soil profile indicating the completed two (2) boreholes is attached in this report. Standard Penetration Tests (SPT) indicate shallow layers of very loose poorly graded sand with silt (SP-SM) at depth 2.0m from the existing natural ground line. Drill intersections indicate deposition of fat clay (CH) with intervening layers and pockets of silty sand (SM) with traces of gravel down to a depth of 10m. A layer of silty clay (CH) may also be found within this depth. Trend of N-values generally shows increasing consistency and density with increasing depth. However, it is important to note the existence of relatively looser soils in deeper layers especially in BH-2.

Groundwater table (GWT) levels can be found at a depth of 0.75m for BH-1 and 1.57m for BH-2 reckoned from the existing natural ground line at the time of borings. Thus, excavation may possibly be in wet condition unless otherwise controlled as the detected GWT is fairly within the depths of excavation of proposed foundation elements.

4. ENGINEERING ANALYSIS AND CONSIDERATIONS

SPT N-values of 2 to 4 at a depth from 0 to 2.00 show very loose silty sand, thus shallow foundations to rest on the topmost loose formation (above 2-m) is not permitted. However, directly beneath is a layer of medium dense clayey and silty sand (SC-SM) with thickness ranging from 2m to 4m. Shallow foundations are possible to rest at 2.0m depth to bypass the relatively loose layers of poorly graded sand. This loose sand have to be removed and replaced with selected granular fill preferably well graded. An engineered fill has to be compacted at 95% of the soil's maximum dry density (95% MDD) in 300mm lift.

These shallow foundations shall be in the form of a isolated footing stiffened by a structural tie beam cast in place between column. The system will essentially function as an integrated foundation. The rigidity will assist in bridging across localized settlements and assuring uniform settlement of the structure.

The spread footing shall be proportioned and designed based on a net Allowable Bearing Capacity of 96 kPa (2000 psf). The effect of overburden shall be added to obtain the allowable gross bearing capacity. Where necessary, depending on the final design on the reactions of the building, and due to the low bearing capacity, a mat foundation may also be adopted as an alternate solution to spread footing to support the building foundation. The mat foundation should be made to maintain nearly uniform pressure to avoid differential settlements. For settlement analysis, a compression index of 0.54, modulus

of elasticity of 6 Mpa, and a Poisson's ratio of 0.35 may be used. Soil unit weight of 12 kN/m³ and an angle of internal friction of 28 degrees may be used for shallow foundation calculations.

The floor slabs should not be connected to more rigid elements of the structure such as walls and columns, and should be allowed to settle independently of the building.

This solution, however, is not without possible problems. The relatively poor deposits underlying the site are within the zone of influence of shallow foundations. These poor soil deposits together with the intervening pockets of loose to very loose sands pose a potentially liquefiable and therefore a risk during a significant seismic event. The nature of the soil formations, however, requires considerable earthquake magnitude and epicentral distance to cause soil liquefaction. Hence, settlements can be expected as well as the inherent danger of liquefaction.

5. CONSTRUCTION CONSIDERATIONS

The shallow water table poses a problem during foundation construction. Adequate number of dewatering equipment should be provided in order to allow excavation in almost dry condition. Likewise, concreting shall also be done in the dry condition by dewatering the foundations continuously.

Engineered fill shall be compacted using a vibratory plate compactor of adequate size. As previously noted, floor slabs should not be connected to more rigid elements of the structure such as walls and columns, and should be allowed to settle independently of the building.

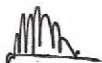
6. CONCLUSIONS AND RECOMMENDATIONS

The spread footing or mat solution may be adopted, the foundation are subject to settlements and possibility of liquefaction due to poor soil deposits underneath. Although the mat will minimize the effect if the cited recommendations are followed by the engineer on record of the structure. The economics for using shallow foundations is considered in the design of the proposed 3-storey structure.

The recommendations submitted in this report are based in part upon the data obtained from a limited number of soil samples. The nature and extent of variations between explorations may not become evident until construction or further investigation. If the variations are of considerable magnitude, it will be necessary to reevaluate the recommendations in this report.

This report has been done by the undersigned in accordance with generally accepted Engineering Principles and Practices.

If you require additional comments or clarifications pertaining to the recommendations, the undersigned will be pleased to comply.



DIOSDADO A. URENA

CE Reg. No. 053884

PTR No. 3228274

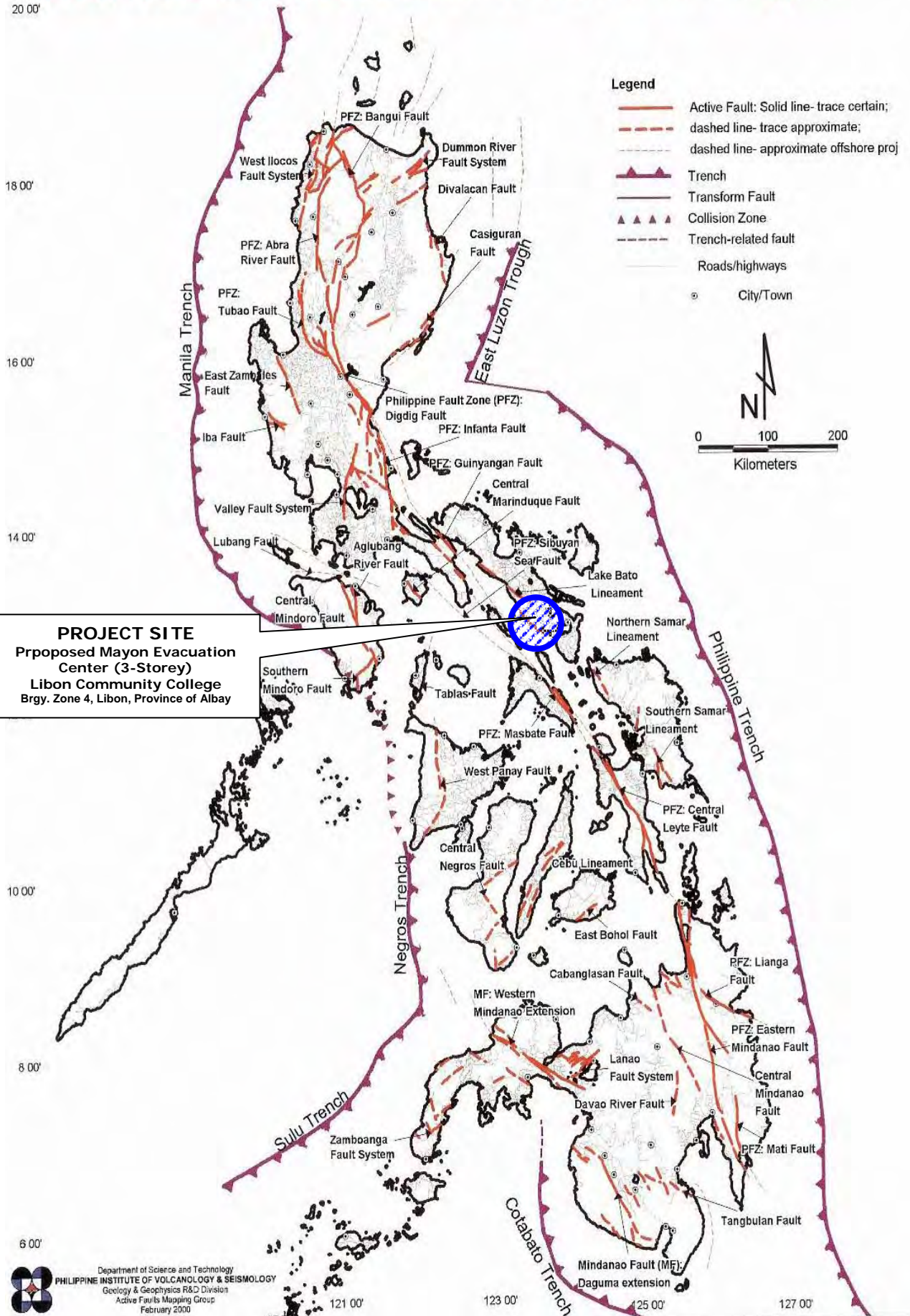
Issued on January 8, 2010

Issued at Quezon City

APPENDICES

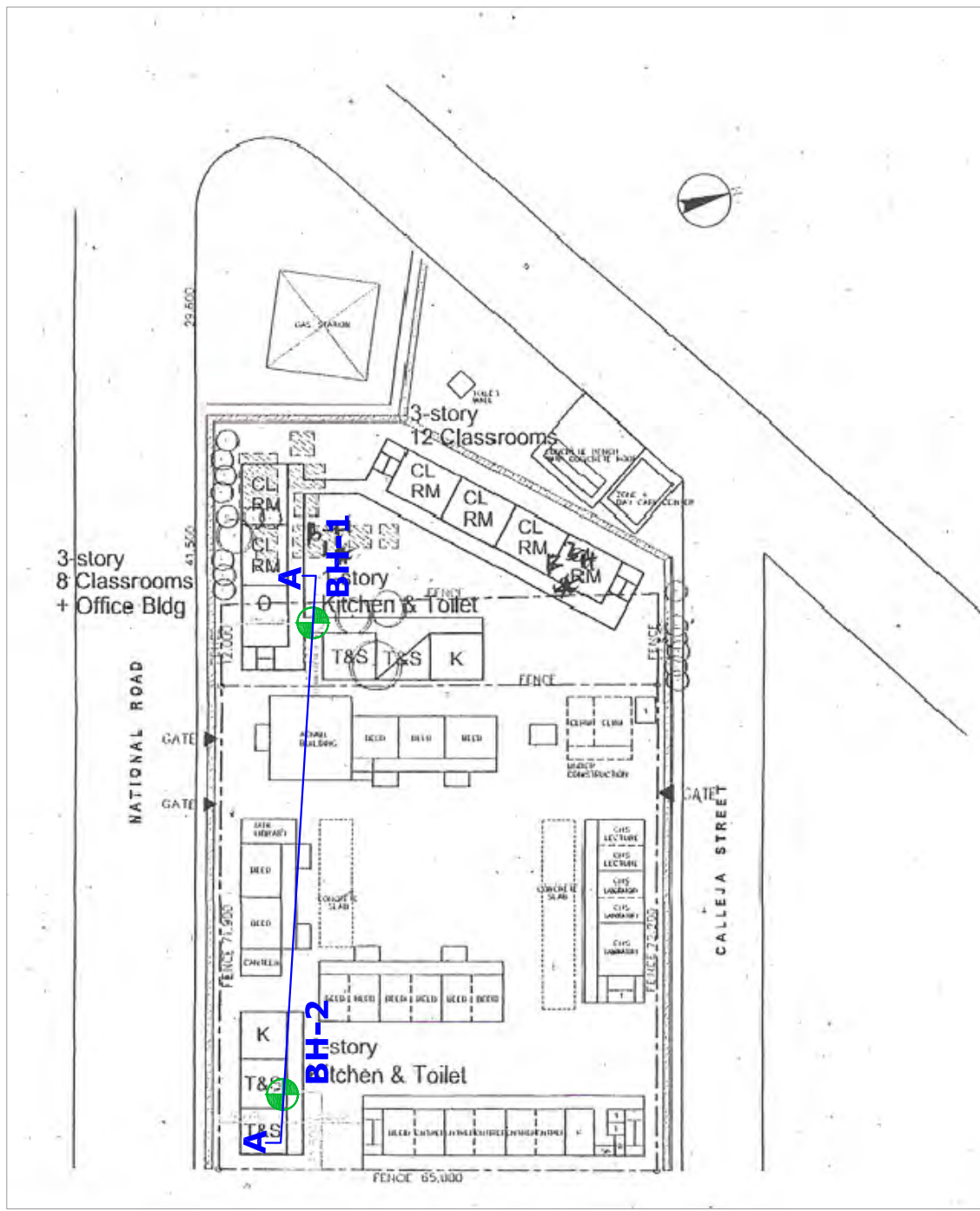


Distribution of Active Faults and Trenches in the Philippines





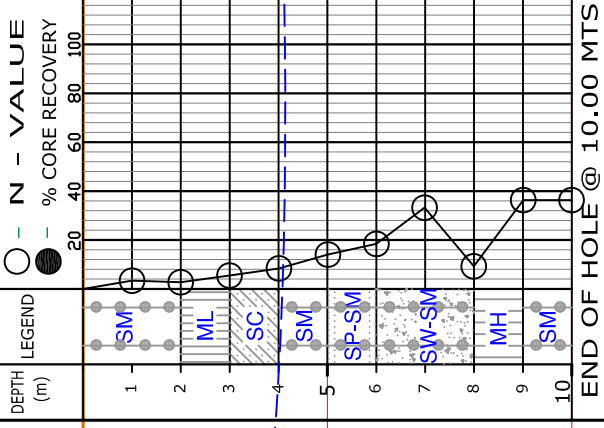
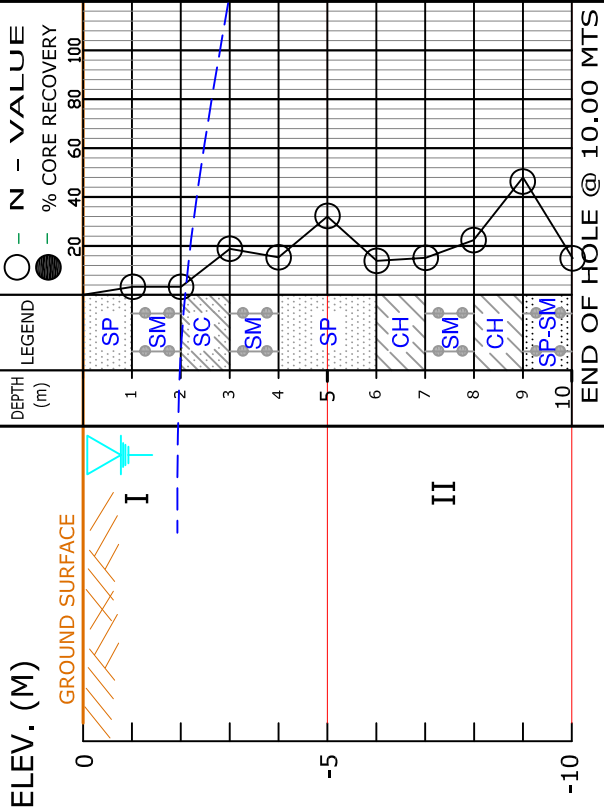
VICINITY MAP



<p>CONTRACTOR</p> <p>GEOTECHNICS PHILIPPINES, INC. 119 SAUYO ROAD, NOVALICHES, QUEZON CITY</p>	<p>PROJECT TITLE</p> <p>Proposed Mayon Evacuation Center (Libon Community College) Brgy. Zone 4 Libon, Province of Albay</p>	<p>SCALE</p> <p>NTS</p>	<p>SHEET CONTENTS</p> <p>LOCATION PLAN/VICINITY MAP</p>	<p>JOB NO.</p> <p>2209-10-R1</p>
	<p>CLIENT</p> <p>MOHRI, ARCHITECT & ASSOCIATES, INC.</p>	<p>SHEET NO.</p> <p>1/1</p>		

BOREHOLE NO. BH-1

BOREHOLE NO. BH-2



- LEGEND :**
- Silty CLAY
 - Silty SAND
 - Clayey SILT
 - Silty SAND
 - Silty GRAVEL
 - Clayey silty SAND

SECTION A - A

- Clayey SAND
- Silty SAND
- Silty GRAVEL
- Clayey silty SAND

- Poorly graded SAND
- Well graded SAND
- Poorly graded SAND w/ silt
- Well graded SAND w/ silt

- Poorly graded GRAVEL
- Well graded GRAVEL
- Poorly graded GRAVEL w/ silt
- Well graded GRAVEL w/ silt

- SANDSTONE
- Clayey silty GRAVEL
- COBBLES
- GRAVEL
- SILTSTONE
- Silty TUFF
- Sandy TUFF
- SHALE

- I - N-VALUE < 10 (LIQUEFIABLE ZONE)
- II - N-VALUE > 10
- III - REFUSAL (WEATHERED ZONE)
- IV - CORING / HARD FORMATION

CONTRACTOR

GEOTECHNICS PHILIPPINES, INC.
119 SAUYO ROAD, NOVALICHES, QUEZON CITY

PROJECT TITLE:

**Proposed Mayon Evacuation Center
(Libon Community College)**
Brgy. Zone 4 Libon, Province of Albay

SHEET CONTENTS:

SOIL PROFILE
SCALE: N. T. S.

CLIENT:
MOHRI, ARCHITECT & ASSOCIATES, INC.

DRAWN BY: **MARIA ANTONIETTE P. CUNAHAP**

CHECKED BY: **A. B. A. / M. R. R.**

CERTIFIED BY: _____

AUTHORIZED SIGNATORY

JOB NO. **2209-10.R1**

SHEET NO. **1/1**



GEOTECHNICS PHILIPPINES, INCORPORATED
SOILS AND MATERIALS TESTING LABORATORY
 119 SAUYO ROAD, NOVALICHES, QUEZON CITY
 TEL. NO. 938-2124 \ 456-1140 \ 930-6555



CLIENT	MOHRI, ARCHITECT & ASSOCIATES, INC.	BOREHOLE NO.	BH- 1
PROJECT	Proposed Mayon Evacuation Center (Libon Community College)	JOB NO.	2209-10.R1-FBL-01
LOCATION	Brgy. Zone 4 Libon, Province of Albay	DRILLED	R. POLIDAN
RIG	KSK SMALL	LOGGED	R. POLIDAN
	Hammer Weight 63.50 Kg.	DATE STARTED	Oct. 16, 2010
	Fall Height 76.20 cm.	DATE COMPLETED	Oct. 16, 2010
METHOD	WASH BORING	NORTHING	-
		EASTING	-
		GROUND LEVEL	- m.
		WATER LEVEL	0.75 m.

FINAL BORING LOG

DEPTH (m)	SOIL SYMBOL	SAMPLE NUMBER	TYPE OF SAMPLING	REC (cm)	RQD (%)	PL 20	NMC 40	LL 60	PI	CONSISTENCY	N - VALUE		SOIL DESCRIPTION	OTHER TEST DATA
											○	●		
1.00	(SP)	S-1	SPT	45	-				NP	VERY LOOSE	4	4	(SP) Poorly graded SAND with traces of gravel; dark gray; dry NB: (2)(2)(2)	
2.00	(SM)	S-2	SPT	45	-				NP		4	4	(SM) Silty SAND fine to medium grained; dark gray; moist NB: (3)(2)(2)	
3.00	(SC)	S-3	SPT	45	-				8	MEDIUM DENSE	18	18	(SC) Clayey SAND with traces of gravel; dark gray; very moist NB: (6)(8)(10)	
4.00	(SM)	S-4	SPT	42	-				NP		15	15	(SM) Silty SAND fine to coarse grained with traces of gravel; dark gray; moist NB: (5)(6)(9)	
5.00	(SP)	S-5	SPT	39	-				NP	DENSE	32	32	(SP) Poorly graded SAND with fine to coarse gravel; dark gray; moist NB: (10)(15)(17)	
6.00	(SP)	S-6	SPT	45	-				NP	MEDIUM DENSE	14	14with fine gravel NB: (8)(7)(7)	
7.00	(CH)	S-7	SPT	45	-				37	STIFF	15	15	(CH) Fat CLAY with few sand; dark gray; very moist NB: (3)(5)(10)	
8.00	(SM)	S-8	SPT	37	-				NP	MEDIUM DENSE	23	23	(SM) Silty SAND fine to coarse grained with traces of gravel; dark gray; very moist NB: (6)(9)(14)	
9.00	(CH)	S-9	SPT	45	-				38	HARD	46	46	(CH) Fat CLAY with few sand; dark gray; very moist NB: (16)(19)(27)	
10.00	(SP-SM)	S-10	SPT	45	-				NP	MEDIUM DENSE	15	15	(SP-SM) Poorly graded SAND with silt; dark gray; moist NB: (12)(6)(9)	

Type of Sampling	Type of Soil	CONSISTENCY		MOISTURE		PERCENTAGE			
STANDARD PENETRATION TEST (SPT)	Silty CLAY	COHESIVE SOILS		COHENSIONLESS SOILS		MOISTURE CONTENT		% of SAND and GRAVEL	
UNDISTURBED SAMPLING (UDS)	Clayey SILT	<u>N-VALUE</u>	<u>CONSISTENCY</u>	<u>N-VALUE</u>	<u>CONSISTENCY</u>	<u>RANGES</u>	<u>VALUES</u>	<u>RANGES</u>	<u>VALUES</u>
CORING (CRG)	Clayey SAND	0 - 2	VERY SOFT	0 - 4	VERY LOOSE	0 - 10	DRY	0 - 5	TRACES
	Silty SAND	2 - 4	SOFT	4 - 10	LOOSE	10 - 30	MOIST	6 - 10	FEW
	Clayey silty SAND	4 - 8	FIRM	10 - 30	MEDIUM DENSE	30 - 70	VERY MOIST	11 - 25	LITTLE
	SAND	8 - 15	STIFF	30 - 50	DENSE	70 - 100	WET	26 - 35	SOME
		15 - 30	VERY STIFF	> 50	VERY DENSE	> 100	SATURATED	36 - 45	WITH
		> 30	HARD						

REMARKS:	Rec = Recovery in Centimeters	NB = No. of Blows	HW = Hammer Weight	Prepared by :	M. P. CUNAHAP
	Reference Joint Spacing: #1 >30cm.	10 cm. >#3>3cm.	#5 <1cm.	Checked by :	A.B.A. / M.R.R.
	30 cm.>#2>10cm.	3 cm. >#4>1cm.		Certified by :	
	RQD = Rock Quality Designation	SCR = Solid Core Recovery			
Description of Strata is according to Unified Soil Classification System					AUTHORIZED SIGNATORY
				Date Issued :	



GEOTECHNICS PHILIPPINES, INCORPORATED
SOILS AND MATERIALS TESTING LABORATORY
 119 SAUYO ROAD, NOVALICHES, QUEZON CITY
 TEL. NO. 938-2124 \ 456-1140 \ 930-6555



CLIENT	MOHRI, ARCHITECT & ASSOCIATES, INC.	BOREHOLE NO.	BH- 2
PROJECT	Proposed Mayon Evacuation Center (Libon Community College)	JOB NO.	2209-10.R1-FBL-02
LOCATION	Brgy. Zone 4 Libon, Province of Albay	DRILLED	R. POLIDAN
RIG	KSK SMALL	LOGGED	R. POLIDAN
	Hammer Weight 63.50 Kg.	DATE STARTED	Oct. 16, 2010
	Fall Height 76.20 cm.	DATE COMPLETED	Oct. 16, 2010
METHOD	WASH BORING	NORTHING	-
		EASTING	-
		GROUND LEVEL	- m.
		WATER LEVEL	1.57 m.
		SHEET	1 of 1
			0.00 to 10.00 meters

FINAL BORING LOG

DEPTH (m)	SOIL SYMBOL	SAMPLE NUMBER	TYPE OF SAMPLING	REC (cm)	RQD (%)	PL 20	NMC 40	LL 60	PI	CONSISTENCY	N - VALUE		SOIL DESCRIPTION	OTHER TEST DATA
											0	20		
1.00		S-1	SPT	45	-					NP	VERY LOOSE	3	(SM) Silty SAND fine to medium grained; dark gray; moist NB: (2)(2)(1)	
2.00		S-2	SPT	45	-					NP		2fine to coarse grained with traces of gravel NB: (2)(1)(1)	
3.00		S-3	SPT	45	-					16	FIRM	6	(ML) Sandy SILT; dark gray; very moist NB: (5)(3)(3)	
4.00		S-4	SPT	45	-					11	LOOSE	8	(SC) Clayey SAND with traces of gravel; dark gray; very moist NB: (10)(5)(3)	
5.00		S-5	SPT	45	-					NP	MEDIUM DENSE	13	(SM) Silty SAND fine to coarse grained with traces of gravel; dark gray; very moist NB: (9)(8)(5)	
6.00		S-6	SPT	45	-					NP		18	(SP-SM) Poorly graded SAND with silt and traces of gravel; dark gray; moist NB: (10)(9)(9)	
7.00		S-7	SPT	45	-					NP	DENSE	32	(SW-SM) Well graded SAND with few gravel; dark gray; moist NB: (13)(15)(17)	
8.00		S-8	SPT	45	-					NP	LOOSE	9with traces of gravel NB: (6)(5)(4)	
9.00		S-9	SPT	45	-					26	HARD	36	(MH) Elastic SILT with some sand; dark gray; very moist NB: (15)(17)(19)	
10.00		S-10	SPT	45	-					NP	DENSE	36	(SM) Silty SAND fine to coarse grained with traces of gravel; dark gray; moist NB: (14)(16)(20) END OF BORING AT 10.00 METERS	

Type of Sampling	Type of Soil	CONSISTENCY		MOISTURE		PERCENTAGE	
STANDARD PENETRATION TEST (SPT)	Silty CLAY	COHESIVE SOILS		COHENSIONLESS SOILS		MOISTURE CONTENT	
UNDISTURBED SAMPLING (UDS)	Clayey SILT	<u>N-VALUE</u>	<u>CONSISTENCY</u>	<u>N-VALUE</u>	<u>CONSISTENCY</u>	<u>RANGES</u>	<u>VALUES</u>
CORING (CRG)	Clayey SAND	0 - 2 - VERY SOFT	2 - 4 - SOFT	0 - 4 - VERY LOOSE	4 - 10 - LOOSE	0 - 10 - DRY	0 - 5 - TRACES
	Silty SAND	4 - 8 - FIRM	8 - 15 - STIFF	10 - 30 - MEDIUM DENSE	30 - 70 - VERY MOIST	10 - 30 - MOIST	6 - 10 - FEW
	Clayey silty SAND	15 - 30 - VERY STIFF	> 30 - HARD	30 - 50 - DENSE	> 70 - SATURATED	70 - 100 - WET	11 - 25 - LITTLE
	SAND			> 50 - VERY DENSE		> 100 - SATURATED	26 - 35 - SOME
	Silty GRAVEL						36 - 45 - WITH
	Well graded GRAVEL with silt						
	GRAVEL						
	SILTSTONE						
	TUFF						
	Tuffaceous SILTSTONE						

REMARKS:	Rec = Recovery in Centimeters	NB = No. of Blows	HW = Hammer Weight	Prepared by :	M. P. CUNAHAP
	Reference Joint Spacing: #1 >30cm.	10 cm. >#3>3cm.	#5 <1cm.	Checked by :	A.B.A. / M.R.R.
	30 cm.>#2>10cm.	3 cm. >#4>1cm.		Certified by :	
	RQD = Rock Quality Designation	SCR = Solid Core Recovery			
Description of Strata is according to Unified Soil Classification System					AUTHORIZED SIGNATORY
				Date Issued :	



CLIENT..... **MOHRI, ARCHITECT & ASSOCIATES, INC.**

JOB NUMBER..... 2209-10.R1-SUM-1

PROJECT..... **Proposed Mayon Evacuation Center (Libon Community College)**

DATE OF RECEIPT.... October 19, 2010

LOCATION.... Brgy. Zone 4 Libon, Province of Albay

DATE OF TEST..... October 21-28, 2010

SUMMARY OF LABORATORY TESTS

SAMPLE NUMBER	DEPTH (m)	NMC (%)	ATTERBERG LIMIT, (%)			USCS Class.	SIEVE ANALYSIS (% FINER) PASSING SIEVE NO.										Remarks
			LL	PL	PI		1	3/4	3/8	4	10	20	40	60	140	200	
BH-1																	
1	0.55 - 1.00	9	-	NP	-	SP			100	95	83	63	33	12	5	3	-
2	1.55 - 2.00	29	-	NP	-	SM				100	97	90	74	56	21	14	-
3	2.55 - 3.00	36	40	32	8	SC		100	98	97	94	85	75	65	47	45	-
4	3.55 - 4.00	30	-	NP	-	SM			100	96	91	81	57	34	18	16	-
5	4.55 - 5.00	17	-	NP	-	SP	100	83	70	60	52	40	25	11	3	2	-
6	5.55 - 6.00	21	-	NP	-	SP		100	75	58	46	34	21	12	5	4	-
7	6.55 - 7.00	59	69	32	37	CH					100	99	98	96	91	90	-
8	7.55 - 8.00	35	-	NP	-	SM			100	99	98	96	87	73	30	24	-
9	8.55 - 9.00	60	70	32	38	CH						100	99	97	94	92	-
10	9.55 - 10.00	23	-	NP	-	SP-SM				100	99	94	54	20	6	5	-
BH-2																	
1	0.55 - 1.00	23	-	NP	-	SM				100	98	95	85	65	30	25	-
2	1.55 - 2.00	23	-	NP	-	SM			100	98	94	84	68	47	27	23	-
3	2.55 - 3.00	40	48	32	16	ML				100	98	93	83	73	62	58	-
4	3.55 - 4.00	39	44	33	11	SC			100	99	98	93	83	70	50	47	-
5	4.55 - 5.00	30	-	NP	-	SM		100	99	98	97	93	84	61	29	24	-
6	5.55 - 6.00	19	-	NP	-	SP-SM			100	99	97	81	42	22	9	7	-
7	6.55 - 7.00	20	-	NP	-	SW-SM			100	93	82	58	31	18	8	7	-
8	7.55 - 8.00	20	-	NP	-	SW-SM		100	99	95	89	73	45	25	11	8	-
9	8.55 - 9.00	50	58	32	26	MH				100	99	97	94	89	73	67	-
10	9.55 - 10.00	28	-	NP	-	SM			100	99	99	98	90	66	28	22	-

SAMPLE SUBMITTED BY :

Walk-in Clients GPI Field Operator

REMARKS: * with hydrometer

R. POLIDAN

COMPUTER PRINT-OUT

By: MARIA ANTONIETTE P. CUNAHAP

Encoder

Data Chkd by: ABA / MRR
Quality Assurance

Date Issued _____

CERTIFIED BY:

AUTHORIZED SIGNATORY



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-NMC-01-1
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 21-22, 2010

TEST REPORT FOR LABORATORY DETERMINATION OF WATER (MOISTURE) CONTENT OF SOIL & ROCK BY MASS

ASTM D 2216 - 05

Test Method A B

BOREHOLE NO...BH-1

SAMPLE NUMBER	DEPTH (m)	WET SOIL DISH (g)	DRY SOIL DISH (g)	WATER (g)	DISH MASS (g)	DRY SOIL (g)	WATER CONTENT (%)	REMARKS
NATURAL MOISTURE CONTENT								
1	0.55-1.00	105.98	98.22	7.76	9.74	88.48	9	
2	1.55-2.00	95.35	76.15	19.20	9.91	66.24	29	
3	2.55-3.00	100.31	76.36	23.95	9.56	66.80	36	
4	3.55-4.00	111.50	88.05	23.45	9.53	78.52	30	
5	4.55-5.00	117.08	101.57	15.51	10.29	91.28	17	
6	5.55-6.00	122.28	102.55	19.73	9.84	92.71	21	

TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS

ASTM Designation : D 4318 - 05, Method B

SAMPLE NUMBER	DEPTH (m)	BLOWS	WET SOIL DISH (g)	DRY SOIL DISH (g)	WATER (g)	DISH MASS (g)	DRY SOIL (g)	% Retained on 0.425 mm	ATTERBERG LIMIT		REMARKS
									LL	PL	
LIQUID LIMIT											
PLASTIC LIMIT											

Uncertainty Results: Water Content (%) = ± 0.0304 Liquid Limit = --- Plastic Limit = ---
 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%. LAB.FILE NO.:NMC-10-498

SAMPLE SUBMITTED BY : Walk-in Clients GPI Field Operator
 R. POLIDAN

REMARKS: _____

COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA/MRR
 Quality Assurance
 Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN

CERTIFIED BY : _____
 AUTHORIZED SIGNATORY

This report should not be copied, divulged or reproduced, in full or in part, without prior advice to and written approval from GPI-SMTL.



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-NMC-01-2
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 21-22, 2010

TEST REPORT FOR LABORATORY DETERMINATION OF WATER (MOISTURE) CONTENT OF SOIL & ROCK BY MASS

ASTM D 2216 - 05

Test Method A B

BOREHOLE NO...BH-1

SAMPLE NUMBER	DEPTH (m)	WET SOIL DISH (g)	DRY SOIL DISH (g)	WATER (g)	DISH MASS (g)	DRY SOIL (g)	WATER CONTENT (%)	REMARKS
NATURAL MOISTURE CONTENT								
7	6.55-7.00	83.18	55.90	27.28	9.82	46.08	59	
8	7.55-8.00	118.20	89.93	28.27	9.53	80.40	35	
9	8.55-9.00	103.70	68.40	35.30	9.58	58.82	60	
10	9.55-10.00	116.13	95.93	20.20	9.42	86.51	23	

TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS

ASTM Designation : D 4318 - 05, Method B

SAMPLE NUMBER	DEPTH (m)	BLOWS	WET SOIL DISH (g)	DRY SOIL DISH (g)	WATER (g)	DISH MASS (g)	DRY SOIL (g)	% Retained on 0.425 mm	ATTERBERG LIMIT		REMARKS
									LL	PL	
LIQUID LIMIT											
PLASTIC LIMIT											

Uncertainty Results: Water Content (%) = ± 0.0482 Liquid Limit = --- Plastic Limit = ---
 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%. LAB.FILE NO.:NMC-10-498

SAMPLE SUBMITTED BY : Walk-in Clients GPI Field Operator
 R. POLIDAN

REMARKS: _____

COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA/MRR
 Quality Assurance
 Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN

CERTIFIED BY : _____
 AUTHORIZED SIGNATORY

This report should not be copied, divulged or reproduced, in full or in part, without prior advice to and written approval from GPI-SMTL.



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-NMC-02-1
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 26-27, 2010

TEST REPORT FOR LABORATORY DETERMINATION OF WATER (MOISTURE) CONTENT OF SOIL & ROCK BY MASS

ASTM D 2216 - 05

Test Method A B

BOREHOLE NO...BH-2

SAMPLE NUMBER	DEPTH (m)	WET SOIL DISH (g)	DRY SOIL DISH (g)	WATER (g)	DISH MASS (g)	DRY SOIL (g)	WATER CONTENT (%)	REMARKS
NATURAL MOISTURE CONTENT								
1	0.55-1.00	110.73	91.53	19.20	9.53	82.00	23	
2	1.55-2.00	123.74	102.59	21.15	9.54	93.05	23	
3	2.55-3.00	117.60	86.96	30.64	9.72	77.24	40	
4	3.55-4.00	105.90	79.03	26.87	9.60	69.43	39	
5	4.55-5.00	122.70	96.31	26.39	9.60	86.71	30	
6	5.55-6.00	103.77	88.73	15.04	9.57	79.16	19	

TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS

ASTM Designation : D 4318 - 05, Method B

SAMPLE NUMBER	DEPTH (m)	BLOWS	WET SOIL DISH (g)	DRY SOIL DISH (g)	WATER (g)	DISH MASS (g)	DRY SOIL (g)	% Retained on 0.425 mm	ATTERBERG LIMIT		REMARKS
									LL	PL	
LIQUID LIMIT											
PLASTIC LIMIT											

Uncertainty Results: Water Content (%) = ± 0.0295 Liquid Limit = --- Plastic Limit = ---
 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%. LAB.FILE NO.:NMC-10-499

SAMPLE SUBMITTED BY : _____ REMARKS: _____
 Walk-in Clients GPI Field Operator
 R. POLIDAN _____

COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA/MRR
 Quality Assurance
 Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN
 CERTIFIED BY : _____
 AUTHORIZED SIGNATORY



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-NMC-02-2
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 26-27, 2010

TEST REPORT FOR LABORATORY DETERMINATION OF WATER (MOISTURE) CONTENT OF SOIL & ROCK BY MASS

ASTM D 2216 - 05

Test Method A B

BOREHOLE NO...BH-2

SAMPLE NUMBER	DEPTH (m)	WET SOIL DISH (g)	DRY SOIL DISH (g)	WATER (g)	DISH MASS (g)	DRY SOIL (g)	WATER CONTENT (%)	REMARKS
NATURAL MOISTURE CONTENT								
7	6.55-7.00	115.10	97.26	17.84	9.70	87.56	20	
8	7.55-8.00	119.05	101.05	18.00	9.51	91.54	20	
9	8.55-9.00	111.70	77.75	33.95	9.63	68.12	50	
10	9.55-10.00	115.43	91.96	23.47	9.37	82.59	28	

TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS

ASTM Designation : D 4318 - 05, Method B

SAMPLE NUMBER	DEPTH (m)	BLOWS	WET SOIL DISH (g)	DRY SOIL DISH (g)	WATER (g)	DISH MASS (g)	DRY SOIL (g)	% Retained on 0.425 mm	ATTERBERG LIMIT		REMARKS
									LL	PL	
LIQUID LIMIT											
PLASTIC LIMIT											

Uncertainty Results: Water Content (%) = ± 0.0313 Liquid Limit = --- Plastic Limit = ---
 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%. LAB.FILE NO.:NMC-10-499

SAMPLE SUBMITTED BY : _____ REMARKS: _____
 Walk-in Clients GPI Field Operator
 R. POLIDAN _____
 COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA/MRR
 Quality Assurance
 Date Issued: _____
 TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN
 CERTIFIED BY : _____
 AUTHORIZED SIGNATORY



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-AL-01-1
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location.... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 25-26, 2010

TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS

ASTM D 4318 - 05

Method : A Wet Preparation Dry Preparation

BOREHOLE NO..... BH-1	DEPTH (m)..... 2.55-3.00	SOIL DESCRIPTION.....
SAMPLE NO..... S-3	USCS CLASS..... SC	Clayey SAND

MOISTURE CONTENT DETERMINATION	LIQUID LIMIT			PLASTIC LIMIT	
	TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 1	TRIAL 2
DISH NUMBER	A2	A37	A82	B32	B5
WET SOIL + DISH (g)	33.84	35.97	38.16	22.81	22.78
DRY SOIL + DISH (g)	27.17	28.33	29.56	19.59	19.56
WATER (g)	6.67	7.64	8.60	3.22	3.22
DISH MASS (g)	9.64	9.70	9.80	9.53	9.51
DRY SOIL (g)	17.53	18.63	19.76	10.06	10.05
MOISTURE CONTENT	38.05	41.01	43.52	32.01	32.04
NUMBER OF BLOWS	31	22	14	32	

Moisture Content (%)

No. of Blows

LL = 40 PL = 32 PI = 8

% RETAINED ON 0.425mm 24.63

BOREHOLE NO..... BH-1	DEPTH (m)..... 6.55-7.00	SOIL DESCRIPTION.....
SAMPLE NO..... S-7	USCS CLASS..... CH	Fat CLAY

MOISTURE CONTENT DETERMINATION	LIQUID LIMIT			PLASTIC LIMIT	
	TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 1	TRIAL 2
DISH NUMBER	B17	B24	B90	C73	C40
WET SOIL + DISH (g)	32.47	35.59	38.24	22.68	22.72
DRY SOIL + DISH (g)	23.31	24.94	26.25	19.52	19.55
WATER (g)	9.16	10.65	11.99	3.16	3.17
DISH MASS (g)	9.63	9.72	9.83	9.55	9.56
DRY SOIL (g)	13.68	15.22	16.42	9.97	9.99
MOISTURE CONTENT	66.96	69.97	73.02	31.70	31.73
NUMBER OF BLOWS	32	21	15	32	

Moisture Content (%)

No. of Blows

LL = 69 PL = 32 PI = 37

% RETAINED ON 0.425mm 1.78

Uncertainty Results: I	Liquid Limit = ± 0.1137	Plastic Limit = ± 0.1994
II	Liquid Limit = ± 0.1453	Plastic Limit = ± 0.2010

Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%. LAB.FILE NO.:AL-10-646

SAMPLE SUBMITTED BY : Walk-in Clients GPI Field Operator

REMARKS: _____

R. POLIDAN

COMPUTER PRINT-OUT
By: MARIA ANTONIETTE P. CUNAHAP
Encoder

Data Checked by: ABA / MRR
Quality Assurance

Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
LABORATORY TECHNICIAN

CERTIFIED BY : _____
AUTHORIZED SIGNATORY



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-AL-01-2
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location.... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 25-26, 2010

TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS

ASTM D 4318 - 05

Method : A Wet Preparation Dry Preparation

BOREHOLE NO..... BH-1	DEPTH (m)..... 8.55-9.00	SOIL DESCRIPTION.....
SAMPLE NO..... S-9	USCS CLASS..... CH	Fat CLAY

MOISTURE CONTENT DETERMINATION	LIQUID LIMIT			PLASTIC LIMIT	
	TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 1	TRIAL 2
DISH NUMBER	A29	A11	A21	B49	B55
WET SOIL + DISH (g)	32.54	35.74	38.40	22.69	22.75
DRY SOIL + DISH (g)	23.27	24.94	26.26	19.48	19.55
WATER (g)	9.27	10.80	12.14	3.21	3.20
DISH MASS (g)	9.65	9.74	9.85	9.52	9.55
DRY SOIL (g)	13.62	15.20	16.41	9.96	10.00
MOISTURE CONTENT	68.06	71.05	73.98	32.23	32.00
NUMBER OF BLOWS	31	22	15	32	

Moisture Content (%)

No. of Blows

LL = 70 PL = 32 PI = 38

% RETAINED ON 0.425mm 1.09

BOREHOLE NO.....	DEPTH (m).....	SOIL DESCRIPTION.....
SAMPLE NO.....	USCS CLASS.....	

MOISTURE CONTENT DETERMINATION	LIQUID LIMIT			PLASTIC LIMIT	
	TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 1	TRIAL 2
DISH NUMBER					
WET SOIL + DISH (g)					
DRY SOIL + DISH (g)					
WATER (g)					
DISH MASS (g)					
DRY SOIL (g)					
MOISTURE CONTENT					
NUMBER OF BLOWS					

Moisture Content (%)

No. of Blows

LL = PL = PI =

% RETAINED ON 0.425mm

Uncertainty Results: I Liquid Limit = ± 0.1454 Plastic Limit = ± 0.2015
 II Liquid Limit = --- Plastic Limit = ---

Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%. LAB.FILE NO.:AL-10-646

SAMPLE SUBMITTED BY : REMARKS: _____
 Walk-in Clients GPI Field Operator
 R. POLIDAN

COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA / MRR
 Quality Assurance
 Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN
 CERTIFIED BY : _____
 AUTHORIZED SIGNATORY



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-AL-02-1
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location.... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 27-28, 2010

TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS

ASTM D 4318 - 05

Method : A Wet Preparation Dry Preparation

BOREHOLE NO..... BH-2	DEPTH (m)..... 2.55-3.00	SOIL DESCRIPTION.....
SAMPLE NO..... S-3	USCS CLASS..... ML	Sandy SILT

MOISTURE CONTENT DETERMINATION	LIQUID LIMIT			PLASTIC LIMIT	
	TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 1	TRIAL 2
DISH NUMBER	A29	A86	A6	B51	B2
WET SOIL + DISH (g)	32.56	35.41	38.24	22.69	22.72
DRY SOIL + DISH (g)	25.29	26.97	28.53	19.46	19.49
WATER (g)	7.27	8.44	9.71	3.23	3.23
DISH MASS (g)	9.65	9.74	9.85	9.51	9.49
DRY SOIL (g)	15.64	17.23	18.68	9.95	10.00
MOISTURE CONTENT	46.48	48.98	51.98	32.46	32.30
NUMBER OF BLOWS	32	22	15	32	

% RETAINED ON 0.425mm 16.56

BOREHOLE NO..... BH-2	DEPTH (m)..... 3.55-4.00	SOIL DESCRIPTION.....
SAMPLE NO..... S-4	USCS CLASS..... SC	Clayey SAND

MOISTURE CONTENT DETERMINATION	LIQUID LIMIT			PLASTIC LIMIT	
	TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 1	TRIAL 2
DISH NUMBER	B62	B21	B9	A48	A91
WET SOIL + DISH (g)	32.62	35.54	38.32	22.70	22.73
DRY SOIL + DISH (g)	25.82	27.52	29.15	19.43	19.45
WATER (g)	6.80	8.02	9.17	3.27	3.28
DISH MASS (g)	9.62	9.70	9.85	9.48	9.50
DRY SOIL (g)	16.20	17.82	19.30	9.95	9.95
MOISTURE CONTENT	41.98	45.01	47.51	32.86	32.96
NUMBER OF BLOWS	31	22	15	33	

% RETAINED ON 0.425mm 16.56

Uncertainty Results: I	Liquid Limit = ± 0.1275	Plastic Limit = ± 0.2019
II	Liquid Limit = ± 0.1227	Plastic Limit = ± 0.2021

Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%. LAB.FILE NO.:AL-10-647

SAMPLE SUBMITTED BY : Walk-in Clients GPI Field Operator

REMARKS: _____

R. POLIDAN

COMPUTER PRINT-OUT
By: MARIA ANTONIETTE P. CUNAHAP
Encoder

Data Checked by: ABA / MRR
Quality Assurance

Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
LABORATORY TECHNICIAN

CERTIFIED BY : _____
AUTHORIZED SIGNATORY



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-AL-02-2
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location.... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 27-28, 2010

TEST REPORT FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS

ASTM D 4318 - 05

Method : A Wet Preparation Dry Preparation

BOREHOLE NO..... BH-2	DEPTH (m)..... 8.55-9.00	SOIL DESCRIPTION.....
SAMPLE NO..... S-9	USCS CLASS..... MH	Elastic SILT
MOISTURE CONTENT DETERMINATION	LIQUID LIMIT	PLASTIC LIMIT
	TRIAL 1 TRIAL 2 TRIAL 3	TRIAL 1 TRIAL 2
DISH NUMBER	A43 A8 A93	B82 B5
WET SOIL + DISH (g)	32.47 35.28 38.22	22.68 22.74
DRY SOIL + DISH (g)	24.23 25.79 27.34	19.49 19.54
WATER (g)	8.24 9.49 10.88	3.19 3.20
DISH MASS (g)	9.60 9.70 9.80	9.49 9.51
DRY SOIL (g)	14.63 16.09 17.54	10.00 10.03
MOISTURE CONTENT	56.32 58.98 62.03	31.90 31.90
NUMBER OF BLOWS	31 21 15	32
% RETAINED ON 0.425mm	6.34	

Moisture Content (%)

No. of Blows

LL = 58 PL = 32 PI = 26

BOREHOLE NO.....	DEPTH (m).....	SOIL DESCRIPTION.....
SAMPLE NO.....	USCS CLASS.....	
MOISTURE CONTENT DETERMINATION	LIQUID LIMIT	PLASTIC LIMIT
	TRIAL 1 TRIAL 2 TRIAL 3	TRIAL 1 TRIAL 2
DISH NUMBER		
WET SOIL + DISH (g)		
DRY SOIL + DISH (g)		
WATER (g)		
DISH MASS (g)		
DRY SOIL (g)		
MOISTURE CONTENT		
NUMBER OF BLOWS		
% RETAINED ON 0.425mm		

Moisture Content (%)

No. of Blows

LL = PL = PI =

Uncertainty Results: I Liquid Limit = ± 0.1355 Plastic Limit = ± 0.2005
 II Liquid Limit = --- Plastic Limit = ---

Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%. LAB.FILE NO.:AL-10-647

SAMPLE SUBMITTED BY : Walk-in Clients GPI Field Operator REMARKS: _____

R. POLIDAN

COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA / MRR
 Quality Assurance
 Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN
 CERTIFIED BY : _____
 AUTHORIZED SIGNATORY



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



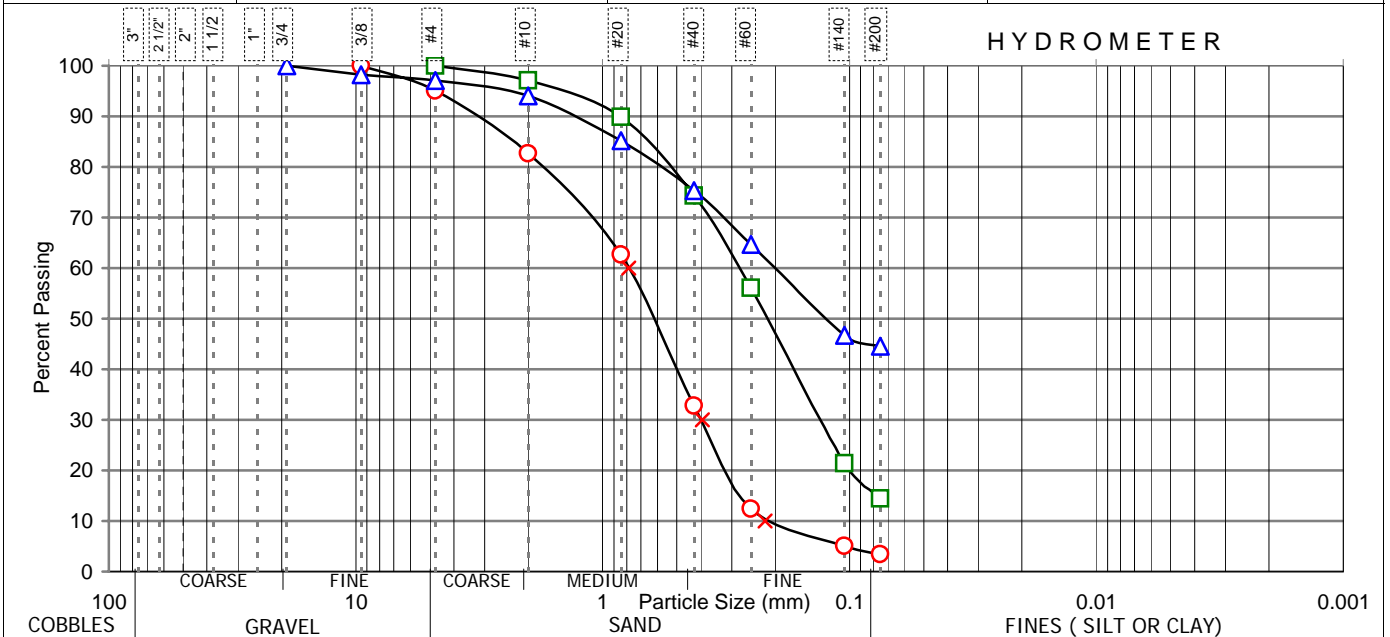
DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-GSA-01-1
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 22, 2010

TEST REPORT FOR GRAIN SIZE ANALYSIS
ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO.....	BH-1	○ 1	□ 2	△ 3
DEPTH (m).....	0.55-1.00	1.55-2.00	2.55-3.00	
SOIL DESCRIPTION.....	Poorly graded SAND	Silty SAND	Clayey SAND	

SIEVE SIZE	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer
inches									
mm									
2 1/2									
2									
1 1/2									
1									
3/4									100
3/8			100				1.16	1.74	98
4	4.34	4.91	95			100	1.93	2.89	97
10	15.39	17.39	83	1.96	2.96	97	3.97	5.94	94
20	33.02	37.32	63	6.73	10.16	90	9.89	14.81	85
40	59.43	67.17	33	17.01	25.68	74	16.45	24.63	75
60	77.49	87.58	12	29.09	43.92	56	23.59	35.31	65
140	84.00	94.94	5	52.05	78.58	21	35.62	53.32	47
200	85.42	96.54	3	56.68	85.57	14	37.03	55.43	45
OVEN DRIED MASS	88.48 gms			66.24 gms			66.80 gms		



* - with Hydrometer
REMARKS : S-1: Cu = 3.56 Cc = 0.90

SAMPLE SUBMITTED BY:

Walk-in Clients GPI Field Operator

R. POLIDAN

COMPUTER PRINT-OUT

By: MARIA ANTONIETTE P. CUNAHAP
Encoder

Data Checked by: ABA/MRR
Quality Assurance

Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
LABORATORY TECHNICIAN

CERTIFIED BY : _____
AUTHORIZED SIGNATORY

Uncertainty Results: % Finer = ± 0.0488 LAB.FILE NO.:GSA-10-400
Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.

This report should not be copied, divulged or reproduced, in full or in part, without prior advice to and written approval from GPI-SMTL.



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



DPWH-BRS Accredited

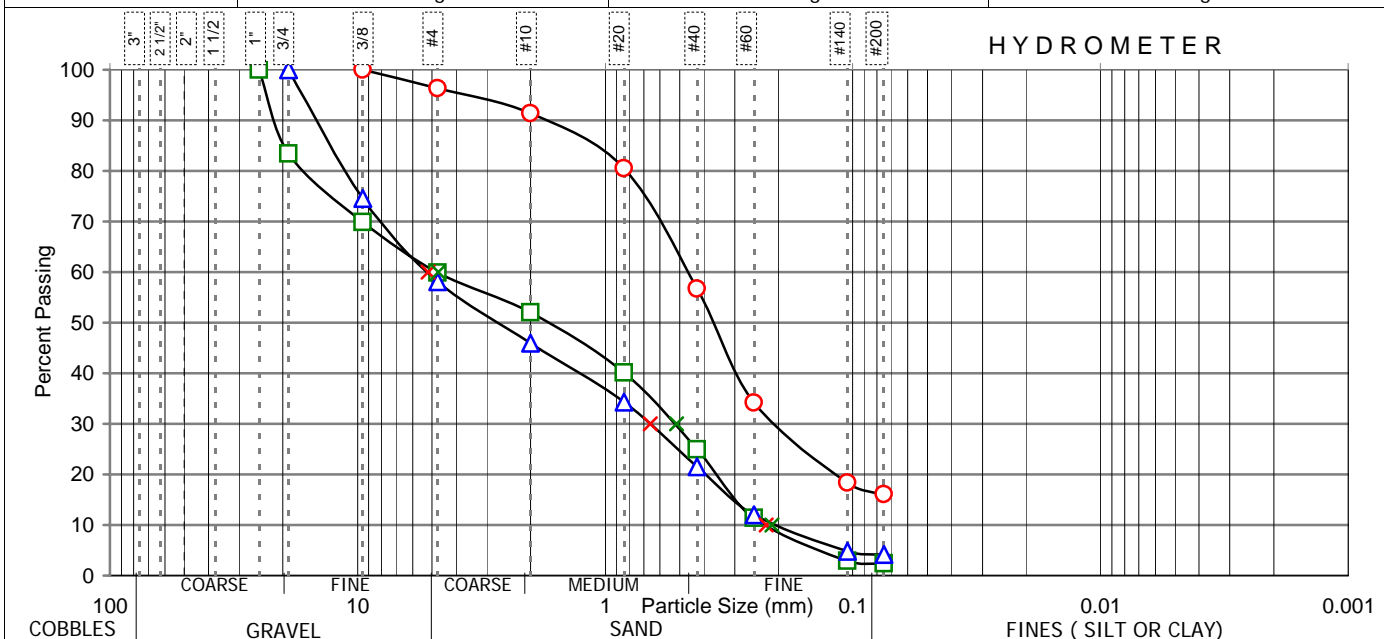
Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-GSA-01-2
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 22, 2010

TEST REPORT FOR GRAIN SIZE ANALYSIS

ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO..... **BH-1** **○ 4** **□ 5** **△ 6**
 DEPTH (m)..... 3.55-4.00 4.55-5.00 5.55-6.00
 SOIL DESCRIPTION..... Silty SAND Poorly graded SAND Poorly graded SAND

SIEVE SIZE	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer
inches mm									
2 1/2 62.5									
2 50.0									
1 1/2 37.5									
1 25.0						100			
3/4 19.0				15.10	16.54	83			100
3/8 9.5			100	27.52	30.15	70	23.58	25.43	75
4 4.75	2.89	3.68	96	36.66	40.16	60	38.81	41.86	58
10 2.0	6.74	8.58	91	43.81	48.00	52	50.07	54.01	46
20 0.8	15.28	19.46	81	54.68	59.90	40	60.94	65.73	34
40 0.425	34.04	43.35	57	68.55	75.10	25	72.80	78.52	21
60 0.25	51.72	65.87	34	80.88	88.61	11	81.60	88.02	12
140 0.105	64.12	81.66	18	88.65	97.12	3	88.20	95.14	5
200 0.075	65.86	83.88	16	89.03	97.54	2	88.78	95.76	4
OVEN DRIED MASS	78.52 gms			91.28 gms			92.71 gms		



* - with Hydrometer REMARKS : S-5: Cu = 23.17 Cc = 0.37
 S-6: Cu = 22.34 Cc = 0.26

SAMPLE SUBMITTED BY:
 Walk-in Clients GPI Field Operator
 R. POLIDAN

TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN

COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA/MRR
 Quality Assurance
 Date Issued: _____

CERTIFIED BY : _____
 AUTHORIZED SIGNATORY

Uncertainty Results: % Finer = ± 0.0408 LAB.FILE NO.:GSA-10-400
 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.

This report should not be copied, divulged or reproduced, in full or in part, without prior advice to and written approval from GPI-SMTL.



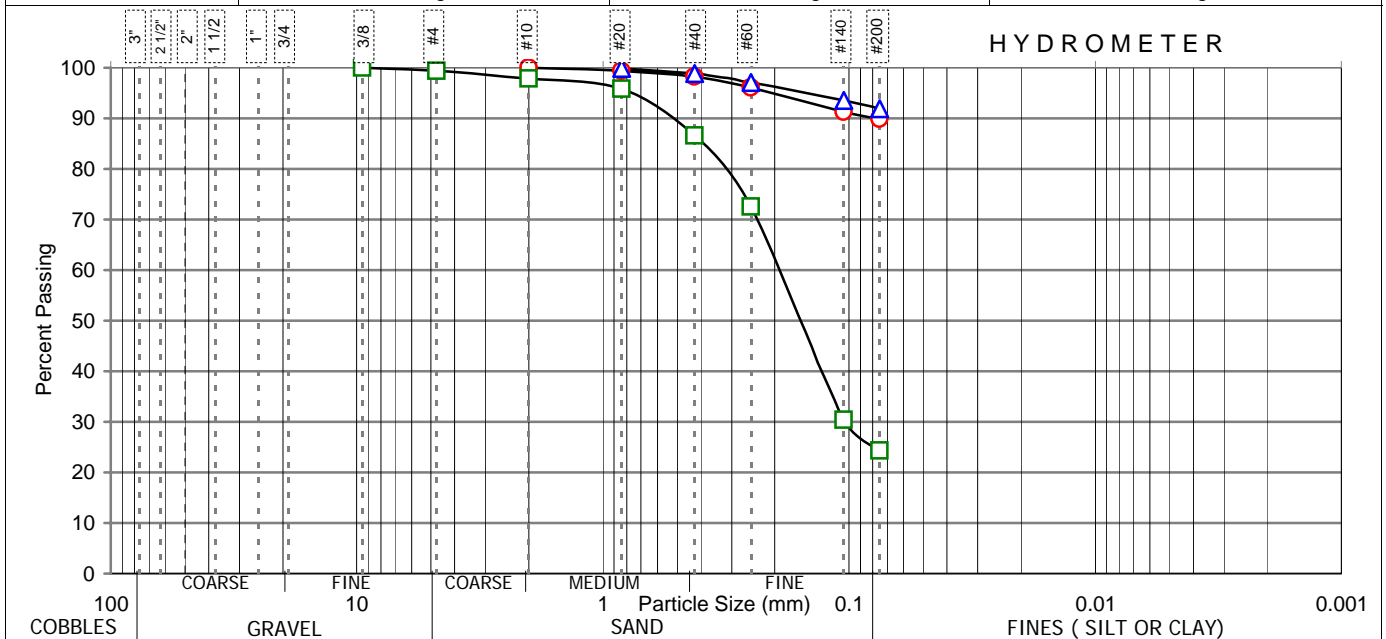
Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-GSA-01-3
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 22, 2010

TEST REPORT FOR GRAIN SIZE ANALYSIS

ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO.....	BH-1	○ 7	□ 8	△ 9
DEPTH (m).....		6.55-7.00	7.55-8.00	8.55-9.00
SOIL DESCRIPTION.....		Fat CLAY	Silty SAND	Fat CLAY

SIEVE SIZE		Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer
inches	mm									
2 1/2	62.5									
2	50.0									
1 1/2	37.5									
1	25.0									
3/4	19.0									
3/8	9.5						100			
4	4.75				0.50	0.62	99			
10	2.0			100	1.77	2.20	98			
20	0.8	0.30	0.65	99	3.32	4.13	96	0.10	0.17	100
40	0.425	0.82	1.78	98	10.78	13.41	87	0.64	1.09	99
60	0.25	1.81	3.93	96	22.05	27.43	73	1.70	2.89	97
140	0.105	4.00	8.68	91	55.94	69.58	30	3.80	6.46	94
200	0.075	4.68	10.16	90	60.81	75.63	24	4.75	8.08	92
OVEN DRIED MASS		46.08 gms			80.40 gms			58.82 gms		



* - with Hydrometer REMARKS : _____

SAMPLE SUBMITTED BY: _____

Walk-in Clients GPI Field Operator

R. POLIDAN

COMPUTER PRINT-OUT

By: MARIA ANTONIETTE P. CUNAHAP
Encoder

Data Checked by: ABA/MRR
Quality Assurance

Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
LABORATORY TECHNICIAN

CERTIFIED BY : _____
AUTHORIZED SIGNATORY

Uncertainty Results: % Finer = ± 0.0536 LAB.FILE NO.:GSA-10-400

Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.



Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-GSA-01-4
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 22, 2010

TEST REPORT FOR GRAIN SIZE ANALYSIS

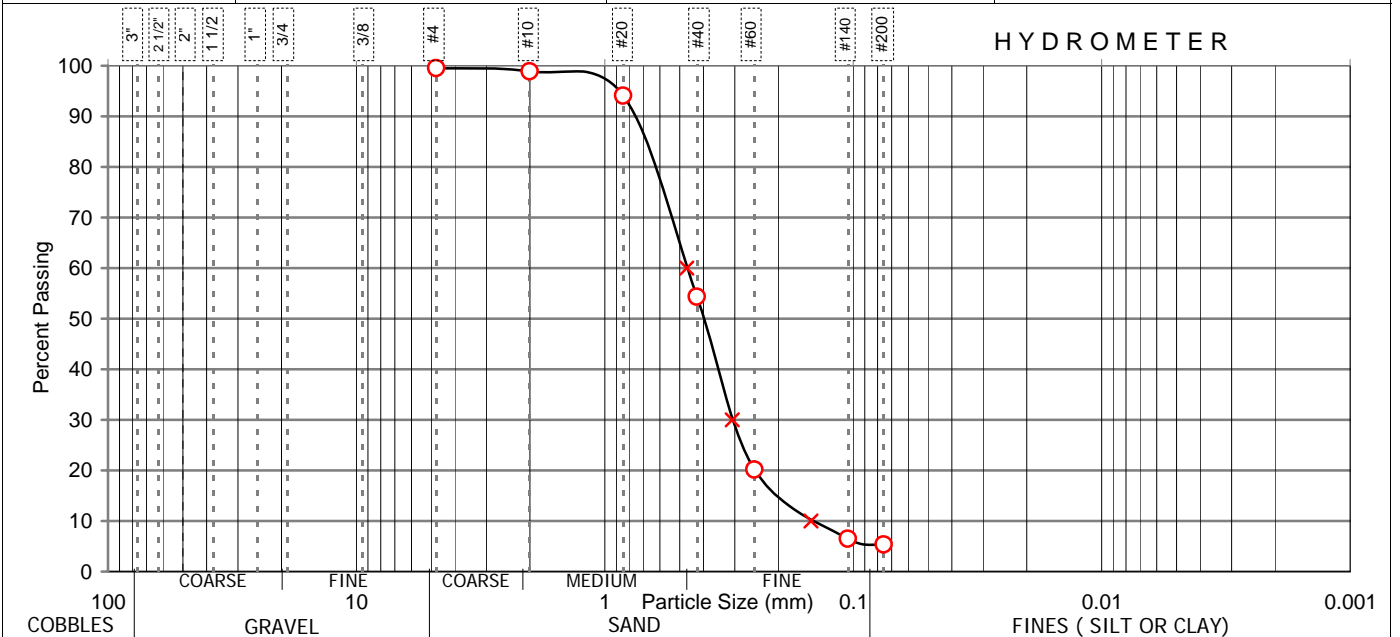
ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO..... **BH-1** ○10 □ △

 DEPTH (m)..... 9.55-10.00

 SOIL DESCRIPTION..... Poorly graded SAND with silt

SIEVE SIZE		Cumm.Mass	Cumm.%	Percent	Cumm.Mass	Cumm.%	Percent	Cumm.Mass	Cumm.%	Percent
inches	mm	Retained (g)	Retained	Finer	Retained (g)	Retained	Finer	Retained (g)	Retained	Finer
2 1/2	62.5									
2	50.0									
1 1/2	37.5									
1	25.0									
3/4	19.0									
3/8	9.5									
4	4.75	0.40	0.46	100						
10	2.0	0.94	1.09	99						
20	0.8	5.11	5.91	94						
40	0.425	39.51	45.67	54						
60	0.25	69.12	79.90	20						
140	0.105	80.90	93.52	6						
200	0.075	81.94	94.72	5						
OVEN DRIED MASS		86.51 gms								



* - with Hydrometer REMARKS : S-10: Cu = 3.16 Cc = 1.35

SAMPLE SUBMITTED BY:

 Walk-in Clients GPI Field Operator

 R. POLIDAN

TESTED BY : _____

 ARTURO Q. AQUINO

 LABORATORY TECHNICIAN

COMPUTER PRINT-OUT

 By: _____

 MARIA ANTONIETTE P. CUNAHAP

 Encoder

 Data Checked by: _____

 ABA/MRR

 Quality Assurance

 Date Issued: _____

CERTIFIED BY : _____

 AUTHORIZED SIGNATORY

Uncertainty Results: % Finer = ± 0.0391 LAB.FILE NO.:GSA-10-400

 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.

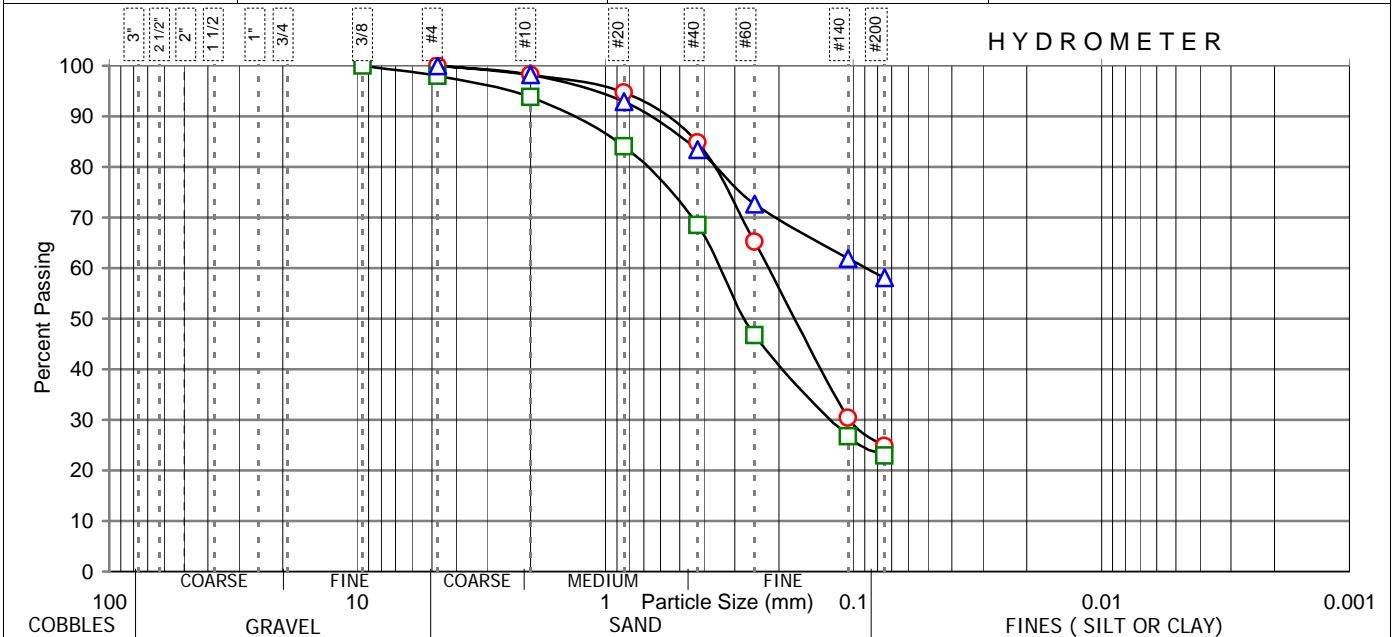


Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-GSA-02-1
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 27, 2010

TEST REPORT FOR GRAIN SIZE ANALYSIS
ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO.....	BH-2	○ 1	□ 2	△ 3
DEPTH (m).....		0.55-1.00	1.55-2.00	2.55-3.00
SOIL DESCRIPTION.....		Silty SAND	Silty SAND	Sandy SILT

SIEVE SIZE		Cumm. Mass Retained (g)	Cumm. % Retained	Percent Finer	Cumm. Mass Retained (g)	Cumm. % Retained	Percent Finer	Cumm. Mass Retained (g)	Cumm. % Retained	Percent Finer
inches	mm									
2 1/2	62.5									
2	50.0									
1 1/2	37.5									
1	25.0									
3/4	19.0									
3/8	9.5						100			
4	4.75			100	1.91	2.05	98			100
10	2.0	1.41	1.72	98	5.83	6.27	94	1.37	1.77	98
20	0.8	4.38	5.34	95	14.85	15.96	84	5.47	7.08	93
40	0.425	12.42	15.15	85	29.37	31.56	68	12.79	16.56	83
60	0.25	28.51	34.77	65	49.55	53.25	47	21.13	27.36	73
140	0.105	57.11	69.65	30	68.22	73.32	27	29.40	38.06	62
200	0.075	61.65	75.18	25	71.75	77.11	23	32.38	41.92	58
OVEN DRIED MASS		82.00 gms			93.05 gms			77.24 gms		



* - with Hydrometer REMARKS : _____

SAMPLE SUBMITTED BY:
 Walk-in Clients GPI Field Operator
 R. POLIDAN

COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA/MRR
 Quality Assurance
 Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN

CERTIFIED BY : _____
 AUTHORIZED SIGNATORY

Uncertainty Results: % Finer = ± 0.0375 LAB.FILE NO.:GSA-10-401
 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



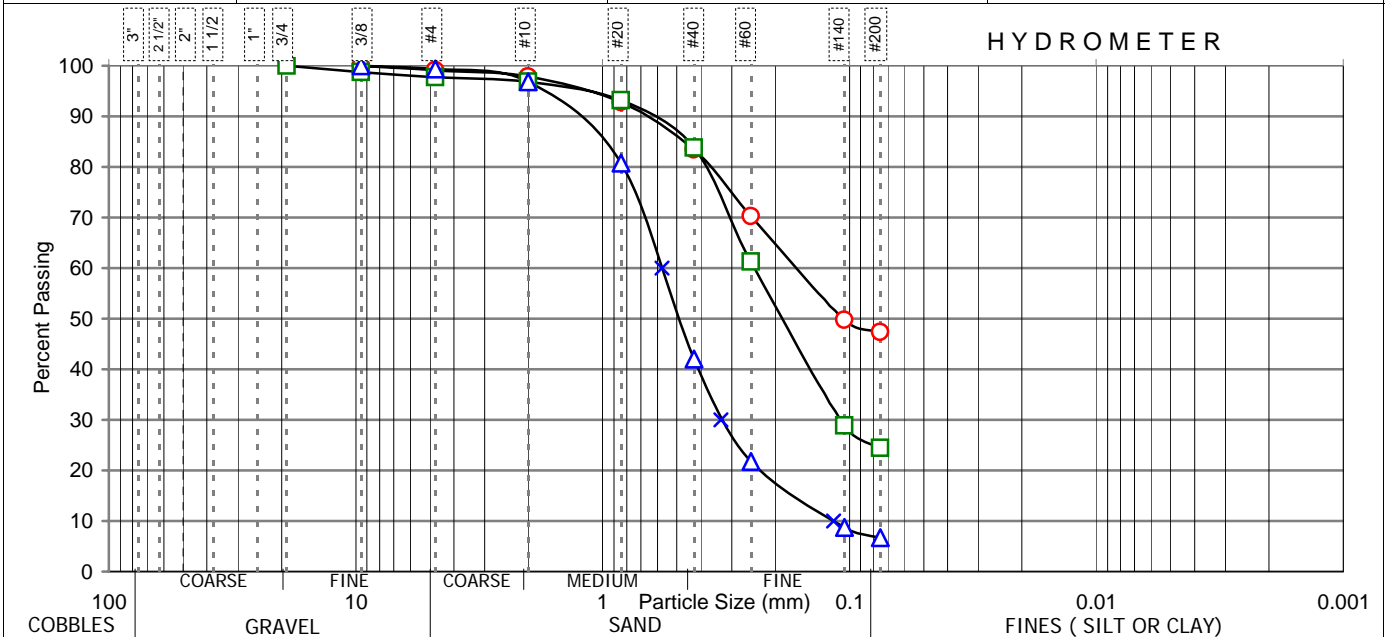
DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-GSA-02-2
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 27, 2010

TEST REPORT FOR GRAIN SIZE ANALYSIS
ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO.....	BH-2	○ 4	□ 5	△ 6
DEPTH (m).....	3.55-4.00	4.55-5.00	5.55-6.00	
SOIL DESCRIPTION.....	Clayey SAND	Silty SAND	Poorly graded SAND with silt	

SIEVE SIZE	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer
2 1/2									
2									
1 1/2									
1									
3/4						100			
3/8			100	1.12	1.29	99			100
4	0.61	0.88	99	2.00	2.31	98	0.50	0.63	99
10	1.47	2.12	98	2.71	3.13	97	2.48	3.13	97
20	5.04	7.26	93	5.96	6.87	93	15.23	19.24	81
40	11.50	16.56	83	14.10	16.26	84	45.91	58.00	42
60	20.64	29.73	70	33.58	38.73	61	61.89	78.18	22
140	34.90	50.27	50	61.72	71.18	29	72.20	91.21	9
200	36.52	52.60	47	65.52	75.56	24	73.80	93.23	7
OVEN DRIED MASS	69.43 gms			86.71 gms			79.16 gms		



* - with Hydrometer REMARKS : S-6: Cu = 4.95 Cc = 1.66

SAMPLE SUBMITTED BY:
 Walk-in Clients GPI Field Operator
 R. POLIDAN

TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN

COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA/MRR
 Quality Assurance
 Date Issued: _____

CERTIFIED BY : _____
 AUTHORIZED SIGNATORY

Uncertainty Results: % Finer = ± 0.0424 LAB.FILE NO.:GSA-10-401
 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.

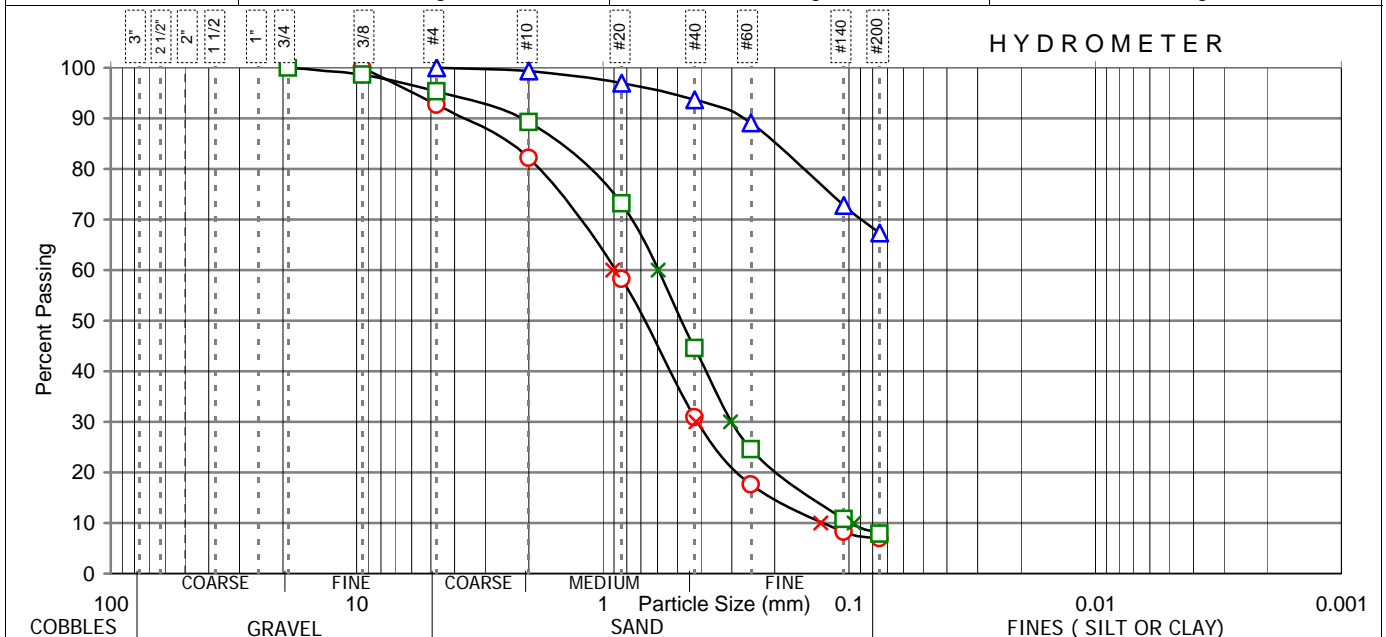


Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-GSA-02-3
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 27, 2010

TEST REPORT FOR GRAIN SIZE ANALYSIS
ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO.....	BH-2	○ 7	□ 8	△ 9
DEPTH (m).....		6.55-7.00	7.55-8.00	8.55-9.00
SOIL DESCRIPTION.....	Well graded SAND with silt		Well graded SAND with silt	
			Elastic SILT	

SIEVE SIZE	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer	Cumm.Mass Retained (g)	Cumm.% Retained	Percent Finer
2 1/2									
2									
1 1/2									
1									
3/4									
3/8						100			
4	6.48	7.40	93	4.25	4.64	95			100
10	15.66	17.88	82	9.87	10.78	89	0.46	0.68	99
20	36.63	41.83	58	24.54	26.81	73	2.05	3.01	97
40	60.47	69.06	31	50.78	55.47	45	4.32	6.34	94
60	72.10	82.34	18	69.02	75.40	25	7.41	10.88	89
140	80.38	91.80	8	81.66	89.21	11	18.53	27.20	73
200	81.45	93.02	7	84.35	92.15	8	22.25	32.66	67
OVEN DRIED MASS	87.56 gms			91.54 gms			68.12 gms		



* - with Hydrometer

REMARKS : S-7: Cu = 7.01 Cc = 1.47
S-8: Cu = 6.27 Cc = 1.62

SAMPLE SUBMITTED BY:
 Walk-in Clients GPI Field Operator

R. POLIDAN

COMPUTER PRINT-OUT
By: MARIA ANTONIETTE P. CUNAHAP
Encoder
Data Checked by: ABA/MRR
Quality Assurance
Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
LABORATORY TECHNICIAN

CERTIFIED BY : _____
AUTHORIZED SIGNATORY

Uncertainty Results: % Finer = ± 0.0383 LAB.FILE NO.: GSA-10-401
Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.



ACCREDITED TESTING
LABORATORY
PNS ISO/IEC 17025:2005
LA-2006-097B



GEOTECHNICS PHILIPPINES, INC.
SOILS AND MATERIALS TESTING LABORATORY
119 Sauyo Road, Novaliches, Quezon City



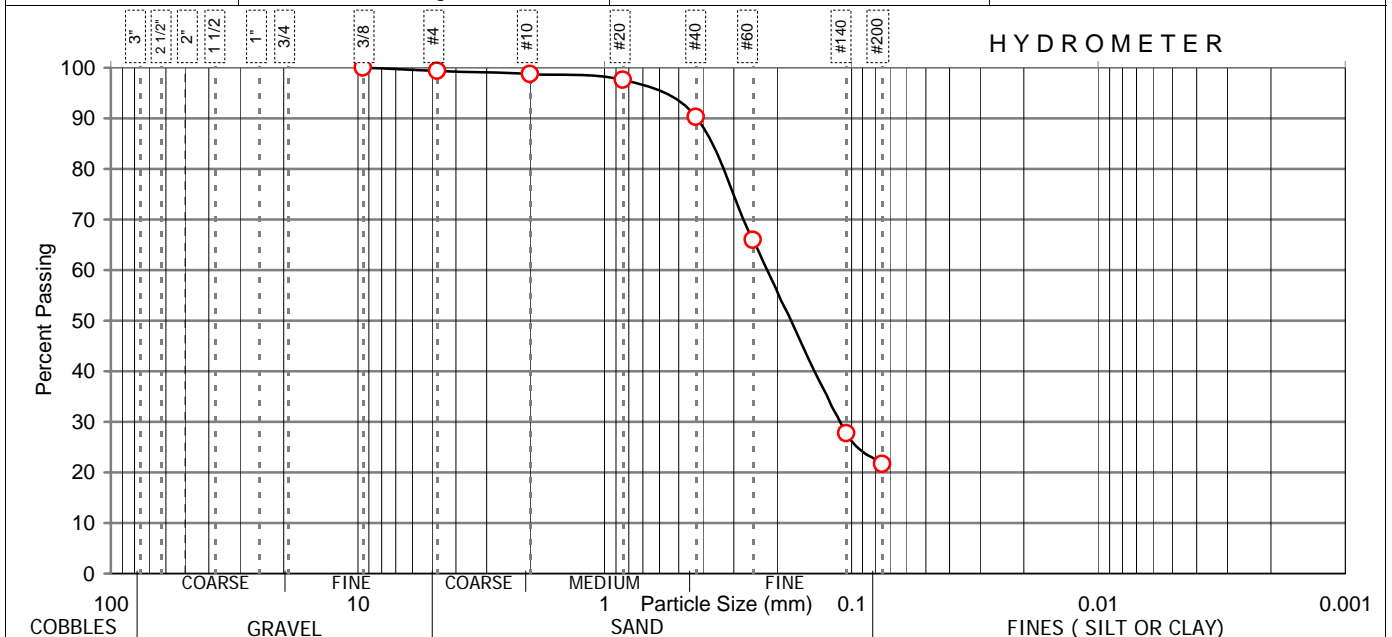
DPWH-BRS Accredited

Client..... MOHRI, ARCHITECT & ASSOCIATES, INC.	Job Number..... 2209-10.R1-GSA-02-4
Project..... Proposed Mayon Evacuation Center (Libon Community College)	Date of Receipt..... October 19, 2010
Location..... Brgy. Zone 4 Libon, Province of Albay	Date of Test..... October 27, 2010

TEST REPORT FOR GRAIN SIZE ANALYSIS
ASTM D 422 - 63 (Re-approved 2007)

BH / SAMPLE NO..... **BH-2** ○ 10 □ △
 DEPTH (m)..... 9.55-10.00
 SOIL DESCRIPTION..... Silty SAND

SIEVE SIZE		Cumm.Mass	Cumm.%	Percent	Cumm.Mass	Cumm.%	Percent	Cumm.Mass	Cumm.%	Percent
inches	mm	Retained (g)	Retained	Finer	Retained (g)	Retained	Finer	Retained (g)	Retained	Finer
2 1/2	62.5									
2	50.0									
1 1/2	37.5									
1	25.0									
3/4	19.0									
3/8	9.5			100						
4	4.75	0.50	0.61	99						
10	2.0	1.03	1.25	99						
20	0.8	1.98	2.40	98						
40	0.425	8.00	9.69	90						
60	0.25	28.14	34.07	66						
140	0.105	59.65	72.22	28						
200	0.075	64.74	78.39	22						
OVEN DRIED MASS		82.59 gms								



* - with Hydrometer REMARKS : _____
 SAMPLE SUBMITTED BY:
 Walk-in Clients GPI Field Operator

R. POLIDAN

COMPUTER PRINT-OUT
 By: MARIA ANTONIETTE P. CUNAHAP
 Encoder
 Data Checked by: ABA/MRR
 Quality Assurance
 Date Issued: _____

TESTED BY : ARTURO Q. AQUINO
 LABORATORY TECHNICIAN

CERTIFIED BY : _____
 AUTHORIZED SIGNATORY

Uncertainty Results: % Finer = ± 0.0378 LAB.FILE NO.:GSA-10-401
 Note: The reported expanded uncertainty is based on a combined uncertainty by a coverage factor of k=2, providing a level of confidence of approximately 95%.

This report should not be copied, divulged or reproduced, in full or in part, without prior advice to and written approval from GPI-SMTL.

FINAL REPORT

SUBSURFACE INVESTIGATION **PROPOSED MAYON EVACUATION CENTER (2-STOREY)**

**POLANGUI NORTH CENTRAL SCHOOL
CENTRO ORIENTAL, PROVINCE OF ALBAY**

MOHRI, ARCHITECT & ASSOCIATES, INC.

OCTOBER 2010
JOB NO. 2209-10.R1



GEOTECHNICS PHILIPPINES, INC.
GEOTECHNICAL & FOUNDATION CONSULTANTS



DPWH-BRS Accredited

FINAL REPORT

TABLE OF CONTENTS

Contents	No. of Pages
1.0 INTRODUCTION.....	1
2.0 OBJECTIVES.....	1
3.0 FIELD EXPLORATION AND INVESTIGATION.....	2
4.0 LABORATORY INVESTIGATION.....	1
5.0 BOREHOLE STRATIGRAPHY.....	1
6.0 SOIL PROPERTIES.....	1
7.0 LIQUEFACTION POTENTIAL.....	1
8.0 BEARING CAPACITY AND FOUNDATION TYPE.....	1
9.0 EXCAVATION AND FILL.....	1
APPENDICES	
• Distribution of Active Faults and Trenches in the Philippines.....	1
• Photos.....	1
• Location Plan.....	1
• Soil Profile.....	1
• Final Boring Logs.....	2
• Summary of Test.....	1
• Natural Moisture Content/Atterberg Limit.....	4
• Atterberg Limit.....	3
• Grain Size Analysis.....	8





FINAL REPORT
SUB-SURFACE INVESTIGATION FOR THE
PROPOSED MAYON EVACUATION CENTER (2-STOREY)
LOCATED AT POLANGUI NORTH CENTRA SCHOOL, CENTRO ORIENTAL,
PROVINCE OF ALBAY

1.0 Introduction:

Geotechnics Philippines, Incorporated (GPI) completed the subsurface soil investigation for the proposed Mayon Evacuation Center. The proposed site explored is located at Centro Oriental, Province of Albay.

Two (2) boreholes were drilled at the proposed site from October 17 to October 18, 2010. Borings were undertaken down to 10m for both BH-1 and BH-2 below existing natural ground line. Borehole locations are as indicated on the accompanying Boring Plan and Soil Profile Sheets.

The subsurface soil exploration was undertaken upon the request of Mohri, Architect & Associates, Inc. in order to gain information on the subsurface conditions and bearing characteristics of the underlying soils at site.

The undersigned was tasked to evaluate the results of the completed subsurface soil exploration and to recommend a suitable foundation solution for the proposed structure.

This report embodies the undersigned's engineering analysis and recommendations based mainly on the results of the geotechnical soil borings and pertinent laboratory tests performed on extracted samples.

The results of geotechnical soil borings and laboratory tests can be referred to in the attachments accompanying this report.

2.0 Objectives:

The geotechnical investigation aims to determine the following:

- Soil Profile
- Engineering properties of the Soil Strata
- Bearing Capacities and Foundation Types
- Settlement conditions of critical areas
- Comment on ground stability and liquefaction potential of the site
- Provide Excavation and Fill Guidelines

In addition to the above mentioned items, matters on implementation and construction shall be given as required.

3.0 Field Exploration and Investigation

The field exploration implored continuous was boring and the Standard Penetration Test (SPT) were performed at the last 45cm of every change strata or 1.0 meter intervals. The blow counts (N value or NB) were recorded as disturbed samples from the split spoon sampler were retrieved for laboratory testing. The recovered samples were described semi qualitative in terms of extracted length. The extracted soil samples

were wrapped in double plastic bags for moisture and sample protection and were transported to the laboratory for further testing of engineering properties.

3.1 Standard Penetration Test

The Standard Penetration Test (SPT) is a field test used in determining the shear strength of soils from an established correlation. The SPT requires the count of the number of blows that it would take a standard split spoon sampler to penetrate its last 30.5cm (12inches) of the sampler. The standard mass is 63.5 kilograms and the height of the drop is 76.2cm specified as a free drop.

3.2 Ground Water Table

The ground water table (GWT) elevation was observed at least 4 hours from the completion of the borehole up to demobilization.

4.0 Laboratory Investigation

The retrieved samples were brought to the laboratory in Sauyo Road, Novaliches, Quezon City. Various tests were conducted on all extracted samples with test procedures conforming to the American Standards for Testing Materials (ASTM). The following are the laboratory tests conducted on the soil samples.

Type of Test	ASTM Designation	Description of Test
Soil Classification for Engineering Purposes – Unified Soil Classification System	ASTM D 2487-05	<ul style="list-style-type: none"> Standard in classifying the type of soil based on composition and physical properties These were classified in accordance to grain size, composition, percentage of size in the distribution
Particle Size Distribution – Sieve Analysis	ASTM D 422-63 (Reapproved 2002)	<ul style="list-style-type: none"> The test allows the dried or wet soil to pass through a series of sieves in order to determine the distribution of grain sizes. The distributions of the particles are graphed on a semi log scale This test aids the previous test in classification
Moisture Content	ASTM D 2216-05	<ul style="list-style-type: none"> The test aims to determine the natural content of water in the soil This is taken as the ratio of water to the ratio of the soil particles The test uses a weighing scale measuring the initial weight of the soil and the final weight of the soil after drying it in the oven
Atterberg Limits Liquid Limit, Plastic Limit and Plasticity Index	ASTM D4318-05	<ul style="list-style-type: none"> Tests determining the limits of cohesive soils in behaving as a plastic or a flowing medium by incrementally changing the water content The plastic limit is determined by rolling a clay sample to around 1/8 of an inch or 3mm The liquid limit uses the liquid limit device and determines the number of blows it would take for the slit to close Correlative values can be used for settlement relations

The results of the laboratory investigation are appended.

5.0 Borehole Stratigraphy

Two (2) boreholes were driven to investigate the subsurface. The following are the findings:

5.1 Borehole BH-1

Depth (m)	Soil Classification	Consistency	N-Value
0.00 - 1.00	Elastic SILT	Very Stiff	26
1.00 - 4.00	Silty SAND	Firm	11 ~ 18
4.00 - 5.00	Silty SAND	Loose	7
5.00 - 10.00	Poorly graded	Dense - Firm	18 ~ 31

The ground water was measured at 1.05 meters from the existing ground.

5.2 Borehole - BH-2

Depth (m)	Soil Classification	Consistency	N-Value
0.00 - 1.00	Elastic SILT	Stiff	13
1.00 - 2.00	Elastic SILT	Firm	8
2.00 - 4.00	Silty SAND	Firm	13 ~ 25
4.00 - 5.00	Silty SAND	Loose	8
5.00 - 6.00	Silty SAND	Firm	27
6.00 - 7.00	Elastic SILT	Very Stiff	16
7.00 - 10.00	SAND	Dense to Firm	10 ~ 32

The ground water was measured at 1.05 meters from the existing ground.

6.0 Soil Properties

The following are the adapted soil properties for the investigated strata:

Soil Parameters			
Gravels, Sands, Silty Sands and Clayey Sands (Non-cohesive)			
Sands	c	ϕ	γ (kcf)
Very Loose	0	26	0.085
Loose	0	28	0.100
Medium Dense	0	30	0.110
Dense	0	32	0.120
Very Dense	0	35	0.130
Silts and Clays (Cohesive)			
Silts and Clays	c	ϕ	γ (kcf)
Very Soft	=(N*10)/2 from Braja Das	0	0.100
Soft		0	0.105
Firm		0	0.115
Stiff		0	0.120
Very Stiff		0	0.125
Hard		0	0.130

7.0 Liquefaction Potential

The boreholes showed thin layer of potentially liquefiable layer between 4~5 meters deep. However, the impact would be minimal as dense layer are found in between loose formation.

8.0 Bearing Capacity and Foundation Type

Shallow Foundations

Shallow Foundations have good bearing capacities. The following are the allowable net bearing capacities based on Terzaghi's Bearing Capacity Equation:

BH-1:

Depth (m)	Bearing Capacity (kPa)
1.0	96
1.5	96

BH-2:

Depth	Bearing Capacity (kPa)
1.0	96
1.5	96

The associated settlement on the other hand is within the tolerable engineering settlement of 25mm. It is suggested that structural tie beam be installed to hold the foundation rigid during major earthquakes.

9.0 Excavation and Fill

The contractor of the proposed structure is advised to rail the excavation at night and during break times so as to ensure the general safety of the public specially childrens. Existing structures, whether temporary or permanent that are adjacent, the excavation should be protected from damages. Dewatering shall be necessary as the water table is shallow.

Fill for the excavation for footings and may utilize the same materials. On the other hand, grade and subgrade materials should be sandy frictional materials.

Fill should be compacted at 95% its maximum dry density. Should the amount of soil be inept, sandy fill may be utilized and should be compacted in the same degree. In both cases, the height of fill should be reviewed and adjusted accordingly to adapt minimal settlements.

Borehole Conclusions and Recommendations

The conclusions and recommendations are based on the data of two (2) boreholes. Deviations from these are expected and should be minimal as the boreholes are typical of an alluvial formation. Should there be any major deviation in the substrata be detected during the excavation phase, may the undersigned thru Geotechnics Philippines Inc (02-930-6555) be contacted immediately for proper reassessment.



DIOSDADO A. URENA
CE Reg. No. 053884
PTR No. 3228274
Issued on January 8, 2010
Issued at Quezon City