

10-3 Observation Results of River Flows

MANDALAY PORT VELOCITY OF PROPOSED 6 POINT

17.5.2017

Position (1)	195026.14E, 2430016.46N				
Date and Time	17.5.2017	9:00 AM			16:12 PM
Water Level		62.799m MSL	1.389m CDL		62.769m MSL 1.359m CDL
Water Depth		4.0m			3.8m
Water Flow (Velocity)					
1meter under water surface		0.701 m/sec			0.736 m/sec
middle of water depth		0.595 m/sec			0.666 m/sec

Position (2)	194898.27 E, 2430067.81 N				
Date and Time	17.5.2017	10:34 AM			15:03 PM
Water Level		62.799m MSL	1.389m CDL		62.769mMSL 1.359m CDL
Water Depth		5.2 m			5.2 m
Water Flow (Velocity)					
1meter under water surface		0.826 m/sec			0.773 m/sec
middle of water depth		0.648 m/sec			0.666 m/sec

Position (3)	194757.25E, 2430120.40N				
Date and Time	17.5.2017	10:20 AM			15:42 PM
Water Level		62.799m MSL	1.389m CDL		62.769mMSL 1.359m CDL
Water Depth		4.1m			4.0m
Water Flow (Velocity)					
1meter under water surface		0.933 m/sec			0.915 m/sec
middle of water depth		0.861 m/sec			0.861 m/sec

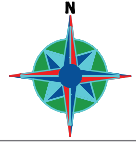
Position (4)	195122.32E, 2430331.82N				
Date and Time	17.5.2017	9:24 AM			15:05 PM
Water Level		62.799m MSL	1.389m CDL		62.769mMSL 1.359m CDL
Water Depth		4.8m			4.7m
Water Flow (Velocity)					
1meter under water surface		0.808 m/sec			0.879 m/sec
middle of water depth		0.790 m/sec			0.791 m/sec

Position (5)	194991.09E, 2430383.86N				
Date and Time	17.5.2017	9:43 AM			15:24 PM
Water Level		62.799m MSL	1.389m CDL		62.769mMSL 1.359m CDL
Water Depth		5.7m			5.6m
Water Flow (Velocity)					
1meter under water surface		0.879 m/sec			0.986 m/sec
middle of water depth		0.790 m/sec			0.968 m/sec

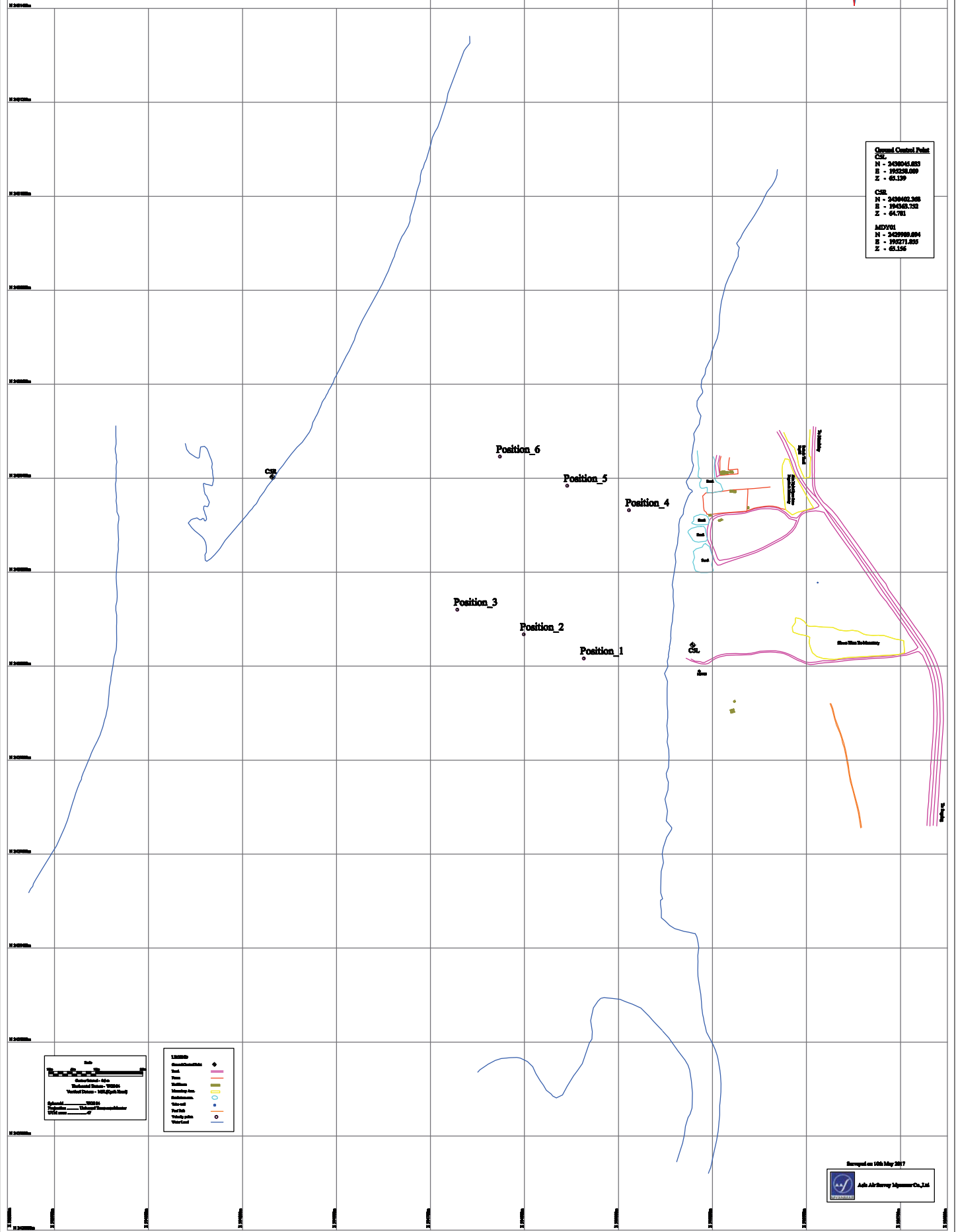
Position (6)	194847.56E, 2430445.89N				
Date and Time	17.5.2017	10:00 AM			15:31 PM
Water Level		62.799m MSL	1.389m CDL		62.769mMSL 1.359m CDL
Water Depth		4.8m			4.8m
Water Flow (Velocity)					
1meter under water surface		0.915 m/sec			0.682 m/sec
middle of water depth		0.897 m/sec			0.577 m/sec

Mandalay Port Area

Velocity Point Position (17.5.2017)



Original Control Point			
CSL	N	- 2430045.853	
	E	- 195226.089	
	Z	- 65.139	
CSL			
	N	- 2430462.368	
	E	- 194362.752	
	Z	- 64.761	
MDS/01			
	N	- 2429998.894	
	E	- 195371.855	
	Z	- 65.156	



Symbol	Description
[Symbol]	Channel Boundary
[Symbol]	Velocity Point
[Symbol]	Control Point
[Symbol]	Survey Line
[Symbol]	Obstruction
[Symbol]	Other

Symbol	Description
[Symbol]	Channel Boundary
[Symbol]	Velocity Point
[Symbol]	Control Point
[Symbol]	Survey Line
[Symbol]	Obstruction
[Symbol]	Other

Surveyed on 15th May 2017

Aida Air Survey Management Co., Ltd.

MANDALAY PORT VELOCITY OF PROPOSED 6 POINT

24.6.2017

Position (1)	195026.14E, 2430016.46N				
Date and Time	24.6.2017	10:20 AM			15:00 PM
Water Level		66.235m MSL	4.825m CDL		66.315m MSL 4.905m CDL
Water Depth		7.2m			7.3m
Water Flow (Velocity)					
1meter under water surface		1.430 m/sec			1.590 m/sec
middle of water depth		1.253 m/sec			1.4130m/sec

Position (2)	194898.27E , 2430067.81N				
Date and Time	24.6.2017	10:00 AM			15:15 PM
Water Level		66.235m MSL	4.825m CDL		66.315m MSL 4.905m CDL
Water Depth		8.4m			8.6m
Water Flow (Velocity)					
1meter under water surface		1.502 m/sec			1.590 m/sec
middle of water depth		1.448 m/sec			1.448 m/sec

Position (3)	194757.25E, 2430120.40N				
Date and Time	24.6.2017	9:47 AM			15:35 PM
Water Level		66.235m MSL	4.825m CDL		66.315m MSL 4.905m CDL
Water Depth		7.3m			7.4m
Water Flow (Velocity)					
1meter under water surface		1.324 m/sec			1.377 m/sec
middle of water depth		1.217 m/sec			1.181 m/sec

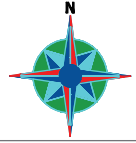
Position (4)	195122.32E, 2430331.82N				
Date and Time	24.6.2017	9:33 AM			16:34 PM
Water Level		66.235m MSL	4.825m CDL		66.315m MSL 4.905m CDL
Water Depth		8.3m			8.4m
Water Flow (Velocity)					
1meter under water surface		1.875 m/sec			1.910 m/sec
middle of water depth		1.715 m/sec			1.715 m/sec

Position (5)	194991.09E, 2430383.86N				
Date and Time	24.6.2017	9:15 AM			16:10 PM
Water Level		66.235m MSL	4.825m CDL		66.315m MSL 4.905m CDL
Water Depth		8.9m			9.0m
Water Flow (Velocity)					
1meter under water surface		1.644 m/sec			1.626 m/sec
middle of water depth		1.590 m/sec			1.448 m/sec

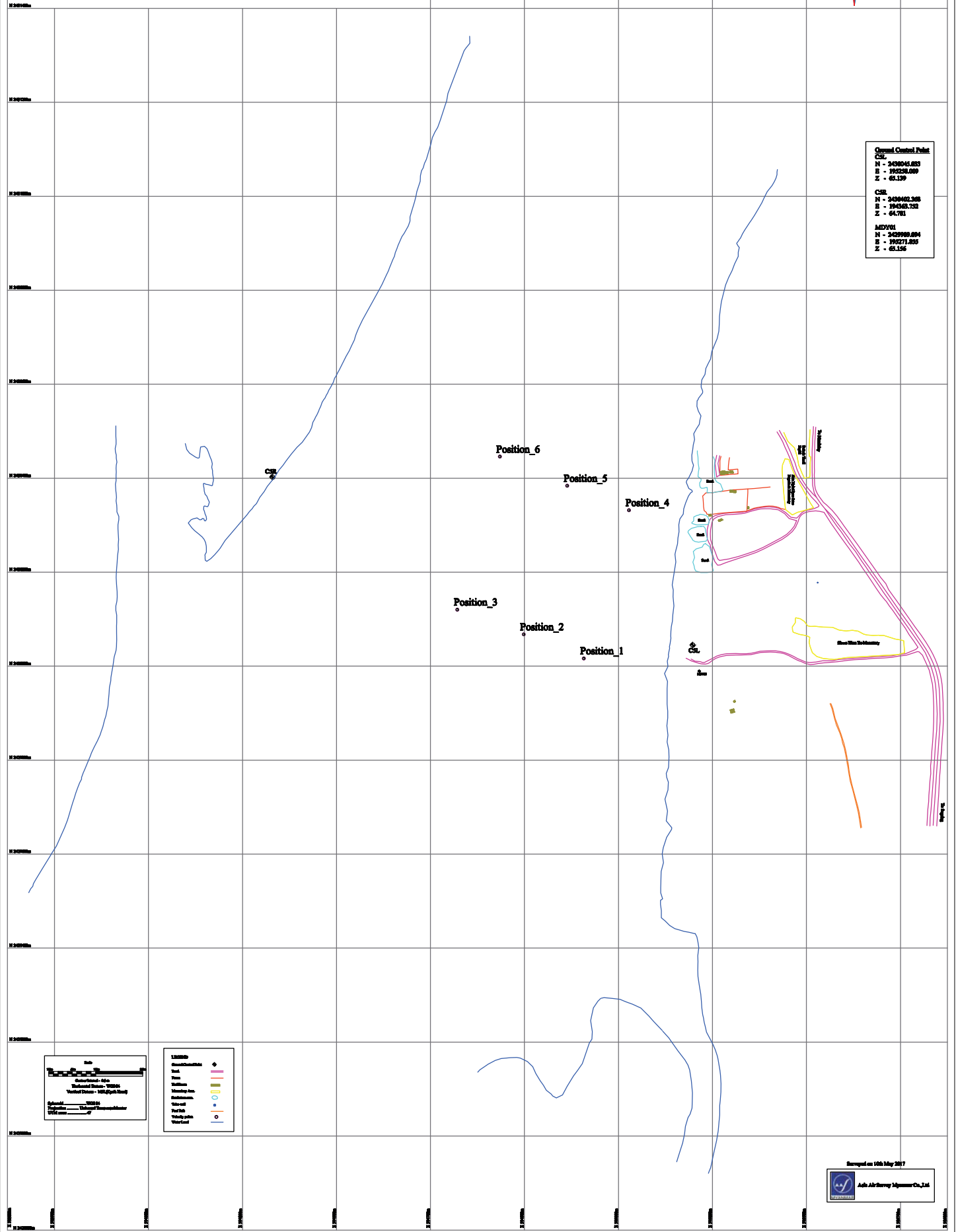
Position (6)	194847.56E, 2430445.89N				
Date and Time	24.6.2017	9:00 AM			15:45 PM
Water Level		66.235m MSL	4.825m CDL		66.315m MSL 4.905m CDL
Water Depth		8.1m			8.2m
Water Flow (Velocity)					
1meter under water surface		1.377 m/sec			1.484 m/sec
middle of water depth		1.306 m/sec			1.253 m/sec

Mandalay Port Area

Velocity Point Position (24.6.2017)



Original Control Point			
CSL	N	- 2430045.853	
	E	- 194526.089	
	Z	- 65.139	
CSL	N	- 2430462.368	
	E	- 194365.752	
	Z	- 64.761	
MD5/01	N	- 2429998.894	
	E	- 195571.855	
	Z	- 65.156	



Symbol	Description
(Symbol)	Control Point
(Symbol)	Channel Boundary
(Symbol)	Bank Boundary
(Symbol)	Obstruction
(Symbol)	Structure
(Symbol)	Other

Color/Line Style	Description
(Blue line)	Channel Boundary
(Pink line)	Bank Boundary
(Yellow line)	Obstruction
(Orange line)	Structure
(Black dot)	Control Point
(Black circle)	Structure
(Black square)	Other

Surveyed on 16th May 2017

Aishu Air Survey Management Co., Ltd.

MANDALAY PORT VELOCITY OF PROPOSED 6 POINT

8.7.2017

Position (1)	195026.14E,2430016.46N				
Date and Time	8.7.2017	9:15AM			15:05PM
Water Level		68.068m MSL	6.658m CDL		68.13m MSL 6.720m CDL
Water Depth		9.7m			8.9m
Water Flow (Velocity)					
1meter under water surface		1.537m/sec			1.555m/sec
middle of water depth		1.466m/sec			1.413m/sec

Position (2)	194898.27E , 2430067.81N				
Date and Time	8.7.2017	9:39AM			15:20PM
Water Level		68.068	6.658m CDL		68.13m MSL 6.720m CDL
Water Depth		9.9m			10.2m
Water Flow (Velocity)					
1meter under water surface		1.502m/sec			1.768m/sec
middle of water depth		1.448m/sec			1.537m/sec

Position (3)	194757.25E,2430120.40N				
Date and Time	8.7.2017	10:10AM			15:30PM
Water Level		68.068MSL	6.658m CDL		68.13m MSL 6.720m CDL
Water Depth		9.1			9.3
Water Flow (Velocity)					
1meter under water surface		1.484m/sec			1.466m/sec
middle of water depth		1.342m/sec			1.324m/sec

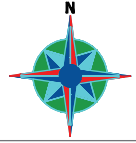
Position (4)	195122.32E,2430331.82N				
Date and Time	8.7.2017	12:25AM			16:18PM
Water Level		68.068MSL	6.658m CDL		68.13m MSL 6.720m CDL
Water Depth		9.7m			9.8m
Water Flow (Velocity)					
1meter under water surface		1.786m/sec			1.733m/sec
middle of water depth		1.590m/sec			1.480m/sec

Position (5)	194991.09E,2430383.86N				
Date and Time	8.7.2017	12:15AM			16:40PM
Water Level		68.068MSL	6.658m CDL		68.13m MSL 6.720m CDL
Water Depth		11.1m			11.3m
Water Flow (Velocity)					
1meter under water surface		1.910m/sec			1.804m/sec
middle of water depth		1.733m/sec			1.746m/sec

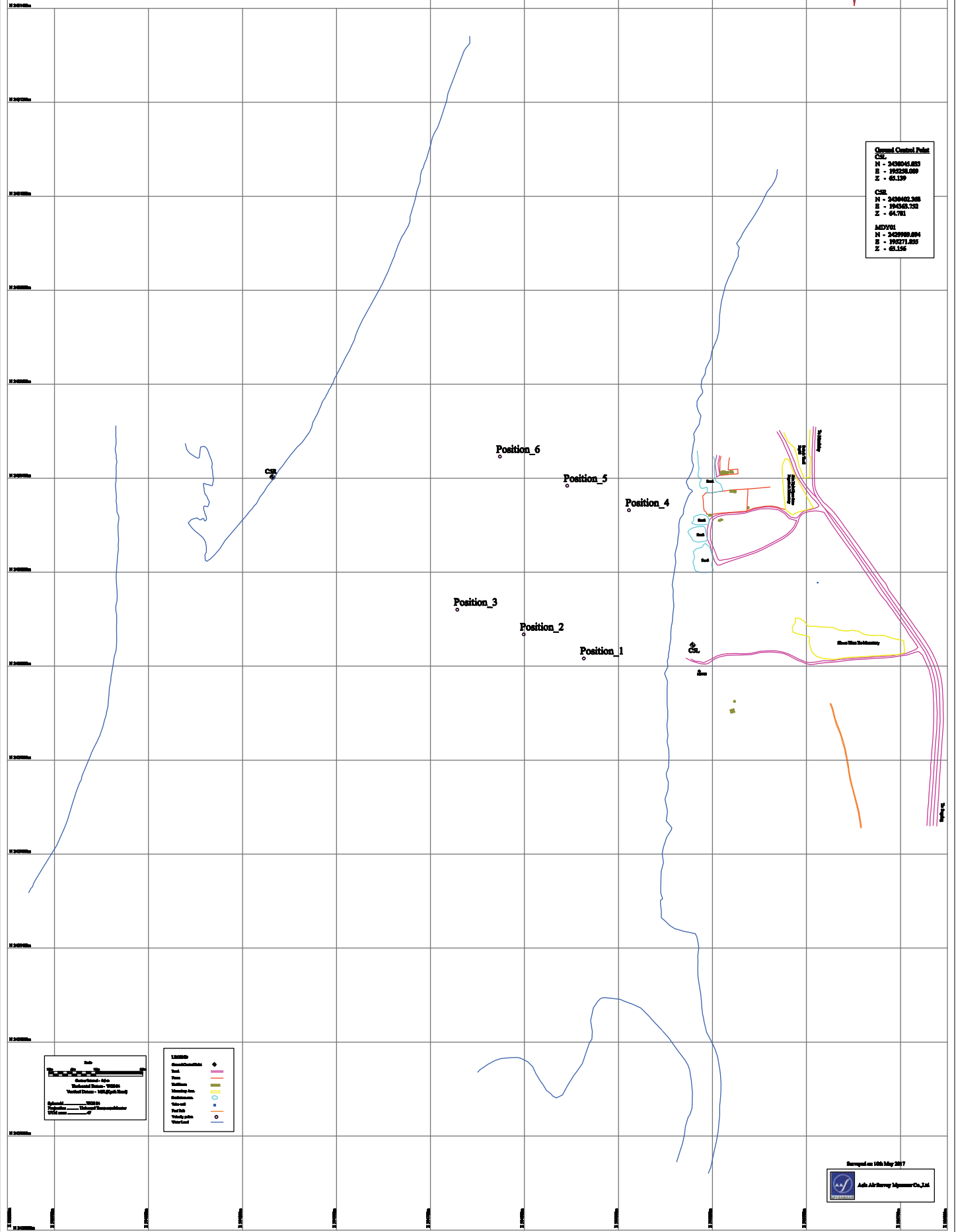
Position (6)	194847.56E,2430445.89N				
Date and Time	8.7.2017	10:30AM			16:05PM
Water Level		68.068MSL	6.658m CDL		68.13m MSL 6.720m CDL
Water Depth		10.2			10.3
Water Flow (Velocity)					
1meter under water surface		1.555m/sec			1.484m/sec
middle of water depth		1.430m/sec			1.377m/sec

Mandalay Port Area

Velocity Point Position (8.7.2017)



Original Control Point			
CSL	N	- 2430045.853	
	E	- 195226.089	
	Z	- 65.139	
CSL			
	N	- 2430462.368	
	E	- 194363.752	
	Z	- 64.761	
MDS/01			
	N	- 2429999.894	
	E	- 195571.855	
	Z	- 65.156	



Symbol	Description
Circle with cross	Control Point
Circle with dot	Survey Point
Circle with crosshair	Reference Point
Circle with plus	Station Point
Circle with asterisk	Anchor Point
Circle with triangle	Marker Point
Circle with square	Target Point
Circle with diamond	Check Point
Circle with hexagon	Warning Point
Circle with octagon	Obstacle Point
Circle with star	Special Point

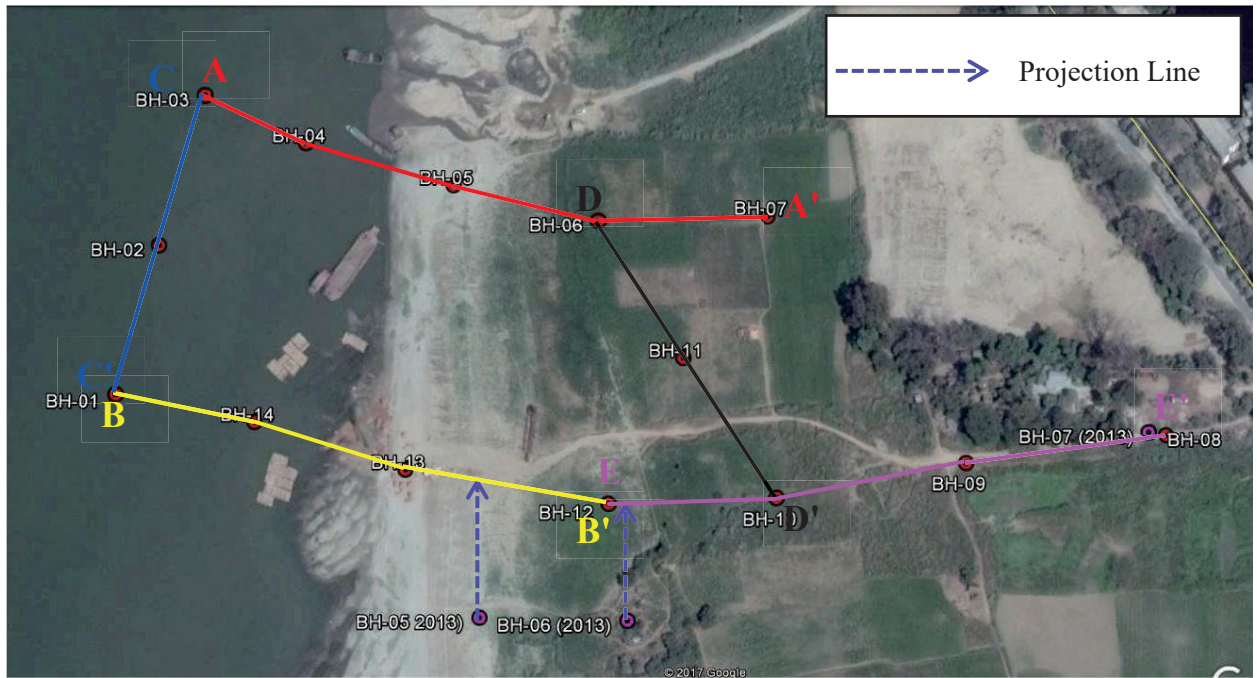
Color/Line Style	Description
Blue	Water
Green	Vegetation
Yellow	Open Area
Pink	Channel
Orange	Boundary
Red	Structure
Black	Other

Surveyed on 15th May 2017

Aek Air Surveying & Mapping Co., Ltd.

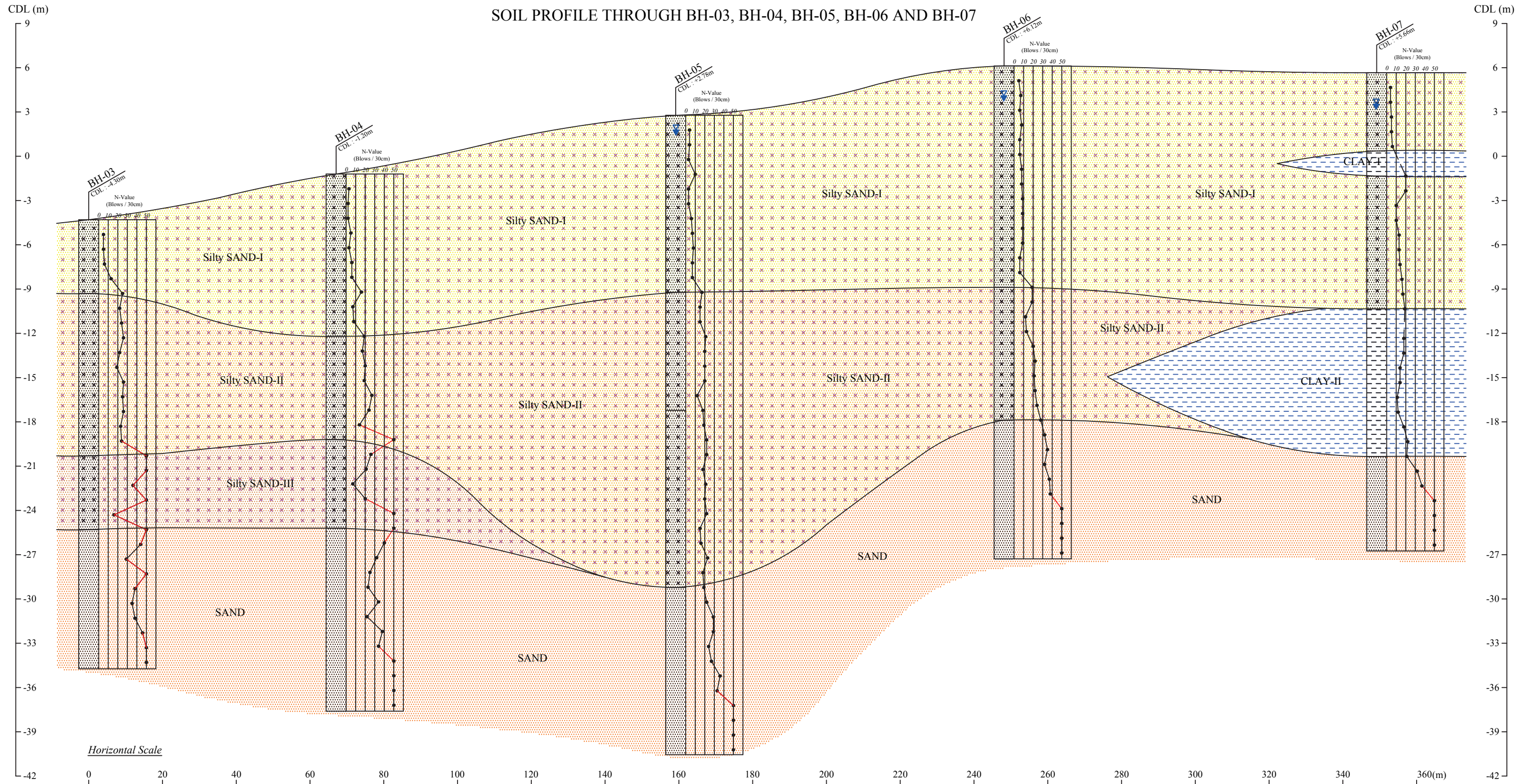
10-4 Boring Logs

(1) Locations of Soil Investigations

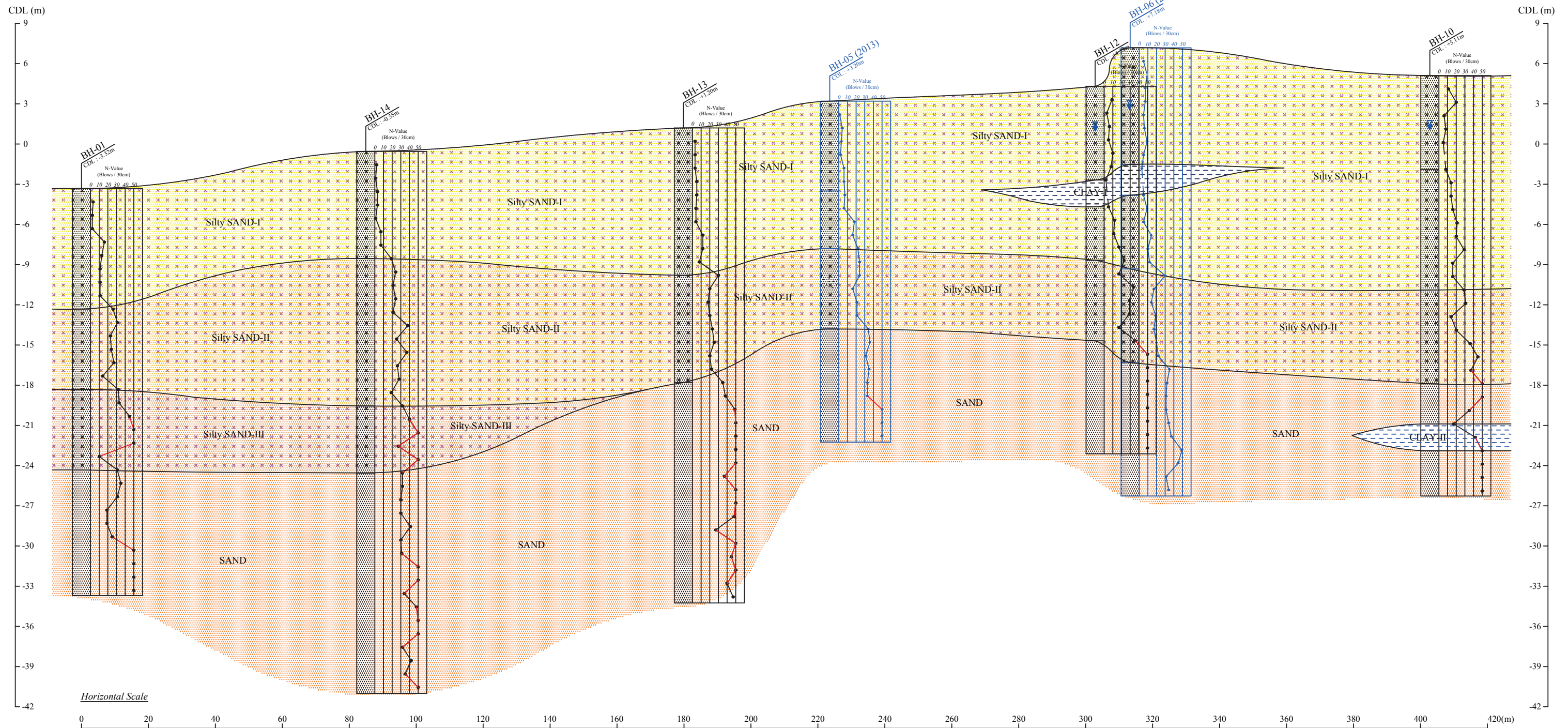


BOREHOLES LOCATION AND PLAN MAP OF SOIL PROFILES

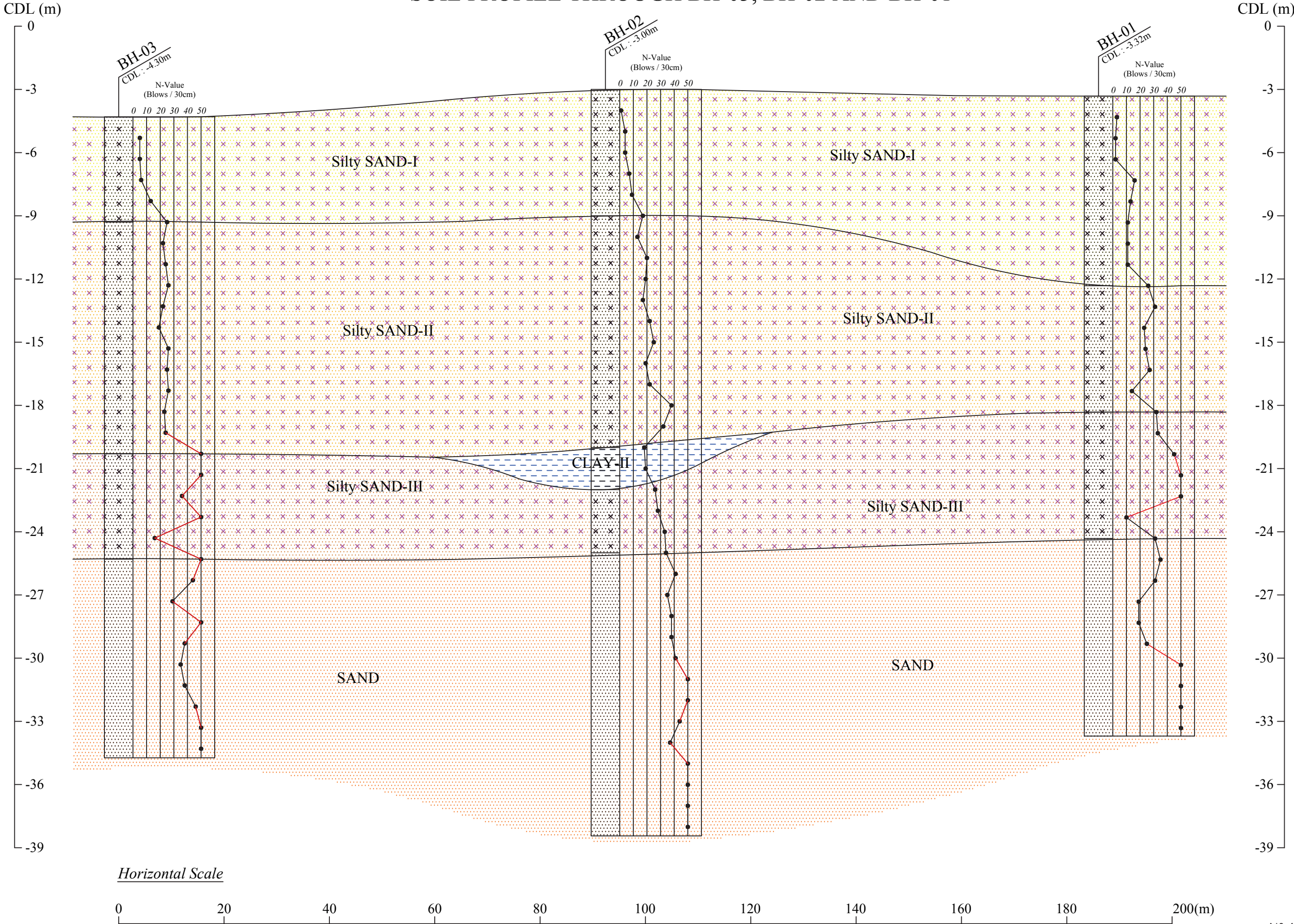
(2) Soil Stratifications



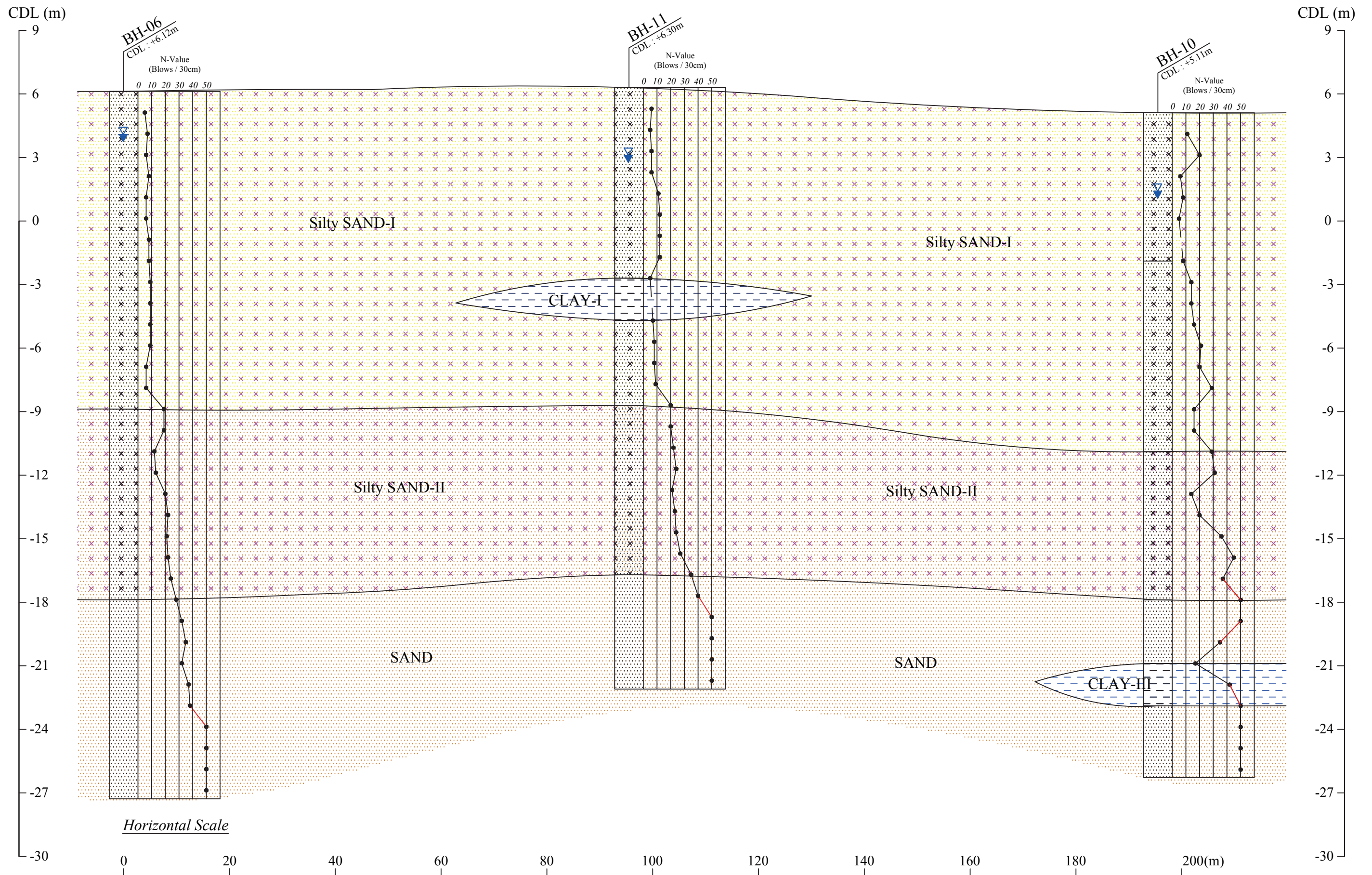
SOIL PROFILE THROUGH BH-01, BH-14, BH-13, BH-05 (2013), BH-12, BH-06 (2013) AND BH-10



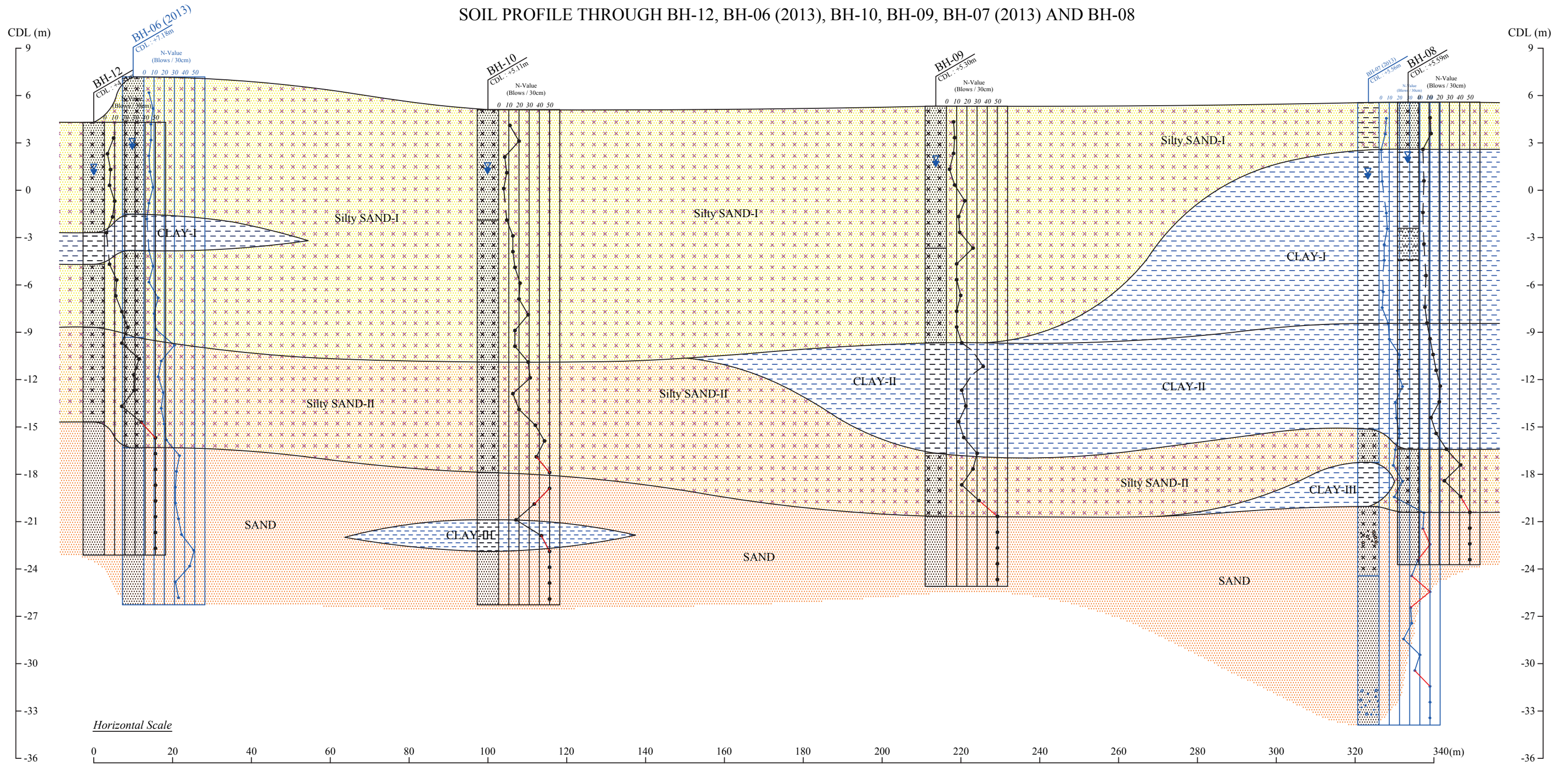
SOIL PROFILE THROUGH BH-03, BH-02 AND BH-01



SOIL PROFILE THROUGH BH-06, BH-11 AND BH-10



SOIL PROFILE THROUGH BH-12, BH-06 (2013), BH-10, BH-09, BH-07 (2013) AND BH-08



(3) Boring Logs (investigated in 2017)

BORE HOLE No. BH-01		BORING LOG			Job No. SMF-2017-001
					Sheet No. 1 OF 1
PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar		BORING EQUIPMENT : TOHO "D1"		DATE : 25.05.2017 ~ 26.05.2017	
LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region.		BORING METHOD : Rotary Direct Circulation		CLIENT	
GROUND LEVEL : CDL : -3.32m		ORIENTATION : Vertical		ORIENTAL CONSULTANTS GLOBAL CO., LTD.	
COORDINATE : E 195037.000 ; N 2430054.000		DEPTH : 30.00m		GROUND WATER LEVEL : Under River Bed	

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (ρ) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING						
											DEPTH GL - (m)	CURVE OF BLOW ●					SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)	SCR (%)	ROD (%)	SCALE (m)
												N-Value (Blows / 30cm)	0	10	20	30						
	-12.32	9.00	9.00		yellowish brown to gray	Very loose to medium dense	Silty SAND	Very loose to medium dense, yellowish brown to gray, moist to wet, fine to medium grained, Silty SAND	25.05.17	Ø112	1.00	3/30		P-1	1.00					1		
											2.00	2/30		P-2	2.00					2		
											3.00	2/30		P-3	3.00					3		
											4.00	16/30		P-4	4.00					4		
											5.00	13/30		P-5	5.00					5		
											6.00	11/30		P-6	6.00					6		
											7.00	11/30		P-7	7.00					7		
											8.00	11/30		P-8	8.00					8		
											9.00	26/30		P-9	9.00					9		
											10.00	31/30		P-10	10.00					10		
											11.00	23/30		P-11	11.00					11		
											12.00	24/30		P-12	12.00					12		
											13.00	27/30		P-13	13.00					13		
											14.00	14/30		P-14	14.00					14		
											15.00	32/30		P-15	15.00					15		
	-18.32	15.00	6.00		gray	Medium dense to very dense	Silty SAND	Medium dense to very dense, gray, moist, fine to medium grained, Silty SAND, with trace of fine gravel GL:(17.00 ~ 19.45)m; the grained size of sand is fine to coarse grained GL:(20.30 ~ 20.45)m; thin clay layer is observed as intercalated layer at that depth	25.05.17		16.00	33/30		P-16	16.00					16		
											17.00	45/30		P-17	17.00					17		
											18.00	50/24		P-18	18.00					18		
											19.00	50/24		P-19	19.00					19		
											20.00	10/30		P-20	20.00					20		
	-24.32	21.00	6.00		gray	Medium dense to very dense	SAND	Medium dense to very dense, gray, moist, fine to medium grained, SAND, with trace of fine gravel GL:(25.00 ~ 25.45)m; decayed wood fragment is including at that depth	25.05.17		21.00	31/30		P-21	21.00					21		
											22.00	35/30		P-22	22.00					22		
											23.00	31/30		P-23	23.00					23		
											24.00	19/30		P-24	24.00					24		
											25.00	19/30		P-25	25.00					25		
											26.00	25/30		P-26	26.00					26		
											27.00	50/30		P-27	27.00					27		
											28.00	50/23		P-28	28.00					28		
											29.00	50/14		P-29	29.00					29		
											30.00	50/23		P-30	30.00					30		
	-33.70	30.38	9.38					This borehole is terminated at 30.00m, according to the termination criteria.	26.05.17	30.00	31.00									31		

NOTES				Sample key				Planner structure				Discontinuities				 Saramayri - Fuji Construction Co., Ltd. Revision No. _____ Rev: 01 Revision Date _____ 05.07.2017	
Relative density description		Consistency description		P-1 Disturbed sample (SPT sample)	PBT Permeability Test	T-1 Undisturbed Sample (Piston sampler)	VS Vane Shear Test	M-1 Medium	PMT Pressuremeter Test	Term	Spacing (mm)	Term	Spacing (mm)	Remarks			
Relative density	SPT N-Value (max)	Consistency	SPT N-Value (max)											RQD (%)	Term		
Very loose	0 - 4	Very soft	under 2	0 - 25	Very poor	Very thick	> 2000	Very widely spaced	> 2000								
Loose	4 - 10	Soft	2 - 4	25 - 50	Poor	Thick	600 - 2000	Widely spaced	600 - 2000								
Medium dense	10 - 30	Firm	5 - 8	50 - 75	Fair	Medium	200 - 600	Medium spaced	200 - 600								
Dense	30 - 50	Stiff	9 - 15	75 - 90	Good	Thin	60 - 200	Closely spaced	60 - 200								
Very dense	over 50	Very stiff	16 - 30	90 - 100	Excellent	Very thin	20 - 60	Very closely spaced	20 - 60								
		Hard	over 30			Thickly laminated	6 - 20	Extremely closely spaced	< 20								
						Thinly laminated	< 6										

PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 20.05.2017 ~ 23.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : -3.00m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195065.000 ; N 2430142.000 DEPTH : 35.00m GROUND WATER LEVEL : Under River Bed **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING				SCALE (m)	
												DEPTH GL. (m)	CURVE OF BLOW				SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)		ROD (%)
													N-Value (Blows / 30cm)	0	10	20						
1	-9.00	6.00	6.00		yellowish brown	Very loose to loose	Silty SAND	Very loose to loose, yellowish brown, moist to wet, fine to medium grained, Silty SAND	20.05.17	5.00	Ø112	1.00	1/30	P-1	1.00				1			
2												1.45	4/30	P-2	2.00				2			
3												2.45	4/30	P-3	3.00				3			
4												3.45	7/30	P-4	4.00				4			
5												4.45	9/30	P-5	5.00				5			
6												5.45	17/30	P-6	6.00				6			
7												6.45	13/30	P-7	7.00				7			
8												7.45	20/30	P-8	8.00				8			
9												8.45	19/30	P-9	9.00				9			
10												9.45	17/30	P-10	10.00				10			
11												10.45	22/30	P-11	11.00				11			
12												11.45	25/30	P-12	12.00				12			
13												12.45	19/30	P-13	13.00				13			
14												13.45	22/30	P-14	14.00				14			
15												14.45	38/30	P-15	15.00				15			
16												15.45	32/30	P-16	16.00				16			
17												16.45	18/30	P-17	17.00				17			
18					gray	Very stiff	CLAY	Very stiff, gray, low to medium plasticity, CLAY Thin fine to medium grained sand layer is including in this layer				17.45	19/30	P-18	18.00				18			
19												18.45	26/30	P-19	19.00				19			
20									20.05.17			19.45	28/30	P-20	20.00				20			
21									20.00			20.45	33/30	P-21	21.00				21			
22												21.45	34/30	P-22	22.00				22			
23												22.45	41/30	P-23	23.00				23			
24												23.45	35/30	P-24	24.00				24			
25												24.45	38/30	P-25	25.00				25			
26												25.45	38/30	P-26	26.00				26			
27												26.45	41/30	P-27	27.00				27			
28												27.45	50/30	P-28	28.00				28			
29												28.45	50/22	P-29	29.00				29			
30												29.45	44/30	P-30	30.00				30			
31									22.05.17			30.00			30.45				31			

Continue to next sheet

NOTES				Sample key		Planner structure		Discontinuities		 Saramayri - Fuji Construction Co., Ltd. Revision No. _____ Rev: 01 Revision Date _____ 05.07.2017
Relative density description	Consistency description	Relative density	SPT N-Value (max)	PBT	Permeability Test	Term	Spacing (mm)	Term	Spacing (mm)	
Very loose	Very soft	0 - 4	under 2	VS	Vane Shear Test	Very thick	> 2000	Very widely spaced	> 2000	
Loose	Soft	4 - 10	2 - 4	PMT	Pressuremeter Test	Thick	600 - 2000	Widely spaced	600 - 2000	
Medium dense	Firm	10 - 30	5 - 8			Medium	200 - 600	Medium spaced	200 - 600	
Dense	Stiff	30 - 50	9 - 15			Thin	60 - 200	Closely spaced	60 - 200	
Very dense	Very stiff	over 50	16 - 30			Very thin	20 - 60	Very closely spaced	20 - 60	
	Hard		over 30			Thickly laminated	6 - 20	Extremely closely spaced	< 20	
						Thinly laminated	< 6			


PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 20.05.2017 ~ 23.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : -3.00m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195065.000 ; N 2430142.000 DEPTH : 35.00m GROUND WATER LEVEL : Under River Bed **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING						
												DEPTH GL - (m)	N-Value (Blows / 30cm)	CURVE OF BLOW	SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)	SCR (%)	ROD (%)	SCALE (m)		
																					0	10
31	-38.43	35.43	13.43		gray to yellowish brown	Dense to very dense	SAND	Dense to very dense, gray to yellowish brown, moist, fine to medium grained, SAND, with trace of fine gravel	23.05.17			31.00	37/30		P-31	31.00					31	
32												32.00	50/27		P-32	32.00					32	
33												33.00	50/28		P-33	33.00					33	
34												34.00	50/17		P-34	34.00					34	
35									23.05.17			35.00	50/28		P-35	35.00					35	
36								This borehole is terminated at 35.00m, according to the termination criteria.				36.00									36	
37												37.00									37	
38												38.00										38
39												39.00										39
40												40.00										40
41												41.00										41
42												42.00										42
43												43.00										43
44												44.00										44
45												45.00										45
46												46.00										46
47												47.00										47
48												48.00										48
49												49.00										49
50												50.00										50
51												51.00										51
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PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 16.05.2017 ~ 18.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : -4.30m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195094.000 ; N 2430231.000 DEPTH : 30.00m GROUND WATER LEVEL : Under River Bed **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING				SCALE (m)	
												DEPTH GL - (m)	CURVE OF BLOW			SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)	SCR (%)		ROD (%)
													N-Value (Blows / 30cm)	0	10						
	-9.30	5.00	5.00		gray	Loose to medium dense	Silty SAND	Loose to medium dense, gray, moist to wet, fine to medium grained, Silty SAND	16.05.17	Ø112		1.00	5/30	P-1	1.00					1	
												2.00	5/30	P-2	2.00					2	
												3.00	6/30	P-3	3.00					3	
												4.00	13/30	P-4	4.00					4	
												5.00	25/30	P-5	5.00					5	
												6.00	22/30	P-6	6.00					6	
												7.00	24/30	P-7	7.00					7	
												8.00	26/30	P-8	8.00					8	
												9.00	22/30	P-9	9.00					9	
												10.00	19/30	P-10	10.00					10	
												11.00	26/30	P-11	11.00					11	
												12.00	25/30	P-12	12.00					12	
												13.00	26/30	P-13	13.00					13	
												14.00	23/30	P-14	14.00					14	
												15.00	24/30	P-15	15.00					15	
	-20.30	16.00	11.00									16.00	50/28	P-16	16.00					16	
												17.00	50/25	P-17	17.00					17	
												18.00	36/30	P-18	18.00					18	
												19.00	50/29	P-19	19.00					19	
								GL:(18.00 ~ 18.30)m; thin clay layer is observed as intercalated layer at that depth				20.00	16/30	P-20	20.00					20	
	-25.30	21.00	5.00									21.00	50/17	P-21	21.00					21	
												22.00	44/30	P-22	22.00					22	
												23.00	39/30	P-23	23.00					23	
												24.00	50/30	P-24	24.00					24	
												25.00	38/30	P-25	25.00					25	
												26.00	35/30	P-26	26.00					26	
												27.00	38/30	P-27	27.00					27	
												28.00	46/30	P-28	28.00					28	
												29.00	50/25	P-29	29.00					29	
	-34.73	30.43	9.43									30.00	50/28	P-30	30.00					30	
								This borehole is terminated at 30.00m, according to the termination criteria.				31.00								31	

NOTES				Sample key				Planner structure				Discontinuities					
Relative density description		Consistency description		PBT Permeability Test	Term		Spacing (mm)		Term		Spacing (mm)		Revision No. <u>05.07.2017</u> Rev: 01		Revision Date <u>05.07.2017</u>		
Relative density	SPT N-Value (max)	Consistency	SPT N-Value (max)		Very thick	> 2000	Very widely spaced	> 2000									
Very loose	0 - 4	Very soft	under 2	Thick	600 - 2000	Widely spaced	600 - 2000	Remarks									
Loose	4 - 10	Soft	2 - 4	Medium	200 - 600	Medium spaced	200 - 600										
Medium dense	10 - 30	Firm	5 - 8	Thin	60 - 200	Closely spaced	60 - 200										
Dense	30 - 50	Stiff	9 - 15	Very thin	20 - 60	Very closely spaced	20 - 60										
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				PMT Pressuremeter Test													
				RQD (%) Term													
				0 - 25 Very poor													
				25 - 50 Poor													
				50 - 75 Fair													
				75 - 90 Good													
				90 - 100 Excellent													

PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 24.05.2017 ~ 26.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : -1.20m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195154.000 ; N 2430201.000 DEPTH : 36.00m GROUND WATER LEVEL : Under River Bed **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING						
												DEPTH GL - (m)	N-Value (Blows / 30cm)	CURVE OF BLOW	SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)	SCR (%)	ROD (%)	SCALE (m)		
																					0	10
31					yellowish brown to gray	Medium dense to very dense	SAND	Medium dense to very dense, yellowish brown to gray, moist, fine to medium grained, SAND, with trace of fine gravel GL:(24.00 ~ 24.23)m; the grained size of sand is fine to coarse grained and fine to medium gravel is including at that depth.	26.05.17 36.00			31.00	38/30			P-31	31.00 31.45				31	
32												32.00	34/30			P-32	32.00 32.45				32	
33												33.00	50/28			P-33	33.00 33.43				33	
34												34.00	50/30			P-34	34.00 34.45				34	
35												35.00	50/26			P-35	35.00 35.41				35	
36	-37.60	36.40	12.40									36.00	50/25			P-36	36.00 36.40				36	
37								This borehole is terminated at 36.00m, according to the termination criteria.				37.00									37	
38												38.00									38	
39												39.00										39
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PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 16.05.2017 ~ 19.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +2.78m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195242.000 ; N 2430174.000 DEPTH : 43.00m GROUND WATER LEVEL : 1.00m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**


SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (sp) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING				SCALE (m)		
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW		SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)		ROD (%)	
	-9.22	12.00	12.00	X	gray	Very loose to loose	Silty SAND	Very loose to loose, gray, moist to wet, fine to medium grained, Silty SAND		4.00	Ø112											
				X	gray	Medium dense	Silty SAND	Medium dense, gray, moist to wet, fine to medium grained, Silty SAND	16.05.17													
	-17.22	20.00	8.00	X	gray to yellowish brown	Medium dense	Silty SAND	Medium dense, gray to yellowish brown, moist, fine to medium grained, Silty SAND, with trace of fine gravel	16.00													

Continue to next sheet

NOTES				Sample key		Planner structure		Discontinuities																																	
Relative density description		Consistency description		<ul style="list-style-type: none"> ● P-1 Disturbed sample (SPT sample) □ T-1 Undisturbed Sample (Piston sampler) □ D-1 Undisturbed Sample (Denison sampler) □ Rock core sample (Single core tube) □ Rock core sample (Double core tube) □ Rock core sample (Core Loss) □ W-1 Water sample 		<ul style="list-style-type: none"> PBT Permeability Test VS Vane Shear Test PMT Pressuremeter Test 		<table border="1"> <tr><th>Term</th><th>Spacing (mm)</th></tr> <tr><td>Very thick</td><td>> 2000</td></tr> <tr><td>Thick</td><td>600 - 2000</td></tr> <tr><td>Medium</td><td>200 - 600</td></tr> <tr><td>Thin</td><td>60 - 200</td></tr> <tr><td>Very thin</td><td>20 - 60</td></tr> <tr><td>Thickly laminated</td><td>6 - 20</td></tr> <tr><td>Thinly laminated</td><td>< 6</td></tr> </table>		Term	Spacing (mm)	Very thick	> 2000	Thick	600 - 2000	Medium	200 - 600	Thin	60 - 200	Very thin	20 - 60	Thickly laminated	6 - 20	Thinly laminated	< 6	<table border="1"> <tr><th>Term</th><th>Spacing (mm)</th></tr> <tr><td>Very widely spaced</td><td>> 2000</td></tr> <tr><td>Widely spaced</td><td>600 - 2000</td></tr> <tr><td>Medium spaced</td><td>200 - 600</td></tr> <tr><td>Closely spaced</td><td>60 - 200</td></tr> <tr><td>Very closely spaced</td><td>20 - 60</td></tr> <tr><td>Extremely closely spaced</td><td>< 20</td></tr> </table>		Term	Spacing (mm)	Very widely spaced	> 2000	Widely spaced	600 - 2000	Medium spaced	200 - 600	Closely spaced	60 - 200	Very closely spaced	20 - 60	Extremely closely spaced	< 20
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RQD (%) Term

0 - 25	Very poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent



Saramayri - Fuji Construction Co., Ltd.

Revision No.	Rev: 01
Revision Date	05.07.2017


PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 16.05.2017 ~ 19.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +2.78m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195242.000 ; N 2430174.000 DEPTH : 43.00m GROUND WATER LEVEL : 1.00m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING				SCALE (m)	
												DEPTH GL - (m)	CURVE OF BLOW			SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)	SCR (%)		ROD (%)
													N-Value (Blows / 30cm)	0	10						
31					gray to yellowish brown	Medium dense	Silty SAND	Medium dense, gray to yellowish brown, moist, fine to medium grained, Silty SAND, with trace of fine gravel				31.00	18/30		P-31	31.00					31
32	-29.22	32.00	12.00									32.00	19/30		P-32	32.00					32
33					gray	Medium dense to very dense	SAND	Medium dense to very dense, gray, moist, fine to medium grained, SAND, with trace of fine gravel				33.00	22/30		P-33	33.00					33
34												34.00	29/30		P-34	34.00					34
35												35.00	29/30		P-35	35.00					35
36												36.00	24/30		P-36	36.00					36
37												37.00	27/30		P-37	37.00					37
38												38.00	36/30		P-38	38.00					38
39												39.00	33/30		P-39	39.00					39
40												40.00	50/25		P-40	40.00					40
41									18.05.17			41.00	50/25		P-41	41.00					41
42									41.00			42.00	50/20		P-42	42.00					42
43	-40.55	43.33	11.33						19.05.17			43.00	50/18		P-43	43.00					43
44								This borehole is terminated at 43.00m, according to the termination criteria.	43.00			44.00									44
45												45.00									45
46												46.00									46
47												47.00									47
48												48.00									48
49												49.00									49
50												50.00									50
51												51.00									51
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PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 20.05.2017 ~ 23.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation **CLIENT**
 GROUND LEVEL : CDL : +6.12m ORIENTATION : Vertical **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**
 COORDINATE : E 195328.000 ; N 2430151.000 DEPTH : 33.00m GROUND WATER LEVEL : 2.03m

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING				SCALE (m)	
												DEPTH GL - (m)	CURVE OF BLOW				SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)	SCR (%)		ROD (%)
													N-Value (Blows / 30cm)	N-Value (Blows / 30cm)								
												0	10	20	30	40	50					
1					yellowish brown to gray	Loose	Silty SAND	Loose, yellowish brown to gray, moist to wet, fine to medium grained, Silty SAND GL:(2.00 ~ 2.45)m; silt percent is increased at that depth	20.05.17	4.00		1.00	5/30		P-1	1.00					1	
2												2.00	7/30		P-2	1.45					2	
3												3.00	6/30		P-3	2.00					3	
4												4.00	8/30		P-4	2.45					4	
5												5.00	6/30		P-5	3.00					5	
6												6.00	6/30		P-6	3.45					6	
7												7.00	8/30		P-7	4.00					7	
8												8.00	8/30		P-8	4.45					8	
9												9.00	9/30		P-9	4.85					9	
10												10.00	9/30		P-10	5.00					10	
11												11.00	9/30		P-11	5.45					11	
12												12.00	9/30		P-12	6.00					12	
13												13.00	6/30		P-13	6.45					13	
14												14.00	6/30		P-14	7.00					14	
15												15.00	19/30		P-15	7.45					15	
16					gray	Medium dense	Silty SAND	Medium dense, gray, moist, fine to medium grained, Silty SAND				16.00	19/30		P-16	8.00					16	
17												17.00	12/30		P-17	8.45					17	
18												18.00	13/30		P-18	9.00					18	
19												19.00	20/30		P-19	9.45					19	
20												20.00	22/30		P-20	10.00					20	
21												21.00	21/30		P-21	10.45					21	
22												22.00	22/30		P-22	11.00					22	
23												23.00	24/30		P-23	11.45					23	
24												24.00	28/30		P-24	12.00					24	
25					gray to yellowish brown	Medium dense to very dense	SAND	Medium dense to very dense, gray to yellowish brown, moist, fine to medium grained, SAND, with trace of fine gravel				25.00	32/30		P-25	12.45					25	
26												26.00	35/30		P-26	13.00					26	
27												27.00	32/30		P-27	13.45					27	
28												28.00	37/30		P-28	14.00					28	
29												29.00	38/30		P-29	14.45					29	
30												30.00	50/25		P-30	15.00					30	
31												31.00									31	

NOTES				Sample key				Planner structure				Discontinuities							
Relative density description		Consistency description		P-1	PBT	Permeability Test		Term		Spacing (mm)		Term		Spacing (mm)		Revision No.			
Relative density	SPT N-Value (max)	Consistency	SPT N-Value (max)	T-1	VS	Vane Shear Test		Very thick	> 2000	Very widely spaced		> 2000		Revision No.		Rev: 01			
Very loose	0 - 4	Very soft	under 2	D-1	PMT	Pressuremeter Test		Thick	600 - 2000	Widely spaced		600 - 2000		Revision Date		05.07.2017			
Loose	4 - 10	Soft	2 - 4					Medium	200 - 600	Medium spaced		200 - 600							
Medium dense	10 - 30	Firm	5 - 8					Thin	60 - 200	Closely spaced		60 - 200							
Dense	30 - 50	Stiff	9 - 15					Very thin	20 - 60	Very closely spaced		20 - 60							
Very dense	over 50	Very stiff	16 - 30					Thickly laminated	6 - 20	Extremely closely spaced		< 20							
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PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 20.05.2017 ~ 23.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +6.12m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195328.000 ; N 2430151.000 DEPTH : 33.00m GROUND WATER LEVEL : 2.03m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING / DEPTH (m) & DIAMETER (mm)	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING				SCALE (m)		
												DEPTH GL - (m)	CURVE OF BLOW ●					SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)		SCR (%)	ROD (%)
													N-Value (Blows / 30cm)	0	10	20	30						
31					gray to yellowish brown	Medium dense to very dense	SAND	Medium dense to very dense, gray to yellowish brown, moist, fine to medium grained, SAND, with trace of fine gravel	23.05.17			31.00	50/25	●	P-31	31.00					31		
32									33.00			32.00	50/22	●	P-32	32.00					32		
33	-27.28	33.40	9.40									33.00	50/25	●	P-33	33.00					33		
34								This borehole is terminated at 33.00m, according to the termination criteria.				34.00									34		
35												35.00									35		
36												36.00										36	
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43												43.00										43	
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PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 24.05.2017 ~ 26.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +5.66m ORIENTATION : Vertical
 COORDINATE : E 195429.000 ; N 2430152.000 DEPTH : 32.00m GROUND WATER LEVEL : 2.04m

CLIENT
ORIENTAL CONSULTANTS GLOBAL CO., LTD.

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING				SCALE (m)		
												DEPTH GL. (m)	CURVE OF BLOW				SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)		SCR (%)	ROD (%)
													N-Value (Blows / 30cm)	0	10	20						
	0.36	5.30	5.30		yellowish brown to gray	Very loose to loose	Silty SAND	Very loose to loose, yellowish brown to gray, moist to wet, fine to medium grained, Silty SAND	24.05.17	Ø112	4.00	4/30	●	P-1	1.00						1	
					gray	Soft	CLAY	Soft, gray, moist, low to medium plasticity, CLAY with silt				2.00	●	P-2	2.00						2	
	-1.34	7.00	1.70		gray	Loose to medium dense	Silty SAND	Loose to medium dense, gray, moist, fine to medium grained, Silty SAND				5/30	●	P-3	3.00						3	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				5/30	●	P-4	4.00						4	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				6/30	●	P-5	5.00						5	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				6/30	●	P-6	6.00						6	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				7.00	●	P-7	7.00						7	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				10/30	●	P-8	8.00						8	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				10/30	●	P-9	9.00						9	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				10/30	●	P-10	10.00						10	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				13/30	●	P-11	11.00						11	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				13/30	●	P-12	12.00						12	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				14/30	●	P-13	13.00						13	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				16/30	●	P-14	14.00						14	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				16/30	●	P-15	15.00						15	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				17/30	●	P-16	16.00						16	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				19/30	●	P-17	17.00						17	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				18/30	●	P-18	18.00						18	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				18/30	●	P-19	19.00						19	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				14/30	●	P-20	20.00						20	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				14/30	●	P-21	21.00						21	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				11/30	●	P-22	22.00						22	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				12/30	●	P-23	23.00						23	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				18/30	●	P-24	24.00						24	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				22/30	●	P-25	25.00						25	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				22/30	●	P-26	26.00						26	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				21/30	●	P-27	27.00						27	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				32/30	●	P-28	28.00						28	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				37/30	●	P-29	29.00						29	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				50/17	●	P-30	30.00						30	
					gray	Stiff to very stiff	CLAY	Stiff to very stiff, gray, moist, low to medium plasticity, CLAY				50/18	●	P-31	30.33						31	


Continue to next sheet

NOTES				Sample key		Planner structure		Discontinuities		 Saramayri - Fuji Construction Co., Ltd. Revision No. _____ Rev: 01 Revision Date _____ 05.07.2017
Relative density description	Consistency description			PBT	Permeability Test	Term	Spacing (mm)	Term	Spacing (mm)	
Relative density	SPT N-Value (max)	Consistency	SPT N-Value (max)	VS	Vane Shear Test	Very thick	> 2000	Very widely spaced	> 2000	
Very loose	0 - 4	Very soft	under 2	PMT	Pressuremeter Test	Thick	600 - 2000	Widely spaced	600 - 2000	
Loose	4 - 10	Soft	2 - 4			Medium	200 - 600	Medium spaced	200 - 600	
Medium dense	10 - 30	Firm	5 - 8			Thin	60 - 200	Closely spaced	60 - 200	
Dense	30 - 50	Stiff	9 - 15			Very thin	20 - 60	Very closely spaced	20 - 60	
Very dense	over 50	Very stiff	16 - 30			Thickly laminated	6 - 20	Extremely closely spaced	< 20	
		Hard	over 30			Thinly laminated	< 6			

PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 24.05.2017 ~ 26.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +5.66m ORIENTATION : Vertical
 COORDINATE : E 195429.000 ; N 2430152.000 DEPTH : 32.00m GROUND WATER LEVEL : 2.04m

CLIENT
ORIENTAL CONSULTANTS GLOBAL CO., LTD.

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING				SCALE (m)		
												DEPTH GL - (m)	CURVE OF BLOW ●					SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)		SCR (%)	ROD (%)
													N-Value (Blows / 30cm)	0	10	20	30						
31	-26.74	32.40	6.40		gray to yellowish brown	Medium dense to very dense	SAND	Medium dense to very dense, gray to yellowish brown, moist, fine to medium grained, SAND, with trace of fine gravel	26.05.17 32.00			31.00	50/22								31		
32												32.00	50/25								32		
33								This borehole is terminated at 32.00m, according to the termination criteria.				33.00									33		
34													34.00									34	
35													35.00									35	
36													36.00									36	
37													37.00									37	
38													38.00									38	
39													39.00									39	
40													40.00									40	
41													41.00									41	
42													42.00									42	
43													43.00									43	
44													44.00									44	
45													45.00									45	
46													46.00									46	
47													47.00									47	
48													48.00									48	
49													49.00									49	
50													50.00									50	
51													51.00									51	
52													52.00									52	
53													53.00									53	
54													54.00									54	
55													55.00									55	
56													56.00									56	
57													57.00									57	
58													58.00									58	
59													59.00									59	
60													60.00									60	
61													61.00									61	

<p>NOTES</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Relative density description</th> <th>SPT N-Value (max)</th> <th>Consistency</th> <th>SPT N-Value (max)</th> </tr> </thead> <tbody> <tr> <td>Very loose</td> <td>0 - 4</td> <td>Very soft</td> <td>under 2</td> </tr> <tr> <td>Loose</td> <td>4 - 10</td> <td>Soft</td> <td>2 - 4</td> </tr> <tr> <td>Medium dense</td> <td>10 - 30</td> <td>Firm</td> <td>5 - 8</td> </tr> <tr> <td>Dense</td> <td>30 - 50</td> <td>Stiff</td> <td>9 - 15</td> </tr> <tr> <td>Very dense</td> <td>over 50</td> <td>Very stiff</td> <td>16 - 30</td> </tr> <tr> <td></td> <td></td> <td>Hard</td> <td>over 30</td> </tr> </tbody> </table>	Relative density description	SPT N-Value (max)	Consistency	SPT N-Value (max)	Very loose	0 - 4	Very soft	under 2	Loose	4 - 10	Soft	2 - 4	Medium dense	10 - 30	Firm	5 - 8	Dense	30 - 50	Stiff	9 - 15	Very dense	over 50	Very stiff	16 - 30			Hard	over 30	<p>Sample key</p> <ul style="list-style-type: none"> ● P-1 Disturbed sample (SPT sample) T-1 Undisturbed Sample (Piston sampler) D-1 Undisturbed Sample (Denison sampler) Rock core sample (Single core tube) Rock core sample (Double core tube) Rock core sample (Core Loss) W-1 Water sample 	<p>Planner structure</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Term</th> <th>Spacing (mm)</th> </tr> </thead> <tbody> <tr> <td>Very thick</td> <td>> 2000</td> </tr> <tr> <td>Thick</td> <td>600 - 2000</td> </tr> <tr> <td>Medium</td> <td>200 - 600</td> </tr> <tr> <td>Thin</td> <td>60 - 200</td> </tr> <tr> <td>Very thin</td> <td>20 - 60</td> </tr> <tr> <td>Thickly laminated</td> <td>6 - 20</td> </tr> <tr> <td>Thinly laminated</td> <td>< 6</td> </tr> </tbody> </table>	Term	Spacing (mm)	Very thick	> 2000	Thick	600 - 2000	Medium	200 - 600	Thin	60 - 200	Very thin	20 - 60	Thickly laminated	6 - 20	Thinly laminated	< 6	<p>Discontinuities</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Term</th> <th>Spacing (mm)</th> </tr> </thead> <tbody> <tr> <td>Very widely spaced</td> <td>> 2000</td> </tr> <tr> <td>Widely spaced</td> <td>600 - 2000</td> </tr> <tr> <td>Medium spaced</td> <td>200 - 600</td> </tr> <tr> <td>Closely spaced</td> <td>60 - 200</td> </tr> <tr> <td>Very closely spaced</td> <td>20 - 60</td> </tr> <tr> <td>Extremely closely spaced</td> <td>< 20</td> </tr> </tbody> </table>	Term	Spacing (mm)	Very widely spaced	> 2000	Widely spaced	600 - 2000	Medium spaced	200 - 600	Closely spaced	60 - 200	Very closely spaced	20 - 60	Extremely closely spaced	< 20	<p style="text-align: center;"> Saramayri - Fuji Construction Co., Ltd.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Revision No.</td> <td>Rev: 01</td> </tr> <tr> <td>Revision Date</td> <td>05.07.2017</td> </tr> </table> <p>Remarks</p>	Revision No.	Rev: 01	Revision Date	05.07.2017
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PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 25.05.2017 ~ 26.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +5.59m ORIENTATION : Vertical
 COORDINATE : E 195662.000 ; N 2430018.000 DEPTH : 29.00m GROUND WATER LEVEL : 3.50m

CLIENT
ORIENTAL CONSULTANTS GLOBAL CO., LTD.

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)		SAMPLING				SCALE (m)	
												DEPTH GL. (m)	N-Value (Blows / 30cm)	SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)		ROD (%)
		0 10 20 30 40 50		N-Value (Blows / 30cm)															
1			3.00		yellowish brown	Medium dense	Silty SAND	Medium dense, yellowish brown, moist, fine grained, Silty SAND	25.05.17	3.00	3.00	11/30	P-1	1.00				1	
2		2.59	3.00									12/30	P-2	2.00				2	
3												4/30	P-3	3.00				3	
4					brownish gray to gray	Soft to firm	CLAY	Soft to firm, brownish gray to gray, moist, low to medium plasticity, CLAY				4/30	T-1	4.00				4	
5												5/30	P-4	5.00				5	
6												6/30	T-2	6.00				6	
7												7/30	P-5	7.00				7	
8		-2.41	8.00									4/30	T-3	8.00				8	
9					brownish gray	Firm	Sandy CLAY	Firm, brownish gray, moist, fine grained, low to medium plasticity, Sandy CLAY				5/30	P-6	9.00				9	
10		-4.41	10.00									10/30	T-4	10.00				10	
11												7/30	P-7	11.00				11	
12												12/30	T-5	12.00				12	
13												6/30	P-8	13.00				13	
14		-8.41	14.00									8/30	P-9	14.00				14	
15					gray	Firm to very stiff	CLAY	Firm to very stiff, gray, moist, medium to high plasticity, CLAY, with trace of organic matter				11/30	P-10	15.00				15	
16									25.05.17			14/30	P-11	16.00				16	
17									16.00			17/30	P-12	17.00				17	
18												21/30	P-13	18.00				18	
19												20/30	P-14	19.00				19	
20												12/30	P-15	20.00				20	
21												17/30	P-16	21.00				21	
22		-16.41	22.00									27/30	P-17	22.00				22	
23					yellowish brown	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown, moist, fine to medium grained, Silty SAND				41/30	P-18	23.00				23	
24												25/30	P-19	24.00				24	
25												41/30	P-20	25.00				25	
26		-20.41	26.00									50/22	P-21	26.00				26	
27					yellowish brown	Very dense	SAND	Very dense, yellowish brown, moist, fine to medium grained, SAND				50/17	P-22	27.00				27	
28												50/20	P-23	28.00				28	
29		-23.73	29.32							26.05.17		50/23	P-24	29.00				29	
30									29.00									30	
31								This borehole is terminated at 29.00m, according to the termination criteria.										31	

NOTES		Sample key		Planner structure		Discontinuities			
Relative density description	Consistency description	● P-1 Disturbed sample (SPT sample)	PBT Permeability Test	Term	Spacing (mm)	Very thick	> 2000	Very widely spaced	> 2000
Relative density	SPT N-Value (max)	T-1 Undisturbed Sample (Piston sampler)	VS Vane Shear Test	Very thick	600 - 2000	Thick	600 - 2000	Widely spaced	600 - 2000
Very loose	0 - 4	D-1 Undisturbed Sample (Denison sampler)	PMT Pressuremeter Test	Medium	200 - 600	Medium	200 - 600	Medium spaced	200 - 600
Loose	4 - 10	Rock core sample (Single core tube)		Thin	60 - 200	Thin	60 - 200	Closely spaced	60 - 200
Medium dense	10 - 30	Rock core sample (Double core tube)		Very thin	20 - 60	Very thin	20 - 60	Very closely spaced	20 - 60
Dense	30 - 50	Rock core sample (Core Loss)		Thickly laminated	6 - 20	Thickly laminated	6 - 20	Extremely closely spaced	< 20
Very dense	over 50	W-1 Water sample		Thinly laminated	< 6	Thinly laminated	< 6		
				RQD (%)	Term				
				0 - 25	Very poor				
				25 - 50	Poor				
				50 - 75	Fair				
				75 - 90	Good				
				90 - 100	Excellent				
								Revision No. Rev: 01	
								Revision Date 05.07.2017	
								Remarks	

PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 22.05.2017 ~ 24.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +5.30m ORIENTATION : Vertical
 COORDINATE : E 195543.000 ; N 2430004.000 DEPTH : 30.00m GROUND WATER LEVEL : 3.50m
CLIENT
ORIENTAL CONSULTANTS GLOBAL CO., LTD.

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING						
											DEPTH GL. (m)	CURVE OF BLOW				SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)	ROD (%)	SCALE (m)
		N-Value (Blows / 30cm)																			
		0 10 20 30 40 50																			
		-3.70	9.00	9.00	yellowish brown to gray	Loose to medium dense	Silty SAND	Loose to medium dense, yellowish brown to gray, moist to wet, fine grained, Silty SAND GL: (4.00 ~ 4.45)m, Soft, yellowish brown, low to medium plasticity, CLAY with silt layer is observed as intercalated layer at that depth		3.00 Ø112	1.00	7/30		P-1	1.00						
											2.00	8/30		P-2	2.00						
											3.00	7/30		P-3	3.00						
											4.00	3/30		P-4	4.00						
											5.00	8/30		P-5	5.00						
											6.00	18/30		P-6	6.00						
											7.00	12/30		P-7	7.00						
											8.00	13/30		P-8	8.00						
											9.00	26/30		P-9	9.00						
											10.00	10/30		P-10	10.00						
											11.00	10/30		P-11	11.00						
											12.00	14/30		P-12	12.00						
											13.00	10/30		P-13	13.00						
											14.00	10/30		P-14	14.00						
											15.00	15/30		P-15	15.00						
		-9.70	15.00	6.00	gray	Loose to medium dense	Silty SAND	Loose to medium dense, gray, moist, fine to medium grained, Silty SAND GL:(13.00 ~ 13.45)m; gray, low to medium plasticity, CLAY with silt layer is observed as intercalated layer at that depth	22.05.17		15.00	15/30		P-15	15.00						
											16.00	36/30		D-1	15.50 (#) cm 15.80						
											17.00	36/30		P-16	17.00						
											18.00	15/30		D-2	17.00 (#) cm 17.50						
											19.00	19/30		P-17	18.00						
											20.00	12/30		P-18	19.00						
											21.00	17/30		P-19	20.00						
		-16.70	22.00	7.00	gray	Stiff to hard	CLAY	Stiff to hard, gray, moist, low to medium plasticity, CLAY, with trace of fine grained sand			22.00	30/30		P-20	21.00						
											23.00	26/30		P-21	22.00						
											24.00	15/30		P-22	23.00						
											25.00	32/30		P-23	23.45						
											26.00	50/28		P-24	24.00						
											27.00	50/20		P-25	24.45						
											28.00	50/18		P-26	26.00						
											29.00	50/17		P-27	26.43						
											30.00	50/28		P-28	27.00						
		-25.13	30.43	4.43	yellowish brown	Very dense	SAND	Medium dense to dense, yellowish brown, moist, fine to medium grained, Silty SAND GL:(24.00 ~ 24.45)m; Stiff, yellowish brown, low to medium plasticity, CLAY	23.05.17		30.00	50/28		P-29	27.35						
											31.00			P-26	28.00						
											32.00			P-27	28.33						
											33.00			P-28	29.00						
											34.00			P-29	29.32						
											35.00			P-30	30.00						
											36.00			P-31	30.43						

NOTES

Relative density description	Consistency description
Relative density	SPT N-Value (meas)
Very loose	0 - 4
Loose	4 - 10
Medium dense	10 - 30
Dense	30 - 50
Very dense	over 50
Very soft	under 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very stiff	16 - 30
Hard	over 30

Sample key

P-1 Disturbed sample (SPT sample)	PBT Permeability Test
T-1 Undisturbed Sample (Piston sampler)	VS Vane Shear Test
D-1 Undisturbed Sample (Denison sampler)	PMT Pressuremeter Test
Rock core sample (Single core tube)	
Rock core sample (Double core tube)	
Rock core sample (Core Loss)	
W-1 Water sample	

RQD (%) Term

0 - 25	Very poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent

Planner structure

Term	Spacing (mm)
Very thick	> 2000
Thick	600 - 2000
Medium	200 - 600
Thin	60 - 200
Very thin	20 - 60
Thickly laminated	6 - 20
Thinly laminated	< 6

Discontinuities

Term	Spacing (mm)
Very widely spaced	> 2000
Widely spaced	600 - 2000
Medium spaced	200 - 600
Closely spaced	60 - 200
Very closely spaced	20 - 60
Extremely closely spaced	< 20

Remarks

PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 18.05.2017 ~ 19.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +5.11m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195431.000 ; N 2429985.000 DEPTH : 31.00m GROUND WATER LEVEL : 3.70m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING						
												DEPTH GL - (m)	CURVE OF BLOW					SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)	SCR (%)	ROD (%)	SCALE (m)
													N-Value (Blows / 30cm)	0	10	20	30						
	-1.89	7.00	7.00		yellowish brown to gray	Medium dense to loose	Silty SAND	Medium dense to loose, yellowish brown to gray, moist, fine to medium grained, Silty SAND GL:(5.30 ~ 5.45)m; yellowish brown, fine grained, low plastic, Sandy SILT layer is observed at that depth		3.00 Ø112		1.00 11/30	1.45	P-1	1.00						1		
					yellowish brown to gray	Loose to medium dense	Silty SAND	Loose to medium dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND GL:(15.00 ~ 15.45)m; Very stiff, gray, moist, fine grained, low to medium plasticity, Sandy SILT layer is observed as intercalated layer at that depth				2.00 20/30	2.45	P-2	2.00						2		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				3.00 6/30	3.45	P-3	3.00						3		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				4.00 8/30	4.45	P-4	4.00						4		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				5.00 5/30	5.45	P-5	5.00						5		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				6.00 8/30	6.30	T-1	6.00						6		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				7.00 8/30	7.45	P-6	7.00						7		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				8.00 14/30	8.45	P-7	8.00						8		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				9.00 14/30	9.45	P-8	9.00						9		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				10.00 16/30	10.45	P-9	10.00						10		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				11.00 21/30	11.45	P-10	11.00						11		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				12.00 20/30	12.45	P-11	12.00						12		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				13.00 29/30	13.45	P-12	13.00						13		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				14.00 16/30	14.45	P-13	14.00						14		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				15.00 16/30	15.45	P-14	15.00						15		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				16.00 29/30	16.45	P-15	16.00						16		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				17.00 31/30	17.45	P-16	17.00						17		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				18.00 14/30	18.45	P-17	18.00						18		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND		18.05.17		19.00 20/30	19.45	P-18	19.00						19		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				20.00 36/30	20.45	P-19	20.00						20		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				21.00 45/30	21.45	P-20	21.00						21		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				22.00 37/30	22.45	P-21	22.00						22		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				23.00 50/27	23.42	P-22	23.00						23		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				24.00 50/29	24.44	P-23	24.00						24		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				25.00 35/30	25.45	P-24	25.00						25		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				26.00 17/30	26.45	P-25	26.00						26		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				27.00 42/30	27.45	P-26	27.00						27		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				28.00 50/25	28.40	P-27	28.00						28		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				29.00 50/27	29.42	P-28	29.00						29		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				30.00 50/29	30.44	P-29	30.00						30		
					yellowish brown to gray	Medium dense to dense	Silty SAND	Medium dense to dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND				31.00									31		

Continue to next sheet

NOTES				Sample key		Planner structure		Discontinuities		Saramayri - Fuji Construction Co., Ltd.	
Relative density description	Consistency description			● P-1 Disturbed sample (SPT sample)	PBT Permeability Test	Term	Spacing (mm)	Term	Spacing (mm)	Revision No.	Rev: 01
Relative density	SPT N-Value (max)	Consistency	SPT N-Value (max)	T-1 Undisturbed Sample (Piston sampler)	VS Vane Shear Test	Very thick	> 2000	Very widely spaced	> 2000	Revision Date	05.07.2017
Very loose	0 - 4	Very soft	under 2	D-1 Undisturbed Sample (Denison sampler)	PMT Pressuremeter Test	Thick	600 - 2000	Widely spaced	600 - 2000		
Loose	4 - 10	Soft	2 - 4	Rock core sample (Single core tube)		Medium	200 - 600	Medium spaced	200 - 600		
Medium dense	10 - 30	Firm	5 - 8	Rock core sample (Double core tube)		Thin	60 - 200	Closely spaced	60 - 200		
Dense	30 - 50	Stiff	9 - 15	Rock core sample (Core Loss)		Very thin	20 - 60	Very closely spaced	20 - 60		
Very dense	over 50	Very stiff	16 - 30	Water sample		Thickly laminated	6 - 20	Extremely closely spaced	< 20		
		Hard	over 30			Thinly laminated	< 6	Remarks			

PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 18.05.2017 ~ 19.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +5.11m ORIENTATION : Vertical
 COORDINATE : E 195431.000 ; N 2429985.000 DEPTH : 31.00m GROUND WATER LEVEL : 3.70m


CLIENT
ORIENTAL CONSULTANTS GLOBAL CO., LTD.

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING				SCALE (m)		
												DEPTH GL - (m)	CURVE OF BLOW					SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)		SCR (%)	ROD (%)
													N-Value (Blows / 30cm)	0	10	20	30						
31.1	-26.26	31.37	3.37		yellowish brown	Very dense	SAND	Very dense, yellowish brown, moist, fine to medium grained, SAND	19.05.17 31.00			31.00	50/22								31.1		
32.0								This borehole is terminated at 31.00m, according to the termination criteria.				32.00									32.0		
33.0													33.00									33.0	
34.0													34.00									34.0	
35.0													35.00									35.0	
36.0													36.00									36.0	
37.0													37.00									37.0	
38.0													38.00									38.0	
39.0													39.00									39.0	
40.0													40.00									40.0	
41.0													41.00									41.0	
42.0													42.00									42.0	
43.0													43.00									43.0	
44.0													44.00									44.0	
45.0													45.00									45.0	
46.0													46.00									46.0	
47.0													47.00									47.0	
48.0													48.00									48.0	
49.0													49.00									49.0	
50.0													50.00									50.0	
51.0													51.00									51.0	
52.0												52.00									52.0		
53.0												53.00									53.0		
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56.0												56.00									56.0		
57.0												57.00									57.0		
58.0												58.00									58.0		
59.0												59.00									59.0		
60.0												60.00									60.0		
61.0												61.00									61.0		

<p>NOTES</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Relative density description</th> <th>SPT N-Value (max)</th> <th>Consistency</th> <th>SPT N-Value (max)</th> </tr> </thead> <tbody> <tr> <td>Very loose</td> <td>0 - 4</td> <td>Very soft</td> <td>under 2</td> </tr> <tr> <td>Loose</td> <td>4 - 10</td> <td>Soft</td> <td>2 - 4</td> </tr> <tr> <td>Medium dense</td> <td>10 - 30</td> <td>Firm</td> <td>5 - 8</td> </tr> <tr> <td>Dense</td> <td>30 - 50</td> <td>Stiff</td> <td>9 - 15</td> </tr> <tr> <td>Very dense</td> <td>over 50</td> <td>Very stiff</td> <td>16 - 30</td> </tr> <tr> <td></td> <td></td> <td>Hard</td> <td>over 30</td> </tr> </tbody> </table>	Relative density description	SPT N-Value (max)	Consistency	SPT N-Value (max)	Very loose	0 - 4	Very soft	under 2	Loose	4 - 10	Soft	2 - 4	Medium dense	10 - 30	Firm	5 - 8	Dense	30 - 50	Stiff	9 - 15	Very dense	over 50	Very stiff	16 - 30			Hard	over 30	<p>Sample key</p> <ul style="list-style-type: none"> Disturbed sample (SPT sample) Undisturbed Sample (Piston sampler) Undisturbed Sample (Denison sampler) Rock core sample (Single core tube) Rock core sample (Double core tube) Rock core sample (Core Loss) Water sample 	<p>Planner structure</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Term</th> <th>Spacing (mm)</th> </tr> </thead> <tbody> <tr> <td>Very thick</td> <td>> 2000</td> </tr> <tr> <td>Thick</td> <td>600 - 2000</td> </tr> <tr> <td>Medium</td> <td>200 - 600</td> </tr> <tr> <td>Thin</td> <td>60 - 200</td> </tr> <tr> <td>Very thin</td> <td>20 - 60</td> </tr> <tr> <td>Thickly laminated</td> <td>6 - 20</td> </tr> <tr> <td>Thinly laminated</td> <td>< 6</td> </tr> </tbody> </table>	Term	Spacing (mm)	Very thick	> 2000	Thick	600 - 2000	Medium	200 - 600	Thin	60 - 200	Very thin	20 - 60	Thickly laminated	6 - 20	Thinly laminated	< 6	<p>Discontinuities</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Term</th> <th>Spacing (mm)</th> </tr> </thead> <tbody> <tr> <td>Very widely spaced</td> <td>> 2000</td> </tr> <tr> <td>Widely spaced</td> <td>600 - 2000</td> </tr> <tr> <td>Medium spaced</td> <td>200 - 600</td> </tr> <tr> <td>Closely spaced</td> <td>60 - 200</td> </tr> <tr> <td>Very closely spaced</td> <td>20 - 60</td> </tr> <tr> <td>Extremely closely spaced</td> <td>< 20</td> </tr> </tbody> </table>	Term	Spacing (mm)	Very widely spaced	> 2000	Widely spaced	600 - 2000	Medium spaced	200 - 600	Closely spaced	60 - 200	Very closely spaced	20 - 60	Extremely closely spaced	< 20	<p style="text-align: center;"></p> <p style="text-align: center;">Saramayri - Fuji Construction Co., Ltd.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Revision No.</td> <td>Rev: 01</td> </tr> <tr> <td>Revision Date</td> <td>05.07.2017</td> </tr> </table>	Revision No.	Rev: 01	Revision Date	05.07.2017
Relative density description	SPT N-Value (max)	Consistency	SPT N-Value (max)																																																															
Very loose	0 - 4	Very soft	under 2																																																															
Loose	4 - 10	Soft	2 - 4																																																															
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<p>Remarks</p>																																																																		

PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 28.05.2017 ~ 29.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +6.30m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195377.000 ; N 2430069.000 DEPTH : 28.00m GROUND WATER LEVEL : 3.20m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (sp) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING / DEPTH (m) & DIAMETER (mm)	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING				SCALE (m)			
												DEPTH GL - (m)	CURVE OF BLOW				SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)	SCR (%)		ROD (%)		
													N-Value (Blows / 30cm)	0	10	20							30	40
	-2.70	9.00	9.00		yellowish brown to gray	Loose to medium dense	Silty SAND	Loose to medium dense, yellowish brown to gray, moist, fine to medium grained, Silty SAND GL:(7.00 ~ 8.45)m; silt percent is increased at that depth			6.00 Ø112													
	-4.70	11.00	2.00		gray	Firm	CLAY	Firm, gray, moist, low to medium plasticity, CLAY with silt																
	-8.70	15.00	4.00		gray	Loose	Silty SAND	Loose, gray, moist, fine to medium grained, Silty SAND																
	-16.70	23.00	8.00		gray	Medium dense	Silty SAND	Medium dense, gray, moist, fine to medium grained, Silty SAND, with trace of fine gravel																
	-22.10	28.40	5.40		yellowish brown to gray	Dense to very dense	SAND	Dense to very dense, yellowish brown to gray, moist, fine to medium grained, SAND, with trace of fine gravel	28.05.17 20.00															
								This borehole is terminated at 28.00m, according to the termination criteria.	29.05.17 28.00															

NOTES				Sample key				Planner structure				Discontinuities					
Relative density description		Consistency description		P-1 Disturbed sample (SPT sample)	PBT Permeability Test	Term		Spacing (mm)		Term		Spacing (mm)		Revision No. <u>Rev: 01</u> Revision Date <u>05.07.2017</u>			
Relative density	SPT N-Value (max)	Consistency	SPT N-Value (max)			T-1 Undisturbed Sample (Piston sampler)	VS Vane Shear Test	Very thick	> 2000	Very widely spaced	> 2000						
Very loose	0 - 4	Very soft	under 2	D-1 Undisturbed Sample (Denison sampler)	PMT Pressuremeter Test	Thick	600 - 2000	Widely spaced	600 - 2000								
Loose	4 - 10	Soft	2 - 4	Rock core sample (Single core tube)		Medium	200 - 600	Medium spaced	200 - 600								
Medium dense	10 - 30	Firm	5 - 8	Rock core sample (Double core tube)		Thin	60 - 200	Closely spaced	60 - 200								
Dense	30 - 50	Stiff	9 - 15	Rock core sample (Core Loss)		Very thin	20 - 60	Very closely spaced	20 - 60								
Very dense	over 50	Very stiff	16 - 30	W-1 Water sample		Thickly laminated	6 - 20	Extremely closely spaced	< 20								
		Hard	over 30			Thinly laminated	< 6	Remarks									

PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 15.05.2017 ~ 16.05.2017

LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation CLIENT : ORIENTAL CONSULTANTS GLOBAL CO., LTD.

GROUND LEVEL : CDL : +4.31m ORIENTATION : Vertical

COORDINATE : E 195331.000 ; N 2429984.000 DEPTH : 27.00m GROUND WATER LEVEL : 3.00m

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (%) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING			SCALE (m)			
											WATER DEPTH (m)	DEPTH GL. (m)	CURVE OF BLOW			SAMPLE (Type & No.)	DEPTH GL. (m)		TCR (%)	SCR (%)	ROD (%)
													N-Value (Blows / 30cm)	N-Value (Blows / 30cm)							
	-2.69	7.00	7.00		yellowish brown to gray	Very loose to loose	Silty SAND	Very loose to loose, yellowish brown to gray, moist, fine to medium grained, Silty SAND			1.00	9/30	P-1	1.00							
											2.00	3/30	P-2	2.00							
											3.00	6/30	P-3	3.00							
											4.00	5/30	P-4	4.00							
											5.00	10/30	P-5	5.00							
											6.00	8/30	P-6	6.00							
											7.00	2/30	P-7	7.00							
					gray	Soft	CLAY	Soft, gray, moist, low to medium plasticity, CLAY with silt	8.00	Ø112	8.00	2/30	T-1	8.00							
	-4.69	9.00	2.00						15.05.17		9.00	5/30	P-8	9.00							
					gray	Loose to Medium dense	Silty SAND	Loose to medium dense, gray, moist, fine to medium grained, Silty SAND			10.00	12/30	P-9	10.00							
											11.00	11/30	P-10	11.00							
											12.00	17/30	P-11	12.00							
											13.00	23/30	P-12	13.00							
	-8.69	13.00	4.00		gray	Medium dense to dense	Silty SAND	Medium dense to dense, gray, moist, fine to medium grained, Silty SAND			14.00	17/30	P-13	14.00							
											15.00	34/30	P-14	15.00							
											16.00	29/30	P-15	16.00							
											17.00	29/30	P-16	17.00							
											18.00	17/30	P-17	18.00							
											19.00	36/30	P-18	19.00							
	-14.69	19.00	6.00		gray	Dense to very dense	SAND	Dense to very dense, gray, moist, fine to medium grained, SAND			20.00	50/25	P-19	20.00							
											21.00	50/22	P-20	21.00							
											22.00	50/28	P-21	22.00							
											23.00	50/28	P-22	23.00							
											24.00	50/26	P-23	24.00							
											25.00	50/20	P-24	25.00							
											26.00	50/25	P-25	26.00							
											27.00	50/28	P-26	27.00							
	-23.12	27.43	8.43						16.05.17	27.00											
								This borehole is terminated at 27.00m, according to the termination criteria.													

NOTES		Sample key		Planner structure		Discontinuities		<div style="text-align: center;"> Saramayri - Fuji Construction Co., Ltd. Revision No. _____ Rev: 01 Revision Date _____ 05.07.2017 </div>																																																																							
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PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "D1" DATE : 16.05.2017 ~ 18.05.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +1.20m ORIENTATION : Vertical
 COORDINATE : E 195210.000 ; N 2430006.000 DEPTH : 35.00m GROUND WATER LEVEL : Under River Bed **CLIENT**
ORIENTAL CONSULTANTS GLOBAL CO., LTD.

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (%) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING				SCALE (m)		
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW			SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)		ROD (%)	
														0	10	20							30
1	-9.80	11.00	11.00		gray	Very loose to medium dense	Silty SAND	Very loose to medium dense, gray, moist to wet, fine to medium grained, Silty SAND, with trace of mica mineral	16.05.17	Ø112		1.00	3/30				P-1	1.00				1	
2												1.45	3/30				P-2	2.00				2	
3												2.45	3/30				P-3	3.00				3	
4												3.45	5/30				P-4	4.00				4	
5												4.45	5/30				P-5	5.00				5	
6												5.45	4/30				P-6	6.00				6	
7												6.45	4/30				P-7	7.00				7	
8												7.45	12/30				P-8	8.00				8	
9												8.45	12/30				P-9	9.00				9	
10												9.45	8/30				P-10	10.00				10	
11												10.45	30/30				P-11	11.00				11	
12					gray	Medium dense	Silty SAND	Medium dense, gray, moist, fine to medium grained, Silty SAND	17.05.17			11.00	20/30				P-12	12.00				12	
13												12.45	18/30				P-13	13.00				13	
14												13.45	20/30				P-14	14.00				14	
15												14.45	23/30				P-15	15.00				15	
16												15.45	25/30				P-16	16.00				16	
17												16.45	20/30				P-17	17.00				17	
18												17.45	22/30				P-18	18.00				18	
19					yellowish brown	Medium dense to very dense	SAND	Medium dense to very dense, yellowish brown, moist, fine to medium grained, SAND, with trace of fine gravel					18.45	35/30				P-19	19.00				19
20												19.45	38/30				P-20	20.00				20	
21												20.45	49/30				P-21	21.00				21	
22												21.45	50/25				P-22	22.00				22	
23												22.40	50/25				P-23	23.00				23	
24												23.40	50/27				P-24	24.00				24	
25												24.42	50/26				P-25	25.00				25	
26												25.41	37/30				P-26	26.00				26	
27												26.45	50/23				P-27	27.00				27	
28												27.38	50/30				P-28	28.00				28	
29												28.45	48/30				P-29	29.00				29	
30												29.45	27/30				P-30	30.00				30	
31												30.45										31	

Continue to next sheet

NOTES

Relative density description		Consistency description	
Relative density	SPT N-Value (max)	Consistency	SPT N-Value (max)
Very loose	0 - 4	Very soft	under 2
Loose	4 - 10	Soft	2 - 4
Medium dense	10 - 30	Firm	5 - 8
Dense	30 - 50	Stiff	9 - 15
Very dense	over 50	Very stiff	16 - 30
		Hard	over 30

Sample key

- Disturbed sample (SPT sample)
- Undisturbed Sample (Piston sampler)
- Undisturbed Sample (Denison sampler)
- Rock core sample (Single core tube)
- Rock core sample (Double core tube)
- Rock core sample (Core Loss)
- Water sample

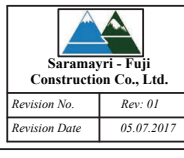
Planner structure

Term	Spacing (mm)
Very thick	> 2000
Thick	600 - 2000
Medium	200 - 600
Thin	60 - 200
Very thin	20 - 60
Thickly laminated	6 - 20
Thinly laminated	< 6

Discontinuities

Term	Spacing (mm)
Very widely spaced	> 2000
Widely spaced	600 - 2000
Medium spaced	200 - 600
Closely spaced	60 - 200
Very closely spaced	20 - 60
Extremely closely spaced	< 20

Remarks

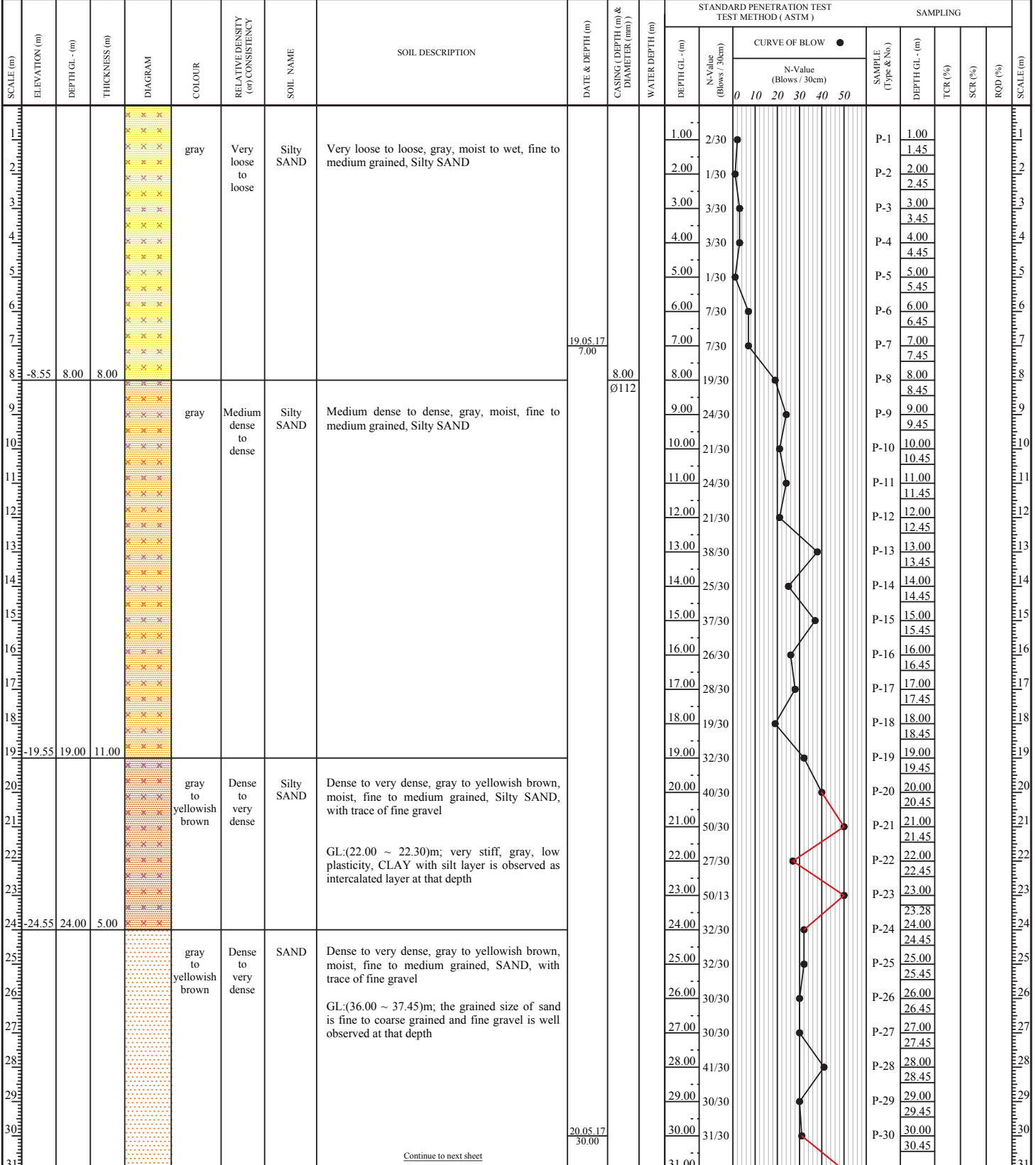



PROJECT NAME : Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar BORING EQUIPMENT : TOHO "DI" DATE : 16.05.2017 ~ 18.06.2017
 LOCATION : Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region. BORING METHOD : Rotary Direct Circulation
 GROUND LEVEL : CDL : +1.20m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195210.000 ; N 2430006.000 DEPTH : 35.00m GROUND WATER LEVEL : Under River Bed **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING				SCALE (m)			
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																					0	10	20
31					yellowish brown	Medium dense to very dense	SAND	Medium dense to very dense, yellowish brown, moist, fine to medium grained, SAND, with trace of fine gravel	18.05.17			31.00	50/30					P-31	31.00				31
32												32.00	45/30					P-32	32.00				32
33												33.00	50/26					P-33	33.00				33
34												34.00	40/30					P-34	34.00				34
35												35.00	47/30					P-35	35.00				35
36								This borehole is terminated at 35.00m, according to the termination criteria.				36.00											36
37												37.00											37
38												38.00											38
39												39.00											39
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PROJECT NAME : <u>Geotechnical Survey for The Project for Development of Mandalay Port in Myanmar</u>	BORING EQUIPMENT : <u>TOHO "D1"</u>	DATE : <u>19.05.2017 ~ 22.05.2017</u>
LOCATION : <u>Mandalay Port Area, Chan Mya Tha Zi Township, Mandalay Region.</u>	BORING METHOD : <u>Rotary Direct Circulation</u>	CLIENT ORIENTAL CONSULTANTS GLOBAL CO., LTD.
GROUND LEVEL : <u>CDL : -0.55m</u>	ORIENTATION : <u>Vertical</u>	
COORDINATE : <u>E 195120.000 ; N 2430036.000</u>	DEPTH : <u>40.00m</u>	GROUND WATER LEVEL : <u>Under River Bed</u>



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 GROUND LEVEL : CDL : -0.55m ORIENTATION : Vertical **CLIENT**
 COORDINATE : E 195120.000 ; N 2430036.000 DEPTH : 40.00m GROUND WATER LEVEL : Under River Bed **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL - (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING / DEPTH (m) & DIAMETER (mm)	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)			SAMPLING				SCALE (m)							
												DEPTH GL - (m)	N-Value (Blows / 30cm)	CURVE OF BLOW	SAMPLE (Type & No.)	DEPTH GL - (m)	TCR (%)	SCR (%)		ROD (%)						
																					0	10	20	30	40	50
31							SAND	Dense to very dense, gray to yellowish brown, moist, fine to medium grained, SAND, with trace of fine gravel																		
32								GL:(36.00 ~ 37.45)m; the grained size of sand is fine to coarse grained and fine gravel is well observed at that depth																		
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NOTES

Relative density description	Consistency description	
Relative density	SPT N-Value (max)	SPT N-Value (max)
Very loose	0 - 4	Very soft
Loose	4 - 10	Soft
Medium dense	10 - 30	Firm
Dense	30 - 50	Stiff
Very dense	over 50	Very stiff
		Hard

Sample key

● P-1 Disturbed sample (SPT sample)	PBT Permeability Test
T-1 Undisturbed Sample (Piston sampler)	VS Vane Shear Test
D-1 Undisturbed Sample (Denison sampler)	PMT Pressuremeter Test
Rock core sample (Single core tube)	RQD (%) Term
Rock core sample (Double core tube)	0 - 25 Very poor
Rock core sample (Core Loss)	25 - 50 Poor
Water sample	50 - 75 Fair
	75 - 90 Good
	90 - 100 Excellent

Planner structure

Term	Spacing (mm)
Very thick	> 2000
Thick	600 - 2000
Medium	200 - 600
Thin	60 - 200
Very thin	20 - 60
Thickly laminated	6 - 20
Thinly laminated	< 6

Discontinuities

Term	Spacing (mm)
Very widely spaced	> 2000
Widely spaced	600 - 2000
Medium spaced	200 - 600
Closely spaced	60 - 200
Very closely spaced	20 - 60
Extremely closely spaced	< 20

Remarks

Saramayri - Fuji Construction Co., Ltd.
 Revision No. _____ Rev: 01
 Revision Date _____ 05.07.2017

PROJECT NAME : Soil Investigation for Inland Water Transport Facilities Improvement BORING EQUIPMENT : TOHO "D-1" DATE : From 03.07.13 to 04.07.13
 LOCATION : Ayeeyarwaddy River at Mandalay Port, Mandalay Region BORING METHOD : Rotary (Direct circulation) LOGGED BY : **Kaung Myat Thu**
 GROUND LEVEL : CDL : +3.20m ORIENTATION : Vertical CLIENT
 COORDINATE : E 195253.000 ; N 2429918.000 DEPTH : 25.00m GROUND WATER LEVEL : Under River Bed **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING						
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW				SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)	ROD (%)	SCALE (m)
														0	10	20	30						
1				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I	Very loose to medium dense, brown to gray, moist, fine grained, low plasticity, fine to medium grained, Silty SAND		3.00	Ø127	1.00	1/30			P-1	1.00				1		
2				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					2.00	4/30			P-2	2.00				2		
3				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					3.00	3/30			P-3	3.00				3		
4				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					4.00	2/30			P-4	4.00				4		
5				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					5.00	6/30			P-5	5.00				5		
6				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					6.00	6/30			P-6	6.00				6		
7				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					7.00	7/30			P-7	7.00				7		
8				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					8.00	6/30			P-8	8.00				8		
9				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					9.00	18/30			P-9	9.00				9		
10				x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					10.00	16/30			P-10	10.00				10		
11	-7.80	11.00	11.00	x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					11.00	22/30			P-11	11.00				11		
12				x x x x	gray	Medium dense	Silty SAND-II	Medium dense, gray, moist to wet, fine grained, SAND				12.00	24/30			P-12	12.00				12		
13				x x x x	gray	Medium dense	Silty SAND-II	GL-(13.0-14.0)m; traced of fine gravel are including at that depth, sub-angular to sub-rounded				13.00	24/30			P-13	13.00				13		
14				x x x x	gray	Medium dense	Silty SAND-II					14.00	16/30			P-14	14.00				14		
15				x x x x	gray	Medium dense	Silty SAND-II					15.00	21/30			P-15	15.00				15		
16				x x x x	gray	Medium dense	Silty SAND-II					16.00	21/30			P-16	16.00				16		
17	-13.80	17.00	6.00	x x x x	gray	Medium dense	Silty SAND-II					17.00	34/30			P-17	17.00				17		
18				x x x x	gray	Dense	SAND	Dense, gray, wet to moist, fine to medium grained, SAND				18.00	36/30			P-18	18.00				18		
19				x x x x	gray	Dense	SAND					19.00	31/30			P-19	19.00				19		
20				x x x x	gray	Dense	SAND		03.07.13			20.00	35/30			P-20	20.00				20		
21				x x x x	gray	Dense	SAND					21.00	33/30			P-21	21.00				21		
22				x x x x	gray	Dense	SAND					22.00	33/30			P-22	22.00				22		
23				x x x x	gray	Dense	SAND					23.00	50/30			P-23	23.00				23		
24				x x x x	gray	Dense	SAND					24.00	50/30			P-24	24.00				24		
25	-22.25	25.45	8.450	x x x x	gray	Dense	SAND		04.07.13			25.00	50/30			P-25	25.00				25		
26				x x x x	gray	Dense	SAND	BH-05 is terminated at 25.00m after confirmation.				26.00									26		
27				x x x x	gray	Dense	SAND					27.00									27		
28				x x x x	gray	Dense	SAND					28.00									28		
29				x x x x	gray	Dense	SAND					29.00									29		
30				x x x x	gray	Dense	SAND					30.00									30		
31				x x x x	gray	Dense	SAND					31.00									31		

NOTES

Relative density description		Consistency description	
Relative density	SPT N-Value (meas)	Consistency	SPT N-Value (meas)
Very loose	0 - 4	Very soft	0 - 1
Loose	5 - 10	Soft	2 - 4
Medium dense	11 - 30	Firm	5 - 8
Dense	31 - 50	Stiff	9 - 15
Very dense	> 51	Very stiff	16 - 30
		Hard	> 31

Sample key		Planner structure		Discontinuities	
	Disturbed sample (SPT sample)		Very thick		Very widely spaced
	Undisturbed Sample (Piston sampler)		Thick		Widely spaced
	Undisturbed Sample (Denison sampler)		Medium		Medium spaced
	Rock core sample (Single core tube)		Thin		Closely spaced
	Rock core sample (Double core tube)		Very thin		Very closely spaced
	Water sample		Thickly laminated		Extremely closely spaced
	Rock core sample (Double core tube)		Thinly laminated		

Term	Spacing (mm)
Very thick	> 2000
Thick	600 - 2000
Medium	200 - 600
Thin	60 - 200
Very thin	20 - 60
Thickly laminated	6 - 20
Thinly laminated	< 6

Term	Spacing (mm)
Very widely spaced	> 2000
Widely spaced	600 - 2000
Medium spaced	200 - 600
Closely spaced	60 - 200
Very closely spaced	20 - 60
Extremely closely spaced	< 20

Saramayri - Fuji Construction Co., Ltd

Revision No. Rev-00
 Revision Date 13.07.2013
 Site Engineer : Pyae Phyo Aung
 Operator : Aung Zaw Win
 Checked by : Tin Hta Naing
 Approved by : Tin Min Zaw

PROJECT NAME : Soil Investigation for Inland Water Transport Facilities Improvement BORING EQUIPMENT : TOHO "D-1" DATE : From 04.07.13 to 05.07.13
 LOCATION : Ayeeyarwaddy River at Mandalay Port, Mandalay Region BORING METHOD : Rotary (Direct circulation) LOGGED BY : Kaung Myat Thu
 GROUND LEVEL : CDL : +7.18m ORIENTATION : Vertical CLIENT
 COORDINATE : E 195341.000 ; N 2429915.000 DEPTH : 33.00m GROUND WATER LEVEL : GL-4.00m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (D _r) / CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)		SAMPLING					
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW	SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)	ROD (%)
1					yellowish brown to gray	Loose	Silty SAND-I	Loose, yellowish brown to gray, moist to wet, fine to medium grained, Silty SAND		3.00	Ø115	1.00	5/30	P-1	1.00				
2												2.00	9/30	P-2	1.45				
3												3.00	7/30	P-3	2.00				
4												4.00	7/30	P-4	2.45				
5												5.00	5/30	P-5	3.00				
6												6.00	6/30	P-6	3.45				
7												7.00	9/30	P-7	4.00				
8												8.00	5/30	P-8	4.45				
9	-1.52	8.70	8.70									9.00	3/30	P-9	5.00				
10					gray	Soft to firm	CLAY-I	Soft to firm, gray, moist to wet, medium to high plasticity, CLAY, traced of fine sand				10.00		T-1	9.45				
11	-3.82	11.00	2.30									11.00	5/30	P-10	10.80				
12												12.00	9/30	P-11	11.00				
13					gray	Loose to medium dense	Silty SAND-I	Loose to medium dense, gray, moist to wet, fine to medium grained, Silty SAND				13.00	5/30	P-12	11.45				
14												14.00	14/30	P-13	12.00				
15												15.00	10/30	P-14	12.45				
16	-9.32	16.50	5.50									16.00	12/30	P-15	13.00				
17												17.00	30/30	P-16	13.45				
18									04.07.13			18.00	17/30	P-17	14.00				
19									18.50			19.00	14/30	P-18	14.45				
20					gray	Medium dense	Silty SAND-II	Medium dense, gray, moist to wet, fine to medium grained, Silty SAND				20.00	19/30	P-19	15.00				
21												21.00	17/30	P-20	15.45				
22												22.00	20/30	P-21	16.00				
23												23.00	22/30	P-22	16.45				
24	-16.32	23.50	7.00									24.00	35/30	P-23	17.00				
25												25.00	32/30	P-24	17.45				
26												26.00	31/30	P-25	18.00				
27					gray	Dense	SAND	Dense, gray, moist to wet, fine to coarse grained, SAND				27.00	31/30	P-26	18.45				
28								GL-(32.0-32.5)m; thinly laminated clay layer are observed				28.00	34/30	P-27	19.00				
29												29.00	37/30	P-28	19.45				
30												30.00	49/30	P-29	20.00				
31												31.00			20.45				

<p>NOTES</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Relative density description</th> <th colspan="2">Consistency description</th> </tr> <tr> <th>Relative density</th> <th>SPT N-Value (meas)</th> <th>Consistency</th> <th>SPT N-Value (meas)</th> </tr> </thead> <tbody> <tr> <td>Very loose</td> <td>0 - 4</td> <td>Very soft</td> <td>0 - 1</td> </tr> <tr> <td>Loose</td> <td>5 - 10</td> <td>Soft</td> <td>2 - 4</td> </tr> <tr> <td>Medium dense</td> <td>11 - 30</td> <td>Firm</td> <td>5 - 8</td> </tr> <tr> <td>Dense</td> <td>31 - 50</td> <td>Stiff</td> <td>9 - 15</td> </tr> <tr> <td>Very dense</td> <td>> 51</td> <td>Very stiff</td> <td>16 - 30</td> </tr> <tr> <td></td> <td></td> <td>Hard</td> <td>> 31</td> </tr> </tbody> </table> <p>Ref: Terrazghi et al., 1996</p>	Relative density description		Consistency description		Relative density	SPT N-Value (meas)	Consistency	SPT N-Value (meas)	Very loose	0 - 4	Very soft	0 - 1	Loose	5 - 10	Soft	2 - 4	Medium dense	11 - 30	Firm	5 - 8	Dense	31 - 50	Stiff	9 - 15	Very dense	> 51	Very stiff	16 - 30			Hard	> 31	<p>Sample key</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td> Disturbed sample (SPT sample)</td> <td> Rock core sample (Core lost)</td> </tr> <tr> <td> Undisturbed Sample (Piston sampler)</td> <td> Water sample</td> </tr> <tr> <td> Undisturbed Sample (Denison sampler)</td> <td></td> </tr> <tr> <td> Rock core sample (Single core tube)</td> <td></td> </tr> <tr> <td> Rock core sample (Double core tube)</td> <td></td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>RQD (%)</th> <th>Term</th> </tr> </thead> <tbody> <tr> <td>0 - 25</td> <td>Very poor</td> </tr> <tr> <td>25 - 50</td> <td>Poor</td> </tr> <tr> <td>50 - 75</td> <td>Fair</td> </tr> <tr> <td>75 - 90</td> <td>Good</td> </tr> <tr> <td>90 - 100</td> <td>Excellent</td> </tr> </tbody> </table>	Disturbed sample (SPT sample)	Rock core sample (Core lost)	Undisturbed Sample (Piston sampler)	Water sample	Undisturbed Sample (Denison sampler)		Rock core sample (Single core tube)		Rock core sample (Double core tube)		RQD (%)	Term	0 - 25	Very poor	25 - 50	Poor	50 - 75	Fair	75 - 90	Good	90 - 100	Excellent	<p>Planner structure</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Term</th> <th>Spacing (mm)</th> </tr> </thead> <tbody> <tr> <td>Very thick</td> <td>> 2000</td> </tr> <tr> <td>Thick</td> <td>600 - 2000</td> </tr> <tr> <td>Medium</td> <td>200 - 600</td> </tr> <tr> <td>Thin</td> <td>60 - 200</td> </tr> <tr> <td>Very thin</td> <td>20 - 60</td> </tr> <tr> <td>Thickly laminated</td> <td>6 - 20</td> </tr> <tr> <td>Thinly laminated</td> <td>< 6</td> </tr> </tbody> </table>	Term	Spacing (mm)	Very thick	> 2000	Thick	600 - 2000	Medium	200 - 600	Thin	60 - 200	Very thin	20 - 60	Thickly laminated	6 - 20	Thinly laminated	< 6	<p>Discontinuities</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Term</th> <th>Spacing (mm)</th> </tr> </thead> <tbody> <tr> <td>Very widely spaced</td> <td>> 2000</td> </tr> <tr> <td>Widely spaced</td> <td>600 - 2000</td> </tr> <tr> <td>Medium spaced</td> <td>200 - 600</td> </tr> <tr> <td>Closely spaced</td> <td>60 - 200</td> </tr> <tr> <td>Very closely spaced</td> <td>20 - 60</td> </tr> <tr> <td>Extremely closely spaced</td> <td>< 20</td> </tr> </tbody> </table> <p>Remarks</p>	Term	Spacing (mm)	Very widely spaced	> 2000	Widely spaced	600 - 2000	Medium spaced	200 - 600	Closely spaced	60 - 200	Very closely spaced	20 - 60	Extremely closely spaced	< 20
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Saramayri - Fuji Construction Co., Ltd

Revision No. Rev-00
 Revision Date 13.07.2013
 Site Engineer: Wai Phyo Aung
 Operator: Han Win
 Checked by: Tin Htat Naing
 Approved by: Tin Min Zaw

PROJECT NAME : Soil Investigation for Inland Water Transport Facilities Improvement BORING EQUIPMENT : TOHO "D-1" DATE : From 04.07.13 to 05.07.13
 LOCATION : Ayeeyarwaddy River at Mandalay Port, Mandalay Region BORING METHOD : Rotary (Direct circulation) LOGGED BY : Kaung Myat Thu
 GROUND LEVEL : CDL : +7.18m ORIENTATION : Vertical CLIENT
 COORDINATE : E 195341.000 ; N 2429915.000 DEPTH : 33.00m GROUND WATER LEVEL : GL-4.00m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING				SCALE (m)		
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW			SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)		SCR (%)	ROD (%)
														0	10	20						
31					gray	Dense	SAND	Dense, gray, moist to wet, fine to coarse grained, SAND	05.07.13 33.50			31.00	45/30								31	
32								GL-(32.0-32.5)m; thinly laminated clay layer are observed					32.00	31/30								32
33	-26.27	33.45	9.95										33.00	34/30								33
34								BH-06 is terminated at 33.00m after confirmation.				34.00									34	
35												35.00									35	
36												36.00									36	
37												37.00									37	
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PROJECT NAME : Soil Investigation for Inland Water Transport Facilities Improvement BORING EQUIPMENT : TOHO "D-1" DATE : From 01.07.13 to 03.07.13
 LOCATION : Ayeeyarwaddy River at Mandalay Port, Mandalay Region BORING METHOD : Rotary (Direct circulation) LOGGED BY : Kaung Myat Thu
 GROUND LEVEL : CDL : 5.56m ORIENTATION : Vertical CLIENT
 COORDINATE : E 195652.000 ; N 2430020.000 DEPTH : 39.00m GROUND WATER LEVEL : GL-4.26m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)			SAMPLING					
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW	SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)	ROD (%)	SCALE (m)
1					yellowish brown	Firm to soft	CLAY-I	Firm to soft, yellowish brown to gray, moist to wet, low to medium plasticity, CLAY, traced of fine sand GL-(1.0-2.0)m; fine sand percent is high GL-(7.010.0)m; thin fine sand layer are observed as intercalated layer		2.00 Ø115		1.00	7/30		P-1	1.00				1
2												2.00	6/30		P-2	2.00				2
3												3.00	2/30		P-3	3.00				3
4												4.00			T-1	4.00				4
5												5.00	3/30		P-4	4.80				5
6												6.00			T-2	6.00				6
7												7.00	7/30		P-5	6.80				7
8												8.00	8/30		P-6	7.45				8
9												9.00	5/30		P-7	8.45				9
10												10.00	5/30		P-8	9.00				10
11												11.00			T-3	9.45				11
12												12.00	4/30		P-9	10.00				12
13												13.00	3/30		P-10	10.45				13
14	52.649	14.00	14.00									14.00	9/30		P-11	11.00				14
15												15.00	10/30		P-12	11.80				15
16					mottled gray and yellowish brown	Stiff to very stiff	CLAY-II	Stiff to very stiff, mottled gray and yellowish brown, moist to wet, medium to high plasticity, CLAY GL-(10.0-13.0)m; organic matter are observed at that depth				16.00	20/30		P-13	12.00				16
17												17.00	18/30		P-14	12.45				17
18												18.00	23/30		P-15	13.00				18
19												19.00	16/30		P-16	13.45				19
20												20.00	17/30		P-17	14.00				20
21	45.949	20.70	6.70									21.00	20/30		P-18	14.45				21
22					yellowish brown	Medium dense	Silty SAND-II	Medium dense, yellowish brown, moist to wet, fine grained, Silty SAND, traced of clay patches				22.00	16/30		P-19	15.00				22
23	43.849	22.80	2.10									23.00	14/30		P-20	15.45				23
24					yellowish brown	Stiff to very stiff	CLAY-II	Stiff to very stiff, yellowish brown, moist to wet, medium plasticity, CLAY, traced of fine sand				24.00	23/30		P-21	16.00				24
25												25.00	15/30		P-22	16.45				25
26	41.049	25.60	2.80									26.00	44/30		P-23	17.00				26
27					yellowish brown	Dense	Silty SAND-II	Dense, yellowish brown, moist to wet, fine to medium grained, Silty SAND GL-(27.0-28.5)m; traced of fine gravel, sub-angular to sub-rounded, SPT N-value are also increased at that depth				27.00	43/30		P-24	17.45				27
28												28.00	50/30		P-25	18.00				28
29												29.00	38/30		P-26	18.45				29
30	36.649	30.00	4.40									30.00	32/30		P-27	19.00				30
31												31.00								31

NOTES

Relative density description		Consistency description	
Relative density	SPT N-Value (max)	Consistency	SPT N-Value (max)
Very loose	0 - 4	Very soft	0 - 1
Loose	5 - 10	Soft	2 - 4
Medium dense	11 - 30	Firm	5 - 8
Dense	31 - 50	Stiff	9 - 15
Very dense	> 51	Very stiff	16 - 30
		Hard	> 31

Ref: Terrazghi et al., 1996

Sample key

Disturbed sample (SPT sample)	Rock core sample (Core lost)
Undisturbed Sample (Piston sampler)	Water sample
Undisturbed Sample (Denison sampler)	
Rock core sample (Single core tube)	
Rock core sample (Double core tube)	

RQD (%)	Term
0 - 25	Very poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent

Planner structure

Term	Spacing (mm)
Very thick	> 2000
Thick	600 - 2000
Medium	200 - 600
Thin	60 - 200
Very thin	20 - 60
Thickly laminated	6 - 20
Thinly laminated	< 6

Discontinuities


Term	Spacing (mm)
Very widely spaced	> 2000
Widely spaced	600 - 2000
Medium spaced	200 - 600
Closely spaced	60 - 200
Very closely spaced	20 - 60
Extremely closely spaced	< 20

Remarks

Saramayri - Fuji Construction Co., Ltd
 Revision No. Rev-00
 Revision Date 13.07.2013
 Site Engineer : Wai Phyoo Aung
 Operator : Han Win
 Checked by : Tin Htu Naing
 Approved by : Tin Min Zaw

PROJECT NAME : Soil Investigation for Inland Water Transport Facilities Improvement BORING EQUIPMENT : TOHO "D-1" DATE : From 01.07.13 to 03.07.13
 LOCATION : Ayeeyarwaddy River at Mandaly Port, Mandalay Region BORING METHOD : Rotary (Direct circulation) LOGGED BY : **Kaung Myat Thu**
 GROUND LEVEL : CDL : 5.56m ORIENTATION : Vertical CLIENT
 COORDINATE : E 195652.000 ; N 2430020.000 DEPTH : 40.00m GROUND WATER LEVEL : GL-4.26m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (%) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)				SAMPLING				SCALE (m)		
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW		SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)		ROD (%)	
														0	10							20
31								Medium dense to dense, gray, wet, fine to medium grained, SAND	03.07.13			31.00	50/30								31	
32								GL-(37.0-39.0)m; traced of fine gravel are including at that depth, sub-angular to sub-rounded SPT N-values are also decreased	39.00			32.00	31/30	P-28	31.00						32	
33									33.00			32/30		P-29	31.45							33
34									34.00			29/30		P-30	32.00							34
35									35.00			40/30		P-31	32.45							35
36									36.00			35/30		P-32	33.00							36
37									37.00			50/30		P-33	33.45							37
38									38.00			50/30		P-34	34.00							38
39	27.199	39.45	9.45						39.00	03.07.13		50/30		P-35	34.45							39
40									40.00	39.00				P-36	35.00							40
41									BH-07 is terminated at 39.00m after confirmation.													41
42																					42	
43																					43	
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Relative density description		Consistency description		P-1 Disturbed sample (SPT sample) T-1 Undisturbed Sample (Piston sampler) D-1 Undisturbed Sample (Denison sampler)	Rock core sample (Core lost) W-1 Water sample	Rock core sample (Double core tube)		Term Spacing (mm) Very thick > 2000 Thick 600 - 2000 Medium 200 - 600 Thin 60 - 200 Very thin 20 - 60 Thickly laminated 6 - 20 Thinly laminated < 6		Term Spacing (mm) Very widely spaced > 2000 Widely spaced 600 - 2000 Medium spaced 200 - 600 Closely spaced 60 - 200 Very closely spaced 20 - 60 Extremely closely spaced < 20		Remarks		Operator : Han Win Checked by : Tin Hui Naing Approved by : Tin Min Zaw			
Relative density	SPT N-Value (meas)	Consistency	SPT N-Value (meas)			RQD (%)	Term	Remarks									
Very loose	0 - 4	Very soft	0 - 1	0 - 25	Very poor												
Loose	5 - 10	Soft	2 - 4	25 - 50	Poor												
Medium dense	11 - 30	Firm	5 - 8	50 - 75	Fair												
Dense	31 - 50	Stiff	9 - 15	75 - 90	Good												
Very dense	> 51	Very stiff	16 - 30	90 - 100	Excellent												
				Ref: Terzaghi et al., 1996													

PROJECT NAME : Soil Investigation for Inland Water Transport Facilities Improvement BORING EQUIPMENT : TOHO "D-1" DATE : From 03.07.13 to 04.07.13
 LOCATION : Ayeeyarwaddy River at Mandalay Port, Mandalay Region BORING METHOD : Rotary (Direct circulation) LOGGED BY : **Kaung Myat Thu**
 GROUND LEVEL : CDL : +3.20m ORIENTATION : Vertical CLIENT : **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**
 COORDINATE : E 195253.000 ; N 2429918.000 DEPTH : 25.00m GROUND WATER LEVEL : Under River Bed

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING						
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW				SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)	ROD (%)	SCALE (m)
														0	10	20	30						
1				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I	Very loose to medium dense, brown to gray, moist, fine grained, low plasticity, fine to medium grained, Silty SAND		3.00	Ø127	1.00	1/30			P-1	1.00				1		
2				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					2.00	4/30			P-2	2.00				2		
3				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					3.00	3/30			P-3	3.00				3		
4				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					4.00	2/30			P-4	4.00				4		
5				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					5.00	6/30			P-5	5.00				5		
6				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					6.00	6/30			P-6	6.00				6		
7				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					7.00	7/30			P-7	7.00				7		
8				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					8.00	6/30			P-8	8.00				8		
9				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					9.00	18/30			P-9	9.00				9		
10				x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					10.00	16/30			P-10	10.00				10		
11	-7.80	11.00	11.00	x x x x x	brown to gray	Very loose to medium dense	Silty SAND-I					11.00	22/30			P-11	11.00				11		
12				x x x x x	gray	Medium dense	Silty SAND-II	Medium dense, gray, moist to wet, fine grained, SAND				12.00	24/30			P-12	12.00				12		
13				x x x x x	gray	Medium dense	Silty SAND-II	GL-(13.0-14.0)m; traced of fine gravel are including at that depth, sub-angular to sub-rounded				13.00	24/30			P-13	13.00				13		
14				x x x x x	gray	Medium dense	Silty SAND-II					14.00	16/30			P-14	14.00				14		
15				x x x x x	gray	Medium dense	Silty SAND-II					15.00	21/30			P-15	15.00				15		
16				x x x x x	gray	Medium dense	Silty SAND-II					16.00	21/30			P-16	16.00				16		
17	-13.80	17.00	6.00	x x x x x	gray	Medium dense	Silty SAND-II					17.00	34/30			P-17	17.00				17		
18				x x x x x	gray	Dense	SAND	Dense, gray, wet to moist, fine to medium grained, SAND				18.00	36/30			P-18	18.00				18		
19				x x x x x	gray	Dense	SAND					19.00	31/30			P-19	19.00				19		
20				x x x x x	gray	Dense	SAND		03.07.13			20.00	35/30			P-20	20.00				20		
21				x x x x x	gray	Dense	SAND					21.00	33/30			P-21	21.00				21		
22				x x x x x	gray	Dense	SAND					22.00	33/30			P-22	22.00				22		
23				x x x x x	gray	Dense	SAND					23.00	50/30			P-23	23.00				23		
24				x x x x x	gray	Dense	SAND					24.00	50/30			P-24	24.00				24		
25	-22.25	25.45	8.450	x x x x x	gray	Dense	SAND		04.07.13			25.00	50/30			P-25	25.00				25		
26								BH-05 is terminated at 25.00m after confirmation.				26.00									26		
27												27.00									27		
28												28.00									28		
29												29.00									29		
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 GROUND LEVEL : CDL : +7.18m ORIENTATION : Vertical CLIENT
 COORDINATE : E 195341.000 ; N 2429915.000 DEPTH : 33.00m GROUND WATER LEVEL : GL-4.00m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (D _r) / CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)			SAMPLING					
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW	SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)	ROD (%)	
																				0
1					yellowish brown to gray	Loose	Silty SAND-I	Loose, yellowish brown to gray, moist to wet, fine to medium grained, Silty SAND	3.00	Ø115		1.00	5/30		P-1	1.00				1
2												2.00	9/30		P-2	2.00				2
3												3.00	7/30		P-3	3.00				3
4												4.00	7/30		P-4	4.00				4
5												5.00	5/30		P-5	5.00				5
6												6.00	6/30		P-6	6.00				6
7												7.00	9/30		P-7	7.00				7
8												8.00	5/30		P-8	8.00				8
9	-1.52	8.70	8.70									9.00	3/30		P-9	9.00				9
10					gray	Soft to firm	CLAY-I	Soft to firm, gray, moist to wet, medium to high plasticity, CLAY, traced of fine sand				10.00			T-1	10.00				10
11	-3.82	11.00	2.30									11.00	5/30		P-10	11.00				11
12												12.00	9/30		P-11	12.00				12
13					gray	Loose to medium dense	Silty SAND-I	Loose to medium dense, gray, moist to wet, fine to medium grained, Silty SAND				13.00	5/30		P-12	13.00				13
14												14.00	14/30		P-13	14.00				14
15												15.00	10/30		P-14	15.00				15
16	-9.32	16.50	5.50									16.00	12/30		P-15	16.00				16
17												17.00	30/30		P-16	17.00				17
18									04.07.13			18.00	17/30		P-17	18.00				18
19									18.50			19.00	14/30		P-18	19.00				19
20					gray	Medium dense	Silty SAND-II	Medium dense, gray, moist to wet, fine to medium grained, Silty SAND				20.00	19/30		P-19	20.00				20
21												21.00	17/30		P-20	21.00				21
22												22.00	20/30		P-21	22.00				22
23												23.00	22/30		P-22	23.00				23
24	-16.32	23.50	7.00									24.00	35/30		P-23	24.00				24
25												25.00	32/30		P-24	25.00				25
26												26.00	31/30		P-25	26.00				26
27					gray	Dense	SAND	Dense, gray, moist to wet, fine to coarse grained, SAND				27.00	31/30		P-26	27.00				27
28								GL-(32.0-32.5)m; thinly laminated clay layer are observed				28.00	34/30		P-27	28.00				28
29												29.00	37/30		P-28	29.00				29
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Saramayri - Fuji Construction Co., Ltd

Revision No. Rev-00
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 Operator : Han Win
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PROJECT NAME : Soil Investigation for Inland Water Transport Facilities Improvement BORING EQUIPMENT : TOHO "D-1" DATE : From 01.07.13 to 03.07.13
 LOCATION : Ayeeyarwaddy River at Mandalay Port, Mandalay Region BORING METHOD : Rotary (Direct circulation) LOGGED BY : Kaung Myat Thu
 GROUND LEVEL : CDL : 5.56m ORIENTATION : Vertical CLIENT
 COORDINATE : E 195652.000 ; N 2430020.000 DEPTH : 39.00m GROUND WATER LEVEL : GL-4.26m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (or) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)			SAMPLING					
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW	SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)	ROD (%)	SCALE (m)
1					yellowish brown	Firm to soft	CLAY-I	Firm to soft, yellowish brown to gray, moist to wet, low to medium plasticity, CLAY, traced of fine sand GL-(1.0-2.0)m; fine sand percent is high GL-(7.010.0)m; thin fine sand layer are observed as intercalated layer		2.00 Ø115		1.00	7/30		P-1	1.00				1
2												2.00	6/30		P-2	2.00				2
3												3.00	2/30		P-3	3.00				3
4												4.00			T-1	4.00				4
5												5.00	3/30		P-4	4.80				5
6												6.00			T-2	6.00				6
7												7.00	7/30		P-5	6.80				7
8												8.00	8/30		P-6	7.45				8
9												9.00	5/30		P-7	8.00				9
10												10.00	5/30		P-8	8.45				10
11												11.00			T-3	9.00				11
12												12.00	4/30		P-9	9.45				12
13												13.00	3/30		P-10	10.00				13
14	52.649	14.00	14.00									14.00	9/30		P-11	10.45				14
15												15.00	10/30		P-12	11.00				15
16					mottled gray and yellowish brown	Stiff to very stiff	CLAY-II	Stiff to very stiff, mottled gray and yellowish brown, moist to wet, medium to high plasticity, CLAY GL-(10.0-13.0)m; organic matter are observed at that depth				16.00	20/30		P-13	11.80				16
17												17.00	18/30		P-14	12.00				17
18												18.00	23/30		P-15	12.45				18
19												19.00	16/30		P-16	13.00				19
20												20.00	17/30		P-17	13.45				20
21	45.949	20.70	6.70									21.00	20/30		P-18	14.00				21
22					yellowish brown	Medium dense	Silty SAND-II	Medium dense, yellowish brown, moist to wet, fine grained, Silty SAND, traced of clay patches				22.00	16/30		P-19	14.45				22
23	43.849	22.80	2.10									23.00	14/30		P-20	15.00				23
24					yellowish brown	Stiff to very stiff	CLAY-II	Stiff to very stiff, yellowish brown, moist to wet, medium plasticity, CLAY, traced of fine sand				24.00	23/30		P-21	15.45				24
25												25.00	15/30		P-22	16.00				25
26	41.049	25.60	2.80									26.00	44/30		P-23	16.45				26
27					yellowish brown	Dense	Silty SAND-II	Dense, yellowish brown, moist to wet, fine to medium grained, Silty SAND GL-(27.0-28.5)m; traced of fine gravel, sub-angular to sub-rounded, SPT N-value are also increased at that depth				27.00	43/30		P-24	17.00				27
28												28.00	50/30		P-25	17.45				28
29												29.00	38/30		P-26	17.80				29
30	36.649	30.00	4.40									30.00	32/30		P-27	18.45				30
31												31.00								31

NOTES

Relative density description		Consistency description	
Relative density	SPT N-Value (max)	Consistency	SPT N-Value (max)
Very loose	0 - 4	Very soft	0 - 1
Loose	5 - 10	Soft	2 - 4
Medium dense	11 - 30	Firm	5 - 8
Dense	31 - 50	Stiff	9 - 15
Very dense	> 51	Very stiff	16 - 30
		Hard	> 31

Ref: Terrazghi et al., 1996

Sample key

P-1	Disturbed sample (SPT sample)		Rock core sample (Core lost)
T-1	Undisturbed Sample (Piston sampler)		Water sample
D-1	Undisturbed Sample (Denison sampler)		
	Rock core sample (Single core tube)		
	Rock core sample (Double core tube)		

RQD (%)	Term
0 - 25	Very poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent

Planner structure

Term	Spacing (mm)
Very thick	> 2000
Thick	600 - 2000
Medium	200 - 600
Thin	60 - 200
Very thin	20 - 60
Thickly laminated	6 - 20
Thinly laminated	< 6

Discontinuities

Term	Spacing (mm)
Very widely spaced	> 2000
Widely spaced	600 - 2000
Medium spaced	200 - 600
Closely spaced	60 - 200
Very closely spaced	20 - 60
Extremely closely spaced	< 20

Remarks

Saramayri - Fuji Construction Co., Ltd
 Revision No. Rev-00
 Revision Date 13.07.2013
 Site Engineer : Wai Phyv Aung
 Operator : Han Win
 Checked by : Tin Htu Naing
 Approved by : Tin Min Zaw

PROJECT NAME : Soil Investigation for Inland Water Transport Facilities Improvement BORING EQUIPMENT : TOHO "D-1" DATE : From 01.07.13 to 03.07.13

LOCATION : Ayeeyarwaddy River at Mandaly Port, Mandalay Region BORING METHOD : Rotary (Direct circulation) LOGGED BY : Kaung Myat Thu

GROUND LEVEL : CDL : 5.56m ORIENTATION : Vertical CLIENT

COORDINATE : E 195652.000 ; N 2430020.000 DEPTH : 40.00m GROUND WATER LEVEL : GL-4.26m **ORIENTAL CONSULTANTS GLOBAL CO., LTD.**

SCALE (m)	ELEVATION (m)	DEPTH GL. (m)	THICKNESS (m)	DIAGRAM	COLOUR	RELATIVE DENSITY (%) CONSISTENCY	SOIL NAME	SOIL DESCRIPTION	DATE & DEPTH (m)	CASING (DEPTH (m) & DIAMETER (mm))	WATER DEPTH (m)	STANDARD PENETRATION TEST TEST METHOD (ASTM)					SAMPLING				SCALE (m)			
												DEPTH GL. (m)	N-Value (Blows / 30cm)	CURVE OF BLOW			SAMPLE (Type & No.)	DEPTH GL. (m)	TCR (%)	SCR (%)		ROD (%)		
														0	10	20							30	40
31												31.00	50/30					P-28	31.00				31	
32												32.00	31/30					P-29	31.45				32	
33												33.00	32/30					P-30	32.00				33	
34												34.00	29/30					P-31	32.45				34	
35												35.00	40/30					P-32	33.00				35	
36												36.00	35/30					P-33	33.45				36	
37												37.00	50/30					P-34	34.00				37	
38												38.00	50/30					P-35	34.45				38	
39									03.07.13			39.00	50/30					P-36	38.45				39	
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