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GEOTECHNICAL LOG OF NON-CORE DRILLHOLE

BH111 Borehole No: Sheet No: 1 OF 2

Project No: 3003659

Client: **QDTMR**

Smith Olsen Detailed Design Geotech Investigation Co-ordinates System: UTM Zone 56 Project: Feature:

Easting: 535840.3m E Northing: 6906845.0m S

20.44 Surface RL (m): Angle from Horz: 90
Direction: n/a

Feature: Location: Refer Location Plan DRILLING TESTING							lan			I		Northing: 6906845.0m S	Angle from Horz: 90 Direction: n/a				
B		R	ate		ple	Œ	/RL	TES		i <u>e</u>	Symbol	SUBSTANCE Description Soil Type: density/consistency, grain size/plasticity	ure	Consistency/ Density	Other Obse	rvations	
Method	Support	Fast	Slow	Water	Sample	Depth (m)	Depth/RL	Type	Sample or Field Test	Graphic Log	usc s	Soil Type: density/consistency, grain size/plasticity, colour, particle shape/secondary components, minor constituents, moisture, origin, additional observations.	Moisture	Consi Densi			
		3	4 5	6	7	8	9 20.44	10	11	12	13	14	15	16	17		
		i	į			-	20.44					Gravelly CLAY: Firm to stiff, medium plasticity, pale brown orange-red, with weathered siltstone gravel, dry to moist, possible natural surface.					
			1			-					CI	natural surface.	D M	F St			
		Ì	į			-											
			i			1-	0.90 19.54					Clayey SILT: Hard, low plasticity, fine weathered siltstone gravel,					
ATC		İ	İ		U50						ML	moist, residual.	М	н			
4		l				-	1.50										
			1		SPT	-	18.94	s	10,14,30/			METASILTSTONE: Extremely low strength, extremely weathered, pale brown, yellow, organic rootlets, some dark grey laminations.					
		i	į			-			140mm N*=46								
			ł			2-											
		į	į			_	2.50										
$ \top $		i	T			-						Refer to Geotechnical Log of Cored Drillhole					
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tes	(In	stru	men	tation	etc):												
	acto			Drillsu								Commenced: 10/08/11			Logged By:	ME/BD	
uiin	me	nt:		lacro :	350 Tı	ack Ri	g			planator		Completed: 10/08/11			Checked By:	AR	



GEOTECHNICAL INVESTIGATIONS LOG

BH111 Borehole No: Sheet No: 2 OF 2

Project No: 3003659

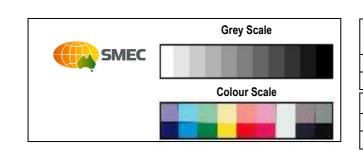
Client: **QDTMR**

Project: Smith Olsen Detailed Design Geotech Investigation Co-ordinates System: UTM Zone 56 Feature:

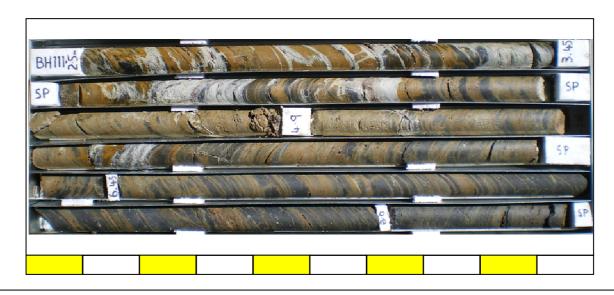
E: 535840.3

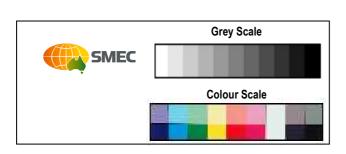
Surface RL (m): 20.44 Angle from Horz: 90

Lo	atio	n:	Re	efer	Loca	ation	Plan										845				Direct	t ion: n/a	
	DRII							SUBSTANCE									TE					DEFECTS	
								Description	W	/eat	heri	ing		Esti	mat	ed				cture		Description	
۰		٠	Į,		Œ	RL	ပ္	·				٠			engt				Spaci	ng (mm)	_	
Method	Water	TCR %	RQD %	Lift	Depth (m)	Depth/RL	Graphic Log	ROCK TYPE, mineralogy, grain size, colour, fabric, etc.	EW	ŽŽ	NS I	۲ E	ш :	ر لا	ΣI	. - ∃ ⊞	Туре	Result	40 20 1	300 100 100	Depth 0	Type, Orientation, Coating, Planari Thicki	Spacing, Infilling ty, Roughness, ness.
1	2	3	4	5	6	7	8	9	L		10	_			11		12	13		14	15	16	
- 					1			Refer to Geotechnical log of Non-cored Drillhole															
-					2-	2.50 17.94		Start Coring at 2.50m METASII TSTONE: Orange-brown weathered															
₋					_			METASILTSTONE: Orange-brown, weathered pale grey on defects, some very thin dark grey beds some purple grey mudstone in defects, low													2.75	Be, 40, Ct, Cy, Pl, Sm	
\vdash		100	28		3-			strength, highly weathered.													3.05	Be, 40, Ct, Cy, Pl, Sm	
				3.5	-	3.50															3.45	Be, 30, St, Fe, Pl, Ro	
-					=	16.94 3.80		Predominantly pale grey, extremely low strength, extremely weathered.	П				П								3.62-3.72	SM, In, Cy	
Note Core		100		4.9	4	16.64 4.10 16.34 5.60		Orange-brown, weathered pale grey on defects, some very thin dark grey beds some purple grey mudstone in defects, low strength, highly weathered. Pale orange-grey, some dark grey beds, iron staining on defects and healed fractures, low to medium strength very low strength in parts, highly weathered to extremely weathered. More frequent dark grey beds, medium strength													4.80-4.90 5.06 5.37 5.50 5.56-5.62	J, 70, St. Fe, Ir, Ro CZ J, 50, Vn, Cy, St, Sm Be, 50, St, Fe, Pl, Ro J, 30, In, Cy, Ir, Sm SM, 50, In, Cy	
NMLC		100		6.5	6— - - 7—	6.35 14.09		Predominately dark grey some pale orange, medium strength to high strength in parts.															
- - -		100	04	8.0	8-																7.40 7.55	Be, 50, Ct, Fe, Pl, Vr Be, 50, Vn, Fe, Pl, Vr	
.					-																8.20	Be, 30, Vn, Fe, Pl, Ro	
·		100	60	9.0	- -																8.55 8.70	Be, 35, St, Fe, Pl, Sm Be, 40, St, Fe, Pl, Sm	
				0.0	-9 - - -			Hole discontinued at 9.00m															
Not	es (In	stru	mei	ntatio	on etc):																	
	tracto			Drills Jacr		Track	Ria	Com Com						0/08, 0/08,								Logged By: Checked By:	ME/BD AR
-			riptic				-	ations are given on explanatory notes	ψIE	eu	•		10	J, UÖ,	11							Gleckeu by:	ΔI,

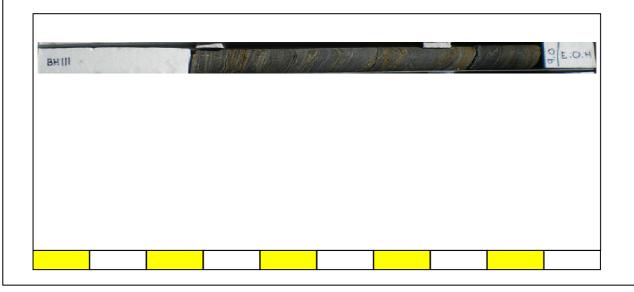


Borehole	Number	BH111						
Box	1	of	2					
Depth	2.50m	to	8.30m					
Project	Smith St & OI	sen Av	1					
Number	3003659							
Client	QDTMR							





Borehole	Number	Bŀ	1111					
Box	2	of	2					
Depth	8.30m	to	9.00m					
Project	Smith St & Olsen Av							
Number	3003659							
Client	QDTMR							





NOTES RELATING TO GEOTECHNICAL REPORTS AND SITE INVESTIGATION LOGS

GEOTECHNICAL REPORTS AND SITE INVESTIGATION LOGS

Geotechnical reports/logs are prepared by qualified personnel on the information supplied or obtained and are based on current engineering standards of interpretation and analysis.

Information may be gained from limited subsurface testing, surface observations, previous work, and is supplemented by knowledge of the local geology and experience of the range of properties that may exhibited by the materials present. For this reason, geotechnical reports should be regarded as interpretative rather than factual documents, limited to some extent by the scope of information on which they rely.

Where the report/log has been prepared for a specific purpose (e.g. design of a three-storey building), the information and interpretation may not be appropriate if the design is changed (e.g. a twenty-storey building). In such cases, the report/log and the sufficiency of the existing work should be reviewed by SMEC in the light of the new proposal.

Every care is taken with the report/log content; however, it is not always possible to anticipate or assume responsibility for the following conditions:

- Unexpected variations in ground conditions. The potential for this depends on the amount of investigative work undertaken.
- Changes in policy or interpretation by statutory authorities
- The actions of contractors responding to commercial pressures

If these occur, SMEC would be pleased to resolve the matter through further investigation, analysis or advice.

UNFORESEEN CONDITIONS

Should conditions encountered on site differ markedly from those anticipated from the information contained in the report/log, SMEC should be notified immediately. Early identification of site anomalies generally results in any problems being more readily resolved and allows re-interpretation and assessment of the implications for future work.

SUBSURFACE INFORMATION

Logs of a borehole, recovered core, test pit, excavated face, or cone penetration test are an engineering and/or geological interpretation of the subsurface conditions. The reliability of the logged information depends on the drilling/testing method, sampling/observation spacing's and the ground conditions. It is not always possible or economic to obtain continuous high-quality data. It should also be recognised that the volume of material observed or tested is only a fraction of the total subsurface profile.

Interpretation of subsurface information and application to design and construction must take into consideration the spacing of the test locations, the frequency of observations and testing, and the possibility that geological boundaries may vary between observation points.

Groundwater observations and measurements outside of specially designed and constructed piezometers should be treated with care for the following reasons:

- In low permeability soils groundwater may not seep into an excavation or bore in the short time it is left open.
- A localised perched water table may not represent the true water table.
- Groundwater levels vary according to rainfall events or season.
- Some drilling and testing procedures mask or prevent groundwater inflow.

The installation of piezometers and long-term monitoring of groundwater levels may be required to adequately identify groundwater conditions.