



Appendix C  
**Geological Bore Logs**  
GHD ASS Investigation Bore Logs









# SOIL BOREHOLE LOG

Borehole No.: BHF07

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CLIENT: <b>Port of Townsville</b>	COMMENCED: <b>17/09/08</b>	CONTRACTOR: <b>TBW Drilling</b>
PROJECT: <b>Marine Precinct EIS</b>	COMPLETED: <b>17/09/08</b>	EQUIPMENT: <b>Vibrocore</b>
LOCATION: <b>Townsville Port</b>	INCLINATION (deg): <b>90</b>	BEARING (deg): <b>MN GN DIAMETER (mm): 50</b>
JOB No.: <b>42 15399 15</b>	HORIZONTAL DATUM: <b>GDA 94X-COORDINATE: 482989</b>	Y-COORDINATE: <b>7869494</b>
LOGGED BY: <b>SL</b>	CHECKED BY:	VERTICAL DATUM: <b>R.L. SURFACE (m):</b>
		TOTAL DEPTH (m): <b>3.5</b>

Depth (m)	Method	Support	Water	Sample Type/Number	Depth   Elevation (m)	MATERIAL DESCRIPTION@#AS1726 Soil Group Symbol, soil types, particle characteristics or fines plasticity, secondary and minor components.	MASS DESCRIPTION@#Colour, structure/cement, origin, additional observations.	ENGINEERING PROPERTIES				Test Results	Graphic Log	Depth (m)	
								Moisture Condition	Consistency/Relative Density	pHox pH	pHf pH				
0	Vibrocore	Open			-1.10 0.00	Ground Surface	Water Depth -1.1m						0		
			BHF07-8	<b>Silty CLAY/ Clayey SILT (CH)</b> Sands, fine to medium, tan brown, grey	Organic matter present	W	VS								
			BHF07-7		Becoming grey after 0.8 m.										
			BHF07-6		Sand content decreasing with depth after 1.0 m										
			BHF07-5		Silty sand lens at 1.8 m										
			BHF07-4			M	S								
			BHF07-3												
			BHF07-3				-3.40 2.30	<b>SAND (SP)</b> Trace clay, fine to medium sands, tan brown	Trace fine shells	W	L				
			BHF07-2				-3.60 2.50	<b>Silty Sandy CLAY (CI)</b> Trace pockets of fine to medium sands, grey		W	VS/S				
			BHF07-1				-4.00 2.90	<b>SAND (SW)</b> Fine to coarse, trace clay and silt. Tan brown	Trace shell present	W	L				
					-4.60 3.50	End of borehole at 3.5 m									

















































# SOIL BOREHOLE LOG

Borehole No.: BHE08

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CLIENT: <b>Port of Townsville</b>	COMMENCED: <b>27/10/2008</b>	CONTRACTOR: <b>TBW Drilling</b>
PROJECT: <b>Marine Precinct EIS</b>	COMPLETED: <b>27/10/2008</b>	EQUIPMENT: <b>Vibrocore</b>
LOCATION: <b>Townsville Port</b>	INCLINATION (deg):	BEARING (deg):
JOB No.: <b>42 15399 15</b>	HORIZONTAL DATUM: <b>GDA94</b>	X-COORDINATE: <b>483091</b>
LOGGED BY: <b>SL</b>	CHECKED BY:	VERTICAL DATUM: <b>R.L. SURFACE (m)</b>
		DIAMETER (mm): <b>50</b>
		Y-COORDINATE: <b>7869394</b>
		TOTAL DEPTH (m): <b>3.5</b>

Depth (m)	Method	Support	Water	Sample Type/Number	Depth   Elevation (m)	MATERIAL DESCRIPTION@#AS1726 Soil Group Symbol, soil types, particle characteristics or fines plasticity, secondary and minor components.	MASS DESCRIPTION@#Colour, structure/cement, origin, additional observations.	ENGINEERING PROPERTIES				Test Results	Graphic Log	Depth (m)
								Moisture Condition	Consistency/Relative Density	pH <sub>f</sub> pH	pH <sub>ox</sub> pH			
0					0.00	Ground Surface	Water Depth - 1.1m							0
	Vibrocore	Open		BHE08-06	0.00	<b>Silty CLAY (CI)</b> Fine to medium sand, grey, core product supersaturated.	Core compaction from 0.0 - 1.0m.	W	VS					
				BHE08-05										
				BHE08-04	-1.40 1.40	<b>Silty CLAY/Clayey SILT (CH)</b> Dark grey/black.	Organic matter as mottles and staining	W	VS					
				BHE08-03				M	S					
				BHE08-02										
				BHE08-01		Band of fine to medium sand at 3.0m for 50mm	Trace shell and mica in band							
					-3.50 3.50	End of Borehole at 3.5m			S/F					



















# SOIL BOREHOLE LOG

## Borehole No.: BHG13

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CLIENT: <b>Port of Townsville</b>	COMMENCED: <b>27/10/2008</b>	CONTRACTOR: <b>TBW Drilling</b>
PROJECT: <b>Marine Precinct EIS</b>	COMPLETED: <b>27/10/2008</b>	EQUIPMENT: <b>Vibrocore</b>
LOCATION: <b>Townsville Port</b>	INCLINATION (deg):	BEARING (deg):
JOB No.: <b>42 15399 15</b>	HORIZONTAL DATUM: <b>GDA94 X-COORDINATE: 483620</b>	MN <input type="checkbox"/> GN <input type="checkbox"/> DIAMETER (mm): <b>50</b>
LOGGED BY: <b>SL</b>	CHECKED BY:	VERTICAL DATUM: <b>R.L. SURFACE (m):</b>
		TOTAL DEPTH (m): <b>6.0</b>

Depth (m)	Method	Support	Water	Sample Type/Number	Depth   Elevation (m)	MATERIAL DESCRIPTION@#AS1726 Soil Group Symbol, soil types, particle characteristics or fines plasticity, secondary and minor components.	MASS DESCRIPTION@#Colour, structure/cement, origin, additional observations.	ENGINEERING PROPERTIES				Test Results	Graphic Log	Depth (m)	
								Moisture Condition	Consistency/Relative Density	pH <sub>f</sub> pH	pH <sub>ox</sub> pH				
0	Vibrocore	Open			0.00	Ground Surface	Water Depth - 0.8m							0	
			BHG13-14	0.00	<b>SAND (SP)</b> Fine to medium sand, trace coarse sand, trace silt, light brown.	Trace fine to coarse sand size shell fragments.	W	L							
			BHG13-13												
1			BHG13-12	-0.90 0.90	<b>Silty CLAY/Clayey SILT (CH)</b> Trace fine to medium sand, grey.		W	S							1
			BHG13-11	-1.30 1.30	<b>SAND (SP)</b> Fine to medium sand, trace coarse sand.	Trace fine to coarse sand sized shell fragments.	W	L-VL							
			BHG13-10												
			BHG13-09						Some core loss between 2.0 - 2.7m.						
			BHG13-08	-2.70 2.70	<b>Silty SAND (SM)</b> Fine sand, some medium sand, trace clay, grey.	Trace fine to coarse sand sized shell fragments.	W	L							
			BHG13-07	-3.20 3.20	Band of fine to coarse sand.		W	L							
			BHG13-06		<b>SAND (SP)</b> Fine to medium sand, some coarse sand, trace silt, pockets of trace clay.	Trace fine to medium sand size shell fragments. Trace organic matter as coarse fragments.	W	L-MD							
			BHG13-05												
			BHG13-04												
			BHG13-03	-4.50 4.50	<b>Silty CLAY/Clayey SILT (CH)</b> Trace fine to medium sand, grey.										
			BHG13-02												
	BHG13-01							M	F-ST						
6					-6.00 6.00	End of Borehole at 6.0m.							6		









# SOIL BOREHOLE LOG

Borehole No.: BJJ11

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CLIENT: <b>Port of Townsville</b>	COMMENCED: <b>25/10/08</b>	CONTRACTOR: <b>TBW Drilling</b>
PROJECT: <b>Marine Precinct EIS</b>	COMPLETED: <b>25/10/08</b>	EQUIPMENT: <b>Vibrocore</b>
LOCATION: <b>Townsville Port</b>	INCLINATION (deg):	BEARING (deg):
JOB No.: <b>42 15399 15</b>	HORIZONTAL DATUM: <b>GDA94</b>	X-COORDINATE: <b>483413</b>
LOGGED BY: <b>SL</b>	CHECKED BY:	VERTICAL DATUM: <b>R.L. SURFACE (m)</b>
		Y-COORDINATE: <b>7869914</b>
		TOTAL DEPTH (m): <b>4.5</b>

Depth (m)	Method	Support	Water	Sample Type/Number	Depth   Elevation (m)	MATERIAL DESCRIPTION@#AS1726 Soil Group Symbol, soil types, particle characteristics or fines plasticity, secondary and minor components.	MASS DESCRIPTION@#Colour, structure/cement, origin, additional observations.	ENGINEERING PROPERTIES				Test Results	Graphic Log	Depth (m)	
								Moisture Condition	Consistency/Relative Density	pHfox pH	pHf pH				
0	Vibrocore	Open			0.00	Ground Surface	Water Depth - 1.9m.							0	
			BHJ11-10	0.00	<b>SAND (SP)</b> Fine to coarse sand, light tan/brown.	Fine to coarse sand sized shell fragments.	W	L							
			BHJ11-9												
1			BHJ11-8	-0.90 0.90	<b>SAND (SP)</b> Fine to medium sand, trace to some silt, grey.		W	L/MD							1
			BHJ11-7	-1.50 1.50	<b>Silty CLAY/Clayey SILT (CH)</b> Grey.		M	S S/F							
			BHJ11-6												
			BHJ11-5												
3			BHJ11-4	-2.90 2.90	<b>SAND (SP)</b> Fine to medium sand, grey.	Trace organic matter as flakes.	W	L/MD							3
			BHJ11-3												
4			BHJ11-2	-3.60 3.60	<b>SAND (SP)</b> Fine to coarse sand, trace silt banding, grey.	Fine to coarse sand sized shell fragments.	W	L/MD							4
	BHJ11-1	-4.20 4.20	<b>Silty CLAY/Clayey SILT (CH)</b> Grey.		M	F									
5					-4.50 4.50	End of borehole at 4.5m.							5		



# SOIL BOREHOLE LOG

Borehole No.: BHK17

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CLIENT: **Port of Townsville**      COMMENCED: **26/10/2008**      CONTRACTOR: **TBW Drilling**  
 PROJECT: **Marine Precinct EIS**      COMPLETED: **26/10/2008**      EQUIPMENT: **Vibrocore**  
 LOCATION: **Townsville Port**      INCLINATION (deg):      BEARING (deg):      MN  GN  DIAMETER (mm): **50**  
 JOB No.: **42 15399 15**      HORIZONTAL DATUM: **GDA94 X-COORDINATE: 483980**      Y-COORDINATE: **7869988**  
 LOGGED BY: **SL**      CHECKED BY:      VERTICAL DATUM:      R.L. SURFACE (m):      TOTAL DEPTH (m): **3.0m**

Depth (m)	Method	Support	Water	Sample Type/Number	Depth   Elevation (m)	MATERIAL DESCRIPTION@#AS1726 Soil Group Symbol, soil types, particle characteristics or fines plasticity, secondary and minor components.	MASS DESCRIPTION@#Colour, structure/cement, origin, additional observations.	ENGINEERING PROPERTIES				Test Results	Graphic Log	Depth (m)
								Moisture Condition	Consistency/Relative Density	pH <sub>fox</sub> pH	pH <sub>f</sub> pH			
0	Vibrocore	Open			0.00	Ground Surface	Water Depth - 3.1m						0	
			BHK17-07	0.00	<b>Silty SAND (SM)</b> Fine sand, trace clay, grey.	Core compaction from 0.0 - 0.4m	W	L						
			BHK17-06	0.40	<b>SAND (SP)</b> Fine to medium sand, trace coarse sand, trace clay.	Trace fine to coarse sand sized shell from 0.4 - 0.8m.	W	L						
			BHK17-05											
			BHK17-04	1.10	<b>Silty SAND (SM)</b> Fine to medium sand, trace coarse sand	Large shells and fine to coarse sand sized shell fragments to 3.0m.  Band of organic matter as brown/maroon fibres.	M	L/MD						
			BHK17-03											
			BHK17-02											
			BHK17-01	2.40	<b>Silty CLAY/Clayey SILT (CH)</b> Grey.	Organic matter as roots.	M	F						
3					-3.00 3.00	End of Borehole at 3.0m							3	

















































