



REPORT OF BOREHOLE: GABH01

SHEET: 1 OF 2

CLIENT: Wollongong City Council

COORDS: 297751.8 m E 6184473.9 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 30.34 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

DATE: 15/8/11

JOB NO: 117625003

HOLE DEPTH: 6.48 m

CHECKED: BJF

DATE: 13/9/11

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	M		0	30.34	0.00-0.20 m R = 0A GABH01-001_0.0-0.2 PID = 0.1 ppm		  		ASPHALT			ASPHALT PAVEMENT
			0.20									
			30.14						FILL: Silty SAND fine to medium grained, black			Inferred pavement base
			0.40									
			29.94						SANDSTONE fine grained, yellow, inferred very low to low strength, highly weathered			WEATHERED ROCK
			1						For Continuation Refer to Sheet 2			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GABH01

SHEET: 2 OF 2

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297751.8 m E 6184473.9 m N MGA94 56
SURFACE RL: 30.34 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 6.48 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ
CHECKED: BJF
DATE: 15/8/11
DATE: 13/9/11

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)	
				0										
				0.85	29.49		Continuation of Sheet 1							
				1.17	29.17		SANDSTONE	HW		0.85-1.17 m: B, 0-5°, sp = 2-20 mm, Pl, Ro, Sn				
							fine to medium grained, orange brown, bedding at 0 - 5°	SW						
							grey							
				2						1.62 m: B, 5°, partially closed				
										1.64 m: DB				
				2						2.21 m: B, 0°, Pl, Ro, Sn				
										2.55 m: B, 0°, Pl, Ro, Cn				
				2.80	27.54		orange brown, with siltstone laminations, 1 - 2 mm thick	MW		2.81 m: B, 0-5°, Pl, Ro, Sn				
										3.24-3.33 m: B, 5°, sp = 5-20 mm, Pl, Ro, Sn				
										3.35 m: B, 0-5°, Pl, Sm, Ct, clay				
										3.43 m: B, 0°, Pl, Ro, Cn				
										3.44 m: B, 5°, Pl, Sm, Sn				
										3.45-3.65 m: B, 0°, sp = 30-60 mm, Pl, Ro, Sn				
				3.65	26.69		grey, trace of siltstone laminations, 1 - 2 mm thick	SW		4.08 m: B, 0-5°, Pl, Sm, Sn				
										4.23 m: J, 55°, Pl, Ro, Sn				
										4.32-4.44 m: B, 0-5°, sp = 5-30 mm, Pl, Ro, Sn				
				4						4.89 m: B, 0°, Pl, Ro, Sn				
										5.10 m: B, 0°, Pl, Sm, Sn				
										5.16 m: B, 0-5°, Pl, Ro, Sn				
										5.25 m: J, 65°, Un, Ro, Sn				
										5.37 m: B, 0°, Pl, Ro, Sn				
				6						6.08-6.46 m: 3 x DB				
				6.48	23.86		END OF BOREHOLE @ 6.48 m							
							REACHED TARGET DEPTH							
							PIEZOMETER INSTALLED 15/08/11							
				7										
				8										
				9										
				10										

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GABH01

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 15/8/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297751.8 m E 6184473.9 m N MGA94 56

SURFACE RL: 30.34 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 6.48 m

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
		-1									
		0									
		30.34		0.00-0.20 m			ASPHALT				
		0.20		R = 0A							
		30.14		GABH01-001_0.0-0.2			FILL: Silty SAND				
		0.40		PID = 0.1 ppm			fine to medium grained, black				
		29.94					SANDSTONE				
		0.85					fine grained, yellow, inferred very low to low strength, highly weathered				
		29.49					SANDSTONE				
		1					fine to medium grained, orange brown, bedding at 0 - 5°				
		1.17					highly weathered to fresh, low to high strength				
		29.17					grey				
		2									
		3					orange brown, with siltstone laminations, 1 - 2 mm thick				
		4					grey, trace of siltstone laminations, 1 - 2 mm thick				
		5									
		6									
		7									
		8									
		9									
		6.48					END OF BOREHOLE @ 6.48 m				
		23.86					REACHED TARGET DEPTH				
							PIEZOMETER INSTALLED 15/08/11				

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GAP gINT FN. F05
RL3



CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297751.8 m E 6184473.9 m N MGA94 56
SURFACE RL: 30.34 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 6.48 m

REPORT OF CORE PHOTOGRAPHS: GABH01

SHEET: 1 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 15/8/11
CHECKED: BJF DATE: 13/9/11

117625003

GABH01

WCC

00.85 to 04.00m

Whytes Gully

Box 1 of 2



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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GABH01

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297751.8 m E 6184473.9 m N MGA94 56
SURFACE RL: 30.34 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 6.48 m

SHEET: 2 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 15/8/11
CHECKED: BJF DATE: 13/9/11

117625003

GABH01

WCC

04.00 to 06.48m

Whytes Gully

Box 2 of 2



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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GABH02

SHEET: 1 OF 3

CLIENT: Wollongong City Council

COORDS: 297754.9 m E 6184377.3 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 22.96 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

DATE: 11/8/11

JOB NO: 117625003

HOLE DEPTH: 12.40 m

CHECKED: BJF

DATE: 13/9/11

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L		0	22.96	0.00-0.20 m R = 0A GABH02-001_0.0-0.2 PID = 0.6 ppm				FILL: CLAY high plasticity, dark brown, trace fine rounded gravel	M		FILL
			1	1.20	0.50-0.70 m R = 0A GABH02-002_0.5-0.7 PID = 0.2 ppm							
			2	21.76	1.00-1.20 m R = 0A GABH02-003_1.0-1.2 PID = 0.2 ppm GABH02-004 SPT 1.20-1.65 m 2, 2, 4 N=6 U75 1.80 m GABH02-005		CH	CLAY high plasticity, brown	M	F	INFERRED ALLUVIUM	
			3	2.50	20.46			CL	Silty CLAY low plasticity, pale yellow to pale brown			INFERRED RESIDUAL
			4									
	H				GABH02-006 SPT 3.00-3.25 m 20, 14/100mm HB					D	VSt	
				GABH02-007 SPT 4.00-4.14 m 30/140mm				For Continuation Refer to Sheet 2			INFERRED WEATHERED ROCK	
						</						

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GABH02

SHEET: 2 OF 3

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297754.9 m E 6184377.3 m N MGA94 56
SURFACE RL: 22.96 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.40 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 11/8/11
CHECKED: BJF DATE: 13/9/11

Drilling					Field Material Description					Defect Information									
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)						
									EL 0.03 VL 0.03 L 0.1 M 0.3 H 1 VH 3 EH 10				10	30	100	300	1000	3000	
				0															
				1															
				2															
				3															
				4	4.10		Continuation of Sheet 1												
					4.25		CORE LOSS												
					18.71		SANDSTONE fine to medium grained, brown, bedding at 0 - 5°	EW		4.25 m: DZ, 0°, clay 100 mm 4.47 m: DS, 0°, clay 50 mm 4.58 m: B, 0°, Un, Ro, Vr, clay 4.60 m: DS, 0°, clay 70 mm 4.72 m: DZ, 0°, clay 180 mm 4.73 m: J, 60°, St, Ro, Vr, clay 4.81 m: J, 60°, St, Ro, Vr, clay 5.10-5.40 m: DZ, 0°, gravel with some clay									
				5	5.40		CORE LOSS												
					17.56														
					5.72														
					17.24		SANDSTONE fine to medium grained, brown, bedding at 0 - 5°	HW		5.73 m: DZ, 0°, clayey gravel 170 mm 5.90-6.84 m: B, 0-5°, sp = 10-50 mm, Pl-Un, Sm-Ro, Sn 5.90-6.84 m: J, 30-60°, sp = 30-110 mm, Pl, Sm-Ro, Sn 5.90-6.84 m: J, 90°, Pl, Sm, Sn									
				6															
				7						6.84-7.94 m: J, 10-45°, sp = 20-150 mm, Pl-Un, Sm, Sn 6.97 m: J, 60°, Pl, Sm, Sn 7.16 m: B, 5°, Pl, Ro, Sn 7.20 m: B, 5°, St, Ro, Sn 7.35 m: B, 0°, St, Ro, Sn 7.43 m: J, 80°, Pl, Sm, Sn									
				8						7.94 m: DS, gravel, medium to coarse, 60 mm 8.00 m: B, 0°, Pl, Sm, Sn 8.00-8.28 m: J, 90°, Pl, Sm, Sn 8.08 m: B, 0°, Pl, Ro, Sn 8.10 m: B, 0°, partially closed 8.14 m: B, 0°, Un, Ro, Sn 8.27 m: B, 0-5°, Pl, Ro, Vr, clay 8.35 m: J, 30°, Pl, Ro, Vr, clay 8.50-8.77 m: B, 0-5°, sp = 50-110 mm, Pl, Sm-Ro, Sn 8.63 m: J, 10°, Pl, Ro, Sn 8.76 m: J, 10°, Pl, Ro, Sn 8.76 m: DS, 0°, highly weathered rock 40 mm 8.84-9.40 m: B, 0-5°, sp = 40-100 mm, Pl, Sm-Ro 8.84-9.29 m: J, 85°, Pl, Sm, Sn 8.85 m: J, 10°, Pl, Ro, Sn 9.40-11.35 m: B, 0-5°, sp = 30-100 mm, Pl-Un, Sm, Sn 9.55-9.69 m: J, 80°, Un, Sm, Sn 9.75-9.89 m: J, 80°, partially closed									
				9															
				10															

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GABH02

SHEET: 3 OF 3

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297754.9 m E 6184377.3 m N MGA94 56
SURFACE RL: 22.96 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.40 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 11/8/11
CHECKED: BJF DATE: 13/9/11

Drilling						Field Material Description					Defect Information					
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa				DEFECT DESCRIPTION & Additional Observations		AVERAGE DEFECT SPACING (mm)	
									EL 0.03	VL 0.03	J 0.11	M 0.3	H 1	VH 3	EH 10	
HQ3		100	30 (45)	10			SANDSTONE fine to medium grained, brown, bedding at 0 - 5°	HW						9.87 m: J, 60°, Pl, Sm, Sn		
				11				MW							10.20 m: J, 70°, Pl, Sm, Sn 10.38 m: J, 30°, Pl, Sm, Sn 10.67-11.35 m: J, 80°, Pl, Sm, Sn, partially closed 10.97-11.10 m: J, 80-85°, Pl, Sm, Sn 11.35-12.40 m: B, 0-5°, sp = 25-200 mm, Pl, Sm, Sn 11.54 m: J, 20°, partially closed 11.60 m: J, 60°, Pl, Sm, Sn 11.65 m: J, 30°, Pl, Sm, Sn 12.10 m: J, 70°, Pl, Ro, Sn 12.24 m: DZ, 60°, highly weathered rock 100 mm	
		100	15 (50)	12	12.40		END OF BOREHOLE @ 12.40 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 12/08/11									
				13	10.56											
				14												
				15												
				16												
				17												
				18												
				19												



REPORT OF BOREHOLE: GABH02

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 11/8/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

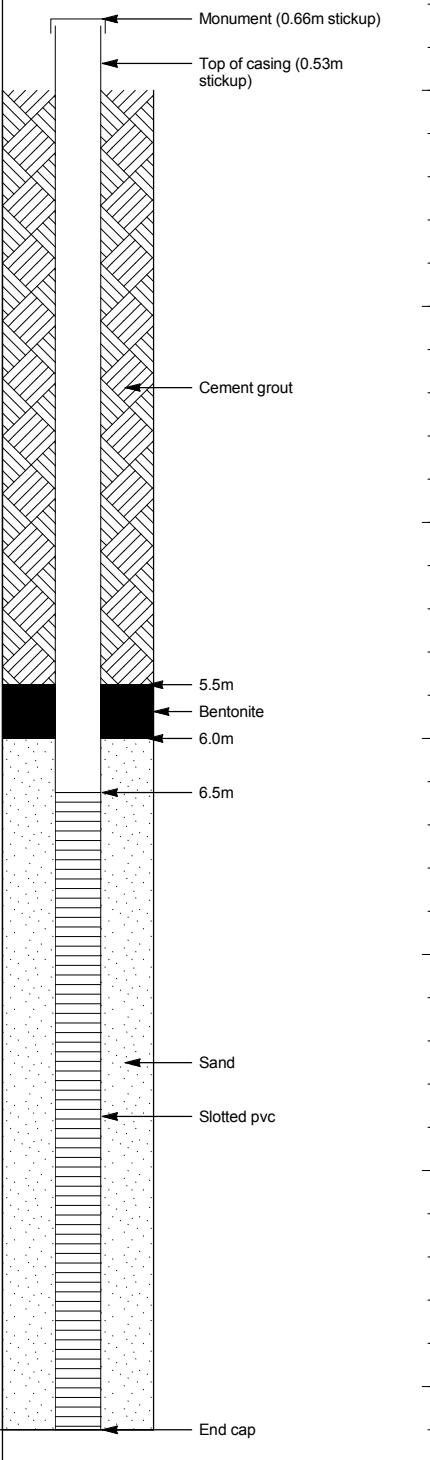
JOB NO: 117625003

COORDS: 297754.9 m E 6184377.3 m N MGA94 56

SURFACE RL: 22.96 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 12.40 m

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
ADV	11/08/11	0	22.96	0.00-0.20 m R = 0A GABH02-001_0.0-0.2 PID = 0.6 ppm 0.50-0.70 m R = 0A GABH02-002_0.5-0.7 PID = 0.2 ppm			FILL: CLAY high plasticity, dark brown, trace fine rounded gravel moist		 Monument (0.66m stickup) Top of casing (0.53m stickup) Cement grout 5.5m Bentonite 6.0m 6.5m Sand Slotted pvc End cap		
		1.20	21.76	1.00-1.20 m R = 0A GABH02-003_1.0-1.2 PID = 0.2 ppm SPT 1.20-1.65 m 2, 2, 4 N=6 GABH02-004 U75 1.80 m GABH02-005			CLAY high plasticity, brown moist, firm				
		2.50	20.46	SPT 3.00-3.25 m 20, 14/100mm HB GABH02-006			Silty CLAY low plasticity, pale yellow to pale brown dry, very stiff				
		4.10	18.71	SPT 4.00-4.14 m 30/140mm GABH02-007			CORE LOSS				
		4.25					SANDSTONE fine to medium grained, brown, bedding at 0 - 5° extremely weathered, extremely low to very low strength				
		5.40					CORE LOSS very low strength				
		5.72					SANDSTONE fine to medium grained, brown, bedding at 0 - 5° highly weathered to moderately weathered, very low to medium strength				
		17.24									
		12.40	10.56				END OF BOREHOLE @ 12.40 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 12/08/11				
		10.56									

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GABH02

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297754.9 m E 6184377.3 m N MGA94 56
SURFACE RL: 22.96 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.40 m

SHEET: 1 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 11/8/11
CHECKED: BJF DATE: 13/9/11

117625003
WCC
Whytes Gully

GABH02
04.10 to 09.00m
Box 1 of 2



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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GABH02

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297754.9 m E 6184377.3 m N MGA94 56
SURFACE RL: 22.96 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.40 m

SHEET: 2 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 11/8/11
CHECKED: BJF DATE: 13/9/11

117625003

GABH02

WCC

09.00 to 12.40m

Whytes Gully

Box 2 of 2



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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GABH03

SHEET: 1 OF 3

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 29/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297793.8 m E 6184315.2 m N MGA94 56

SURFACE RL: 18.66 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 17.00 m

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L	29/07/11	0	18.66	0.00-0.20 m R = 0A GABH03-001_0.0-0.2 PID = 0.4 ppm			FILL: CLAY high plasticity, dark brown, trace fine rounded gravel			FILL
			1	1.20	0.50-0.70 m R = 0A GABH03-002_0.5-0.7 PID = 0.5 ppm						
			1	17.46	1.00-1.20 m R = 0A GABH03-003_1.0-1.2 PID = 3.4 ppm GABH03-004 SPT 1.20-1.65 m 1, 2, 2 N=4		CH	CLAY high plasticity, dark brown			INFERRED ALLUVIUM
			2							S - F	
			3	3.00							
			3	15.66	GABH03-005 SPT 3.00-3.45 m 11, 21, 25 N=46		CI	Silty CLAY medium plasticity, brown, trace fine sub-angular gravel			
			4		GABH03-006 SPT 4.00-4.45 m 2, 9, 13 N=22					VSt - H	
			5	5.00							
			5	13.66	GABH03-007 SPT 5.00-5.45 m 8, 10, 10 N=20		CH	CLAY high plasticity, brown to grey, trace medium grained sub-rounded sand			
			6		GABH03-008 SPT 6.00-6.45 m 6, 9, 13 N=22						
L-M			7	7.00							
			7	11.66	GABH03-009 SPT 7.00-7.45 m 15, 16, 19 N=35		CH	Gravelly CLAY high plasticity, brown, fine to medium angular gravel			VSt
			8	8.20							
			8	10.46	GABH03-010 SPT 8.00-8.45 m 4, 8, 13 N=21		GP	Sandy GRAVEL fine to medium angular brown to grey, fine to medium grained sand			MD
								For Continuation Refer to Sheet 2			
			9								
			10								

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GAP gINT FN. F01a
RL3



SHEET: 2 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 29/7/11
CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297793.8 m E 6184315.2 m N MGA94 56
SURFACE RL: 18.66 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 17.00 m

[illegible]

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GABH03

SHEET: 3 OF 3

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297793.8 m E 6184315.2 m N MGA94 56
SURFACE RL: 18.66 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 17.00 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 29/7/11
CHECKED: BJF DATE: 13/9/11

Drilling					Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations		AVERAGE DEFECT SPACING (mm)
HQ3			100 0 (10)	10			Gravelly CLAY medium plasticity, brown and pale grey	RS				
				11	11.15 7.51		SANDSTONE fine grained, brown, with ironstaining, bedding at 0 - 5°	HW		11.15-11.83 m: B, 0-5°, sp = 30-100 mm, Pl, Sm, Sn 11.31 m: DS, 5 mm clay		
			100 25 (60)	12	12.35 6.31		brown and pale grey	HW MW		11.58 m: DS, 20 mm clay 11.69 m: B, 0°, Pl, Sm, Sn 11.73 m: J, 20°, Pl, Sm, Vr 11.85 m: J, 90°, Pl, Ro, Sn 12.00 m: B, 0°, St, Ro, Sn 12.04 m: B, 0°, St, Ro, Sn 12.07 m: J, 75°, Pl, Ro, Sn 12.14 m: J, 60°, Pl, Sm, Sn 12.17 m: B, 0°, St, Ro, Sn 12.19 m: B, 0°, Pl, Sm, Sn 12.25 m: J, 70°, Pl, Ro, Sn 12.27 m: B, 0°, Pl, Ro, Sn 12.32 m: B, 0°, Pl, Ro, Sn 12.36 m: B, 0°, Pl, Ro, Sn 12.45-12.50 m: B, 0°, sp = 5-10 mm, Pl, Ro, Sn 12.71 m: B, 0-5°, Pl, Sm, Sn 12.78 m: J, 50°, Pl, Sm, Sn 12.80 m: B, 5°, Pl, Sm, Sn 12.80-12.90 m: J, 90°, Pl, Ro, Sn 12.91 m: B, 0°, Pl, Sm, Sn 13.00 m: B, 0°, Pl, Sm, Sn 13.13-13.16 m: B, 0°, sp = 10-20 mm, Pl, Sm, Sn 13.19 m: DS, 10 mm clay 13.28 m: B, 0°, Pl, Sm, Sn 13.34 m: DS, 15 mm clay 13.41 m: J, 0-5°, Pl, Ro, Vr 13.51 m: DS, 15 mm clay 13.62 m: J, 90°, Pl, Sm, Sn 13.65 m: DS, 0°, 10 mm clay 13.80 m: DS, 0°, 15 mm clay 13.89-13.94 m: J, 10-50°, sp = 10-20 mm, St, Ro, Vr 14.00-14.10 m: B, 0°, sp = 5-20 mm, Pl, Sm, Sn 14.21 m: B, 0°, St, Ro, Vr 14.23 m: B, 0°, Pl, Ro, Vr 14.33 m: J, 80°, Pl, Sm, Sn 14.34-15.35 m: J, 0-10°, sp = 80-200 mm, Pl, Sm, Sn 15.60 m: B, 0°, Pl, Sm, Sn 15.62 m: B, 0°, Pl, Sm, Sn 15.63 m: B, 5°, Pl, Sm, Sn 15.71 m: B, 0°, Pl, Sm, Sn 15.79 m: B, 0°, Pl, Sm, Sn 15.95 m: B, 0°, Pl, Sm, Sn 16.18 m: B, 0-5°, Pl, Sm, Sn 16.24 m: B, 0-5°, Pl, Sm, Sn 16.25 m: B, 0°, Pl, Sm, Sn 16.26 m: B, 0-5°, Pl, Sm, Sn 16.32 m: B, 0°, Pl, Sm, Cn 16.65 m: B, 0-5°, Pl, Ro, Sn 16.77 m: B, 0-5°, Pl, Ro, Sn 16.90 m: B, 0-5°, Pl, Sl, Vr		
				13	13.40 5.26		orange	EW HW				
			100 50 (85)	14	13.80 4.86							
				15	14.30 4.36		SANDSTONE fine grained, pale grey, trace ironstaining, bedding at 0 - 5°	SW				
				16								
			100 75 (85)	17	17.00 1.66		END OF BOREHOLE @ 17.00 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 29/07/11					
				18								
				19								
				20								

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GABH03

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 29/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297793.8 m E 6184315.2 m N MGA94 56

SURFACE RL: 18.66 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 17.00 m

Drilling				Sampling		Field Material Description and Instrumentation		
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION
ADV		0	18.66	0.00-0.20 m R = 0A GABH03-001_0.0-0.2 PID = 0.4 ppm		FILL: CLAY high plasticity, dark brown, trace fine rounded gravel moist		Monument (0.67m stickup) Top of casing (0.55m stickup)
		1.20	17.46	0.50-0.70 m R = 0A GABH03-002_0.5-0.7 PID = 0.5 ppm		CLAY high plasticity, dark brown moist, soft to firm		
		2		1.00-1.20 m R = 0A GABH03-003_1.0-1.2 PID = 3.4 ppm				
		3.00	15.66	SPT 1.20-1.65 m 1, 2, 2 N=4 GABH03-004 SPT 3.00-3.45 m 11, 21, 25 N=46 GABH03-005 SPT 4.00-4.45 m 2, 9, 13 N=22 GABH03-006		Silty CLAY medium plasticity, brown, trace fine sub-angular gravel moist, very stiff to hard		
		5.00	13.66	SPT 5.00-5.45 m 8, 10, 10 N=20 GABH03-007		CLAY high plasticity, brown to grey, trace medium gained sub-rounded sand moist, very stiff		Cement grout
		6		SPT 6.00-6.45 m 6, 9, 13 N=22 GABH03-008				
		7.00	11.66	SPT 7.00-7.45 m 15, 16, 19 N=35 GABH03-009		Gravelly CLAY high plasticity, brown, fine to medium angular gravel moist, very stiff		
		8	8.20	SPT 8.00-8.45 m 4, 8, 13 N=21 GABH03-010		Sandy GRAVEL fine to medium angular brown to grey, fine to medium grained sand moist, medium dense		
		9.40	9.26			Gravelly CLAY medium plasticity, brown and pale grey orange brown		
		10						
HQ3		11.15	7.51			SANDSTONE fine grained, brown, with ironstaining, bedding at 0 - 5° extremely weathered to moderately weathered, extremely low to high strength		10.5m Bentonite 11.0m
		12	12.35			brown and pale grey		11.5m
		13.40	5.26			orange		
		13.80						
		14	4.86					Sand
		14.30	4.36					Slotted pvc
		16						End cap
		17.00	1.66			END OF BOREHOLE @ 17.00 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 29/07/11		
		18						

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GABH03

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297793.8 m E 6184315.2 m N MGA94 56
SURFACE RL: 18.66 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 17.00 m

SHEET: 1 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 29/7/11
CHECKED: BJF DATE: 13/9/11

117625003

GABH03

WCC

08.45 to 12.00m

Whytes Gully

Box 1 of 2



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GAP gINT FN. F31
RL1



CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297793.8 m E 6184315.2 m N MGA94 56
SURFACE RL: 18.66 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 17.00 m

REPORT OF CORE PHOTOGRAPHS: GABH03

SHEET: 2 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 29/7/11
CHECKED: BJF DATE: 13/9/11

117625003
WCC
Whytes Gully

GABH03
12.00 to 17.00m
Box 2 of 2



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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GABH04

SHEET: 1 OF 3

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 11/8/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297844.8 m E 6184306.2 m N MGA94 56

SURFACE RL: 18.23 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 16.26 m

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L	11/08/11	0	18.23	0.00-0.20 m R = 0A GEBH04-001_0.0-0.2 PID = 0 ppm			FILL: CLAY high plasticity, dark brown, trace fine rounded gravel		
			1	1.20	0.50-0.70 m R = 0A GEBH04-002_0.5-0.7 PID = 0 ppm					
			1	17.03	1.00-1.20 m R = 0A GEBH04-003_1.0-1.2 PID = 0 ppm GEBH04-004 SPT 1.20-1.65 m 1, 1, 2 N=3		CH	CLAY high plasticity, dark brown		INFERRED ALLUVIUM
			2		U75 2.00 m GEBH04-005				F	
			3	3.00						
			3	15.23	GEBH04-006 SPT 3.00-3.45 m 11, 11, 8 N=19		CH	CLAY high plasticity, dark brown, trace fine rounded gravel		INFERRED RESIDUAL SOIL
			4	4.00				with some coarse grained sub-rounded sand		
			4	14.23	GEBH04-007 SPT 4.00-4.45 m 3, 6, 8 N=14				M	
			5	5.20						
			5	13.03	GEBH04-008 SPT 5.00-5.45 m 6, 14, 27 N=41		CI	Sandy CLAY medium plasticity, brown, coarse grained sub-rounded sand, with some fine sub-rounded gravel		
			6		GEBH04-009 SPT 6.00-6.45 m 6, 6, 9 N=15				St - Vst	
HQ3	L-M		7	7.00						
			7	11.23	GEBH04-010 SPT 7.00-7.45 m 8, 11, 12 N=23		CH	CLAY high plasticity, pale brown to grey, with some fine grained sub-rounded sand		
			8	8.20						
			8	10.03	GEBH04-011 SPT 8.00-8.45 m 8, 9, 11 N=20		CI	Sandy CLAY medium plasticity, grey, fine to medium grained sub-rounded sand		
			9	8.80						
			9	9.43	GEBH04-012 SPT 9.00-9.45 m 1, 16, 24 N=40		SC	Clayey SAND fine to medium grained, grey, high plasticity clay, trace medium angular gravel	D	INFERRED WEATHERED ROCK
								For Continuation Refer to Sheet 2		
			10							

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GAP gINT FN. F01a
RL3



DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 11/8/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

COORDS: 297844.8 m E 6184306.2 m N MGA94 56

PROJECT: Whytes Gully

SURFACE RL: 18.23 m DATUM: AHD

LOCATION: Wollongong

INCLINATION: -90°

JOB NO: 117625003

HOLE DEPTH: 16.26 m

[illegible]

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GABH04

SHEET: 3 OF 3

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297844.8 m E 6184306.2 m N MGA94 56
SURFACE RL: 18.23 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 16.26 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 11/8/11
CHECKED: BJF DATE: 13/9/11

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)	
									EL 0.03 VL 0.1 J 0.1 M 0.3 H 1 VH 3 EH 10				10 30 100 300 1000 3000	
HQ3			20 0 (0)	10			CORE LOSS							
				11	11.10 7.13		CLAY high plasticity, brown	RS						
					11.84									
			90 10 (40)	12	12.00 6.23		CORE LOSS							
							SANDSTONE fine to medium grained, brown, bedding at 0 - 5°	HW		12.00-12.40 m: B, 0-5°, sp = 40-140 mm, Pl, Sm, Sn 12.18 m: DB 12.20 m: J, 45°, Un, Sm, Vr, clay 12.40 m: DS, gravel clay 70 mm 12.48 m: B, 0°, Pl, Sm, Sn 12.48-12.74 m: J, 85°, Pl, Sm, Sn 12.52 m: DS, 0°, clay 60 mm 12.58 m: J, 20°, Un, Ro, Sn 12.62 m: J, 30°, Un, Ro, Sn 12.67 m: B, 0-5°, Pl, Sm, Vr, clay 12.74-13.00 m: B, 0-5°, sp = 5-60 mm, Un, Ro, Sn 12.93 m: J, 10°, Pl, Sm, Sn 13.00-13.29 m: B, 0°, sp = 50-100 mm, Pl, Sm, Sn 13.13-13.74 m: J, 80°, partially closed 13.29-13.34 m: B, 0-5°, sp = 10-20 mm, Un, Sm, Sn 13.41-13.88 m: B, 0-5°, sp = 40-140 mm, Un, Sm, Sn 13.41 m: J, 30°, Pl, Sm, Sn 13.52 m: J, 20°, Un, Sm, Sn 13.93 m: DS, 0°, 30 mm highly weathered rock 14.10 m: B, 5°, Pl, Sm, Sn 14.24 m: DB				
				13	13.20 5.03		brown and grey	MW						
				14	14.00 4.23		SANDSTONE fine grained, grey, bedding at 0 - 5°, trace siltstone laminations 10 - 30 mm	FR						
			100 65 (90)	15										
				16	16.26 1.97		END OF BOREHOLE @ 16.26 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 11/08/11							
					17									
				18										
				19										
				20										

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GABH04

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 11/8/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

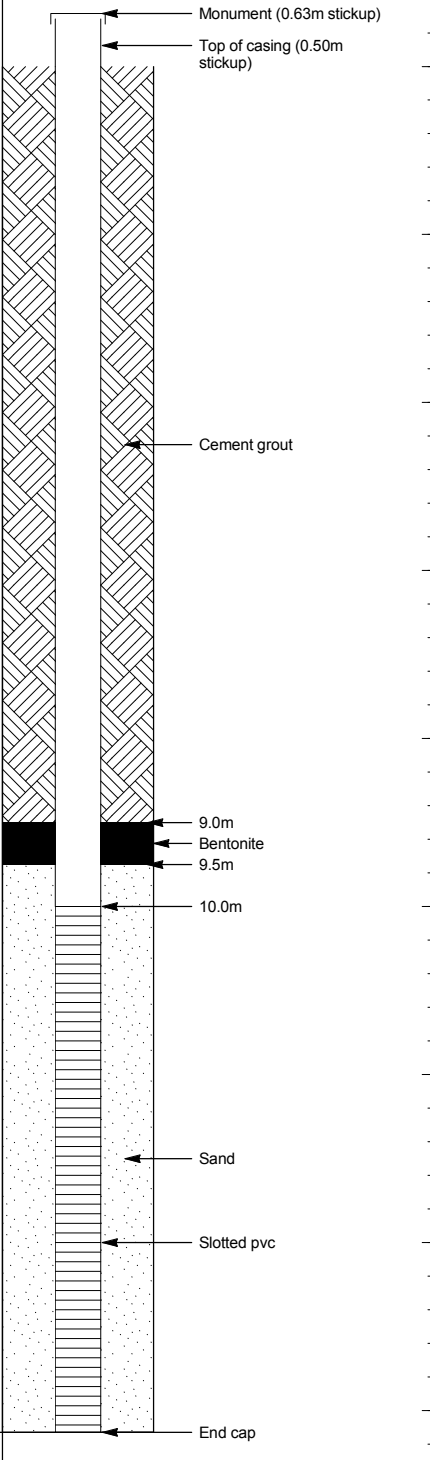
JOB NO: 117625003

COORDS: 297844.8 m E 6184306.2 m N MGA94 56

SURFACE RL: 18.23 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 16.26 m

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
ADV	11/08/11	0	18.23	0.00-0.20 m R = 0A GEBH04-001_0.0-0.2 PID = 0 ppm 0.50-0.70 m R = 0A			FILL: CLAY high plasticity, dark brown, trace fine rounded gravel moist		 Monument (0.63m stickup) Top of casing (0.50m stickup) Cement grout 9.0m Bentonite 9.5m 10.0m Sand Slotted pvc End cap		
		1.20	17.03	GEBH04-002_0.5-0.7 PID = 0 ppm 1.00-1.20 m R = 0A			CLAY high plasticity, dark brown moist, firm				
		2		GEBH04-003_1.0-1.2 PID = 0 ppm SPT 1.20-1.65 m 1, 1, 2 N=3							
		3.00	15.23	GEBH04-004 U75 2.00 m GEBH04-005 SPT 3.00-3.45 m 11, 11, 8 N=19			CLAY high plasticity, dark brown, trace fine rounded gravel moist, stiff to very stiff				
		4	4.00	GEBH04-006 SPT 4.00-4.45 m 3, 6, 8 N=14			with some coarse grained sub-rounded sand				
			5.20	GEBH04-007 SPT 5.00-5.45 m 6, 14, 27 N=41			Sandy CLAY medium plasticity, brown, coarse grained sub-rounded sand, with some fine sub-rounded gravel moist, stiff to very stiff				
		6	13.03	GEBH04-008 SPT 6.00-6.45 m 6, 6, 9 N=15							
			7.00	GEBH04-009 SPT 7.00-7.45 m 8, 11, 12 N=23			CLAY high plasticity, pale brown to grey, with some fine grained sub-rounded sand moist, stiff to very stiff				
		8	8.20	GEBH04-010 SPT 8.00-8.45 m 8, 9, 11 N=20			Sandy CLAY medium plasticity, grey, fine to medium grained sub-rounded sand moist, stiff to very stiff				
			8.80	GEBH04-011 SPT 9.00-9.45 m 1, 16, 24 N=40			Clayey SAND fine to medium grained, grey, high plasticity clay, trace medium angular gravel moist, dense				
HQ3		9.50	8.73	GEBH04-012			CORE LOSS				
		10									
			11.10				CLAY high plasticity, brown				
		12	7.13				CORE LOSS				
			11.84				SANDSTONE fine to medium grained, brown, bedding at 0 - 5° highly weathered to moderately weathered, low to medium strength				
		13	6.23				brown and grey				
			13.20								
		14	5.03				SANDSTONE fine grained, grey, bedding at 0 - 5°, trace siltstone laminations 10 - 30 mm fresh, high strength				
			14.00								
		16	4.23								
		16	16.26				END OF BOREHOLE @ 16.26 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 11/08/11				
			1.97								

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GAP gINT FN. F05
RL3



COORDS: 297844.8 m E 6184306.2 m N MGA94 56
SURFACE RL: 18.23 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 16.26 m

SHEET: 1 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 11/8/11
CHECKED: BJF DATE: 13/9/11

117625003
WCC
Whytes Gully

GABH04
09.50 to 14.00m
Box 1 of 2



This report of core photographs must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GABH04

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297844.8 m E 6184306.2 m N MGA94 56
SURFACE RL: 18.23 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 16.26 m

SHEET: 2 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 11/8/11
CHECKED: BJF DATE: 13/9/11

117625003

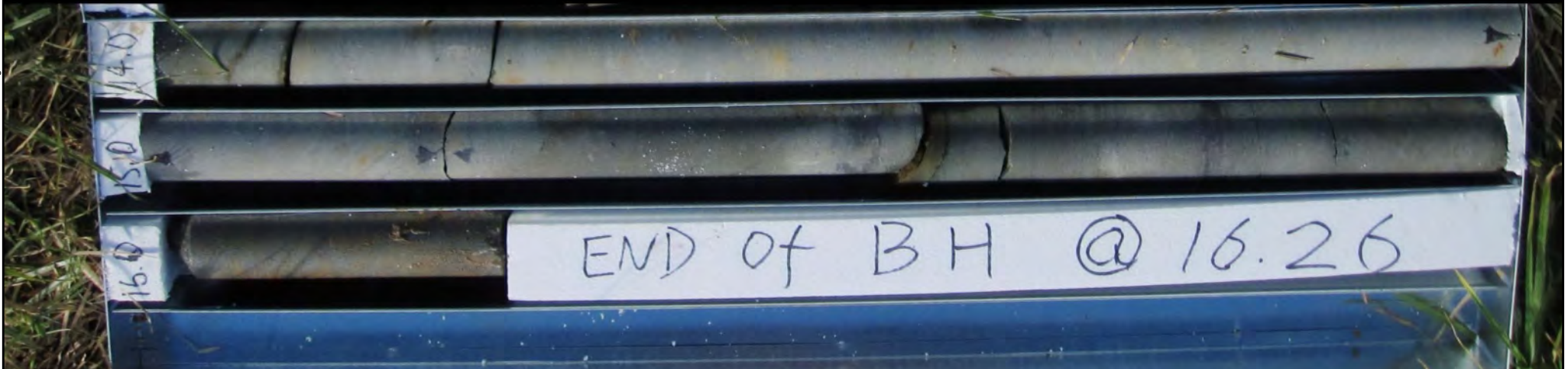
GABH04

WCC

14.00 to 16.26m

Whytes Gully

Box 2 of 2



This report of core photographs must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GABH05

SHEET: 1 OF 3

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 27/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297921.4 m E 6184312.8 m N MGA94 56

SURFACE RL: 20.33 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 18.45 m

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
ADV	L	27/07/11	0	20.33	0.00-0.20 m R = 0A GABH05-001_0.0-0.2 PID = 0.3 ppm				FILL: Clayey SAND fine to medium grained, black, with roots			FILL	
					0.50-0.70 m R = 0A GABH05-002_0.5-0.7 PID = 0.4 ppm				D - M				
			1	1.20	1.00-1.20 m R = 0A								
					19.13	GABH05-003_1.0-1.2 PID = 0.3 ppm GABH05-004 SPT 1.20-1.65 m 9, 6, 3 N=9			SP	SAND fine grained, sub-rounded, brown to dark brown		L	INFERRED ALLUVIUM
			2	2.00	GABH05-005 SPT 2.00-2.45 m 0, 3, 3 N=6				CH	Silty CLAY high plasticity, dark brown, trace organic content	M	F	
			3	3.00	GABH05-006 SPT 3.00-3.45 m 4, 4, 9 N=13					SC	Clayey SAND medium grained, rounded to sub-rounded, grey to brown, with some gravel	W	MD
			4	4.00	GABH05-007 SPT 4.00-4.45 m 9, 27, 29 N=56					SC / SM	Clayey Silty SAND medium grained, rounded to sub-rounded, brown to dark brown, with trace gravel		VD
			5		GABH05-008 SPT 5.00-5.45 m 7, 12, 16 N=28						MD		
			6		GABH05-009 SPT 6.00-6.45 m 8, 16, 20 N=36					D			
			7	7.00	13.33	GABH05-010 SPT 7.00-7.45 m 9, 12, 16 N=28			CH	Silty CLAY high plasticity, brown to dark brown, trace fine grained rounded to sub-rounded sand	M		
			8		GABH05-011 SPT 8.00-8.45 m 8, 11, 13 N=24					VSt - H			
			9		GABH05-012 SPT 9.00-9.45 m 10, 24, 24 N=48								
10	10.00												

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GABH05

SHEET: 2 OF 3

CLIENT: Wollongong City Council

COORDS: 297921.4 m E 6184312.8 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 20.33 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

DATE: 27/7/11

JOB NO: 117625003

HOLE DEPTH: 18.45 m

CHECKED: BJF

DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L		10	10.33	GABH05-013 SPT 10.00-10.45 m 11, 10, 12 N=22			CH	CLAY high plasticity, pale brown to brown, with some fine sub-rounded to sub-angular gravel	M	INFERRED ALLUVIUM
			11	11.00 9.33	GABH05-014 SPT 11.00-11.45 m 8, 15, 35 N=50			SC / SM	Silty Clayey SAND fine grained, brown, trace medium sub-angular gravel		INFERRED WEATHERED ROCK
			12						For Continuation Refer to Sheet 3		
			13								
			14								
			15								
			16								
			17								
			18								
			19								
			20								

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GAP gINT FN. F01a
RL3



DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 27/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297921.4 m E 6184312.8 m N MGA94 56
SURFACE RL: 20.33 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 18.45 m

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GABH05

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 27/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297921.4 m E 6184312.8 m N MGA94 56

SURFACE RL: 20.33 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 18.45 m

Drilling				Sampling			Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION	
ADV		0	20.33	0.00-0.20 m R = 0A GABH05-001_0.0-0.2 PID = 0.3 ppm			FILL: Clayey SAND fine to medium grained, black, with roots dry to moist			
		1.20	19.13	0.50-0.70 m R = 0A GABH05-002_0.5-0.7 PID = 0.4 ppm			SAND fine grained, sub-rounded, brown to dark brown moist, loose			
		2.00	18.33	1.00-1.20 m R = 0A GABH05-003_1.0-1.2 PID = 0.3 ppm			Silty CLAY high plasticity, dark brown, trace organic content moist, firm			
		3.00	17.33	SPT 1.20-1.65 m 9, 6, 3 N=9 GABH05-004 SPT 2.00-2.45 m 0, 3, 3 N=6			Clayey SAND medium grained, rounded to sub-rounded, grey to brown, with some gravel wet, medium dense			
		4.00	16.33	GABH05-005 SPT 3.00-3.45 m 4, 4, 9 N=13 GABH05-006 SPT 4.00-4.45 m 9, 27, 29 N=56 GABH05-007 SPT 5.00-5.45 m 7, 12, 16 N=28 GABH05-008 SPT 6.00-6.45 m 8, 16, 20 N=36 GABH05-009 SPT 7.00-7.45 m 9, 12, 16 N=28 GABH05-010 SPT 8.00-8.45 m 8, 11, 13 N=24 GABH05-011 SPT 9.00-9.45 m 10, 24, 24 N=48 GABH05-012			Clayey Silty SAND medium grained, rounded to sub-rounded, brown to dark brown, with trace gravel moist, medium dense to very dense			
		7.00	13.33	GABH05-009 SPT 7.00-7.45 m 9, 12, 16 N=28 GABH05-010 SPT 8.00-8.45 m 8, 11, 13 N=24 GABH05-011 SPT 9.00-9.45 m 10, 24, 24 N=48 GABH05-012			Silty CLAY high plasticity, brown to dark brown, trace fine grained rounded to sub-rounded sand moist, very stiff to hard			
		10.00	10.33	SPT 10.00-10.45 m 11, 10, 12 N=22 GABH05-013			CLAY high plasticity, pale brown to brown, with some fine sub-rounded to sub-angular gravel moist, stiff to very stiff			
		9.33	11.45	SPT 11.00-11.45 m 8, 15, 35 N=50 GABH05-014			Silty Clayey SAND fine grained, brown, trace medium sub-angular gravel moist			
		8.73	12.05				SANDSTONE fine grained, brown, with ironstaining highly weathered, very low strength			
		12.28	12.25				CORE LOSS			
		7.88	13.50				SANDSTONE fine grained, brown, with ironstaining, bedding dips 0 - 5° highly weathered, low strength			
HQ3		6.83	14.45				with siltstone laminations, 0 - 5°, 10 - 20 mm thick, sp = 50 - 150 mm			
		5.88	15.45				SANDSTONE pale grey, with siltstone laminations, 1 - 10 mm thick, sp = 50 - 250 mm, bedding dips 0 - 5° moderately weathered to slightly weathered, medium strength			
		4.88	17.00				SANDSTONE fine grained, pale grey and brown, with ironstaining, bedding dips 0 - 5° moderately weathered to slightly weathered, low to medium strength			
		3.33	18.45				SANDSTONE fine grained, pale grey, bedding dips 0 - 5° slightly weathered, medium strength with siltstone laminations, 1 - 5 mm thick, sp = 5 - 20 mm			
		1.88					END OF BOREHOLE @ 18.45 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 28/07/11			

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GABH05

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297921.4 m E 6184312.8 m N MGA94 56
SURFACE RL: 20.33 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 18.45 m

SHEET: 1 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 27/7/11
CHECKED: BJF DATE: 13/9/11

117625003

GABH05

WCC

11.45 to 15.00m

Whytes Gully

Box 1 of 2



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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GABH05

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297921.4 m E 6184312.8 m N MGA94 56
SURFACE RL: 20.33 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 18.45 m

SHEET: 2 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 27/7/11
CHECKED: BJF DATE: 13/9/11

117625003

GABH05

WCC

15.00 to 18.45m

Whytes Gully

Box 2 of 2



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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GABH06 D

SHEET: 1 OF 3

CLIENT: Wollongong City Council

COORDS: 297975.6 m E 6184322.0 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 22.05 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

DATE: 27/7/11

JOB NO: 117625003

HOLE DEPTH: 15.45 m

CHECKED: BJF

DATE: 13/9/11

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L-M	27/07/11	0	22.05				CH	Silty CLAY high plasticity, dark brown / black, inferred soft to firm	M	S - F	INFERRED ALLUVIUM
			1	1.20 20.85	GABH06_001 SPT 1.20-1.65 m 4, 6, 7 N=13			CI	Silty CLAY medium plasticity, brown		St	
			2	2.00 20.05	GABH06_002 SPT 2.00-2.45 m 8, 14, 24 N=38			CI	Sandy Silty CLAY medium plasticity, brown, fine to medium grained sub-rounded sand, with some fine grained sub-rounded gravel		VSt	
			3	3.00 19.05	GABH06_003 SPT 3.00-3.45 m 13, 21, 23 N=44			SC	Clayey Silty SAND fine grained, sub-rounded, brown, with some fine grained sub-rounded gravel	D - M	D	
			4		GABH06_004 SPT 4.00-4.45 m 9, 10, 18 N=28					MD		
			5	5.00 17.05	GABH06_005 SPT 5.00-5.45 m 9, 13, 16 N=29			CI	Silty CLAY medium plasticity, brown, trace fine grained sub-rounded sand			
			6	6.00 16.05	GABH06_006 SPT 6.00-6.45 m 8, 9, 14 N=23			CH	Sandy CLAY high plasticity, brown, coarse grained sub-rounded sand, trace organics (black)	M	VSt	
			7	7.00 15.05	GABH06_007 SPT 7.00-7.45 m 9, 19, 25 N=44			SC	Clayey SAND fine to medium grained, sub-rounded, brown / dark brown, trace organics, trace fine grained sub-rounded gravel	M - W	D	
			8						For Continuation Refer to Sheet 2			
			9									

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GABH06 D

SHEET: 3 OF 3

CLIENT: Wollongong City Council

COORDS: 297975.6 m E 6184322.0 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 22.05 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

DATE: 27/7/11

JOB NO: 117625003

HOLE DEPTH: 15.45 m

CHECKED: BJF

DATE: 13/9/11

Drilling					Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations		AVERAGE DEFECT SPACING (mm)
HQ3			100 40 (60)	10	12.05		SANDSTONE fine grained, brown, with clay seams and ironstaining, bedding dips 0 - 5°	HW		9.59 m: DS, 0°, clay 5 mm 9.61 m: DS, 0°, clay 40 mm 9.80-10.00 m: DZ, 0°, clay 10.02-10.22 m: DZ, 0°, clay 10.32 m: B, 0°, Pl, Ro, Sn 10.61 m: B, 0-5°, Pl, Ro, Sn 10.63 m: B, 0-5°, Pl, Ro, Sn 10.84-10.95 m: B, 0°, sp = 5-30 mm, Pl, Ro, Sn		
			100 40 (80)	11	11.05 11.00		brown and grey, no clay seams	MW		11.05-11.30 m: B, 0°, sp = 1-10 mm, Pl, Sm, Sn		
			100 95 (95)	12	12.45 9.60		SANDSTONE fine grained, pale grey, with seams of coarse grained to conglomeratic, bedding dips 0 - 5°	FR		11.50 m: B, 5°, Pl, Sm, Sn 11.54 m: B, 0°, Pl, Sm, Sn 11.66 m: B, 0-5°, Pl, Sm, Sn 11.81-11.93 m: B, 0°, sp = 1-20 mm, Pl, Sm, Sn 12.08-12.13 m: B, 0°, sp = 1-20 mm, Pl, Sm, Sn		
				13								
				14						14.26 m: B, 5°, Pl, Sm, Cn 14.34 m: J, 70°, Pl, Sm, Cn		
				15								
				15.45	6.60		END OF BOREHOLE @ 15.45 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 27/07/11					
				16								
				17								
				18								
				19								
				20								

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GABH06 D

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 27/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

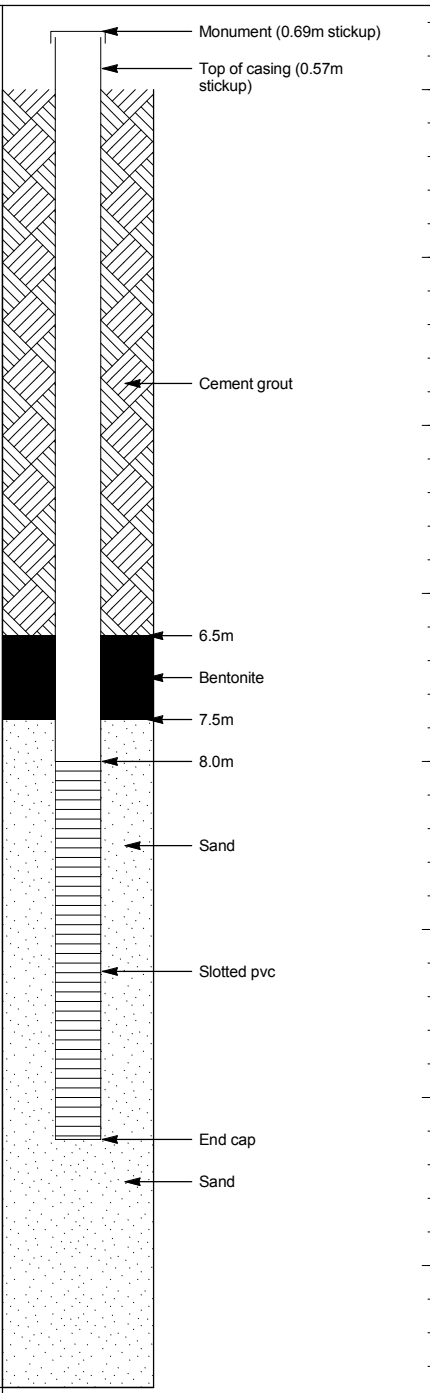
JOB NO: 117625003

COORDS: 297975.6 m E 6184322.0 m N MGA94 56

SURFACE RL: 22.05 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 15.45 m

Drilling				Sampling			Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION	
ADV	27/07/11	0	22.05				Silty CLAY high plasticity, dark brown / black, inferred soft to firm moist, soft to firm			
		1.20	20.85	SPT 1.20-1.65 m 4, 6, 7 N=13 GABH06_001			Silty CLAY medium plasticity, brown dry to moist, stiff			
		2.00	20.05	SPT 2.00-2.45 m 8, 14, 24 N=38 GABH06_002			Sandy Silty CLAY medium plasticity, brown, fine to medium grained sub-rounded sand, with some fine grained sub-rounded gravel dry to moist, very stiff			
		3.00	19.05	SPT 3.00-3.45 m 13, 21, 23 N=44 GABH06_003			Clayey Silty SAND fine grained, sub-rounded, brown, with some fine grained sub-rounded gravel dry to moist, medium dense to dense			
		5.00	17.05	SPT 5.00-5.45 m 9, 13, 16 N=29 GABH06_005			Silty CLAY medium plasticity, brown, trace fine grained sub-rounded sand dry to moist, very stiff			
		6.00	16.05	SPT 6.00-6.45 m 8, 9, 14 N=23 GABH06_006			Sandy CLAY high plasticity, brown, coarse grained sub-rounded sand, trace organics (black) moist, very stiff			
		7.00	15.05	SPT 7.00-7.45 m 9, 19, 25 N=44 GABH06_007			Clayey SAND fine to medium grained, sub-rounded, brown / dark brown, trace organics, trace fine grained sub-rounded gravel moist to wet, dense			
		8.25	13.80				CORE LOSS			
		8.95	13.10				Silty CLAY brown			
		9.45	12.60				SANDSTONE brown and pale brown, with ironstaining extremely weathered to highly weathered, extremely low strength			
		10.00	12.05				SANDSTONE brown and pale brown, with clay seams and ironstaining, bedding dips 0 - 5° highly weathered, low to medium strength			
		11.05	11.00				SANDSTONE fine grained, brown, with clay seams and ironstaining, bedding dips 0 - 5° highly weathered to moderately weathered, low to medium strength			
		12.45	9.60				SANDSTONE fine grained, pale grey, with seams of coarse grained to conglomeratic, bedding dips 0 - 5° fresh, high strength			
		15.45	6.60				END OF BOREHOLE @ 15.45 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 27/07/11			
HQ3	28/07/11									

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GAP gINT FN. F05
RL3



CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297975.6 m E 6184322.0 m N MGA94 56
SURFACE RL: 22.05 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.45 m

REPORT OF CORE PHOTOGRAPHS: GABH06 D

SHEET: 1 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 27/7/11
CHECKED: BJF DATE: 13/9/11

117625003
WCC
Whytes Gully

GABH06 D
07.45 to 12.00m
Box 1 of 2



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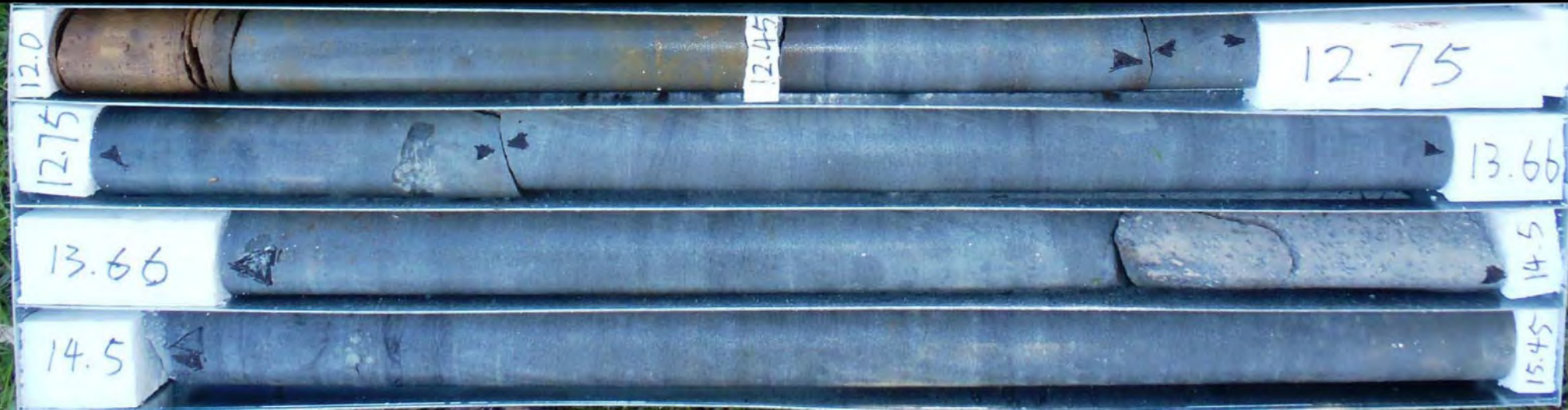
GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GABH06 D

CLIENT:	Wollongong City Council	COORDS:	297975.6 m E 6184322.0 m N MGA94 56	SHEET:	2 OF 2
PROJECT:	Whytes Gully	SURFACE RL:	22.05 m DATUM: AHD	DRILL RIG:	Drill Cat
LOCATION:	Wollongong	INCLINATION:	-90°	CONTRACTOR:	Terratest
JOB NO:	117625003	HOLE DEPTH:	15.45 m	LOGGED:	TZ
				CHECKED:	BJF
					DATE: 27/7/11
					DATE: 13/9/11

117625003	GABH06 D
WCC	12.00 to 15.45m
Whytes Gully	Box 2 of 2



GAP g_051.1 LIB.GLB Gfictbl GAP CORE PHOTO 1 PER PAGE 117625003 LOGS.GPJ <<DrawingFile>> 04/11/2011 13:39 8.2.856



REPORT OF BOREHOLE: GABH06 S

SHEET: 1 OF 1

CLIENT: Wollongong City Council

COORDS: 297977.0 m E 6184322.3 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 22.08 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

DATE: 15/8/11

JOB NO: 117625003

HOLE DEPTH: 8.35 m

CHECKED: BJF

DATE: 13/9/11

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L-M		0	22.08	U50 2.00 m GABH06 S-001			CH	CLAY high plasticity, dark brown, inferred stiff		St	INFERRED ALLUVIUM
			1									
			2									
			3									
	M-H		2	2.00 20.08	U50 5.00 m GABH06 S-002				with some fine to medium grained sub-rounded sand, inferred very stiff	M	VSt	
			3									
			4									
			5									
			6									
			7									
			8									
				8.00 14.08					U50 8.00 m GABH06 S-003			
	13.73					END OF BOREHOLE @ 8.35 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 15/08/11						

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GABH06 S

SHEET: 1 OF 1

CLIENT: Wollongong City Council

COORDS: 297977.0 m E 6184322.3 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 22.08 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

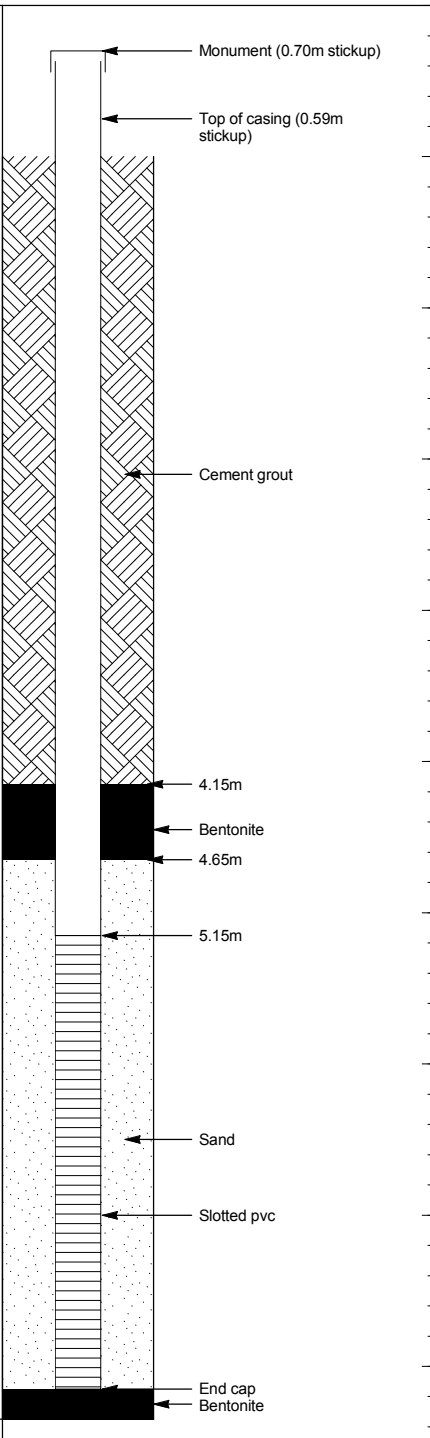
DATE: 15/8/11

JOB NO: 117625003

HOLE DEPTH: 8.35 m

CHECKED: BJF

DATE: 13/9/11

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
ADV		-1							 Monument (0.70m stickup) Top of casing (0.59m stickup) Cement grout 4.15m Bentonite 4.65m 5.15m Sand Slotted pvc End cap Bentonite		
		0	22.08				CLAY high plasticity, dark brown, inferred stiff moist, stiff to very stiff				
		2	2.00 20.08	U50 2.00 m GABH06 S-001			with some fine to medium grained sub-rounded sand, inferred very stiff				
		3									
		4									
		5	5.00 17.08	U50 5.00 m GABH06 S-002			grey, trace coarse grained sand, inferred stiff				
		6									
		7									
		8	8.00 14.08	U50 8.00 m GABH06 S-003			Clayey SAND fine grained, yellow, high plasticity clay				
		8.35 13.73					END OF BOREHOLE @ 8.35 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 15/08/11				
9											

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F05
RL3



REPORT OF BOREHOLE: GMW101

SHEET: 1 OF 2

CLIENT: Wollongong City Council

COORDS: 298159.8 m E 6184848.3 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 90.15 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: HMG DATE: 11/7/11

JOB NO: 117625003

HOLE DEPTH: 10.30 m

CHECKED: BJF DATE: 13/9/11

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	M		0	90.15			SP	Gravelly SAND fine to medium grained, brown, medium sub-rounded gravel, with some angular cobbles up to 80 mm diameter	D		Inferred residual soil
			0.50				SM	Silty SAND fine grained, brown, trace medium sub-angular gravel	D - M		
			89.65								
			2					For Continuation Refer to Sheet 2			
			4								
			6								
			8								
			10								
			12								

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GMW101

SHEET: 2 OF 2

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298159.8 m E 6184848.3 m N MGA94 56
SURFACE RL: 90.15 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.30 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 11/7/11
CHECKED: BJF DATE: 13/9/11

Drilling					Field Material Description					Defect Information												
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa					DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm)							
									EL 0.03	VL 0.03	J 0.1	M 0.3	H 1	VH 3	EH 10		10	30	100	300	1000	3000
				0																		
				1.00			Continuation of Sheet 1															
				89.15			SANDSTONE coarse grained, brown, bedding at 0 - 5°	HW - MW														
			100	70 (80)	2																	

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW101

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 11/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

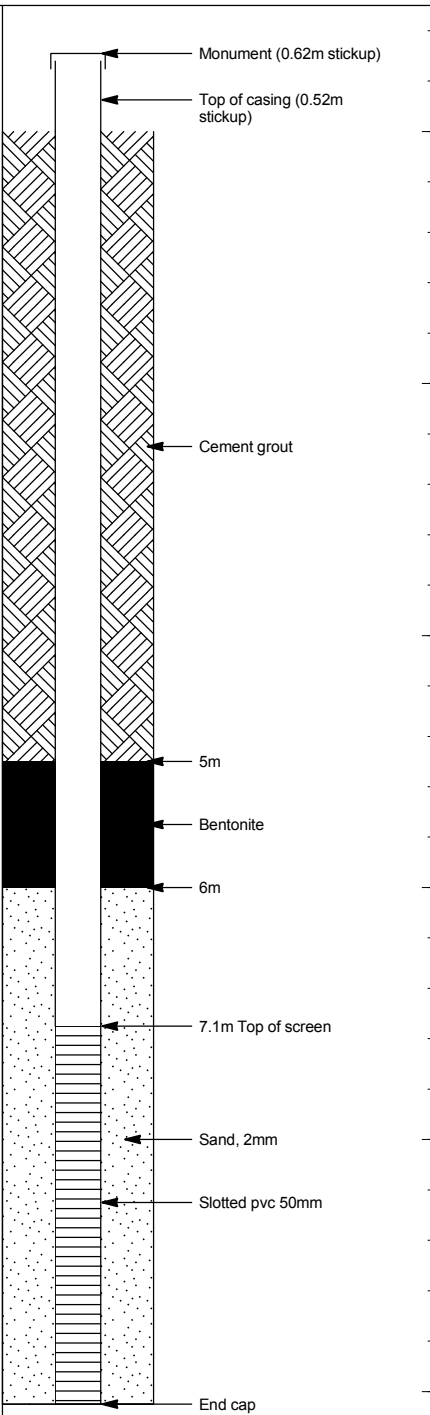
JOB NO: 117625003

COORDS: 298159.8 m E 6184848.3 m N MGA94 56

SURFACE RL: 90.15 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 10.30 m

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
ADV		0	90.15				Gravelly SAND fine to medium grained, brown, medium sub-rounded gravel, with some angular cobbles up to 80 mm diameter dry				
		0.50	89.65				Silty SAND fine grained, brown, trace medium sub-angular gravel dry to moist				
		1.00	89.15				SANDSTONE coarse grained, brown, bedding at 0 - 5° highly weathered to moderately weathered, medium strength				
		2									
		3.89	86.06				blue grey band				
		4	86.09								
		4.71	85.35				CORE LOSS highly weathered to moderately weathered, medium strength				
		5	85.22				SANDSTONE coarse grained, brown highly weathered to fresh, medium to high strength becoming blue grey, ironstaining covering bedding partings				
		6									
		8									
HO3		10					END OF BOREHOLE @ 10.30 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 12/07/11				
		10.30									

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW101

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298159.8 m E 6184848.3 m N MGA94 56
SURFACE RL: 90.15 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.30 m

SHEET: 1 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 11/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW101

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298159.8 m E 6184848.3 m N MGA94 56
SURFACE RL: 90.15 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.30 m

SHEET: 2 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 11/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1

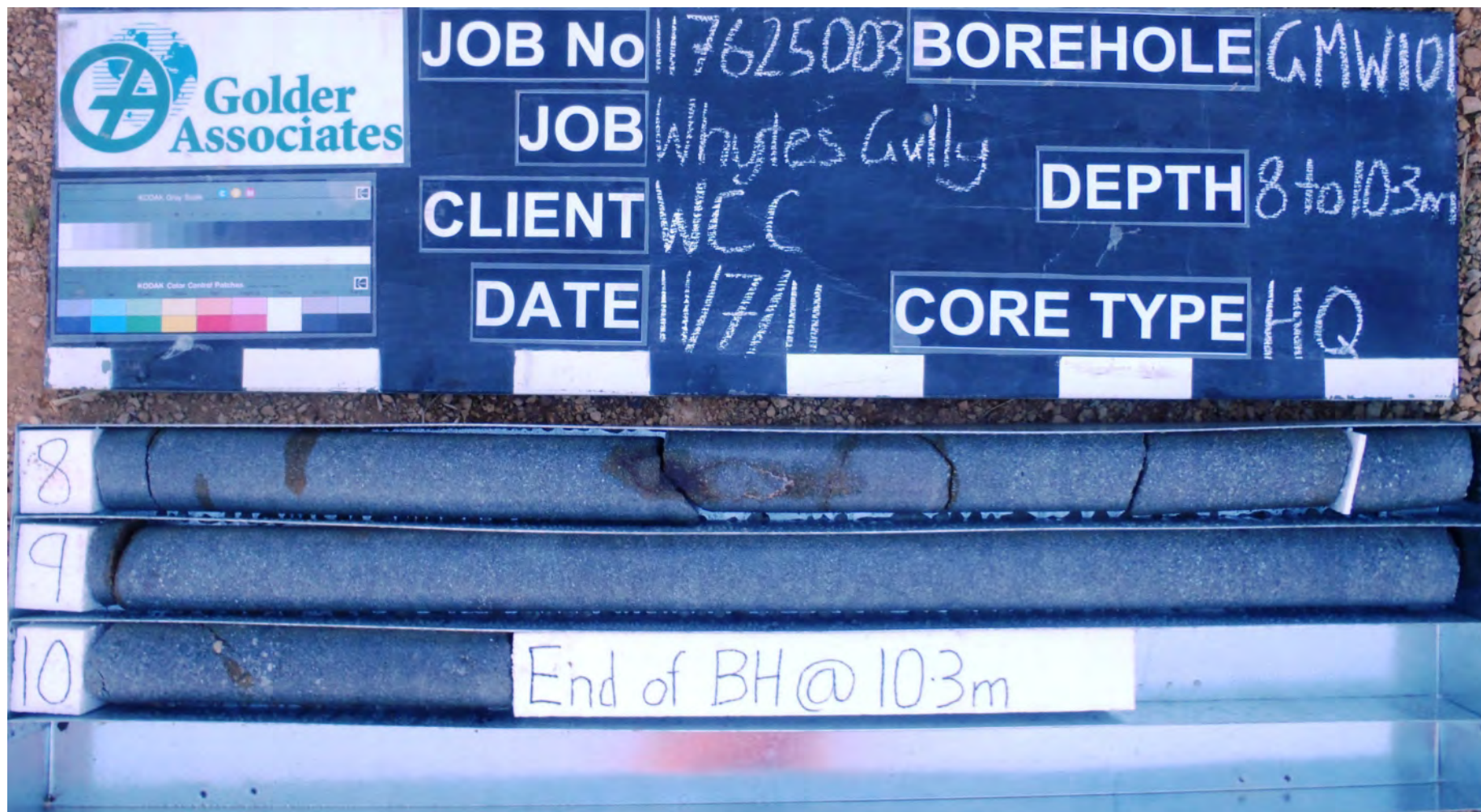


REPORT OF CORE PHOTOGRAPHS: GMW101

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298159.8 m E 6184848.3 m N MGA94 56
SURFACE RL: 90.15 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.30 m

SHEET: 3 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 11/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GMW102

SHEET: 1 OF 2

CLIENT: Wollongong City Council

COORDS: 297952.6 m E 6184807.2 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 88.24 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

DATE: 9/8/11

JOB NO: 117625003

HOLE DEPTH: 12.50 m

CHECKED: BJF

DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	M		0	88.24				CI	Silty CLAY medium plasticity, yellow brown, trace fine angular gravel	D	VST
					GMW102-001 SPT 1.00-1.07 m 25/70mm						
			2						For Continuation Refer to Sheet 2		
			4								
			6								
			8								
			10								
			12								
			14								

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GMW102

SHEET: 2 OF 2

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297952.6 m E 6184807.2 m N MGA94 56
SURFACE RL: 88.24 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.50 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ
CHECKED: BJF
DATE: 9/8/11
DATE: 13/9/11

Drilling						Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa		DEFECT DESCRIPTION & Additional Observations		AVERAGE DEFECT SPACING (mm)		
				0											
				1.25			Continuation of Sheet 1								
				86.99			SANDSTONE fine to medium grained, pale brown, bedding at 0 - 5°	MW			1.25-2.40 m: B, 0-5°, sp = 120-270 mm, Pl, Sm, Sn 1.27 m: B, 0°, Un, Sm, Sn				
			100	85 (90)											
				2											
				2.40			pale grey	SW - FR			2.00 m: B, 0°, Pl, Ro, Sn 2.04 m: J, 15°, Un, Ro, Sn 2.08 m: J, 20°, Pl, Sm, Sn 2.09 m: B, 0°, St, Sm, Sn 2.14 m: DS, 0-5°, clayey sand 50 mm 2.40 m: DS, 0°, clay 40 mm 2.54 m: J, 40°, St, Ro, Sn 3.00 m: B, 0-5°, Pl, Ro, Sn				
				85.84											
				4											
				4.95			coarse grained	FR			3.50 m: J, 20°, Pl, Ro, Cn 3.65 m: B, 0°, Pl, Ro, Sn 3.66 m: J, 20°, Pl, Sm, Sn 3.79 m: J, 20°, Pl, Sm, Sn 3.80 m: B, 0°, Pl, Sm, Sn 4.45 m: J, 10°, Pl, Ro, Sn 4.60 m: B, 0-5°, Pl, Ro, Sn				
			100	80 (100)											
				6							5.95 m: B, 0-5°, Pl, Ro, Sn 6.50 m: DB				
				7.00			CONGLOMERATE fine grained, grey				7.46 m: B, 0-5°, Pl, Sm, Sn 7.63 m: B, 0-5°, Pl, Ro, Sn				
				81.24											
				8											
				9.50			SANDSTONE fine to medium grained, pale grey				9.50 m: DB 9.60 m: J, 70°, Un, Ro, Sn 9.70-10.50 m: J, 70°, partially closed				
				78.74											
				10							10.50 m: J, 10°, Pl, Ro, Sn				
				12											
				12.10			CONGLOMERATE fine grained, grey				11.85 m: J, 80°, Pl, Ro, Cn-Sn 11.94 m: B, 0-5°, Un, Ro, Cn-Sn 12.20 m: DB				
				76.14											
				12.50			END OF BOREHOLE @ 12.50 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 09/08/11								
				75.74											
				14											

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW102

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 9/8/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

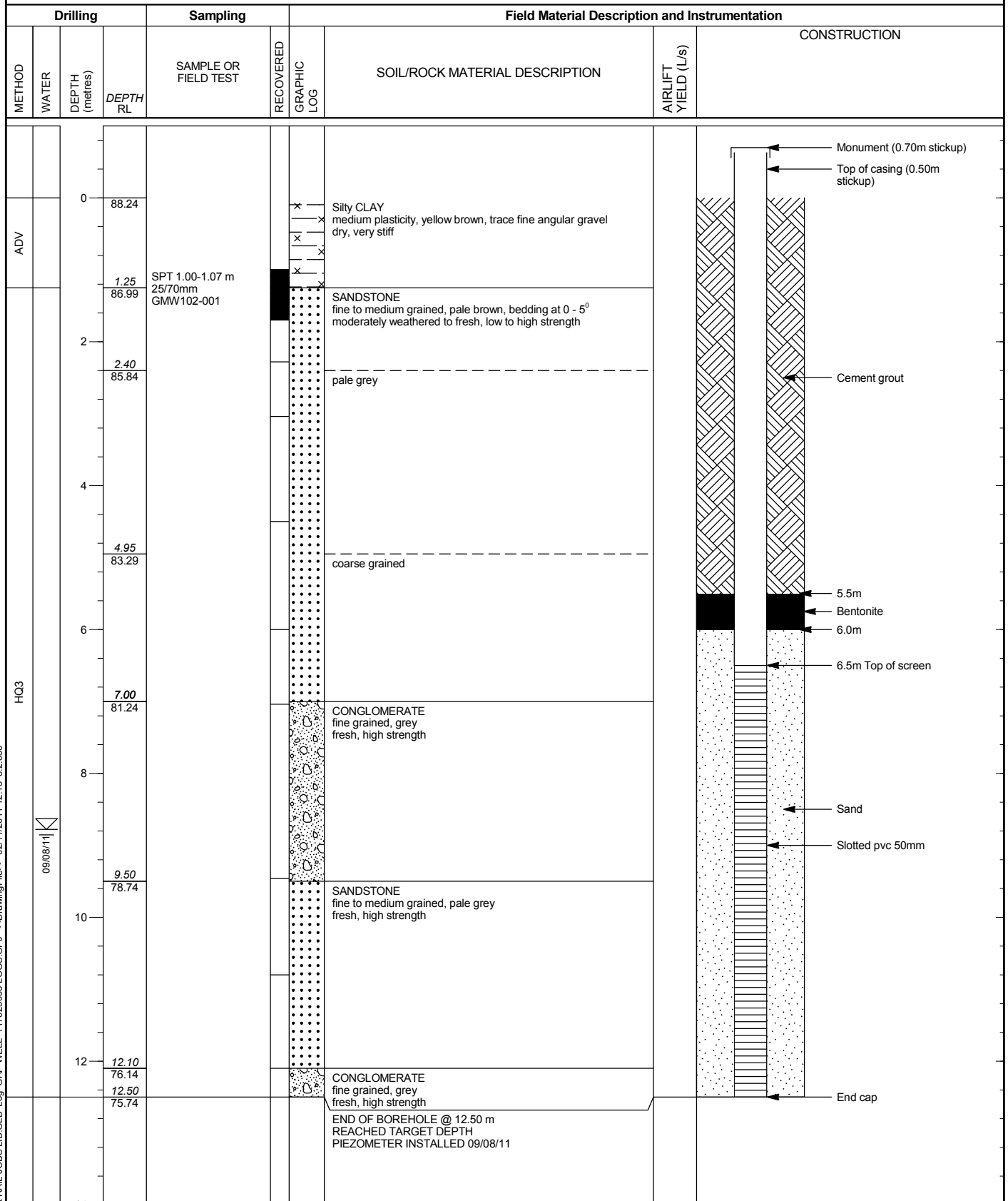
JOB NO: 117625003

COORDS: 297952.6 m E 6184807.2 m N MGA94 56

SURFACE RL: 88.24 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 12.50 m



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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW102

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297952.6 m E 6184807.2 m N MGA94 56
SURFACE RL: 88.24 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.50 m

SHEET: 1 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 9/8/11
CHECKED: BJF DATE: 13/9/11



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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW102

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297952.6 m E 6184807.2 m N MGA94 56
SURFACE RL: 88.24 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.50 m

SHEET: 2 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 9/8/11
CHECKED: BJF DATE: 13/9/11



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GAP gINT FN. F31
RL1



DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 12/7/11

CHECKED: BJB DATE: 13/9/11

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298470.2 m E 6184602.6 m N MGA94 56
SURFACE RL: 80.78 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.00 m

[illegible]

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW103

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 12/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 298470.2 m E 6184602.6 m N MGA94 56

SURFACE RL: 80.78 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 10.00 m

Drilling				Sampling		Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION	
ADV		0	80.78			FILL: Sandy CLAY medium plasticity, dark brown, fine grained sand, trace fibrous material (roots) dry to moist		Monument (0.79m stickup)	
		0.50	80.28			Clayey SAND fine grained, pale brown, low to medium plasticity clay dry to moist, stiff		Top of casing (0.53m stickup)	
		1.20	79.58			SAND fine grained, pale brown orange, inferred stiff dry, stiff			
		1.55	79.23			CORE LOSS			
		1.85	78.93			SILTSTONE grey brown, subhorizontal bedding highly weathered, medium strength		Cement grout	
		2				SANDSTONE medium grained, brown orange, subhorizontal bedding, trace of up to 10 mm sub-rounded gravel highly weathered to moderately weathered, medium strength			
		4	4.00			becoming coarse grained with sub-rounded gravel up to 15 mm ø		3.5m	
			76.78					Bentonite	
								4.7m	
			5.48					5.5m Top of screen	
HQ3		6	75.22			SILTSTONE grey, subhorizontal bedding moderately weathered, low to medium strength		2 mm sand	
			5.97			SANDSTONE fine to medium grained, pale brown, with subhorizontal laminations of siltstone, < 3 mm moderately weathered, low to medium strength			
			74.78			SILTSTONE grey, subhorizontal bedding moderately weathered, low to medium strength			
			6.88			SANDSTONE fine grained, pale brown, with subhorizontal siltstone laminations moderately weathered, low to medium strength		Slotted pvc 50mm	
			7.05			SILTSTONE grey moderately weathered, low to medium strength			
			73.73			SANDSTONE medium to coarse grained, pale brown grey moderately weathered to fresh, low to medium strength becoming pale grey and white			
			7.40						
			73.38						
		8							
		10	10.00			END OF BOREHOLE @ 10.00 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 14/07/11		End cap	

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW103

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298470.2 m E 6184602.6 m N MGA94 56
SURFACE RL: 80.78 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.00 m

SHEET: 1 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 12/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW103

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298470.2 m E 6184602.6 m N MGA94 56
SURFACE RL: 80.78 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.00 m

SHEET: 2 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 12/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1

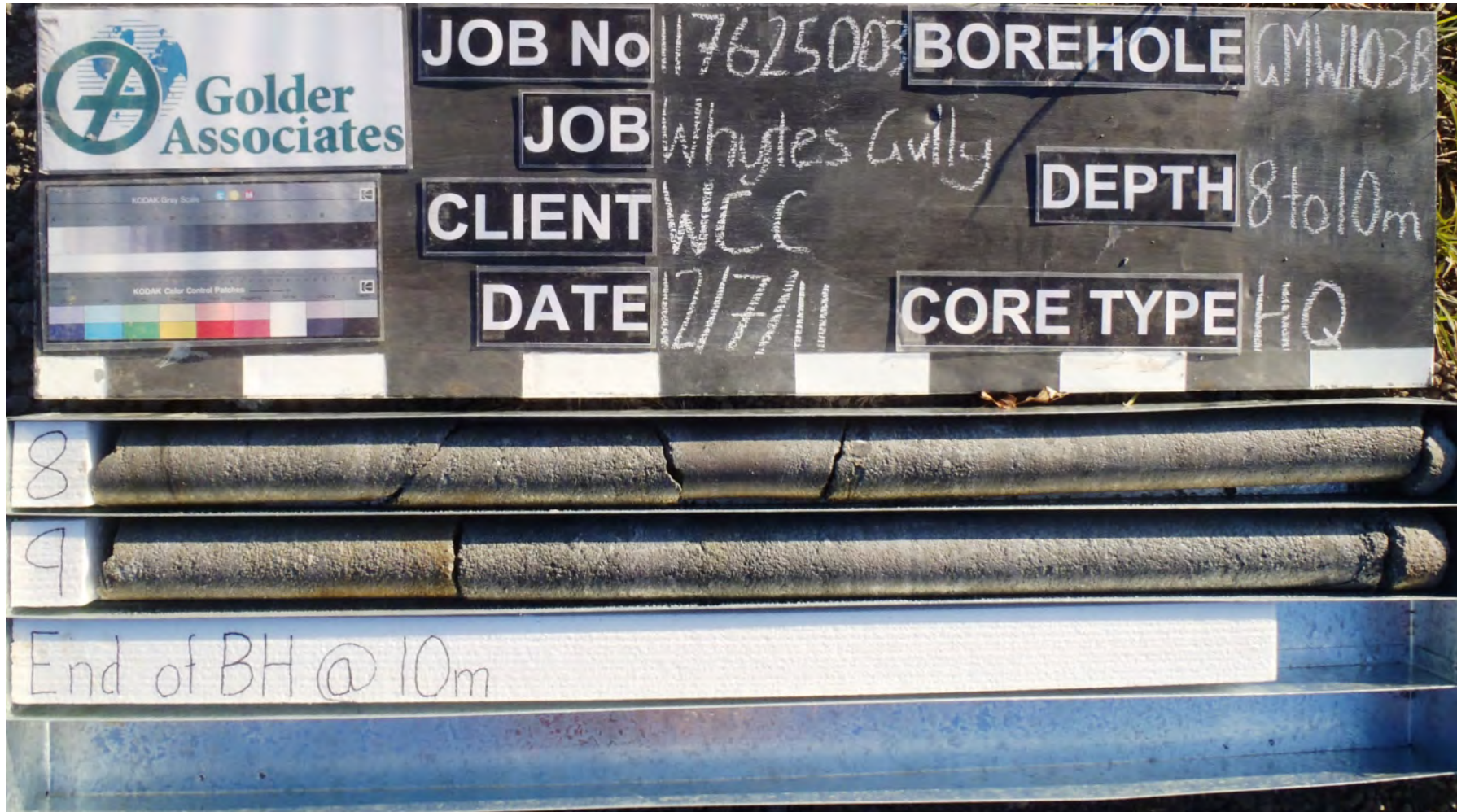


REPORT OF CORE PHOTOGRAPHS: GMW103

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298470.2 m E 6184602.6 m N MGA94 56
SURFACE RL: 80.78 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.00 m

SHEET: 3 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 12/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GMW104

SHEET: 1 OF 2

CLIENT: Wollongong City Council

COORDS: 297597.7 m E 6184508.5 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 33.43 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

DATE: 10/8/11

JOB NO: 117625003

HOLE DEPTH: 9.05 m

CHECKED: BJF

DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	M		0	33.43		X	X	CH	Silty CLAY high plasticity, brown, inferred firm to stiff		INFERRED RESIDUAL
			0.70		DS 0.50-0.70 m GMW104-001	X	X			M	F - St
			32.73		DS 0.70-0.80 m GMW104-002	X	X		yellow brown		
			1			X	X		For Continuation Refer to Sheet 2		
			2								
			3								
			4								
			5								
			6								
			7								
			8								
			9								
			10								

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GMW104

SHEET: 2 OF 2

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297597.7 m E 6184508.5 m N MGA94 56
SURFACE RL: 33.43 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.05 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 10/8/11
CHECKED: BJF DATE: 13/9/11

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)	
				0										
				1	1.05		Continuation of Sheet 1							
					32.38		CORE LOSS							
					1.25									
					32.18		SANDSTONE	HW		1.25-1.36 m: recovered as gravel				
							fine grained, brown, bedding at 0 - 5°			1.36-2.57 m: B, 0-5°, sp = 10-80 mm, Pl-Un, Ro, Sn				
				2						1.55-1.58 m: J, 80°, Pl, Sm, Sn				
										1.59 m: J, 50-60°, Pl, Ro, Sn				
										1.67 m: DS, 0-5°, clay 5 - 10 mm				
										1.84-2.32 m: J, 10-20°, sp = 30-60 mm, Pl, Ro, Sn				
				3						2.40 m: J, 80°, Pl, Ro, Sn				
										2.54 m: J, 10°, St, Ro, Sn				
										2.77-2.97 m: recovered as gravel				
				4						3.00 m: J, 20°, Un, Ro, Sn				
										3.05-3.35 m: B, 0-5°, sp = 30-60 mm, Pl, Ro, Sn				
										3.12 m: DS, highly weathered rock 30 mm				
										3.19 m: DS, highly weathered rock 20 mm				
										3.35-4.65 m: B, 0-5°, sp = 10-200 mm, Pl, Ro, Sn				
										3.68 m: J, 15°, St, Ro, Sn				
				5						4.53 m: J, 60°, partially closed				
										4.65 m: DS, 0°, sand				
										4.72 m: J, 15°, Pl, Ro, Vr, sand				
										4.75 m: J, 45°, St, Ro, Vr, sand				
										4.86-4.93 m: B, 5°, sp = 2-10 mm, Pl, Ro, Sn				
										4.97 m: J, 5-10°, Pl, Ro, Sn				
										5.00 m: HB				
										5.07 m: J, 45°, Un, Ro, Sn				
										5.20-5.41 m: B, 0-5°, sp = 1-30 mm, Pl, Ro, Sn				
										5.23 m: DS, 0°, highly weathered rock, 40 mm				
										5.30 m: DS, 0°, highly weathered rock, 40 mm				
										5.37 m: J, 15°, Pl, Ro, Sn				
										5.57 m: B, 0°, Pl, Ro, Sn				
										5.57-5.64 m: J, 85°, Pl, Ro, Sn				
										5.64 m: DS, 0°, sand 10 mm				
										5.66 m: J, 10°, partially closed				
										5.68 m: J, 10°, partially closed				
										5.79 m: DS, 0-5°, sand 30 - 40 mm				
										5.88 m: B, 0°, Un, Sm, Sn				
										6.00 m: B, 0-5°, Un, Sm, Sn				
										6.16 m: DS, 5°, highly weathered rock, 50 mm				
										6.29 m: J, 10°, Pl, Ro, Sn				
										6.46 m: B, 0°, partially closed				
										6.49 m: DS, 0°, highly weathered rock, 50 mm				
										6.68 m: J, 10°, Pl, Sm, Sn				
										6.69 m: B, 5°, Pl, Sm, Sn				
										6.75 m: J, 10°, Un, Ro, Sn				
										6.85 m: J, 10°, Un, Ro, Sn				
										6.88-6.93 m: DS, 0°, sp = 3-10 mm, highly weathered rock 20 mm				
										6.93 m: B, 0°, Un, Ro, Sn				
										7.11 m: DB				
										7.47-7.77 m: DS, 0°, sp = 1-90 mm, highly weathered rock 10 mm				
										7.55 m: DS, 0°, highly weathered rock 30 mm				
										7.61 m: DS, 0°, highly weathered rock 20 mm				
										7.91-7.94 m: General defects are, J, 10-15°, sp = 10-20 mm, Pl, Sm-Ro, Sn				
				9	9.05		END OF BOREHOLE @ 9.05 m							
					24.38		REACHED TARGET DEPTH							
							PIEZOMETER INSTALLED 10/08/11							
				10										

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW104

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 10/8/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297597.7 m E 6184508.5 m N MGA94 56

SURFACE RL: 33.43 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 9.05 m

Drilling				Sampling	Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION
ADV		0	33.43		X	Silty CLAY high plasticity, brown, inferred firm to stiff moist, firm to stiff		Monument (0.62m stickup) Top of casing (0.51m stickup)
		0.70	32.73	DS 0.50-0.70 m GMW104-001	X	yellow brown		
		1.05		DS 0.70-0.80 m GMW104-002	X			
		1.25	32.18			CORE LOSS		
		2				SANDSTONE fine grained, brown, bedding at 0 - 5° highly weathered to fresh, low to high strength		
		3.35	30.08			brown and grey		Sand
		4						4.5m Bentonite 5m
		5.5m						5.5m Top of screen
		6						Sand
		6.40	27.03			pale grey		Slotted pvc 50mm
		8						
		9.05	24.38			END OF BOREHOLE @ 9.05 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 10/08/11		End cap
		10						

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW104

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297597.7 m E 6184508.5 m N MGA94 56
SURFACE RL: 33.43 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.05 m

SHEET: 1 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 10/8/11
CHECKED: BJF DATE: 13/9/11



This report of core photographs must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW104

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297597.7 m E 6184508.5 m N MGA94 56
SURFACE RL: 33.43 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.05 m

SHEET: 2 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 10/8/11
CHECKED: BJF DATE: 13/9/11

117625003

GMW104

WCC

06.00 to 09.05m

Whytes Gully

Box 2 of 2



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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GMW105

SHEET: 1 OF 2

CLIENT: Wollongong City Council

COORDS: 298433.3 m E 6184397.2 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 87.14 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: TZ

DATE: 8/8/11

JOB NO: 117625003

HOLE DEPTH: 12.35 m

CHECKED: BJF

DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M		0	87.14			X	CI	Silty CLAY		INFERRED RESIDUAL
				0.60			X		medium plasticity, pale brown, trace of roots, inferred firm		
				86.54			X		trace grey coarse grained sub-angular sand	D - M F	
							X		For Continuation Refer to Sheet 2		
			2								
			4								
			6								
			8								
			10								
			12								
			14								

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GAP gINT FN. F01a
RL3



DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 8/8/11

CHECKED: BJB DATE: 13/9/11

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298433.3 m E 6184397.2 m N MGA94 56
SURFACE RL: 87.14 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.35 m

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW105

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: TZ DATE: 8/8/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 298433.3 m E 6184397.2 m N MGA94 56

SURFACE RL: 87.14 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 12.35 m

Drilling				Sampling		Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION	
HA		0	87.14		X	Silty CLAY medium plasticity, pale brown, trace of roots, inferred firm dry to moist, firm		Monument (0.70m stickup)	
		0.60	86.54		X	trace grey coarse grained sub-angular sand		Top of casing (0.56m stickup)	
		1.15	85.99		X				
		2				CORE LOSS			
		2.75	84.39			SANDSTONE fine to medium grained, brown, bedding at 0 - 5°, siltstone laminations extremely weathered to highly weathered, extremely low to very low strength		Cement grout	
		4.20				CORE LOSS low strength			
		4.40	82.74			SANDSTONE fine to medium grained, brown, bedding at 0 - 5° highly weathered to moderately weathered, low to medium strength		5.2m Bentonite	
		6.10				grey, siltstone laminations 1 - 2 mm thick brown		5.7m	
		8.10						6.2m Top of screen	
		7.82	79.32			siltstone laminations 15 - 20 mm thick			
		8.54				CORE LOSS moderately weathered, medium strength			
		11.66	75.48			SANDSTONE fine to medium grained, brown, bedding at 0 - 5° moderately weathered, medium to high strength		Sand	
		12.35	74.79			END OF BOREHOLE @ 12.35 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 08/08/11		Slotted pvc 50mm	
								End cap	

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW105

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298433.3 m E 6184397.2 m N MGA94 56
SURFACE RL: 87.14 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.35 m

SHEET: 1 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 8/8/11
CHECKED: BJF DATE: 13/9/11



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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW105

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298433.3 m E 6184397.2 m N MGA94 56
SURFACE RL: 87.14 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.35 m

SHEET: 2 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 8/8/11
CHECKED: BJF DATE: 13/9/11



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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW105

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298433.3 m E 6184397.2 m N MGA94 56
SURFACE RL: 87.14 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 12.35 m

SHEET: 3 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 8/8/11
CHECKED: BJF DATE: 13/9/11



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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GMW106

SHEET: 1 OF 2

CLIENT: Wollongong City Council

COORDS: 298356.8 m E 6184294.2 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 77.94 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: HMG DATE: 14/7/11

JOB NO: 117625003

HOLE DEPTH: 9.00 m

CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L		0	77.94					FILL: Silty CLAY low plasticity, dark brown, trace roots	D - M	
	M		0.55 77.39		GMW106-001 SPT 0.50-0.95 m 4, 6, 9 N=15			CI	CLAY medium plasticity, brown - pale brown	M St	INFERRED RESIDUAL SOIL
			1								
			2								
			3								
			4								
			5								
			6								
			7								
			8								
			9								
			10								

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GMW106

SHEET: 2 OF 2

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298356.8 m E 6184294.2 m N MGA94 56
SURFACE RL: 77.94 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.00 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 14/7/11
CHECKED: BJF DATE: 13/9/11

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)	
				0										
				1										
				1.25			Continuation of Sheet 1							
				76.69			SANDSTONE fine to medium grained, brown - pale brown, 60% Silty SAND, fine grained	RS - EW						
				2			CORE LOSS							
				2.00										
				75.94										
				3										
				3.21										
				74.73			INTERBEDDED SILTSTONE & SANDSTONE sandstone is typically fine grained, brown and orange, siltstone is grey, subhorizontal bedding	HW						
				3.54										
				74.40			SANDSTONE fine grained, pale brown, horizontal bedding	HW - MW						
				4										
				4.00										
				73.94			siltstone laminations							
				73.84										
				4.41										
				73.53			becoming medium grained							
				73.40										
				5			SANDSTONE fine to medium grained, sub-horizontal bedding, becoming pale brown with bands of up to 200 mm of pale blue-grey							
				5.60										
				72.34			siltstone laminations, bedding at 0 - 10°	MW - SW						
				6										
				6.80										
				71.14			becoming medium grained							
				70.94			becoming pale blue-grey	SW						
				7										
				8										
				9										
				9.00			END OF BOREHOLE @ 9.00 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 15/08/11							
				68.94										
				10										

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW106

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 14/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

COORDS: 298356.8 m E 6184294.2 m N MGA94 56

PROJECT: Whytes Gully

SURFACE RL: 77.94 m DATUM: AHD

LOCATION: Wollongong

INCLINATION: -90°

JOB NO: 117625003

HOLE DEPTH: 9.00 m

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
ADV		0	77.94	SPT 0.50-0.95 m 4, 6, 9 N=15 GMW106-001			FILL: Silty CLAY low plasticity, dark brown, trace roots dry to moist				Monument (0.75m stickup)
		0.55	77.39				CLAY medium plasticity, brown - pale brown moist, stiff				Top of casing (0.65m stickup)
HO3		1.25	76.69				SANDSTONE fine to medium grained, brown - pale brown, 60% Silty SAND, fine grained residual soil to extremely weathered, extremely low strength				Grout
		2.00	75.94				CORE LOSS				2.0m
		3.21	74.73				INTERBEDDED SILTSTONE & SANDSTONE sandstone is typically fine grained, brown and orange, siltstone is grey, subhorizontal bedding highly weathered to moderately weathered, low to high strength				Bentonite
		3.54	74.40				SANDSTONE fine grained, pale brown, horizontal bedding highly weathered to slightly weathered, low to high strength				2.5m
		4.00	73.94				siltstone laminations				3.0m Top of screen
		4.41	73.84				becoming medium grained				
		4.60	73.63				SANDSTONE fine to medium grained, sub-horizontal bedding, becoming pale brown with bands of up to 200 mm of pale blue-grey				
		5.60	72.34				siltstone laminations, bedding at 0 - 10°				
		6.80	71.14				becoming medium grained				2mm sand
		7.00	70.94				becoming pale blue-grey				Slotted pvc 50mm
		9.00	68.94				END OF BOREHOLE @ 9.00 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 15/08/11				End cap

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW106

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298356.8 m E 6184294.2 m N MGA94 56
SURFACE RL: 77.94 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.00 m

SHEET: 1 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 14/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW106

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298356.8 m E 6184294.2 m N MGA94 56
SURFACE RL: 77.94 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.00 m

SHEET: 2 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 14/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW106

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298356.8 m E 6184294.2 m N MGA94 56
SURFACE RL: 77.94 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.00 m

SHEET: 3 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 14/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GMW107

SHEET: 1 OF 2

CLIENT: Wollongong City Council

COORDS: 298155.6 m E 6184248.3 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 41.09 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: HMG DATE: 13/7/11

JOB NO: 117625003

HOLE DEPTH: 10.00 m

CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L	GWNE	0	41.09					FILL: CLAY medium plasticity, dark brown, trace fine grained sand		
			0.50								
			40.59		GMW107-001 DS 0.50-0.88 m (1 bag)				Clayey SAND fine grained, pale brown orange		
	M		1		GMW107-002 SPT 0.50-0.95 m 2, 3, 7 N=10					D - M	
			1.20					SP	SAND fine to medium grained, pale brown orange, trace silt		INFERRED RESIDUAL SOIL
			39.89								
			2						For Continuation Refer to Sheet 2		
			3								
			4								
			5								
			6								
			7								
			8								
			9								
			10								

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 13/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

COORDS: 298155.6 m E 6184248.3 m N MGA94 56

PROJECT: Whytes Gully

SURFACE RL: 41.09 m DATUM: AHD

LOCATION: Wollongong

INCLINATION: -90°

JOB NO: 117625003

HOLE DEPTH: 10.00 m

Drilling					Field Material Description					Defect Information							
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm)						
									EL 0.03 VL 0.03 L 0.1 M 0.3 H 1 VH 3 EH 10		10	30	100	300	1000	3000	
				0													
				1													
					1.75		Continuation of Sheet 1										
					39.34		CORE LOSS										
				2													
					2.16												
					38.93		SANDSTONE fine grained, brown, subhorizontal bedding, siltstone laminations (< 1 mm)	HW		2.16-2.28 m: recovered as gravel 2.32 m: DB 2.39 m: B, 0°, Pl, Ro, Sn 2.45 m: J, 20°, Pl, Ro, Sn, iron 2.48 m: J, 80°, St, Ro, Sn, iron, 80 mm long 2.50 m: J, 0°, Pl, Ro, Sn, iron 2.53 m: J, 80°, Un, Ro, Sn, iron, 80 mm long 2.61-2.64 m: core broken by drilling process 2.62-2.68 m: J, 70°, Pl, Ro, Sn, iron 2.82 m: J, 30°, Pl, Ro, Sn, iron 2.91 m: J, 55°, Pl, Ro, Vr, clay, with some roots 2.93 m: J, 60°, Pl, Ro, Sn, iron 3.00 m: B, 0°, Un, Ro, Sn 3.00-3.20 m: J, 85°, Un, Sm-Ro, Sn, iron 3.00-3.20 m: B, 0°, sp = 30-60 mm, Pl, Ro, Sn, iron 3.25-3.32 m: 3 x DB 3.37 m: J, 20°, Pl, Ro, Sn 3.54-3.60 m: J, 60°, Pl, Ro, Cn-Sn 3.66 m: B, 0°, Pl, Ro, Sn 3.76 m: B, 0°, Pl, Ro, Sn, iron 3.80 m: J, 30°, Pl, Ro, Sn, iron 3.92 m: B, 0°, Un, Ro, Cn 4.00 m: HB 4.09 m: B, 0°, Un, Ro, Cn 4.22 m: J, 40°, Pl, Ro, Cn 4.34 m: DS, 0°, 5 mm clayey sand 4.54 m: B, 10°, St, Ro, Sn 4.77 m: B, 0°, Un, Ro, Sn, iron 5.00 m: HB 5.12 m: J, 30°, Pl, Ro, Cn 5.36 m: J, 30°, Pl, Ro, Cn 5.37 m: J, 30°, Pl, Ro, Cn 5.68 m: B, 0°, Pl, Ro, Sn, iron 5.68 m: J, 85°, Un, Sm, Sn, iron, 400 mm long 5.70-6.64 m: B, 0°, sp = 30-60 mm, Pl, Ro, Sn, iron 5.90 m: J, 60°, Un, Ro, Sn, iron 6.10 m: DS, 0°, 10 mm thick sandy clay 6.17 m: DS, 0°, 5 mm thick sandy clay 6.20 m: J, 90°, Pl, Ro, Sn, iron, 100 mm long 6.38 m: J, 90°, Un, Ro, Sn, iron, 220 mm long 6.64 m: B, 0-10°, sp = 150-300 mm, Pl, Cn-Sn 6.75-7.00 m: 2 x HB							
				3													
					3.00												
					38.09		SILTSTONE grey brown, with subhorizontal sandstone laminations										
					3.20												
					37.89		SANDSTONE fine grained, brown, with siltstone laminations										
				4													
					3.90		becoming medium grained, no siltstone laminations										
					37.19												
				5													
					5.70												
					35.39		SILTSTONE grey brown, subhorizontal bedding, with sandstone laminations										
				6													
					6.20												
					34.89		SANDSTONE fine grained, brown, with bands of pale blue grey (up to 200 mm), laminations of siltstone										
					6.67												
					34.42		becoming medium grained										
					6.88												
					34.21		becoming fine grained										
				7													
				8													

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW107

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 13/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

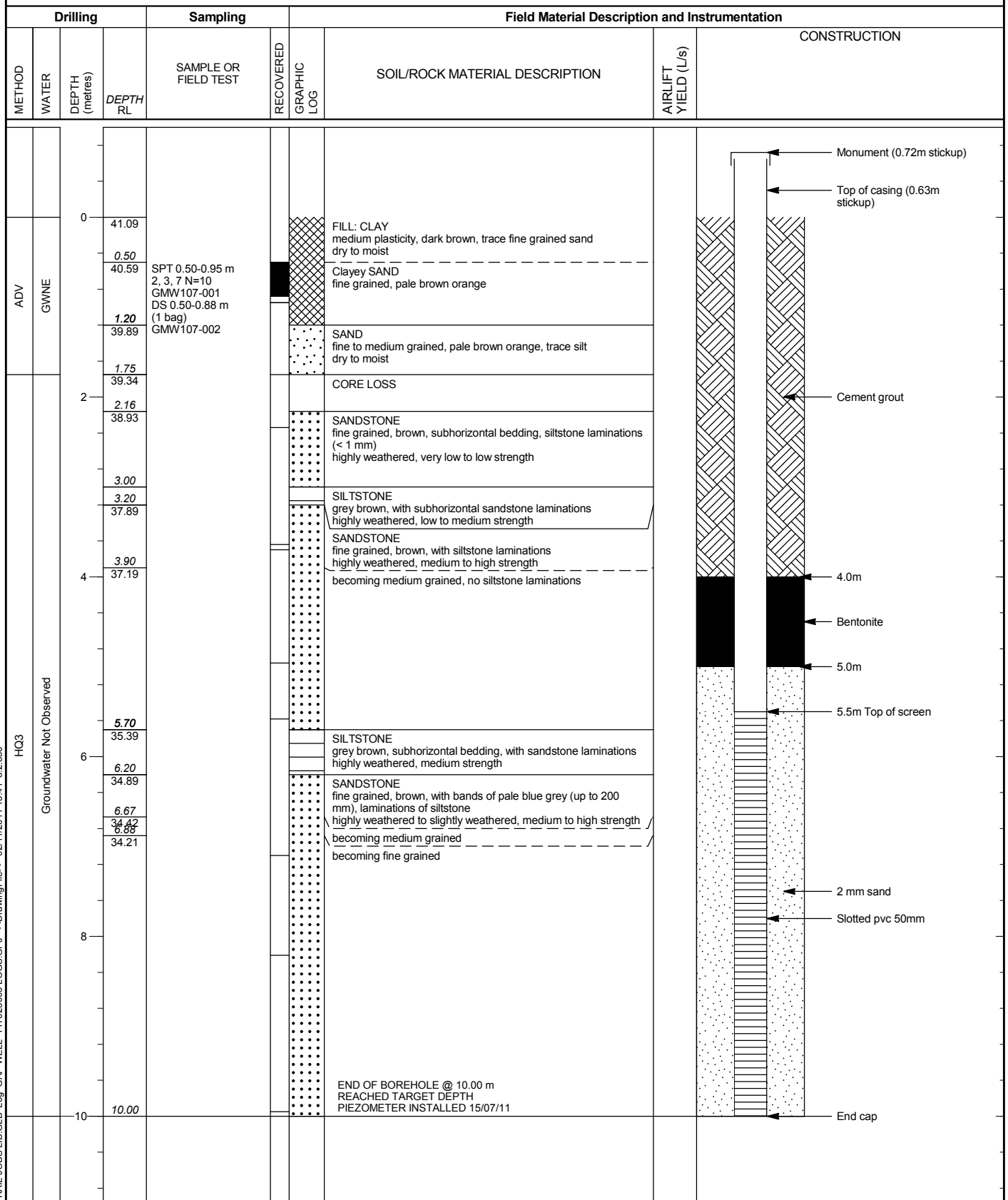
JOB NO: 117625003

COORDS: 298155.6 m E 6184248.3 m N MGA94 56

SURFACE RL: 41.09 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 10.00 m



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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW107

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298155.6 m E 6184248.3 m N MGA94 56
SURFACE RL: 41.09 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.00 m

SHEET: 1 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 13/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW107

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298155.6 m E 6184248.3 m N MGA94 56
SURFACE RL: 41.09 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.00 m

SHEET: 2 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 13/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW107

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298155.6 m E 6184248.3 m N MGA94 56
SURFACE RL: 41.09 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.00 m

SHEET: 3 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 13/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GMW108 D

SHEET: 1 OF 1

CLIENT: Wollongong City Council

COORDS: 297871.4 m E 6184261.8 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 18.98 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: HMG DATE: 19/7/11

JOB NO: 117625003

HOLE DEPTH: 15.00 m

CHECKED: BJF DATE: 13/9/11

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)	
									EL 0.03 VL 0.1 L 0.1 M 0.3 H 1 VH 3 EH 10				10 20 100 300 1000 3000	
				0										
				2										
				4										
				6										
				8										
				10										
				12			REFER TO "GMW108 S" FOR GROUND CONDITIONS BETWEEN 0.0 AND 12.0m DEPTH							
				12			Start Cored Borehole @ 12.00 m							
		80	0 (0)	12.10	6.88		CORE LOSS	HW		12.10-12.45 m: core rubbed due to drilling process				
				12.45	12.45		SANDSTONE							
				12.53	6.53		fine grained, brown, sub-horizontal bedding							
				12.85	12.85		CORE LOSS							
				13.00	6.13		SANDSTONE	MW		12.85-13.00 m: core rubbed due to drilling process				
		75	0 (0)	13.00			fine grained, brown			13.00 m: J, 90°, Un, Ro, Sn, iron 460 mm long				
				13.05						13.00-14.05 m: B, 0-10°, sp = 10-120 mm, Pl, Ro, Sn				
				14										
				14.05	14.05		CORE LOSS			14.00 m: HB				
				14.27	14.27		SANDSTONE			14.27-14.47 m: B, 0°, Un, Ro, Sn				
		75	0 (0)	14.47	4.71		fine grained, brown			14.47-14.65 m: J, 50°, sp = 5-70 mm, Pl, Ro, Sn				
				14.87	4.11		becomes blue grey			14.65-15.00 m: B, 5°, Pl-Un, Ro, Sn				
				15.00	3.98		END OF BOREHOLE @ 15.00 m							
							REACHED TARGET DEPTH							
							PIEZOMETER INSTALLED 19/07/11							
				16										

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GAP gINT FN. F02a
RL3



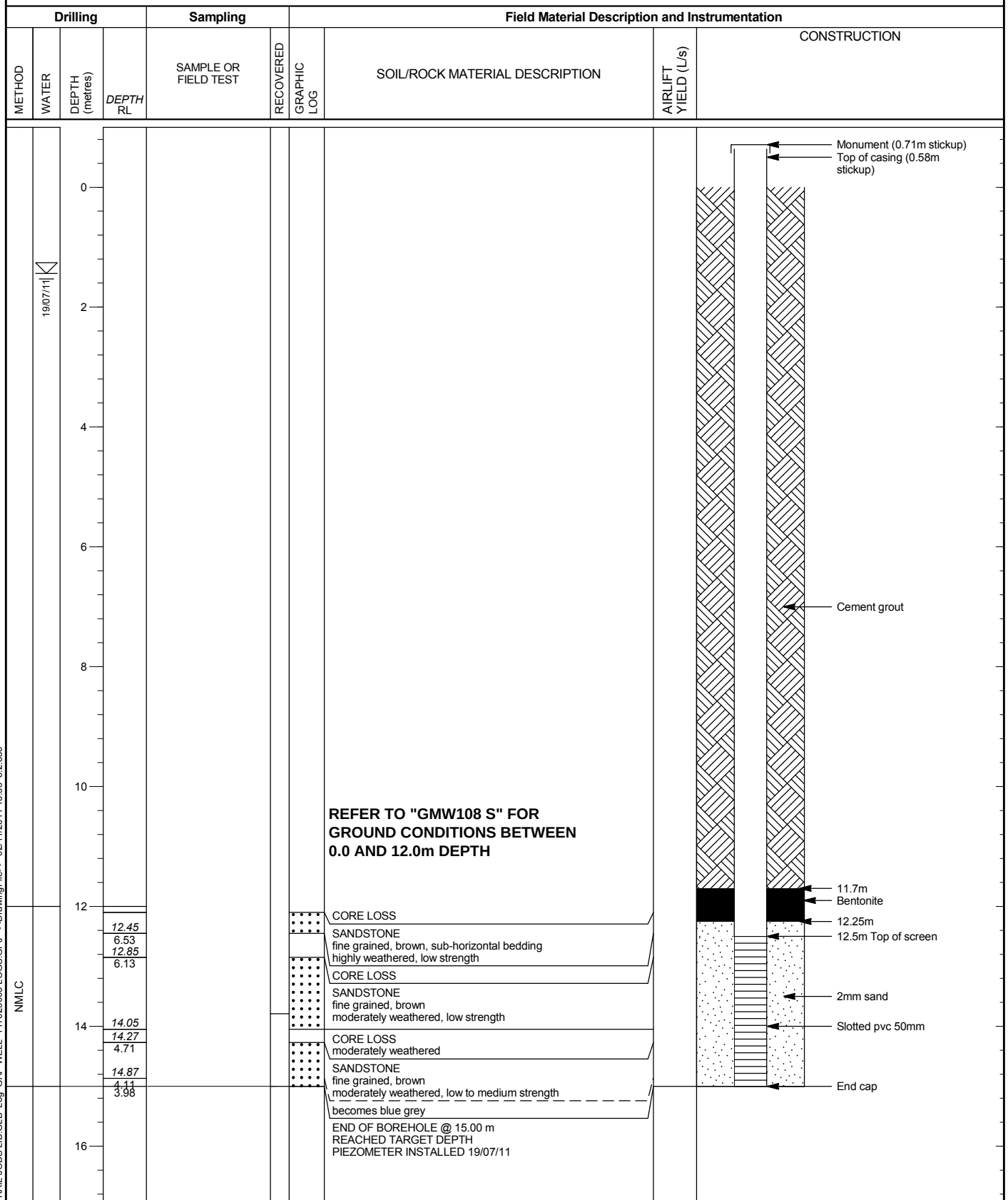
REPORT OF BOREHOLE: GMW108 D

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297871.4 m E 6184261.8 m N MGA94 56
SURFACE RL: 18.98 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 19/7/11
CHECKED: BJF DATE: 13/9/11



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GAP gINT FN. F05
RL3

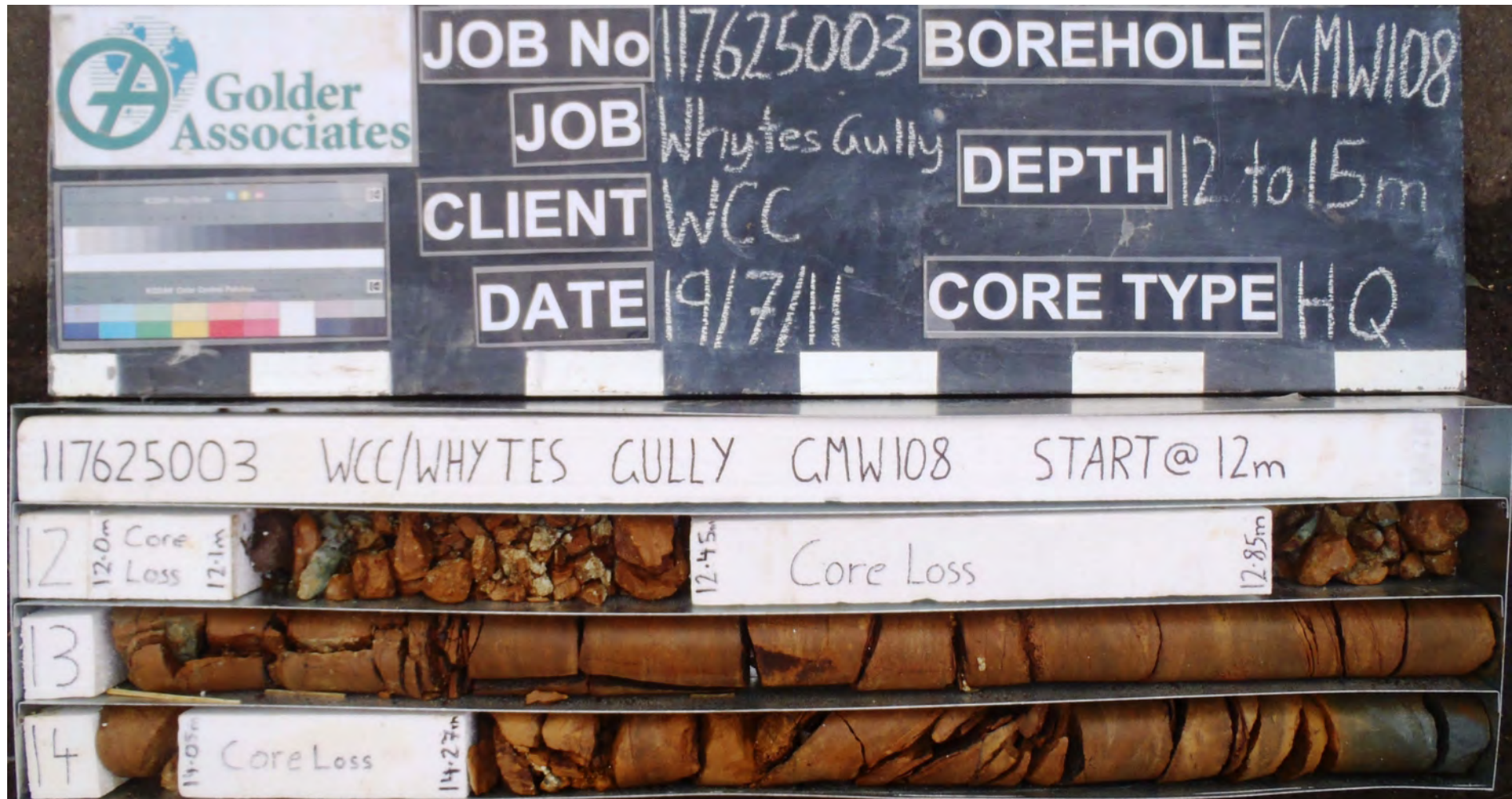


REPORT OF CORE PHOTOGRAPHS: GMW108 D

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297871.4 m E 6184261.8 m N MGA94 56
SURFACE RL: 18.98 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 1
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 19/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GMW108 S

SHEET: 1 OF 3

CLIENT: Wollongong City Council

COORDS: 297870.2 m E 6184262.4 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 18.89 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: HMG DATE: 15/7/11

JOB NO: 117625003

HOLE DEPTH: 18.25 m

CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			0	18.89				FILL: Silty CLAY low plasticity, dark brown, trace fine grained sand, inferred soft to firm			
			1	1.10 17.79	GMW108-001 SPT 1.00-1.45 m 3, 6, 9 N=15		CI	CLAY medium plasticity, dark brown - black			
			2	2.00 16.89 2.30 16.59	GMW108-002 SPT 2.00-2.45 m 2, 5, 7 N=12		CI CH	CLAY medium to high plasticity, brown, with some fine to medium grained sand CLAY high plasticity, brown to grey, trace fine grained sand			
			3	3.00 15.89	GMW108-003 SPT 3.00-3.45 m 4, 7, 10 N=17		CI	Sandy CLAY medium plasticity, brown with seams of grey, fine grained sand			
			4	4.00 14.89 4.30 14.59	GMW108-004 SPT 4.00-4.45 m 7, 8, 9 N=17		SC CI	Clayey SAND fine to medium grained, brown, medium plasticity clay Sandy CLAY medium plasticity, grey, fine grained sand			
			5	5.00 13.89 5.30 13.59	GMW108-005 SPT 5.00-5.45 m 17, 15, 12 N=27		SC CH	Clayey SAND fine to medium grained, brown, trace medium gravel CLAY high plasticity, grey			
			6	6.00 12.89	GMW108-006 SPT 6.00-6.45 m 5, 9, 14 N=23			with some brown, trace fine grained sand			
			7	7.00 11.89	GMW108-007 SPT 7.00-7.45 m 9, 16, 18 N=34		SC	Clayey SAND fine to medium grained, brown with some grey, clay is high plasticity, trace medium gravel			
			8		GMW108-008 SPT 8.00-8.45 m 6, 12, 13 N=25						
			9	9.40 9.49	GMW108-009 SPT 9.00-9.45 m 14, 15, 13 N=28		CI	Sandy CLAY medium plasticity, brown, with gravel			
			10	10.00							

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GMW108 S

SHEET: 2 OF 3

CLIENT: Wollongong City Council

COORDS: 297870.2 m E 6184262.4 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 18.89 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

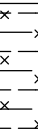
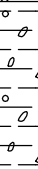
INCLINATION: -90°

LOGGED: HMG DATE: 15/7/11

JOB NO: 117625003

HOLE DEPTH: 18.25 m

CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L		10	8.89	GMW108-010 SPT 10.00-10.45 m 9, 11, 14 N=25			CH	Silty CLAY medium to high plasticity, brown / grey	M	VSt	INFERRED ALLUVIUM
			10.40 8.49	trace of fine grained sand								
			11	11.00 7.89	GMW108-011 SPT 11.00-11.45 m 12, 20, 16 N=36			CL	Gravelly CLAY low plasticity, brown / grey, white, fine to medium gravel			
			12									
			13						For Continuation Refer to Sheet 3			
			14									
			15									
			16									
			17									
			18									
			19									
			20									

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GMW108 S

SHEET: 3 OF 3

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297870.2 m E 6184262.4 m N MGA94 56
SURFACE RL: 18.89 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 18.25 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 15/7/11
CHECKED: BJF DATE: 13/9/11

Drilling						Field Material Description					Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa		DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm)		
				10										
				11										
				12										
				12.25	6.64		Continuation of Sheet 2							
							CORE LOSS							
				13										
			20	5 (15)										
				14										
				14.60	4.29									
				15			SANDSTONE fine grained, brown, bedding at 0 - 5°	MW			14.60-15.00 m: B, 0-5°, Pl, Sm, Sn, sp = 50-200 mm			
				15.00			CORE LOSS				15.00 m: J, 30°, Pl, Ro, Sn			
				15.20	3.69		SANDSTONE fine grained, grey, bedding at 0 - 5°, trace gravel sized particles (conglomeritic)	SW			15.20 m: J, 50°, Pl, Sm, Sn 15.30 m: B, 0°, Un, Sm, Sn 15.35 m: B, 0°, Un, Sm, Sn			
				16				FR						
			100	0 (0)										
				17										
				18							17.48 m: DB 17.70 m: DB			
				18.25	0.64		END OF BOREHOLE @ 18.25 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 18/07/11				18.05 m: DB			
				19										
				20										

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW108 S

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 15/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297870.2 m E 6184262.4 m N MGA94 56

SURFACE RL: 18.89 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 18.25 m

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
ADV	18/07/11	0	18.89				FILL: Silty CLAY low plasticity, dark brown, trace fine grained sand, inferred soft to firm dry to moist		Monument (0.68m stickup)		
		1.10	17.79	SPT 1.00-1.45 m 3, 6, 9 N=15 GMW108-001			CLAY medium plasticity, dark brown - black moist, stiff to very stiff		Top of casing (0.58m stickup)		
		2.00	16.59	SPT 2.00-2.45 m 2, 5, 7 N=12 GMW108-002			CLAY medium to high plasticity, brown, with some fine to medium grained sand moist, stiff		Cement grout		
		3.00	15.89	SPT 3.00-3.45 m 4, 7, 10 N=17 GMW108-003			CLAY high plasticity, brown to grey, trace fine grained sand moist, stiff		1.0m Bentonite		
		4.00	14.59	SPT 4.00-4.45 m 7, 8, 9 N=17 GMW108-004			Sandy CLAY medium plasticity, brown with seams of grey, fine grained sand moist, stiff		1.5m		
		5.00	13.59	SPT 5.00-5.45 m 17, 15, 12 N=27 GMW108-005			Clayey SAND fine to medium grained, brown, medium plasticity clay moist, medium dense		2.0m Top of screen		
		6.00	12.89	SPT 6.00-6.45 m 5, 9, 14 N=23 GMW108-006			Sandy CLAY medium plasticity, grey, fine grained sand moist, stiff				
		7.00	11.89	SPT 7.00-7.45 m 9, 16, 18 N=34 GMW108-007			Clayey SAND fine to medium grained, brown, trace medium gravel moist, medium dense				
		8.00	10.40	SPT 8.00-8.45 m 6, 12, 13 N=25 GMW108-008			CLAY high plasticity, grey moist, stiff				
		9.00	9.49	SPT 9.00-9.45 m 14, 15, 13 N=28 GMW108-009			with some brown, trace fine grained sand				
NMLC	15/07/11	10.00	8.89	SPT 10.00-10.45 m 9, 11, 14 N=25 GMW108-010			Clayey SAND fine to medium grained, brown with some grey, clay is high plasticity, trace medium gravel moist, medium dense to dense				
		11.00	7.89	SPT 11.00-11.45 m 12, 20, 16 N=36 GMW108-011			Sandy CLAY medium plasticity, brown, with gravel moist, stiff				
		12.00	6.64				Silty CLAY medium to high plasticity, brown / grey moist, very stiff				
		13.00	4.29				trace of fine grained sand				
		14.00	3.69				Gravelly CLAY low plasticity, brown / grey, white, fine to medium gravel moist, very stiff				
		15.00					CORE LOSS				
		16.00					SANDSTONE fine grained, brown, bedding at 0 - 5° moderately weathered, medium strength				
		17.00					CORE LOSS				
		18.00					SANDSTONE fine grained, grey, bedding at 0 - 5°, trace gravel sized particles (conglomeritic) slightly weathered to fresh, medium to high strength				
		18.25	0.64				END OF BOREHOLE @ 18.25 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 18/07/11				

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW108 S

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297870.2 m E 6184262.4 m N MGA94 56
SURFACE RL: 18.89 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 18.25 m

SHEET: 1 OF 2
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 15/7/11
CHECKED: BJF DATE: 13/9/11

117625003

WCC

Whytes Gully

GMW108 Shallow

12.25 to 16.00m

Box 1 of 2



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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW108 S

CLIENT:	Wollongong City Council	COORDS:	297870.2 m E 6184262.4 m N MGA94 56	SHEET:	2 OF 2
PROJECT:	Whytes Gully	SURFACE RL:	18.89 m DATUM: AHD	DRILL RIG:	Drill Cat
LOCATION:	Wollongong	INCLINATION:	-90°	CONTRACTOR:	Terratest
JOB NO:	117625003	HOLE DEPTH:	18.25 m	LOGGED:	HMG
				CHECKED:	BJF
					DATE: 15/7/11
					DATE: 13/9/11

117625003

WCC

Whytes Gully

GMW108 Shallow

16.00 to 18.25m

Box 2 of 2



GAP_g_05J\FOR RAIL_JOBS\LIB\GLB_Grctbl GAP CORE PHOTO 1 PER PAGE 117625003 LOGS.GPJ <<DrawingFile>> 02/11/2011 16:21 8.2.856



REPORT OF BOREHOLE: GMW109 D

SHEET: 2 OF 2

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297604.9 m E 6184068.2 m N MGA94 56
SURFACE RL: 17.29 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 21.50 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 25/7/11
CHECKED: BJF DATE: 13/9/11

Drilling						Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations		AVERAGE DEFECT SPACING (mm)	
									EL 0.03 VL 0.1 L 0.1 M 0.3 H 1 VH 3 EH 10			10 20 100 300 1000 3000	
WB				12			Sandy Silty CLAY high plasticity, grey brown, fine grained sand, inferred stiff						
				14									
				16									
HQ3				18	18.00		SANDSTONE fine grained, brown	EW					
			100	65 (75)	18.30		SANDSTONE fine grained, brown and pale grey, bedding dips 0 - 5°	EW - HW		18.30-19.00 m: DS, 0°, sp = 30-50 mm, 10 - 50 mm clay 18.38 m: J, 15°, Pl, Sm, Ct, clay			
				19.60	-2.31		brown to grey, with ironstaining, bedding dips 0 - 5°	HW		19.09 m: J, 60°, St, Ro, Vr, clay 19.13 m: B, 5°, St, Ro, Vr, clay 19.19-19.50 m: B, 0°, sp = 70-130 mm, St, Ro, Vr, clay 19.55 m: B, 0°, St, Ro, Vr, clay 19.59 m: B, 0-5°, St, Ro, Vr, clay 19.59 m: DS, 0°, 10 mm clay 19.60 m: DS, 0°, 30 mm clay 19.60-21.50 m: B, 0-5°, sp = 50-100 mm, Pl, Ro, Sn 19.81 m: DS, 0°, 20 mm clay 20.05 m: DS, 0°, 25 mm clay 20.08 m: DS, 0°, 5 mm clay 20.10 m: DS, 0°, 15 mm clay 20.13 m: DS, 0°, 10 mm clay 20.18 m: DS, 0°, 20 mm clay 20.26 m: DS, 0°, 15 mm clay 20.46 m: DS, 0°, 20 mm clay 20.50 m: DS, 0°, 10 mm clay 20.82 m: J, 15°, Pl, Ro, Sn			
				21.50	-4.21		END OF BOREHOLE @ 21.50 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 26/07/11	MW					
				22									
				24									

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GAP gINT FN. F02a
RL3

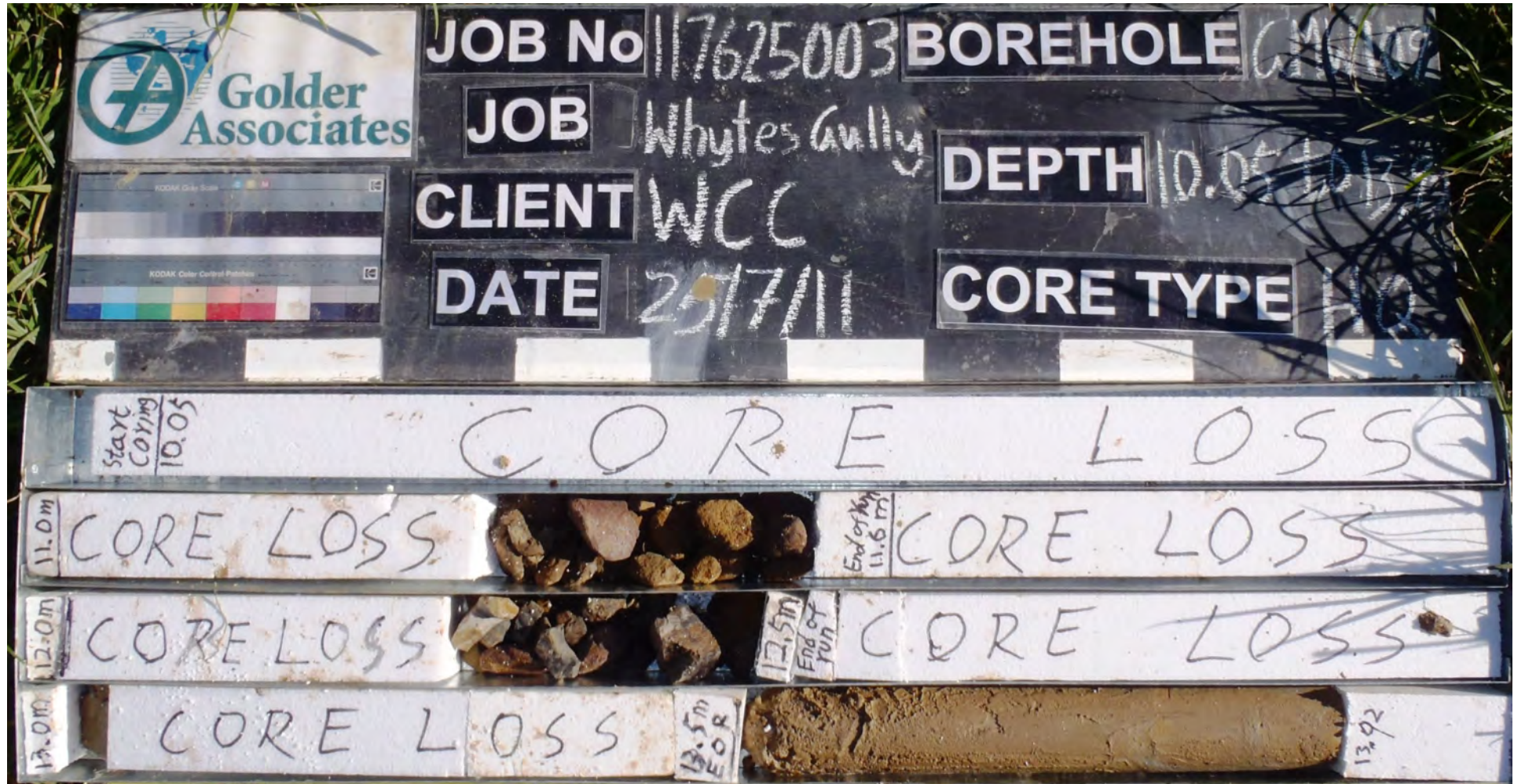


REPORT OF CORE PHOTOGRAPHS: GMW109 D

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297604.9 m E 6184068.2 m N MGA94 56
SURFACE RL: 17.29 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 21.50 m

SHEET: 1 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 25/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW109 D

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297604.9 m E 6184068.2 m N MGA94 56
SURFACE RL: 17.29 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 21.50 m

SHEET: 2 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 25/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW109 D

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297604.9 m E 6184068.2 m N MGA94 56
SURFACE RL: 17.29 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 21.50 m

SHEET: 3 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: TZ DATE: 25/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GMW109 S

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297605.7 m E 6184067.6 m N MGA94 56
SURFACE RL: 17.31 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.24 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 21/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description								
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION		MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
ADV	L		0	17.31					FILL: CLAY medium plasticity, dark brown, trace medium grained sand, inferred soft			M		
			1.00	16.31	GMW109-001 SPT 1.00-1.45 m 7, 4, 4 N=8				with some medium angular gravel					
			2		GMW109-002 SPT 2.00-2.45 m 1, 2, 5 N=7									
			3.00	14.31	GMW109-003 SPT 3.00-3.45 m 2, 4, 6 N=10				no sand or gravel					
			4	4.00	GMW109-004 SPT 4.00-4.45 m 4, 7, 11 N=18				becoming brown					
			5.00	5.16	GMW109-005 SPT 5.00-5.45 m 5, 5, 5 N=10		SC CH	Clayey SAND fine grained, brown		MD				
			6	6.00	GMW109-006 SPT 6.00-6.45 m 4, 5, 9 N=14			Sandy CLAY high plasticity, brown, fine grained sand, with some organic bands						
			8		GMW109-007 SPT 8.00-8.45 m 4, 6, 8 N=14					M	St			
			10		GMW109-008 SPT 10.00-10.24 m 9, 30/90mm HB			END OF BOREHOLE @ 10.24 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 21/07/11			INFERRED WEATHERED ROCK			

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GMW109 S

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 21/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297605.7 m E 6184067.6 m N MGA94 56

SURFACE RL: 17.31 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 10.24 m

Drilling				Sampling			Field Material Description and Instrumentation		
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION
ADV	21/07/11	0	17.31				FILL: CLAY medium plasticity, dark brown, trace medium grained sand, inferred soft moist		Monument (0.62 stickup)
		1.00	16.31	SPT 1.00-1.45 m 7, 4, 4 N=8 GMW109-001			with some medium angular gravel		Top of casing (0.53m stickup)
		2		SPT 2.00-2.45 m 1, 2, 5 N=7 GMW109-002					Cement grout 0.24m
		3.00	14.31	SPT 3.00-3.45 m 2, 4, 6 N=10 GMW109-003			no sand or gravel		Bentonite 0.74m
		4.00	13.31	SPT 4.00-4.45 m 4, 7, 11 N=18 GMW109-004			becoming brown		1.24m Top of screen
		5.00	12.15	SPT 5.00-5.45 m 5, 5, 5 N=10 GMW109-005			Clayey SAND fine grained, brown moist, medium dense		
		6.00	11.31	SPT 6.00-6.45 m 4, 5, 9 N=14 GMW109-006			CLAY high plasticity, brown moist, stiff		2mm sand
		8		SPT 8.00-8.45 m 4, 6, 8 N=14 GMW109-007			Sandy CLAY high plasticity, brown, fine grained sand, with some organic bands moist, stiff		Slotted pvc 50mm
		10	10.24	SPT 10.00-10.24 m 9, 30/90mm HB GMW109-008			END OF BOREHOLE @ 10.24 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 21/07/11		End cap

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GAP gINT FN. F05
RL3



REPORT OF BOREHOLE: GMW110

SHEET: 1 OF 2

CLIENT: Wollongong City Council

COORDS: 297572.6 m E 6184266.0 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 19.61 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: HMG DATE: 20/7/11

JOB NO: 117625003

HOLE DEPTH: 9.65 m

CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L		0	19.61				SW	FILL: CLAY high plasticity, dark brown	M		
	M-H		0.30 19.31	SAND fine to coarse grained, brown yellow, with some fine angular gravel, inferred medium dense to dense					D - M	MD - D		
			1									
			2						For Continuation Refer to Sheet 2			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									
			11									

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GMW110

SHEET: 2 OF 2

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297572.6 m E 6184266.0 m N MGA94 56
SURFACE RL: 19.61 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.65 m

DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)	
				0										
				1										
				1.25			Continuation of Sheet 1							
				18.36			SANDSTONE fine to medium grained, pale brown - yellow, bedding at 0 - 10°	HW		1.27-1.95 m: DS, sp = 40-150 mm, 5 - 40 mm of sandy clay 1.52 m: DB 1.61 m: DB				
			100	50 (70)						2.00 m: HB 2.20 m: DS, 10 mm sandy clay 2.24 m: DS, 10 mm sandy clay 2.27 m: DS, 30 mm sandy clay 2.51 m: DB				
				2.80			becoming brown	MW		2.80 m: B, 0°, Pl, Ro, Vr, clay 2.80-2.91 m: J, 80°, Pl, Ro, Sn, iron 2.85 m: DB 2.91 m: B, 0°, Pl, Ro, Sn 3.00 m: HB 3.03 m: B, 10°, Un, Ro, Sn 3.03 m: J, 70°, Pl, Ro, Sn 3.23 m: B, 10°, Un, Ro, Sn 3.40 m: DB 3.53 m: J, 20°, Un, Ro, Sn 3.53-5.52 m: J, 90°, Un, Ro, Sn 4.00 m: HB 4.22 m: B, 10°, Pl, Ro, Sn 4.28 m: B, 10°, Pl, Ro, Sn 4.46-4.77 m: DB, sp = 30-80 mm				
			100	15 (20)						4.84 m: B, 10°, St, Ro, Sn 4.98 m: B, 0°, Pl, Ro, Sn 5.00 m: B, 5°, Pl, Ro, Sn 5.12 m: B, 10°, Pl, Ro, Sn 5.28 m: B, 10°, Pl, Ro, Sn 5.44 m: B, 10°, Pl, Ro, Sn 5.52 m: B, 10°, Pl, Ro, Sn 5.59 m: DB 5.67 m: DB 5.81 m: J, 80°, Un, Ro, Sn 5.81 m: B, 10°, St, Ro, Sn 5.84 m: B, 10°, Pl, Ro, Sn 6.00 m: HB 6.13 m: B, 10°, Un, Ro, Sn 6.38-6.85 m: B, 10°, sp = 20-120 mm, Pl-Un, Ro, Sn				
				6.00			becoming grey with ironstaining around defects	MW - SW		7.00 m: HB 7.09-8.00 m: B, 10°, sp = 20-140 mm, Pl-Un, Ro, Sn				
				13.61						7.53 m: J, 50°, Pl, Ro, Sn 7.71-7.81 m: J, 85°, Pl, Ro, Sn				
			100	60 (70)			dark grey	SW		8.00 m: HB 8.13 m: B, 10°, Un, Ro, Sn 8.15 m: DB 8.44 m: B, 10°, Pl, Ro, Sn				
				8.00						8.64 m: B, 10°, Pl, Ro, Sn 8.75 m: B, 10°, Pl, Ro, Sn 8.80 m: B, 10°, Pl, Ro, Sn 9.00 m: HB 9.02 m: B, 10°, St, Ro, Sn 9.09 m: B, 10°, Un, Ro, Sn 9.19 m: J, 20°, Pl, Ro, Sn 9.23 m: B, 10°, Pl, Ro, Sn 9.26-9.44 m: J, 80°, Un-St, Ro, Sn				
				8.64			siltstone laminations			9.34 m: DB 9.44 m: B, 10°, Pl, Ro, Sn 9.60 m: B, 10°, Pl, Ro, Sn 9.60-9.65 m: J, 85°, Pl, Ro, Sn				
				10.97										
				9.65			END OF BOREHOLE @ 9.65 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 21/07/11							
				9.96										
				10										

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW110

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 20/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297572.6 m E 6184266.0 m N MGA94 56

SURFACE RL: 19.61 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 9.65 m

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
ADV		0	19.61 0.30 19.31				FILL: CLAY high plasticity, dark brown moist SAND fine to coarse grained, brown yellow, with some fine angular gravel, inferred medium dense to dense dry to moist, medium dense to dense		Monument (0.58m stickup)	Top of casing (0.49m stickup)	
		1.25	18.36				SANDSTONE fine to medium grained, pale brown - yellow, bedding at 0 - 10° highly weathered to slightly weathered, very low to medium strength		Cement grout		
		2							2.0m	Bentonite	
		2.80	16.81				becoming brown		2.95m		
		4							3.5m Top of screen		
		6	6.00 13.61				becoming grey with ironstaining around defects		2 mm sand		
		8	8.00 11.61				dark grey		Slotted pvc 50mm		
			8.64 10.97				siltstone laminations				
			9.65 9.96				END OF BOREHOLE @ 9.65 m REACHED TARGET DEPTH PIEZOMETER INSTALLED		End cap		
		10									

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW110

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297572.6 m E 6184266.0 m N MGA94 56
SURFACE RL: 19.61 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.65 m

SHEET: 1 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW110

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297572.6 m E 6184266.0 m N MGA94 56
SURFACE RL: 19.61 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.65 m

SHEET: 2 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1

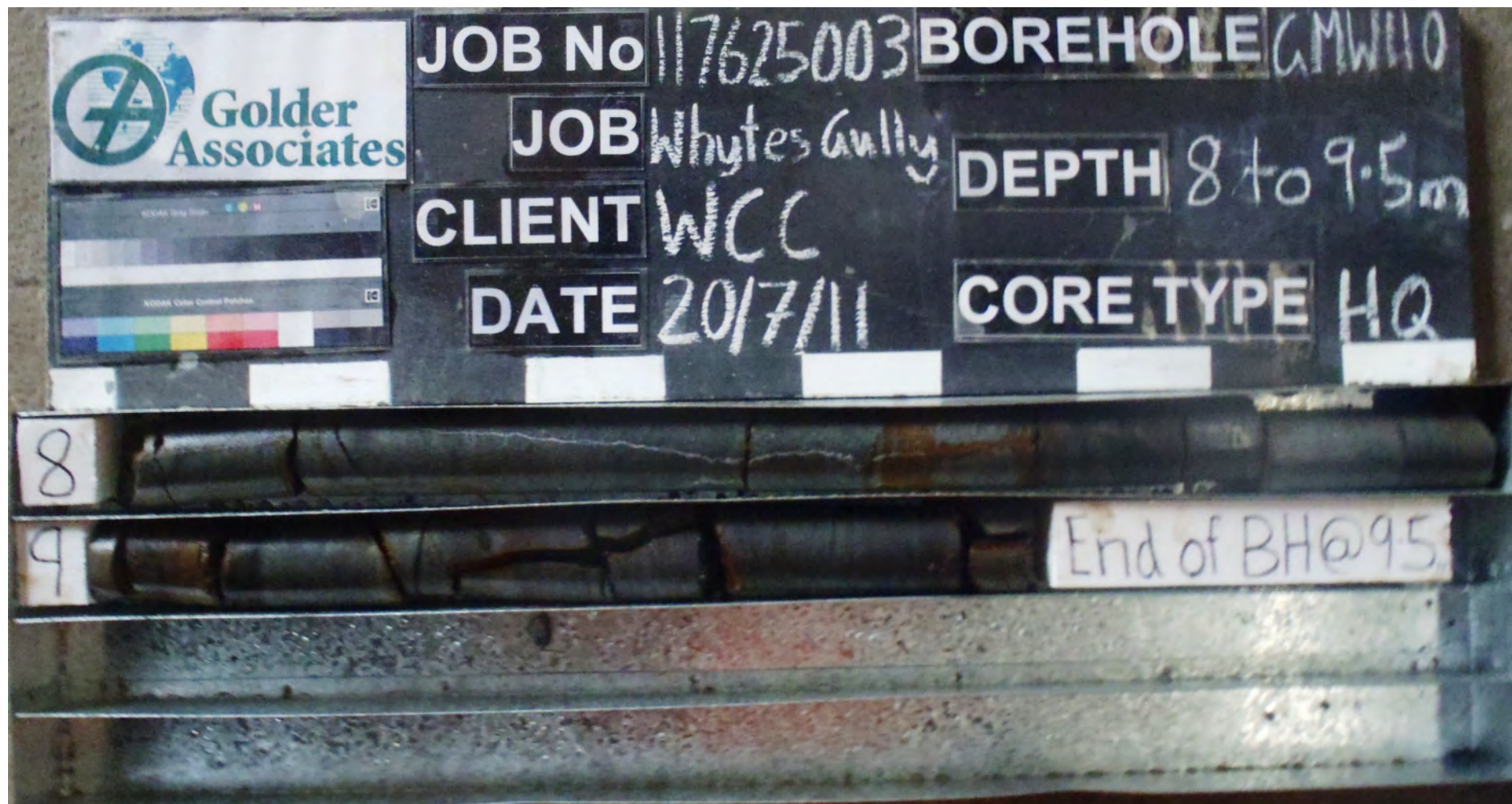


REPORT OF CORE PHOTOGRAPHS: GMW110

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297572.6 m E 6184266.0 m N MGA94 56
SURFACE RL: 19.61 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 9.65 m

SHEET: 3 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF BOREHOLE: GMW111

SHEET: 1 OF 2

CLIENT: Wollongong City Council

COORDS: 297588.6 m E 6184384.9 m N MGA94 56

DRILL RIG: Drill Cat

PROJECT: Whytes Gully

SURFACE RL: 22.03 m DATUM: AHD

CONTRACTOR: Terratest

LOCATION: Wollongong

INCLINATION: -90°

LOGGED: HMG DATE: 20/7/11

JOB NO: 117625003

HOLE DEPTH: 8.25 m

CHECKED: BJF DATE: 13/9/11

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L		0	22.03					FILL: CLAY high plasticity, dark brown	M			
			0.40										
	M-H		21.63					SP	SAND fine to medium grained, pale brown - yellow, inferred medium dense to dense	D - M	MD - D		
			1										
									For Continuation Refer to Sheet 2				
			2										
			3										
			4										
			5										
			6										
			7										
			8										
			9										

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: GMW111

SHEET: 2 OF 2

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 20/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297588.6 m E 6184384.9 m N MGA94 56

SURFACE RL: 22.03 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 8.25 m

Drilling					Field Material Description					Defect Information									
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			AVERAGE DEFECT SPACING (mm)						
									EL 0.03 VL 0.03 J 0.1 M 0.3 H 1 VH 3 EH 10				10	30	100	300	1000	3000	
				0															
				1	1.15		Continuation of Sheet 1												
				20.88			SANDSTONE fine to medium grained, brown, with bands of pale brown - yellow, bedding at 0 - 5°	EW - HW		1.15 m: DS, 0°, 50 mm clay 1.23 m: DZ, 0°, 330 mm clay									
			100	55 (60)						1.74 m: DS, 0°, 60 mm clay 1.87 m: DS, 0°, 25 mm clay 1.95 m: DZ, 0°, 110 mm clay									
				2	2.51					2.20 m: DS, 0°, 40 mm clay 2.30 m: DS, 0°, 10 mm clay 2.33 m: DS, 0°, 10 mm clay 2.35 m: DZ, 0°, 100 mm clay 2.51-2.73 m: B, 30°, sp = 15-30 mm, Pl, Ro, Sn 2.57-2.73 m: J, 90°, Un, Ro, Sn 2.73 m: DS, 20 mm clay 2.81 m: B, 5°, Un, Ro, Sn 2.96-3.00 m: HB's 3.00-4.00 m: B, 0-10°, sp = 10-100 mm, Un, Ro, Sn 3.25 m: J, 70°, Pl, Ro, Sn									
				19.52			SILTSTONE grey	HW											
				3	3.02														
				19.01			SANDSTONE fine to medium grained, brown, with some siltstone laminations, bedding at 0 - 5°	MW		3.61-3.67 m: J, 85°, Pl, Ro, Sn 3.67 m: DS, 20 mm clay 3.73 m: DS, 5 mm clay 3.76 m: DS, 5 mm clay 3.87 m: DS, 5 mm clay 4.00 m: HB 4.00-4.31 m: B, 0-5°, sp = 30-80 mm, Pl, Ro, Sn 4.31 m: J, 50°, Pl, Ro, Sn 4.46 m: B, 5°, Un, Ro, Sn 4.51 m: HB									
			100	20 (65)			becoming medium grained			4.84-5.26 m: J, Pl-Un, Ro, Sn									
				4	4.40														
				17.63															
				5	4.84														
				17.19			SILTSTONE grey												
				5.14															
				16.89			SANDSTONE fine grained, brown, with siltstone laminations, bedding at 0 - 5°			5.29-7.63 m: B, 0-5°, sp = 50-160 mm, Pl-Un, Ro, Sn 5.37-7.00 m: V, quartz 5.46-5.65 m: J, 80°, Pl, Ro, Sn									
				6	6.00														
				16.03			pale grey	SW											
				7															
				8	8.00														
				14.03			dark grey			8.00 m: HB									
				8.25															
				13.78			END OF BOREHOLE @ 8.25 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 21/07/11												
				9															
				10															

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GAP gINT FN. F02a
RL3



REPORT OF BOREHOLE: GMW111

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: HMG DATE: 20/7/11

CHECKED: BJF DATE: 13/9/11

CLIENT: Wollongong City Council

COORDS: 297588.6 m E 6184384.9 m N MGA94 56

PROJECT: Whytes Gully

SURFACE RL: 22.03 m DATUM: AHD

LOCATION: Wollongong

INCLINATION: -90°

JOB NO: 117625003

HOLE DEPTH: 8.25 m

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
ADV		-1									
		0	22.03				FILL: CLAY high plasticity, dark brown moist				
			0.40				SAND fine to medium grained, pale brown - yellow, inferred medium dense to dense dry to moist, medium dense to dense				
		1	21.63								
			1.15				SANDSTONE fine to medium grained, brown, with bands of pale brown - yellow, bedding at 0 - 5° extremely weathered to highly weathered, very low to low strength				
			20.88								
		2									
			2.51				SILTSTONE grey highly weathered, low strength				
			19.52								
		3					SANDSTONE fine to medium grained, brown, with some siltstone laminations, bedding at 0 - 5° highly weathered to moderately weathered, low to medium strength				
			3.02								
			19.01								
		4									
			4.40				becoming medium grained				
			17.63								
			4.84				SILTSTONE grey moderately weathered, low to medium strength				
			17.19								
		5					SANDSTONE fine grained, brown, with siltstone laminations, bedding at 0 - 5° moderately weathered to slightly weathered, medium strength				
			5.14								
			16.89								
		6									
			6.00				pale grey				
			16.03								
		7									
		8									
			8.00				dark grey				
			14.03								
			8.25								
			13.78				END OF BOREHOLE @ 8.25 m REACHED TARGET DEPTH PIEZOMETER INSTALLED 21/07/11				
		9									

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GAP gINT FN. F05
RL3



REPORT OF CORE PHOTOGRAPHS: GMW111

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297588.6 m E 6184384.9 m N MGA94 56
SURFACE RL: 22.03 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 8.25 m

SHEET: 1 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

This report of core photographs must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F31
RL1



REPORT OF CORE PHOTOGRAPHS: GMW111

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297588.6 m E 6184384.9 m N MGA94 56
SURFACE RL: 22.03 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 8.25 m

SHEET: 2 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1

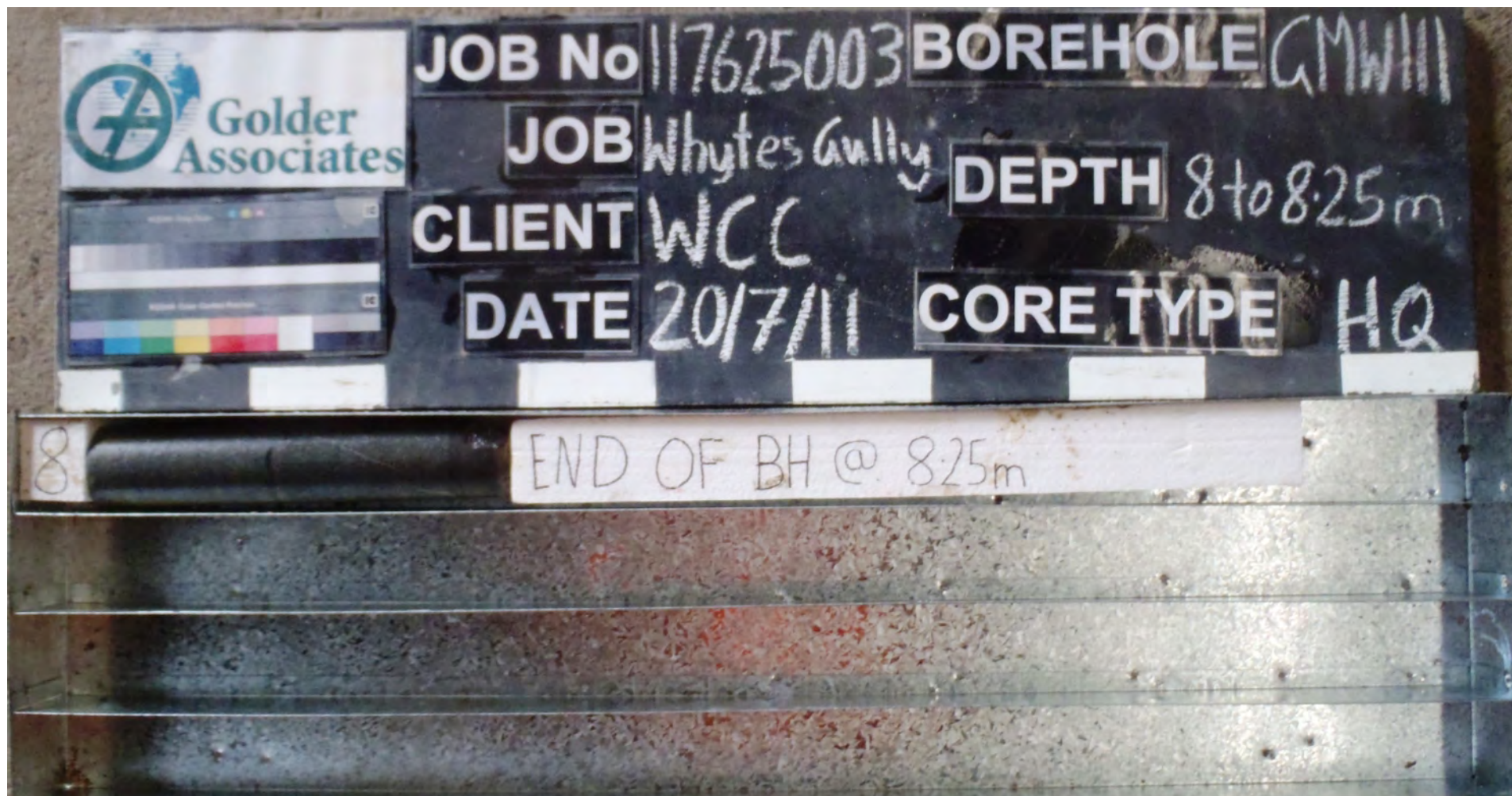


REPORT OF CORE PHOTOGRAPHS: GMW111

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297588.6 m E 6184384.9 m N MGA94 56
SURFACE RL: 22.03 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 8.25 m

SHEET: 3 OF 3
DRILL RIG: Drill Cat
CONTRACTOR: Terratest
LOGGED: HMG DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11



OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F31
RL1



REPORT OF HAND AUGERED BOREHOLE: GAHA01

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298341.0 m E 6184634.7 m N MGA94 56
SURFACE RL: 79.21 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.60 m

LOGGED: AM DATE: 19/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	H	GWNE	0	79.21	HA01-001 DS 0.00-0.20 m				FILL: Silty CLAY high plasticity, dark grey / brown, trace of sand and fine to medium gravel, trace rootlets	M			FILL asphalt cobble ~200mm
				0.20					FILL: Silty CLAY high plasticity, dark grey / brown, trace fine sand and fine gravel				
				79.01	HA01-002 DS 0.40-0.60 m				END OF HAND AUGER @ 0.60 m REACHED TARGET DEPTH Landfill waste encountered				
				78.61									
			1										
			2										
			3										
			4										
			5										
			6										
			7										
			8										
			9										

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA02

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298262.3 m E 6184574.5 m N MGA94 56
SURFACE RL: 74.56 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.50 m

LOGGED: AM DATE: 18/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	H	GWNE	0	74.56	HA02-001 DS 0.10-0.30 m HA02-001 DS 0.30-0.40 m				FILL: Clayey SILT high plasticity, dark brown, with some fine to coarse gravel, sub-angular to sub-rounded and trace fine to medium sand	M			~10% cobbles of sandstone, clay and bitumen
			0.30										
			0.45										
			74.06										
			1						FILL: Silty CLAY high plasticity, dark brown, trace coarse sand, sub-angular, with garbage (plastic bags, paper, plastic, etc)				
									END OF HAND AUGER @ 0.50 m REACHED TARGET DEPTH Landfill waste encountered				

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA03

SHEET: 1 OF 1

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 298194.5 m E 6184545.7 m N MGA94 56
 SURFACE RL: 59.47 m DATUM: AHD
 INCLINATION: -90°
 HOLE DEPTH: 0.60 m

LOGGED: AM DATE: 18/7/11
 CHECKED: BJF DATE: 13/9/11

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M-H	GWNE	0	59.47	HA03-001 DS 0.00-0.20 m HA03-002 DS 0.20-0.30 m HA03-003 DS 0.30-0.50 m				FILL: Clayey SILT high plasticity, dark brown, with trace fine to medium sand, gravel and rootlets	D - M			FILL
			0.20										
			0.30										
			59.17										
			58.87					FILL: Sandy SILT high plasticity, grey brown, with some fine to coarse sub-angular to sub-rounded gravel, trace plastic bag	M				
			1						FILL: Silty CLAY high plasticity, grey, with some fine to coarse sub-angular to sub-rounded gravel, with slag gravel				
			2						END OF HAND AUGER @ 0.60 m Refusal on gravel				
			3										
			4										
			5										
			6										
			7										
			8										
			9										

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GAP gINT FN. F01a
 RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA04

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298292.9 m E 6184446.4 m N MGA94 56
SURFACE RL: 75.36 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.10 m

LOGGED: AM DATE: 18/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling			Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M	GWNE	0	75.26	HA04-001 DS 0.00-0.10 m				FILL: Clayey SILT low plasticity, dark brown, with some fine to medium grained sub-angular to sub-rounded gravel, trace fine to coarse sand, with some plastic bags, bottles, tin cans, containers END OF HAND AUGER @ 0.10 m REACHED TARGET DEPTH Landfill waste encountered	M			FILL Some plastic mixed through
			1										
			2										
			3										
			4										
			5										
			6										
			7										
			8										
			9										

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA05

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298229.0 m E 6184477.8 m N MGA94 56
SURFACE RL: 62.62 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.50 m

LOGGED: AM DATE: 18/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description										
METHOD		PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION		MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
HA	M-H	GWNE	0	62.57	HA05-001 DS 0.00-0.05 m HA05-002 DS 0.05-0.25 m HA05-003 DS 0.30-0.50 m					FILL: Clayey SILT high plasticity, dark brown, trace sand and rootlets		M	D			Inferred slag
			FILL: Silty CLAY high plasticity, grey / brown, trace fine sand													
	H		62.32	FILL: Gravelly SAND fine to coarse grained, dark grey, fine to coarse sub-angular to sub-rounded gravel												
			62.12	END OF HAND AUGER @ 0.50 m REACHED TARGET DEPTH Landfill waste encountered												
			1													
			2													
			3													
			4													
			5													
			6													
			7													
			8													
			9													
			10													

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA06

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298133.8 m E 6184433.0 m N MGA94 56
SURFACE RL: 37.64 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.30 m

LOGGED: AM DATE: 19/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	L-M	GWNE	0	37.64 0.20	HA06-001 DS 0.00-0.20 m				FILL: Silty CLAY high plasticity, trace fine to coarse sand fine to medium gravel	M - W	
			37.34						GARBAGE and SOIL SOIL is Silty CLAY, high plasticity, trace fine to coarse sand and fine to medium gravel, with plastic bottles and bags		
			1						END OF HAND AUGER @ 0.30 m REACHED TARGET DEPTH Landfill waste encountered		
			2								
			3								
			4								
			5								
			6								
			7								
			8								
			9								
			10								

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA07

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298292.7 m E 6184374.8 m N MGA94 56
SURFACE RL: 68.91 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.13 m

LOGGED: AM DATE: 18/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	L-M	GWNE	0	68.78	HA07-001 DS 0.00-0.13 m				FILL: Sandy SILT dark brown, fine to coarse sand, with some fine to medium sub-angular to sub-rounded gravel, trace rootlets, with plastic, paper, bottles END OF HAND AUGER @ 0.13 m REACHED TARGET DEPTH Landfill waste encountered	M	
			1								
			2								
			3								
			4								
			5								
			6								
			7								
			8								
			9								
			10								

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA08

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298233.0 m E 6184361.1 m N MGA94 56
SURFACE RL: 53.15 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.50 m

LOGGED: AM DATE: 19/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling			Field Material Description								
METHOD		PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION		MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M	GWNE	0	53.15	HA08-001 DS 0.00-0.20 m HA08-002 DS 0.25-0.50 m					FILL: Silty CLAY high plasticity, dark brown, trace sand	M				
	H		52.95												
			52.65												
			1							FILL: Silty CLAY high plasticity, grey brown, with some fine to medium sub-angular to sub-rounded gravel					
										END OF HAND AUGER @ 0.50 m Refusal on cobbles					

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA09

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298273.3 m E 6184325.4 m N MGA94 56
SURFACE RL: 60.00 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.20 m

LOGGED: AM DATE: 18/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling			Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M	GWNE	0	60.00	HA09-001 DS				FILL: Silty CLAY / Clayey SILT high plasticity, dark brown, trace of sand, with plastic bags, paper, pens, bottle cap END OF HAND AUGER @ 0.20 m REACHED TARGET DEPTH Landfill waste encountered	M		
			59.80		0.00-0.20 m							
			1									
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA10

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 1.80 m

LOGGED: AM DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M	GWNE	0		HA10-001 DS 0.00-0.30 m		X X	CH	Silty CLAY high plasticity, dark brown, with some fine to coarse sand, trace rootlets, inferred firm	M	F	
			0.40		HA10-002 DS 0.50-0.70 m		X <					

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA12

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.60 m

LOGGED: AM DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M	GWNE	0		HA12-001 DS 0.00-0.30 m		 —	CH	Silty CLAY high plasticity, dark brown, with some fine to medium sand, trace fine gravel, inferred firm	M	F	
			 —	CH								
	H		0.30	HA12-002 DS 0.30-0.50 m	 —		CH	Silty CLAY high plasticity, brown, with trace fine to medium sand, inferred stiff	St			
			1						END OF HAND AUGER @ 0.60 m Refusal on bedrock			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA13

SHEET: 1 OF 1

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: MGA94 56
 SURFACE RL: DATUM: AHD
 INCLINATION: -90°
 HOLE DEPTH: 0.40 m

LOGGED: AM DATE: 20/7/11
 CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M-H	GWNE	0	0.10	HA13-001 DS 0.00-0.10 m HA13-002 DS 0.10-0.30 m			CH CH	Silty CLAY high plasticity, dark brown, trace sand and rootlets, inferred stiff Sandy CLAY high plasticity, brown, fine to coarse sand, trace fine gravel, inferred stiff END OF HAND AUGER @ 0.40 m Refusal on bedrock	M M-D	St
			1								
			2								
			3								
			4								
			5								
			6								
			7								
			8								
			9								
			10								

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA14

SHEET: 1 OF 1

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: MGA94 56
 SURFACE RL: DATUM: AHD
 INCLINATION: -90°
 HOLE DEPTH: 1.00 m

LOGGED: AM DATE: 20/7/11
 CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M	GWNE	0	0.30	HA14-001 DS 0.00-0.30 m		CH	Sandy CLAY high plasticity, dark brown, fine to coarse sand	M	F		
	H		HA14-002 DS 0.40-0.60 m			SC	Clayey SAND fine to coarse grained, brown, with some fine to medium sub-angular to sub-rounded gravel	D	MD			
			1						END OF HAND AUGER @ 1.00 m Refusal on sandstone gravel			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of hand augered borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA15

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297858.4 m E 6184774.9 m N MGA94 56
SURFACE RL: 87.25 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.60 m

LOGGED: AM DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M	GWNE	0	87.25	HA15-001 DS 0.00-0.35 m							

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA16

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297664.4 m E 6184611.0 m N MGA94 56
SURFACE RL: 58.61 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.40 m

LOGGED: AM DATE: 20/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	L		0	58.61	HA16-001 DS			CH	Silty CLAY high plasticity, dark brown, trace fine to coarse sand, inferred soft	W	S	
	M		0.25	0.00-0.25 m			CH					
		20/07/11		58.21	HA16-002 DS			CH	Silty CLAY high plasticity, brown, with some fine to coarse sub-angular to sub-rounded gravel, trace sand			
					0.25-0.40 m				END OF HAND AUGER @ 0.40 m Refusal on bedrock			
			1									
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									

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GAP gINT FN. F01a
RL3



REPORT OF HAND AUGERED BOREHOLE: GAHA17

SHEET: 1 OF 1

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297702.3 m E 6184535.3 m N MGA94 56
SURFACE RL: 49.71 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 1.60 m

LOGGED: AM DATE: 21/7/11
CHECKED: BJF DATE: 13/9/11

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY
HA	L		0	49.71	HA17-001 DS 0.00-0.20 m		X	CH	Silty CLAY high plasticity, dark brown, trace of fine sand and trace of fine to medium sub-angular to sub-rounded gravel, trace rootlets, inferred firm Silty CLAY high plasticity, brown, trace fine to coarse sand, inferred soft to firm	M	F
	M		0.40	49.31	HA17-002 DS 0.50-0.70 m		X	CH			
					HA17-003 DS 0.80-0.10 m		X			M - W	S - F
	M	21/07/11	1				X				
				48.11					END OF HAND AUGER @ 1.60 m Refusal on bedrock		
			2								
			3								
			4								
			5								
			6								
			7								
			8								
			9								
			10								

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH205

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: CJW DATE: 16/12/11

CHECKED: BJF DATE: 5/3/12

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: New Cell Floor

JOB NO: 117625003

POSITION: Refer to Figure 4

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 7.90 m

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	16/12/11 14:00	0					CI	Silty Sandy CLAY medium plasticity, dark brown, fine to medium grained sand, trace organics (roots)		VS	Inferred ALLUVIAL
			1	U75 1.00-1.40 m BH205_001				M (>PL)	S			
			2	2.00	BH205_002 SPT 2.00-2.45 m 4, 11, 16 N=27		CI	Silty Sandy CLAY medium plasticity, orange mottled grey and white, fine to coarse grained sand, with fine to medium grained sub-angular to angular gravel	M (>PL)	F	Inferred COLLUVIUM	
			3	U75 3.00-3.40 m BH205_003								
			4	BH205_004 SPT 4.00-4.45 m 5, 10, 14 N=24			M	St - VSt				
			5	U75 5.00-5.40 m BH205_005								
			6	6.00	BH205_006 SPT 6.00-6.45 m 14, 18, 21 N=39		GC	Sandy Clayey GRAVEL fine to coarse grained, sub-angular to angular, orange mottled brown and white, medium plasticity clay, fine to coarse grained sand	M (>PL)	D	RESIDUAL SOIL	
			7	7.50	BH205_007 SPT 7.50-7.91 m 25, 27, 30/110mm N>57					WEATHERED ROCK		
			8					END OF BOREHOLE @ 7.90 m REACHED TARGET DEPTH STANDPIPE PIEZOMETER INSTALLED				
			9									

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH206

SHEET: 1 OF 2

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: CJW DATE: 16/12/11

CHECKED: BJF DATE: 5/3/12

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: New Cell Floor

JOB NO: 117625003

POSITION: Refer to Figure 4

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 10.80 m

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	16/12/11	0					CI	Silty Sandy CLAY medium plasticity, dark brown, fine to medium grained sand, with fine to medium grained sub-angular gravel, trace organics (roots)			Inferred ALLUVIUM Organic Odour
			1	U75 1.00-1.40 m BH206_001				M (P>PL)	VS			
			2	BH206_002 SPT 2.00-2.45 m 6, 8, 12 N=20		CI	Silty Sandy CLAY medium plasticity, brown mottled orange, fine to medium grained sand, with fine to medium grained sub-angular to angular gravel			Inferred COLLUVIUM		
			3	U75 3.00-3.40 m BH206_003								
	M	ADT	4	4.00	BH206_004 SPT 4.00-4.45 m 6, 11, 15 N=26				becoming orange mottled grey with white		St	
			5	U75 5.00-5.40 m BH206_005								
			6	BH206_006 SPT 6.00-6.45 m 5, 9, 14 N=23				M		St - VSt		
			7									
	H	ADT	8	7.50	BH206_007 SPT 7.50-7.95 m 7, 13, 16 N=29		CI	Gravelly Sandy CLAY medium plasticity, orange mottled grey and black with white, fine to coarse grained sand, fine to coarse grained sub-angular to angular gravel			RESIDUAL SOIL	
			9	BH206_008 SPT 9.00-9.45 m 15, 14, 21 N=35						VSt		
			10									
			11									

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH206

SHEET: 2 OF 2

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: CJW DATE: 16/12/11

CHECKED: BJF DATE: 5/3/12

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: New Cell Floor

JOB NO: 117625003

POSITION: Refer to Figure 4

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 10.80 m

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	H		10					CI	Gravelly Sandy CLAY medium plasticity, orange mottled grey and black with white, fine to coarse grained sand, fine to coarse grained sub-angular to angular gravel	M	VSt	RESIDUAL SOIL
			10.50	BH206_009 SPT 10.50-10.76 m 14, 47/110mm N>47			SANDSTONE fine to coarse grained, white mottled orange grey, inferred extremely weathered and very low strength, recovered as gravelly sand			WEATHERED ROCK		
			11						END OF BOREHOLE @ 10.80 m REACHED TARGET DEPTH STANDPIPE PIEZOMETER INSTALLED			
			12									
			13									
			14									
			15									
			16									
			17									
			18									
			19									

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH207

SHEET: 1 OF 2

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: RMP/CJW DATE: 14/12/11

CHECKED: BJF DATE: 5/3/12

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: New Cell Floor

JOB NO: 117625003

POSITION: Refer to Figure 4

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 13.30 m

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			0				CH	CLAY high plasticity, brown black, with some roots and rootlets (1-10mm thick)	M (>PL)	S - F	Inferred ALLUVIUM Organic odour
			1	1.00	BH207_001 SPT 1.00-1.45 m 1, 1, 3 N=4 U75 1.50-1.80 m BH207_002		CI	Sandy CLAY medium plasticity, pale brown, fine to medium grained sand, with some rootlets (1-5mm thick)		St - VSt	Inferred COLLUVIUM
			2		BH207_003 SPT 2.00-2.45 m 3, 5, 8 N=13 U75 2.50-2.95 m BH207_004						
			3		BH207_005 SPT 3.00-3.45 m 3, 7, 8 N=15						
			4		U75 4.00-4.30 m BH207_006 BH207_007 SPT 4.30-4.75 m 4, 7, 9 N=16				M (<PL)	St	
			5								
			6	6.00	U75 6.00-6.30 m BH207_008 BH207_009 SPT 6.50-6.95 m 4, 13, 17 N=30		CL / CI	Sandy Gravelly CLAY low to medium plasticity, brown, fine to coarse grained sub-angular to angular gravel, fine to coarse grained sand, sandstone and ironstone gravel			
			7								
			8	8.00	BH207_010 SPT 8.00-8.45 m 5, 10, 18 N=28 U75 8.50-8.67 m End buckled BH207_011			becoming low plasticity	W	VSt - H	RESIDUAL SOIL
			9								
			10								

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH207

SHEET: 2 OF 2

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: RMP/CJW DATE: 14/12/11

CHECKED: BJF DATE: 5/3/12

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: New Cell Floor

JOB NO: 117625003

POSITION: Refer to Figure 4

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 13.30 m

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		10		BH207_012 SPT 10.00-10.45 m 7, 17, 17 N=34			CL / CI	Sandy Gravelly CLAY low to medium plasticity, brown, fine to coarse grained sub-angular to angular gravel, fine to coarse grained sand, sandstone and ironstone gravel		RESIDUAL SOIL
			11							VSt-H	
			11.50		BH207_013 SPT 11.50-11.95 m 9, 11, 13 N=24				Clayey Sandy GRAVEL fine to medium grained, sub-angular to angular, orange mottled dark brown and white, fine to coarse grained sand, medium plasticity clay	W	
			12							MD	
			13	13.00	BH207_014 SPT 13.00-13.30 m 8, 30/150mm N>38				SANDSTONE medium to coarse grained, orange mottled blue and white, extremely weathered, very low strength		WEATHERED ROCK
			14						END OF BOREHOLE @ 13.30 m REACHED TARGET DEPTH STANDPIPE PIEZOMETER INSTALLED		
			15								
			16								
			17								
			18								
			19								
			20								

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: MWBH205

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: CJW DATE: 16/12/11

CHECKED: BJF DATE: 5/3/12

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: New Cell Floor

JOB NO: 117625003

POSITION: Refer to Figure 4

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 7.90 m

Drilling				Sampling		Field Material Description and Instrumentation		
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION
ADT	16/12/11 14:00		0			Silty Sandy CLAY medium plasticity, dark brown, fine to medium grained sand, trace organics (roots)		Top of Collar +0.7magl
				U75 1.00-1.40 m BH205_001				Grout
			2.00	SPT 2.00-2.45 m 4, 11, 16 N=27 BH205_002		Silty Sandy CLAY medium plasticity, orange mottled grey and white, fine to coarse grained sand, with fine to medium grained sub-angular to angular gravel		Bentonite
				U75 3.00-3.40 m BH205_003				Sand
			4.00	SPT 4.00-4.45 m 5, 10, 14 N=24 BH205_004				50mm pvc
				U75 5.00-5.40 m BH205_005				
			6.00	SPT 6.00-6.45 m 14, 18, 21 N=39 BH205_006		Sandy Clayey GRAVEL fine to coarse grained, sub-angular to angular, orange mottled brown and white, medium plasticity clay, fine to coarse grained sand		
	16/12/2011 12:00		7.50	SPT 7.50-7.91 m 25, 27, 30/110mm N=57 BH205_007		SANDSTONE fine to medium grained, orange mottled white and dark orange, inferred extremely weathered, inferred very low strength		
			7.90			END OF BOREHOLE @ 7.90 m REACHED TARGET DEPTH STANDPIPE PIEZOMETER INSTALLED		

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GAP gINT FN. F05
RL3



REPORT OF BOREHOLE: MWBH206

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: CJW DATE: 16/12/11

CHECKED: BJF DATE: 5/3/12

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: New Cell Floor

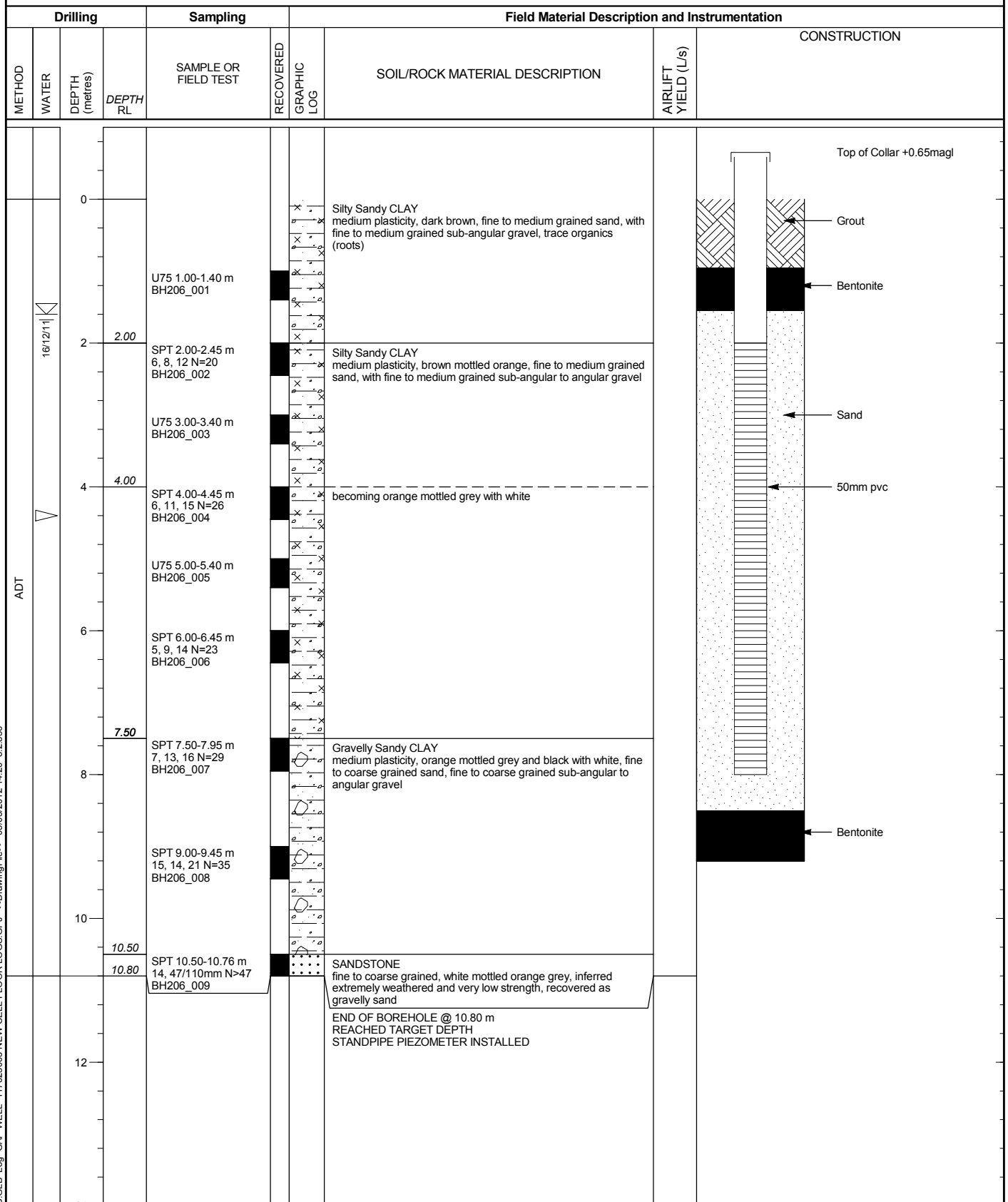
JOB NO: 117625003

POSITION: Refer to Figure 4

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 10.80 m



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GAP gINT FN. F05
RL3



REPORT OF BOREHOLE: MWBH207

SHEET: 1 OF 1

DRILL RIG: Drill Cat

CONTRACTOR: Terratest

LOGGED: RMP/CJW DATE: 14/12/11

CHECKED: BJF DATE: 5/3/12

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: New Cell Floor

JOB NO: 117625003

POSITION: Refer to Figure 4

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 13.30 m

Drilling				Sampling				Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION		
		0					CLAY high plasticity, brown black, with some roots and rootlets (1-10mm thick)				Top of Collar +0.7magl
		1.00		SPT 1.00-1.45 m 1, 1, 3 N=4 BH207_001 U75 1.50-1.80 m BH207_002 SPT 2.00-2.45 m 3, 5, 8 N=13 BH207_003 U75 2.50-2.95 m BH207_004			Sandy CLAY medium plasticity, pale brown, fine to medium grained sand, with some rootlets (1-5mm thick)				Concrete
		2									Bentonite
				SPT 3.00-3.45 m 3, 7, 8 N=15 BH207_005							Sand
		4									50mm pvc
				U75 4.00-4.30 m BH207_006 SPT 4.30-4.75 m 4, 7, 9 N=16 BH207_007							
		6.00									
				U75 6.00-6.30 m BH207_008 SPT 6.50-6.95 m 4, 13, 17 N=30 BH207_009			Sandy Gravelly CLAY low to medium plasticity, brown, fine to coarse grained sub-angular to angular gravel, fine to coarse grained sand, sandstone and ironstone gravel				
		8									
				SPT 8.00-8.45 m 5, 10, 18 N=28 BH207_010 U75 8.50-8.67 m End buckled BH207_011			becoming low plasticity				
		10									
				SPT 10.00-10.45 m 7, 17, 17 N=34 BH207_012							Bentonite
		11.50									
				SPT 11.50-11.95 m 9, 11, 13 N=24 BH207_013			Clayey Sandy GRAVEL fine to medium grained, sub-angular to angular, orange mottled dark brown and white, fine to coarse grained sand, medium plasticity clay				
		12									
				SPT 13.00-13.30 m 8, 30/150mm N>38 BH207_014			SANDSTONE medium to coarse grained, orange mottled blue and white, extremely weathered, very low strength				
		13.00									
		13.30					END OF BOREHOLE @ 13.30 m REACHED TARGET DEPTH STANDPIPE PIEZOMETER INSTALLED				
		14									

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GAP gINT FN. F05
RL3

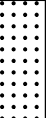


REPORT OF TEST PIT: TP01

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 297638.4 m E 6184559.1 m N MGA94 56
 SURFACE RL: 47.20 m DATUM: AHD
 PIT DEPTH: 1.60 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 5/7/11
 CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
EX	L	GWNE	0.0	47.20	TP01-001 BDS 0.80-1.00 m		CI	TOPSOIL: Silty SAND fine to medium grained, grey brown, with some clay	M	St	TOPSOIL		
			0.30	46.90							SANDY SILTY CLAY medium plasticity, mottled orange brown and grey, fine grained sand, with some ironstone gravel, fine to medium grained, trace rootlets, inferred stiff	M	INFERRED RESIDUAL
			0.5	46.00									
			1.20	46.00							TP01-002 DS 1.40-1.50 m		SANDSTONE fine to medium grained, orange brown, inferred very low to low strength, highly weathered
1.5													
			45.60					TEST PIT DISCONTINUED @ 1.60 m Bucket refusal at 1.6 m Backfilled with spoil					
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
 RL3



REPORT OF TEST PIT: TP02

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297634.6 m E 6184531.8 m N MGA94 56
SURFACE RL: 42.73 m DATUM: AHD
PIT DEPTH: 0.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 5/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	42.73	TP02-001 DS 0.10-0.20 m			CI	TOPSOIL: Silty Clayey SAND fine grained, dark grey	M		TOPSOIL
			0.30									
			42.43	0.40					Silty Sandy CLAY medium plasticity, orange brown, inferred stiff	W	St	INFERRED RESIDUAL
	42.33		SANDSTONE fine to medium grained, orange brown, inferred very low to medium strength, moderately weathered							WEATHERED ROCK		
M-H		0.5							TEST PIT DISCONTINUED @ 0.60 m Bucket refusal at 0.6 m Backfilled with spoil			
			42.13									
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3



REPORT OF TEST PIT: TP03

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297651.1 m E 6184509.2 m N MGA94 56
SURFACE RL: 40.67 m DATUM: AHD
PIT DEPTH: 0.90 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 5/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	40.67	TP03-001 BDS 0.30-0.50 m			SC	TOPSOIL: Silty Clayey SAND	M	TOPSOIL
			0.20								
			40.47						Clayey SAND / Sandy CLAY fine to medium grained sand, medium plasticity clay, orange brown, pale grey and brown, inferred medium dense	M - W	INFERRED RESIDUAL
			0.5								
	M-H		0.60						SANDSTONE fine to coarse grained, orange brown, with ironstone lenses, inferred very low to low strength, highly weathered		WEATHERED ROCK
			40.07								
			1.0	39.77					TEST PIT DISCONTINUED @ 0.90 m Bucket refusal at 0.9 m Backfilled with spoil		
			1.5								
			2.0								
			2.5								
			3.0								
			3.5								
			4.0								
			4.5								
			5.0								

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GAP gINT FN. F01e
RL3



REPORT OF TEST PIT: TP04

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297623.8 m E 6184479.6 m N MGA94 56
SURFACE RL: 32.65 m DATUM: AHD
PIT DEPTH: 1.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 5/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description								
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION		MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
EX	L	GWNE	0.0	32.65	TP04-001 BDS 0.50-0.70 m			SC	TOPSOIL: Silty Clayey SAND fine grained, dark grey	M		TOPSOIL		
			0.20	32.45					Clayey SAND fine to medium grained, grey brown, with some silt, trace ironstone gravel, inferred medium dense			INFERRED RESIDUAL		
			0.5							M - W	MD			
	M-H		0.80	31.85	TP04-002 DS 0.80-0.90 m			SANDSTONE fine to medium grained, grey brown, inferred very low to medium strength, highly weathered			WEATHERED ROCK			
			1.0	31.65					TEST PIT DISCONTINUED @ 1.00 m Bucket refusal at 1.0 m Backfilled with spoil					
			1.5											
			2.0											
			2.5											
			3.0											
			3.5											
			4.0											
			4.5											
			5.0											

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GAP gINT FN. F01e
RL3

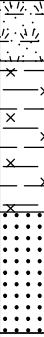


REPORT OF TEST PIT: TP05

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297656.2 m E 6184444.5 m N MGA94 56
SURFACE RL: 29.10 m DATUM: AHD
PIT DEPTH: 1.10 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 5/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	29.10	TP05-001 EVS 0.00-0.10 m			CH	TOPSOIL: Silty Clayey SAND fine grained, dark grey	M		TOPSOIL
			0.20	28.90					Silty CLAY high plasticity, grey brown, with some sand, inferred stiff	M	St	
			0.5	TP05-002 DS 0.40-0.50 m TP05-003 EVS 0.50-0.60 m								
			0.70	28.40	SANDSTONE fine grained, orange brown, inferred very low to medium strength, highly weathered						WEATHERED ROCK	
			1.0	TP05-004 DS 1.00-1.10 m TP05-005 EVS 1.00-1.10 m								
			28.00		TEST PIT DISCONTINUED @ 1.10 m Bucket refusal at 1.1 m Backfilled with spoil							
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP05

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297656.2 m E 6184444.5 m N MGA94 56
SURFACE RL: 29.10 m DATUM: AHD
PIT DEPTH: 1.10 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 5/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP06

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297791.9 m E 6184321.7 m N MGA94 56
SURFACE RL: 18.84 m DATUM: AHD
PIT DEPTH: 2.20 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 5/7/11
CHECKED: DATE:

Excavation				Sampling		Field Material Description									
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS			
EX	L	GWNE	0.0	18.84	TP06-001 0.00-0.10 m				TOPSOIL: Sandy Silty CLAY dark grey, fine grained sand	M - W		TOPSOIL			
			0.20	18.64						FILL: Silty CLAY high plasticity, dark grey			FILL (old pond)		
			0.5						TP06-002 0.50-0.60 m			trace grass			
			0.70	18.14											
	M		1.0		TP06-003 1.00-1.20 m					W					
			2.0	2.00 16.84		SANDSTONE fine to medium grained, inferred very low to low strength, highly weathered					WEATHERED ROCK				
			16.64						TEST PIT DISCONTINUED @ 2.20 m REACHED TARGET DEPTH Backfilled with spoil						
			2.5												
			3.0												
			3.5												
			4.0												
			4.5												
			5.0												

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP06

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297791.9 m E 6184321.7 m N MGA94 56
SURFACE RL: 18.84 m DATUM: AHD
PIT DEPTH: 2.20 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 5/7/11
CHECKED: DATE:



1. OLYMPUS DIGITAL CAMERA

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REPORT OF BOREHOLE: TP07

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 297901.9 m E 6184355.7 m N MGA94 56
 SURFACE RL: 22.16 m DATUM: AHD
 PIT DEPTH: 2.00 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 6/7/11
 CHECKED: DATE:

Drilling				Sampling	Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION
EX	GWNE	0.0	22.16	GACCS04 0.00-0.10 m R = 0A		Silty Clayey SAND fine to medium grained, dark grey brown, inferred medium dense medium dense		
		0.50	21.66	GACCS04 0.50-0.60 m R = 0A		clay content increasing		
		1.00	21.16	GACCS04 1.00-1.10 m R = 0A		Silty Sandy CLAY high plasticity, mottled orange and brown, inferred stiff to very stiff stiff to very stiff		
		1.50		GACCS04 1.50-1.60 m R = 0A		trace sand, inferred very stiff		
		1.80	20.36	GACCS04 1.90-2.00 m R = 0A		TEST PIT DISCONTINUED @ 2.00 m REACHED TARGET DEPTH Backfilled with spoil		
		2.00	20.16					
		2.50						
		3.00						
		3.50						
		4.00						
		4.50						
		5.00						

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GAP gINT FN. F05
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP07

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 297901.9 m E 6184355.7 m N MGA94 56
 SURFACE RL: 22.16 m DATUM: AHD
 PIT DEPTH: 2.00 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 6/7/11
 CHECKED: DATE:



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
 RL1



REPORT OF TEST PIT: TP08

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297592.1 m E 6184489.6 m N MGA94 56
SURFACE RL: 29.72 m DATUM: AHD
PIT DEPTH: 1.30 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	29.72	TP08-001 DS 0.10-0.20 m				TOPSOIL: Silty Clayey SAND / Silty Sandy CLAY fine grained sand, medium plasticity clay, brown	M - W	TOPSOIL
			0.20	29.52					SANDSTONE interbedded with IRONSTONE, fine to medium grained, orange brown, inferred very low to medium strength, highly weathered		WEATHERED ROCK
EX	M-H		0.5		TP08-002 DS 1.20-1.30 m						
			1.0								
EX			1.5	28.42					TEST PIT DISCONTINUED @ 1.30 m Bucket refusal at 1.3 m Backfilled with spoil		
			2.0								
EX			2.5								
			3.0								
EX			3.5								
			4.0								
EX			4.5								
			5.0								

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP08

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297592.1 m E 6184489.6 m N MGA94 56
SURFACE RL: 29.72 m DATUM: AHD
PIT DEPTH: 1.30 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP09

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297568.0 m E 6184470.0 m N MGA94 56
SURFACE RL: 24.19 m DATUM: AHD
PIT DEPTH: 1.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION		MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	24.19	TP09-001 BDS 0.30-0.50 m		SC	TOPSOIL: Silty Clayey SAND fine grained, dark grey		M		TOPSOIL	
			0.20	23.99				Clayey SAND fine to coarse grained, orange brown, with some ironstone gravel, inferred medium dense		M	MD	RESIDUAL	
			0.5					SANDSTONE fine to coarse grained, orange brown, with some ironstone bands, inferred very low to medium strength, highly weathered				WEATHERED ROCK	
	0.70	23.49											
	M-H		1.0	23.19				TEST PIT DISCONTINUED @ 1.00 m Bucket refusal on sandstone at 1.0 m Backfilled with spoil					
			1.5										
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP09

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297568.0 m E 6184470.0 m N MGA94 56
SURFACE RL: 24.19 m DATUM: AHD
PIT DEPTH: 1.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1

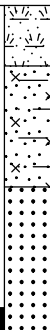


REPORT OF TEST PIT: TP10

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297599.0 m E 6184449.8 m N MGA94 56
SURFACE RL: 26.00 m DATUM: AHD
PIT DEPTH: 1.10 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	26.00	TP10-001 DS 1.00-1.10 m			SC	TOPSOIL: Silty Clayey SAND fine grained, dark grey	M		TOPSOIL
			0.20	25.80					Silty Clayey SAND fine to coarse grained, orange brown, inferred medium dense	M	MD	INFERRED RESIDUAL
	0.5		0.60	SANDSTONE fine to medium grained, orange brown, with some ironstone bands, inferred very low to medium strength, highly weathered							WEATHERED ROCK	
	25.40		1.0									
	M-H		24.90					TEST PIT DISCONTINUED @ 1.10 m Bucket refusal on sandstone a 1.1 m Backfilled with spoil				
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP10

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297599.0 m E 6184449.8 m N MGA94 56
SURFACE RL: 26.00 m DATUM: AHD
PIT DEPTH: 1.10 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1

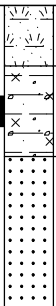


REPORT OF TEST PIT: TP11

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297631.4 m E 6184449.6 m N MGA94 56
SURFACE RL: 29.20 m DATUM: AHD
PIT DEPTH: 1.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	29.20	DS 0.30-0.40 m TP11-001			CH	TOPSOIL: Silty Clayey SAND fine grained, dark grey	M		TOPSOIL
			0.20	29.00					Sandy Sandy CLAY high plasticity, orange brown, with some rootlets, inferred very stiff	M	VSt	INFERRED RESIDUAL
			0.50	28.70					SANDSTONE fine grained, orange brown, inferred very low to low strength, highly weathered			WEATHERED ROCK
			1.0	28.20					TEST PIT DISCONTINUED @ 1.00 m Bucket refusal on sandstone at 1.0 m Backfilled with spoil			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP11

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297631.4 m E 6184449.6 m N MGA94 56
SURFACE RL: 29.20 m DATUM: AHD
PIT DEPTH: 1.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP12

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297712.0 m E 6184641.5 m N MGA94 56
SURFACE RL: 72.01 m DATUM: AHD
PIT DEPTH: 0.90 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	72.01	TP12-001 BDS 0.30-0.40 m			SC	TOPSOIL: Clayey SAND fine grained, dark grey	M		TOPSOIL
			0.20	71.81					Clayey SAND fine to coarse grained, orange brown, with some fine to coarse grained sandstone gravel, inferred dense	M - W	D	INFERRED RESIDUAL
	0.50	71.51	SANDSTONE fine to coarse grained, orange brown, inferred extremely low to medium strength, highly weathered							WEATHERED ROCK		
	M-H											
			1.0	71.11					TEST PIT DISCONTINUED @ 0.90 m Bucket refusal on sandstone at 0.9 m Backfilled with spoil			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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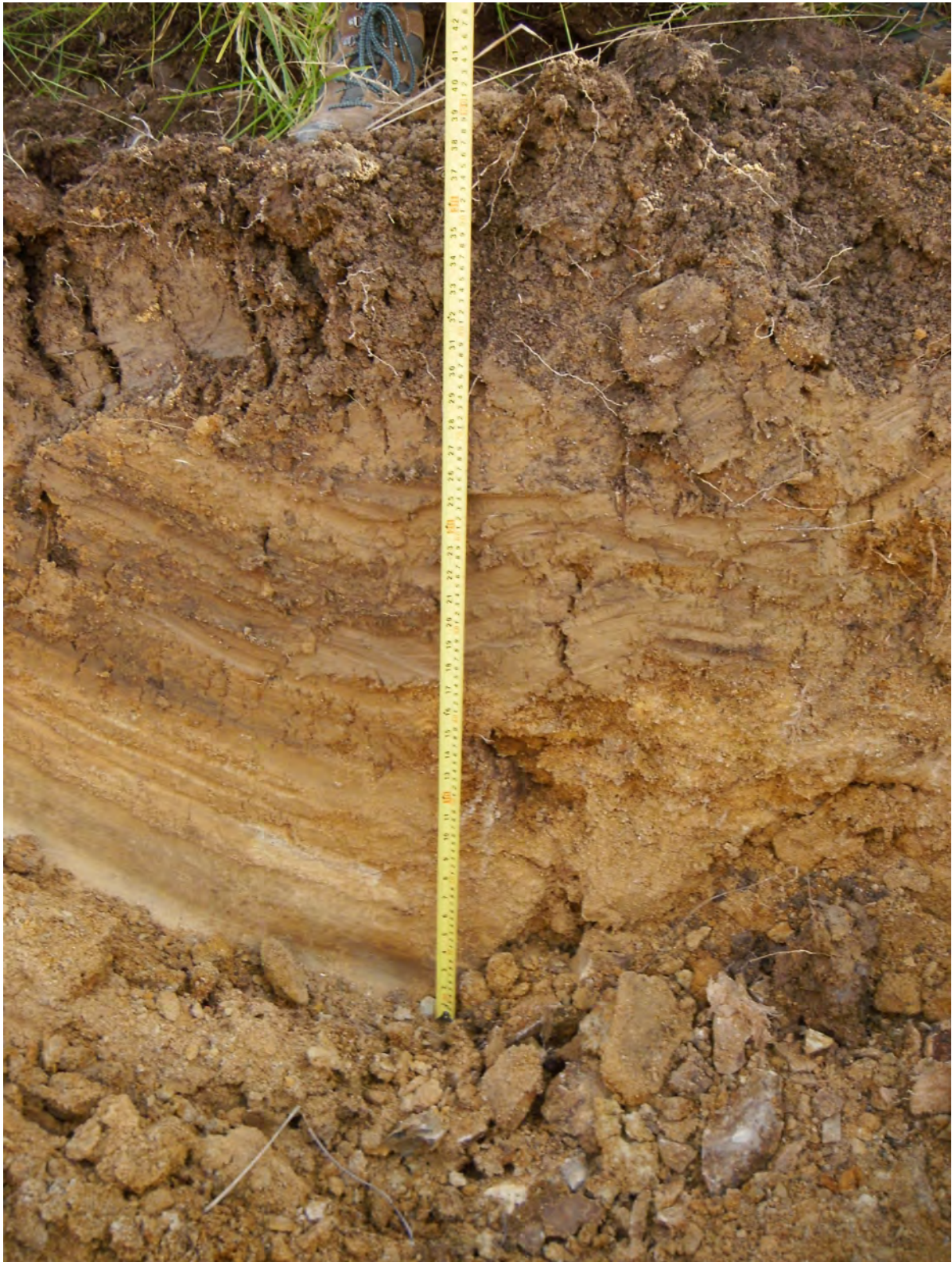
GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP12

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297712.0 m E 6184641.5 m N MGA94 56
SURFACE RL: 72.01 m DATUM: AHD
PIT DEPTH: 0.90 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP13

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 1.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0		TP13-001 DS 0.90-1.00 m				TOPSOIL: Clayey SAND fine grained, dark grey	M			TOPSOIL
			0.20				SC	Clayey SAND fine to coarse grained, orange brown, inferred dense	M	D	INFERRED RESIDUAL		
			0.5									SANDSTONE fine to coarse grained, orange brown, with some ironstone bands, inferred very low to medium strength, highly weathered	
			0.60										
			1.0						TEST PIT DISCONTINUED @ 1.00 m Bucket refusal on sandstone / ironstone at 1.0 m Backfilled with spoil				
			1.5										
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP13

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 1.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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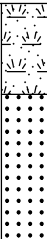


REPORT OF TEST PIT: TP14

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297770.6 m E 6184701.7 m N MGA94 56
SURFACE RL: 80.58 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	80.58					TOPSOIL: Silty Clayey SAND fine grained, dark grey, with some rubble (plastic and wire)	M		TOPSOIL / FILL
			0.30	80.28					SANDSTONE fine to coarse grained, orange brown, with some ironstone bands, inferred very low to medium strength, highly weathered			WEATHERED ROCK
			0.5									
			79.78						TEST PIT DISCONTINUED @ 0.80 m Bucket refusal on sandstone at 0.8 m Backfilled with spoil			
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP14

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297770.6 m E 6184701.7 m N MGA94 56
SURFACE RL: 80.58 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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REPORT OF TEST PIT: TP15

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297784.7 m E 6184724.3 m N MGA94 56
SURFACE RL: 81.51 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	81.51	TP15-001 BDS 0.00-0.20 m				TOPSOIL: Sandy Silty CLAY high plasticity, dark grey brown	M - W	TOPSOIL
			0.30 81.21						SANDSTONE fine to coarse grained, orange brown, inferred very low to medium strength, highly weathered		WEATHERED ROCK
			0.5								
			1.0	80.71					TEST PIT DISCONTINUED @ 0.80 m Bucket refusal on sandstone at 0.8 m Backfilled with spoil		
			1.5								
			2.0								
			2.5								
			3.0								
			3.5								
			4.0								
			4.5								
			5.0								

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP15

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297784.7 m E 6184724.3 m N MGA94 56
SURFACE RL: 81.51 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP16

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297840.3 m E 6184721.9 m N MGA94 56
SURFACE RL: 83.17 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	83.17					TOPSOIL: Clayey SAND fine grained, dark grey	M		TOPSOIL
	M-H		0.30 82.87	0.5					SANDSTONE fine to coarse grained, orange brown, stained with iron oxide, inferred very low to medium strength, highly weathered			WEATHERED ROCK
			82.37						TEST PIT DISCONTINUED @ 0.80 m Bucket refusal on sandstone at 0.8 m Backfilled with spoil			
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP16

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297840.3 m E 6184721.9 m N MGA94 56
SURFACE RL: 83.17 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1

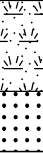


REPORT OF TEST PIT: TP17

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297844.3 m E 6184751.3 m N MGA94 56
SURFACE RL: 85.84 m DATUM: AHD
PIT DEPTH: 0.50 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	85.84					TOPSOIL: Silty Clayey SAND fine grained, dark grey	M		TOPSOIL
			0.30 85.54	SANDSTONE fine to coarse grained, orange brown and pale grey, inferred very low strength, extremely to highly weathered							WEATHERED ROCK	
	H		0.5	85.34					TEST PIT DISCONTINUED @ 0.50 m Bucket refusal on sandstone at 0.5 m Backfilled with spoil			
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP17

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297844.3 m E 6184751.3 m N MGA94 56
SURFACE RL: 85.84 m DATUM: AHD
PIT DEPTH: 0.50 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 6/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF BOREHOLE: TP18

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297831.8 m E 6184760.7 m N MGA94 56
SURFACE RL: 85.93 m DATUM: AHD
PIT DEPTH: 0.50 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Drilling				Sampling		Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	AIRLIFT YIELD (L/s)	CONSTRUCTION	
EX	GWNE	0.0	85.93	GACS06 0.00-0.10 m		TOPSOIL: Clayey Silty SAND fine grained, dark grey moist			
		0.20	85.73			Sandy CLAY high plasticity, brown, with some organic material			
		0.50	85.43	GACS06 DS 0.40-0.50 m		TEST PIT DISCONTINUED @ 0.50 m Bucket refusal on sandstone at 0.5 m Backfilled with spoil			
		0.5							
		1.0							
		1.5							
		2.0							
		2.5							
		3.0							
		3.5							
		4.0							
		4.5							
		5.0							

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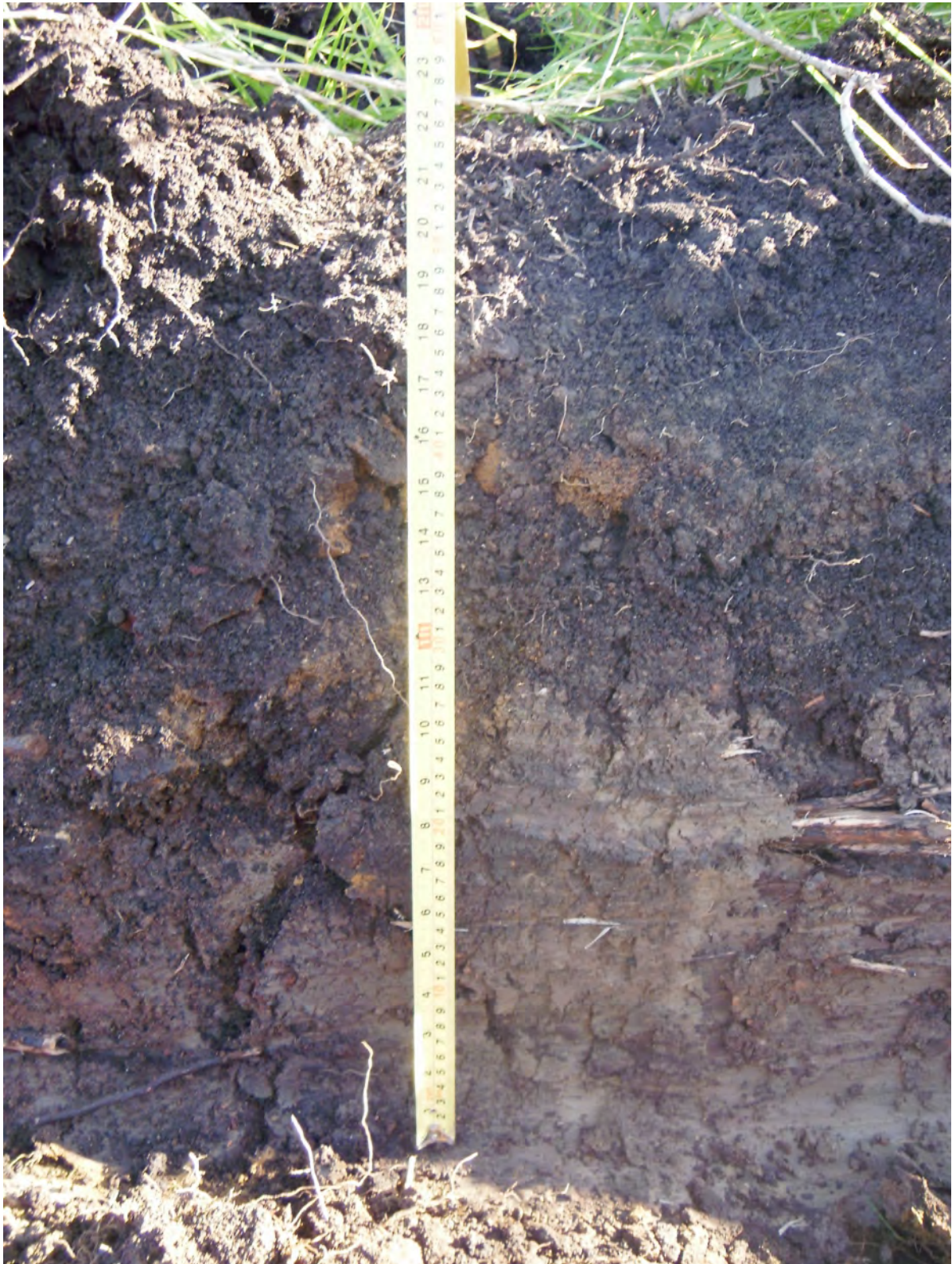
GAP gINT FN. F05
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP18

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297831.8 m E 6184760.7 m N MGA94 56
SURFACE RL: 85.93 m DATUM: AHD
PIT DEPTH: 0.50 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1

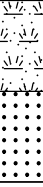


REPORT OF TEST PIT: TP19

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297876.9 m E 6184759.6 m N MGA94 56
SURFACE RL: 86.33 m DATUM: AHD
PIT DEPTH: 0.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	86.33					TOPSOIL: Silty Clayey SAND fine grained, dark grey	M		TOPSOIL
			0.30 86.03	SANDSTONE fine to coarse grained, orange brown, inferred very low to medium strength, highly weathered							WEATHERED ROCK	
	M-H		0.5	85.73					TEST PIT DISCONTINUED @ 0.60 m Bucket refusal on sandstone at 0.6 m Backfilled with spoil			
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

This report of test pit must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP19

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297876.9 m E 6184759.6 m N MGA94 56
SURFACE RL: 86.33 m DATUM: AHD
PIT DEPTH: 0.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1

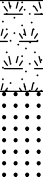
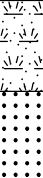


REPORT OF TEST PIT: TP20

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297929.8 m E 6184787.5 m N MGA94 56
SURFACE RL: 86.66 m DATUM: AHD
PIT DEPTH: 0.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	86.66	TP20-001 DS 0.40-0.50 m				TOPSOIL: Silty Clayey SAND fine grained, dark grey	M		TOPSOIL
	M-H		0.30 86.36	SANDSTONE medium to coarse grained, brown, inferred extremely low to medium strength, extremely weathered to highly weathered							WEATHERED ROCK	
			0.5						TEST PIT DISCONTINUED @ 0.60 m Bucket refusal on sandstone at 0.6 m Backfilled with spoil			
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP20

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297929.8 m E 6184787.5 m N MGA94 56
SURFACE RL: 86.66 m DATUM: AHD
PIT DEPTH: 0.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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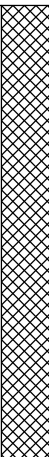
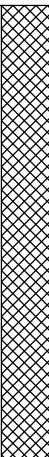


REPORT OF TEST PIT: TP21

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 298124.8 m E 6184840.5 m N MGA94 56
 SURFACE RL: 85.71 m DATUM: AHD
 PIT DEPTH: 1.80 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 7/7/11
 CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	85.71	TP21-001 DS 1.50-1.60 m				FILL: Sandy CLAY medium plasticity, grey brown and dark grey, with some wood, plastic and wire		M		FILL
			0.5										
	L-M			1.50 84.21								SC	Clayey SAND fine to coarse grained, mottled orange brown and grey, inferred dense
			83.91						TEST PIT DISCONTINUED @ 1.80 m Bucket refusal on sandstone at 1.8m Backfilled with spoil				
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP21

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298124.8 m E 6184840.5 m N MGA94 56
SURFACE RL: 85.71 m DATUM: AHD
PIT DEPTH: 1.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP22

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298177.0 m E 6184804.4 m N MGA94 56
SURFACE RL: 85.88 m DATUM: AHD
PIT DEPTH: 2.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	85.88	TP22-001 BDS 0.10-0.30 m				FILL: Sandy CLAY high plasticity, brown, with some rootlets	M		FILL
			0.70 85.18	FILL: Clayey SAND fine to coarse grained, dark grey, with some fine to medium sandstone / ironstone gravel								
M			1.5							M - W		
			2.0	83.88					TEST PIT DISCONTINUED @ 2.00 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered			
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP22

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298177.0 m E 6184804.4 m N MGA94 56
SURFACE RL: 85.88 m DATUM: AHD
PIT DEPTH: 2.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP23

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 0.90 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description								
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION		MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
EX	L-M	GWNE	0.0	0.70					FILL: Sandy Silty CLAY medium plasticity, brown, with some rootlets	M			FILL	
	M-H		FILL: LANDFILL plastic, wood, paper, wire, metal											
			1.0						TEST PIT DISCONTINUED @ 0.90 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered					
			1.5											
			2.0											
			2.5											
			3.0											
			3.5											
			4.0											
			4.5											
			5.0											

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REPORT OF TEST PIT PHOTOGRAPHS: TP23

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 0.90 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP24

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298166.2 m E 6184760.0 m N MGA94 56
SURFACE RL: 78.71 m DATUM: AHD
PIT DEPTH: 1.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	78.71	TP24-001 BDS 0.10-0.40 m				FILL: Sandy CLAY high plasticity, mottled orange and brown	M		FILL
	M		0.40 78.31						with some rubble (rubber tires, plastic, wire)	M		
			1.0	77.71					TEST PIT DISCONTINUED @ 1.00 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP24

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298166.2 m E 6184760.0 m N MGA94 56
SURFACE RL: 78.71 m DATUM: AHD
PIT DEPTH: 1.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP25

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298134.0 m E 6184751.2 m N MGA94 56
SURFACE RL: 81.81 m DATUM: AHD
PIT DEPTH: 1.10 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	81.81					FILL: Sandy Silty CLAY high plasticity, grey brown			FILL
	L-M		0.40 81.41	dark grey, with some rubble (wire, plastic, concrete, steel)								
			1.0	80.71					TEST PIT DISCONTINUED @ 1.10 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP25

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298134.0 m E 6184751.2 m N MGA94 56
SURFACE RL: 81.81 m DATUM: AHD
PIT DEPTH: 1.10 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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REPORT OF TEST PIT: TP26

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298145.5 m E 6184706.5 m N MGA94 56
SURFACE RL: 75.94 m DATUM: AHD
PIT DEPTH: 0.70 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	75.94	TP26-001 BDS 0.20-0.40 m				FILL: Sandy GRAVEL fine to coarse grained, blue grey	D - M	FILL
			0.5	0.60 75.34							
	H			75.24					LANDFILL plastic, steel, concrete		
			1.0						TEST PIT DISCONTINUED @ 0.70 m REACHED TARGET DEPTH Bucket refusal on rubble at 0.7 m Backfilled with spoil Waste encountered		
			1.5								
			2.0								
			2.5								
			3.0								
			3.5								
			4.0								
			4.5								
			5.0								

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP26

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298145.5 m E 6184706.5 m N MGA94 56
SURFACE RL: 75.94 m DATUM: AHD
PIT DEPTH: 0.70 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP27

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298149.5 m E 6184654.5 m N MGA94 56
SURFACE RL: 71.34 m DATUM: AHD
PIT DEPTH: 0.90 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	71.34					FILL: Silty Clayey SAND fine to coarse grained, dark brown	M		FILL
			0.20									
			71.14									
	0.5											
	H		0.80	70.54					FILL: Sandy CLAY high plasticity, grey brown	M - W		
			70.44						FILL: LANDFILL as above with some plastic, glass, wire, metal			
			1.0						TEST PIT DISCONTINUED @ 0.90 m Bucket refusal on landfill at 0.9 m Backfilled with spoil			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP27

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298149.5 m E 6184654.5 m N MGA94 56
SURFACE RL: 71.34 m DATUM: AHD
PIT DEPTH: 0.90 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP28

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298101.9 m E 6184689.0 m N MGA94 56
SURFACE RL: 71.65 m DATUM: AHD
PIT DEPTH: 1.10 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	71.65	TP28-001 DS 0.20-0.30 m				FILL: Clayey SAND fine to coarse grained, mottled orange brown and grey brown, with some rootlets	M	FILL
			0.40	71.25					clay content increasing	M - W	
			1.00	70.65					FILL: LANDFILL as above with some plastic, wire, concrete		
			1.0	70.55					TEST PIT DISCONTINUED @ 1.10 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered		
			1.5								
			2.0								
			2.5								
			3.0								
			3.5								
			4.0								
			4.5								
			5.0								

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP28

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298101.9 m E 6184689.0 m N MGA94 56
SURFACE RL: 71.65 m DATUM: AHD
PIT DEPTH: 1.10 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP29

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298114.4 m E 6184732.0 m N MGA94 56
SURFACE RL: 80.27 m DATUM: AHD
PIT DEPTH: 2.00 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description				
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	80.27				FILL: Sandy Silty CLAY high plasticity, mottled orange brown and dark brown		FILL
			0.5							
			0.80	79.47				dark grey with some blue grey gravel	M - W	
			1.0							
	L-M		1.5							
			1.80	78.47				FILL: LANDFILL as above with some plastic, wire		
	M-H		2.0	78.27				TEST PIT DISCONTINUED @ 2.00 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered		
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP29

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 298114.4 m E 6184732.0 m N MGA94 56
 SURFACE RL: 80.27 m DATUM: AHD
 PIT DEPTH: 2.00 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 7/7/11
 CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
 RL1



REPORT OF TEST PIT: TP30

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 298081.3 m E 6184748.9 m N MGA94 56
 SURFACE RL: 81.76 m DATUM: AHD
 PIT DEPTH: 1.60 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 7/7/11
 CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L		0.0	81.76	TP30-001 BDS 0.40-0.60 m				FILL: Sandy CLAY high plasticity, dark grey		FILL
	M-H	GWNE	0.60 81.16						FILL: LANDFILL as above with some wire, plastic and concrete cobbles/boulders	M	
			1.0								
			1.5								
			2.0	80.16					TEST PIT DISCONTINUED @ 1.60 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered		
			2.5								
			3.0								
			3.5								
			4.0								
			4.5								
			5.0								

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP30

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298081.3 m E 6184748.9 m N MGA94 56
SURFACE RL: 81.76 m DATUM: AHD
PIT DEPTH: 1.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 7/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP31

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 1.30 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling	Field Material Description								
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION		MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
EX	L	GWNE	0.0	1.10	TP31-001 BDS 0.20-0.40 m				FILL: Sandy CLAY high plasticity, mottled red brown and yellow brown, with some sandstone gravel	M			FILL	
			FILL: LANDFILL as above with plastic, wire, wood											
	M-H								TEST PIT DISCONTINUED @ 1.30 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered					
			1.5											
			2.0											
			2.5											
			3.0											
			3.5											
			4.0											
			4.5											
			5.0											

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP31

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 1.30 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP32

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297966.9 m E 6184709.6 m N MGA94 56
SURFACE RL: 73.75 m DATUM: AHD
PIT DEPTH: 1.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	73.75					FILL: Sandy CLAY high plasticity, dark grey	M			FILL
			0.20	73.55					sand content decreasing, with some sandstone gravel				
			0.5										
			1.0	72.75					dark brown				
	M-H		1.40	72.35					FILL: LANDFILL as above with some rubble (plastic, wire and concrete)				
			72.15						TEST PIT DISCONTINUED @ 1.60 m Bucket refusal on concrete at 1.6 m Backfilled with spoil				
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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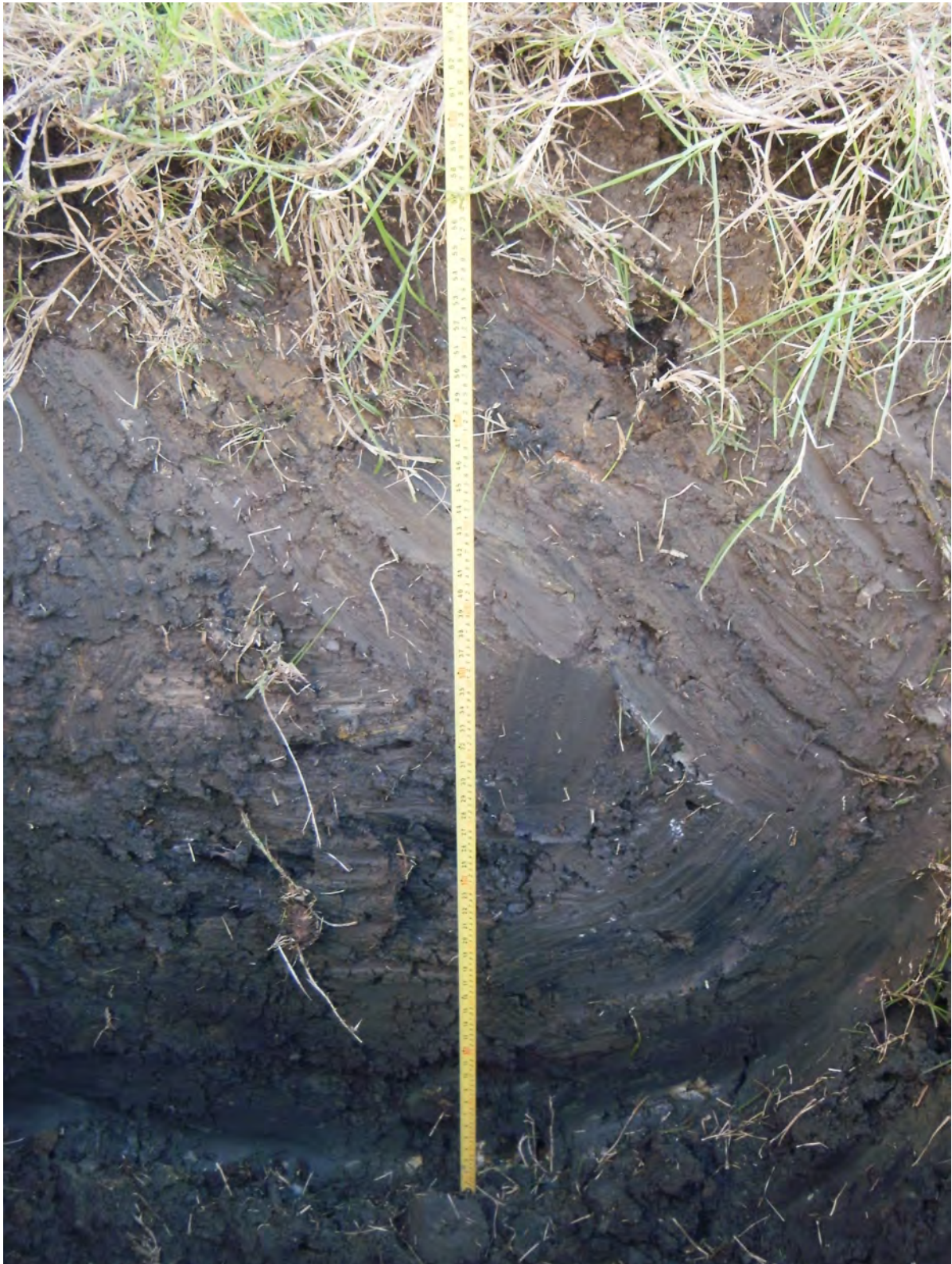
GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP32

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297966.9 m E 6184709.6 m N MGA94 56
SURFACE RL: 73.75 m DATUM: AHD
PIT DEPTH: 1.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP33

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297775.3 m E 6184611.4 m N MGA94 56
SURFACE RL: 67.05 m DATUM: AHD
PIT DEPTH: 1.90 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	67.05	TP33-001 BDS 0.40-0.60 m		SC / CI	TOPSOIL / FILL: Silty Clayey SAND fine to medium grained, dark brown, with some plastic and paper	M	St - VSt	TOPSOIL / FILL
			0.30	66.75				Clayey SAND / Sandy CLAY fine to coarse grained sand, medium plasticity clay, mottled orange brown, with some sandstone / ironstone gravel, inferred stiff to very stiff			INFERRED RESIDUAL
			1.60	65.45				SANDSTONE fine to coarse grained, orange/red brown, with some ironstone nodules, inferred very low to medium strength, extremely weathered to highly weathered			WEATHERED ROCK
	M-H										
			2.0	65.15				TEST PIT DISCONTINUED @ 1.90 m Bucket refusal on sandstone at 1.9 m Backfilled with spoil			
			2.5								
			3.0								
			3.5								
			4.0								
			4.5								
			5.0								

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP33

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 297775.3 m E 6184611.4 m N MGA94 56
 SURFACE RL: 67.05 m DATUM: AHD
 PIT DEPTH: 1.90 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 8/7/11
 CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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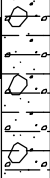


REPORT OF TEST PIT: TP34

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L-M	GWNE	0.0		TP34-001 BDS 0.10-0.30 m			CH	Sandy Gravelly CLAY high plasticity, mottled orange brown, red brown and yellow brown, fine to coarse grained sand, fine to coarse grained sandstone / ironstone gravel	M			INFERRED COLLUVIUM
			0.5										
			0.70						SANDSTONE fine to coarse grained, orange brown, with some ironstone bands, inferred very low to high strength, highly weathered				WEATHERED ROCK
			1.0						TEST PIT DISCONTINUED @ 0.80 m Bucket refusal on sandstone at 0.8 m Backfilled with spoil				
			1.5										
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP34

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP35

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 2.20 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0						FILL: Sandy CLAY high plasticity, mottled orange brown and dark grey, with some sandstone gravel				FILL
			0.5										
			1.0										
			1.5	1.50	TP35-001 DS 1.50-1.60 m				with pockets of black clayey sand, with possible fine to medium slag gravel	M - W			
	M-H		2.0	2.00					FILL: LANDFILL as above with some plastic, wire, concrete, metal, wood				
			2.5						TEST PIT DISCONTINUED @ 2.20 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered				
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP35

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: MGA94 56
SURFACE RL: DATUM: AHD
PIT DEPTH: 2.20 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1

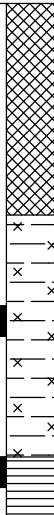


REPORT OF TEST PIT: TP36

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 297828.6 m E 6184596.8 m N MGA94 56
 SURFACE RL: 58.70 m DATUM: AHD
 PIT DEPTH: 1.70 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 8/7/11
 CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	58.70	TP36-001 DS 1.00-1.10 m		CI		FILL: Sandy Silty CLAY high plasticity, mottled grey brown and orange brown, with some sandstone gravel / cobbles	M		FILL
			0.70	58.00								
	L-M		1.0	TP36-002 DS 1.50-1.60 m						M	St	INFERRED RESIDUAL
	M-H		1.5	57.20								CLAYSTONE / FINE GRAINED SANDSTONE pale yellow brown, inferred very low strength, highly weathered to moderately weathered
			57.00						TEST PIT DISCONTINUED @ 1.70 m REACHED TARGET DEPTH Backfilled with spoil			
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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REPORT OF TEST PIT PHOTOGRAPHS: TP36

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297828.6 m E 6184596.8 m N MGA94 56
SURFACE RL: 58.70 m DATUM: AHD
PIT DEPTH: 1.70 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP37

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297805.4 m E 6184572.7 m N MGA94 56
SURFACE RL: 54.99 m DATUM: AHD
PIT DEPTH: 1.50 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	54.99	TP37-001 BDS 0.50-0.70 m				FILL: Sandy Gravelly CLAY medium plasticity, mottled dark brown and orange brown	M		FILL
	M-H		1.30	53.69					CLAYSTONE / FINE GRAINED SANDSTONE yellow brown, inferred medium to high strength, highly weathered to moderately weathered			WEATHERED ROCK
			1.5	53.49					TEST PIT DISCONTINUED @ 1.50 m Bucket refusal on rock at 1.5 m Backfilled with spoil			
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP37

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297805.4 m E 6184572.7 m N MGA94 56
SURFACE RL: 54.99 m DATUM: AHD
PIT DEPTH: 1.50 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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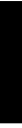


REPORT OF TEST PIT: TP38

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 297777.9 m E 6184554.5 m N MGA94 56
 SURFACE RL: 51.76 m DATUM: AHD
 PIT DEPTH: 1.60 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 8/7/11
 CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L-M	GWNE	0.0	51.76	TP43-001 DS 0.10-0.50 m				FILL: Gravelly Clayey SAND fine to coarse grained, grey, fine to coarse grained slag and blue metal gravel, with some slag cobbles/boulders	M - D		FILL
	M-H		0.70 51.06	FILL: Slag GRAVEL					M - D			
			50.16						TEST PIT DISCONTINUED @ 1.60 m Bucket refusal on sandstone bedrock at 1.6 m Backfilled with spoil			

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GAP gINT FN. F01e
 RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP38

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297777.9 m E 6184554.5 m N MGA94 56
SURFACE RL: 51.76 m DATUM: AHD
PIT DEPTH: 1.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP39

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 297935.2 m E 6184661.9 m N MGA94 56
 SURFACE RL: 64.28 m DATUM: AHD
 PIT DEPTH: 1.50 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 8/7/11
 CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	64.28	TP39-001 DS0.5 0.50-1.00 m				FILL: Sandy CLAY high plasticity, dark grey, with some slag gravel	M - W			FILL
			1.40 62.88	FILL: LANDFILL as above with some plastic, carpet, wood									
M			1.5	62.78					TEST PIT DISCONTINUED @ 1.50 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered				
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP39

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297935.2 m E 6184661.9 m N MGA94 56
SURFACE RL: 64.28 m DATUM: AHD
PIT DEPTH: 1.50 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP40

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298019.6 m E 6184653.2 m N MGA94 56
SURFACE RL: 61.44 m DATUM: AHD
PIT DEPTH: 2.50 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L-M	GWNE	0.0	61.44					FILL: Sandy CLAY high plasticity, dark grey brown, with some rubble (concrete, wood, plastic)		M	FILL
			0.50 60.94	with some fine to coarse sandstone gravel								
			1.0									
			1.5									
			2.0		TP40-001 DS 2.00-2.10 m							
			2.5	58.94					TEST PIT DISCONTINUED @ 2.50 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered			
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP40

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 298019.6 m E 6184653.2 m N MGA94 56
 SURFACE RL: 61.44 m DATUM: AHD
 PIT DEPTH: 2.50 m
 BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: PO DATE: 8/7/11
 CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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REPORT OF TEST PIT: TP41

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298088.2 m E 6184607.7 m N MGA94 56
SURFACE RL: 57.98 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	57.98	TP41-001 BDS 0.10-0.30 m				FILL: Clayey Gravelly SAND fine to coarse grained, brown, fine to medium grained sandstone gravel	D - M		FILL
			0.5									
			0.63 57.35						FILL: LANDFILL as above with some plastic, rubber, wire			
			57.18						TEST PIT DISCONTINUED @ 0.80 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered			
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP41

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298088.2 m E 6184607.7 m N MGA94 56
SURFACE RL: 57.98 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP42

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297966.5 m E 6184630.7 m N MGA94 56
SURFACE RL: 56.97 m DATUM: AHD
PIT DEPTH: 0.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	56.97	TP42-001 DS 0.10-0.20 m				FILL: Clayey SAND fine to coarse grained, mottled grey brown and orange brown, with some sandstone gravel	M		FILL
	M		0.30 56.67	FILL: LANDFILL as above with some plastic, wire, metal								
			0.5									
				56.37					TEST PIT DISCONTINUED @ 0.60 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered			
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP42

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297966.5 m E 6184630.7 m N MGA94 56
SURFACE RL: 56.97 m DATUM: AHD
PIT DEPTH: 0.60 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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REPORT OF TEST PIT: TP43

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297908.1 m E 6184620.0 m N MGA94 56
SURFACE RL: 58.29 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	58.29					FILL: Sandy CLAY / Clayey SAND high plasticity clay, fine to coarse grained sand, grey brown	M - W		
			0.5	57.79					FILL: LANDFILL as above with some plastic, wire, terracotta, wood			
			57.49					TEST PIT DISCONTINUED @ 0.80 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered				
			1.0									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

REPORT OF TEST PIT PHOTOGRAPHS: TP43

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297908.1 m E 6184620.0 m N MGA94 56
SURFACE RL: 58.29 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 1300 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: PO DATE: 8/7/11
CHECKED: BJF DATE: 12/9/11



1. OLYMPUS DIGITAL CAMERA

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GAP gINT FN. F29
RL1



REPORT OF TEST PIT: TP44

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297865.0 m E 6184561.5 m N MGA94 56

SURFACE RL: 49.09 m DATUM: AHD

PIT DEPTH: 1.10 m

BUCKET TYPE: 600 mm

SHEET: 1 OF 1

MACHINE: 20t Excavator

CONTRACTOR: East Coast Civil

LOGGED: KAD

DATE: 11/7/11

CHECKED: BJF

DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	Groundwater Not Encountered	0.0	49.09	TP44-001 DS 0.70-0.80 m				FILL: Sandy CLAY high plasticity, brown, with some bitumen at 0.04m	M - W		FILL
			0.50	48.59					FILL: COAL WASH black			
			0.80	48.29					with some plastic film			
			1.00	48.09					FILL: LANDFILL plastic film, timber, tile			
			47.99						TEST PIT DISCONTINUED @ 1.10 m REACHED TARGET DEPTH Backfilled with spoil and tracked over Waste encountered			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									



REPORT OF TEST PIT: TP45

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297945.0 m E 6184576.5 m N MGA94 56

SURFACE RL: 48.90 m DATUM: AHD

PIT DEPTH: 1.80 m

BUCKET TYPE: 600 mm

SHEET: 1 OF 1

MACHINE: 20t Excavator

CONTRACTOR: East Coast Civil

LOGGED: KAD

DATE: 11/7/11

CHECKED: BJF

DATE: 12/9/11

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L		0.0	48.90	TP45-001 BDS 0.10-0.50 m				FILL: Sandy CLAY high plasticity, fine to coarse sand	M - W		FILL
			0.40	48.50					some sandstone boulders to 300mm diameter			
			1.10	47.80					FILL: CLAY boulders up to 500mm	W		
			1.60	47.30					FILL: LANDFILL as above with some plastic film and coal wash			
			47.10					TEST PIT DISCONTINUED @ 1.80 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered				
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									



REPORT OF TEST PIT: TP46

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298010.3 m E 6184596.2 m N MGA94 56
SURFACE RL: 52.33 m DATUM: AHD
PIT DEPTH: 0.80 m
BUCKET TYPE: 600 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: KAD DATE: 11/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	52.33	TP46-001 BDS 0.10-0.30 m				Sandy CLAY high plasticity, brown, fine to coarse sand	M	
			0.30	52.03					with some plastic film and coal wash		
			0.5								
			0.70	51.63					FILL: LANDFILL plastic film, hard plastic and paper in soil matrix ~80% soil		
			51.53						TEST PIT DISCONTINUED @ 0.80 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered		
			1.0								
			1.5								
			2.0								
			2.5								
			3.0								
			3.5								
			4.0								
			4.5								
			5.0								

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GAP gINT FN. F01e
RL3



REPORT OF TEST PIT: TP47

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298061.9 m E 6184563.2 m N MGA94 56
SURFACE RL: 48.23 m DATUM: AHD
PIT DEPTH: 1.70 m
BUCKET TYPE: 600 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: KAD DATE: 11/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description						
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	48.23	TP47-001 BDS 0.10-0.40 m				FILL: Sandy CLAY high plasticity, brown, medium to coarse sand, with some sandstone cobbles 200mm			
			0.50 47.73	boulders to 400mm diameter								
			1.10 47.13		TP17-002 DS 1.10-1.70 m				black / grey clay fill, with some plastic film			
			1.5									
			46.53						TEST PIT DISCONTINUED @ 1.70 m Refusal on rock fill Backfilled with spoil			
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

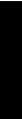


REPORT OF TEST PIT: TP48

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 298045.4 m E 6184531.2 m N MGA94 56
SURFACE RL: 41.36 m DATUM: AHD
PIT DEPTH: 1.80 m
BUCKET TYPE: 600 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: KAD DATE: 11/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	41.36	TP48-001 BDS 0.10-0.50 m				FILL: Sandy CLAY high plasticity, brown black, fine to coarse sand, with some cobbles, with some plastic bag fragments	M			FILL slight landfill odour
			1.20 40.16	TP48-002 DS 1.10-1.20 m									
			39.56						TEST PIT DISCONTINUED @ 1.80 m REACHED TARGET DEPTH Backfilled with spoil Waste Encountered				
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
RL3

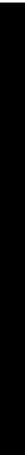


REPORT OF TEST PIT: TP49

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297988.7 m E 6184539.7 m N MGA94 56
SURFACE RL: 41.51 m DATUM: AHD
PIT DEPTH: 1.50 m
BUCKET TYPE: 600 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: KAD DATE: 11/7/11
CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	41.51	TP49-001 DS 0.00-1.50 m				FILL: Sandy CLAY high plasticity, dark brown, fine to coarse sand, with some gravel and geofabric	M - W			FILL
			0.5										
			1.0										
			1.10										
			40.41										
			1.40					with some concrete					
			1.40						with some concrete 0.3 to 0.4m diameter				
			1.5	40.01					TEST PIT DISCONTINUED @ 1.50 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered				
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
RL3



REPORT OF TEST PIT: TP50

CLIENT: Wollongong City Council

PROJECT: Whytes Gully

LOCATION: Wollongong

JOB NO: 117625003

COORDS: 297862.5 m E 6184529.0 m N MGA94 56

SURFACE RL: 41.05 m DATUM: AHD

PIT DEPTH: 2.00 m

BUCKET TYPE: 600 mm

SHEET: 1 OF 1

MACHINE: 20t Excavator

CONTRACTOR: East Coast Civil

LOGGED: KAD

DATE: 11/7/11

CHECKED: BJF

DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
EX	L	▽	0.0	41.05	TP50-001 BDS 0.00-0.60 m				FILL: Sandy CLAY high plasticity, brown, coarse sand, with some gravel and cobbles (sandstone)			FILL	
			0.5										
			0.70										
			40.35						with some sandstone boulders, 400-500mm and some Sandy CLAY, grey		M		
			1.0										
			1.40										
			39.65						Sandy CLAY, grey and some plastic film		W		
			1.50										
			39.55						Sandy CLAY, grey, with some sandstone boulders				
			2.0										
	39.05				TEST PIT DISCONTINUED @ 2.00 m Refusal on sandstone rock fill Backfilled with spoil								
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										



REPORT OF TEST PIT: TP51

CLIENT: Wollongong City Council
PROJECT: Whytes Gully
LOCATION: Wollongong
JOB NO: 117625003

COORDS: 297958.3 m E 6184510.6 m N MGA94 56
SURFACE RL: 36.19 m DATUM: AHD
PIT DEPTH: 1.30 m
BUCKET TYPE: 600 mm

SHEET: 1 OF 1
MACHINE: 20t Excavator
CONTRACTOR: East Coast Civil
LOGGED: KAD DATE: 11/7/11
CHECKED: BJF DATE: 12/9/11

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	36.19	TP51-001 DS 0.00-0.50 m				FILL: Sandy CLAY high plasticity, brown, fine to coarse sand	M		
			0.50	35.69					FILL: : as above with sandstone cobbles ~200mm, trace plastic film			
			0.90	35.29					FILL: COAL WASH			
			1.15	35.04					LANDFILL: coal wash with Sandy CLAY, grey, and WASTE in black sandy material (coal wash?), with plastics.			
					TP51-002 DS 1.20-1.30 m			TEST PIT DISCONTINUED @ 1.30 m REACHED TARGET DEPTH Backfilled with spoil Waste encountered				
			34.89									
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

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GAP gINT FN. F01e
RL3

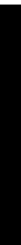


REPORT OF TEST PIT: TP52

CLIENT: Wollongong City Council
 PROJECT: Whytes Gully
 LOCATION: Wollongong
 JOB NO: 117625003

COORDS: 298028.8 m E 6184498.3 m N MGA94 56
 SURFACE RL: 36.21 m DATUM: AHD
 PIT DEPTH: 1.50 m
 BUCKET TYPE: 600 mm

SHEET: 1 OF 1
 MACHINE: 20t Excavator
 CONTRACTOR: East Coast Civil
 LOGGED: KAD DATE: 11/7/11
 CHECKED: BJF DATE: 12/9/11

Excavation				Sampling		Field Material Description							
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
EX	L	GWNE	0.0	36.21	TP52-001 DS 0.00-0.80 m				FILL: Clayey SAND fine to coarse grained, dark brown, high plasticity clay, with some sandstone cobbles, with some pale grey Sandy CLAY, anoxic odour	M			FILL anoxic odour
			0.40	35.81					FILL: Sandy CLAY				
			0.50	35.71					piece of timber				
			1.30	34.91					FILL: LANDFILL: CLAY some plastic				
			1.50	34.71					COAL WASH some sandy clay, grey with some plastic TEST PIT DISCONTINUED @ 1.50 m Backfilled with spoil				
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01e
 RL3

EXPLANATION OF NOTES, ABBREVIATIONS & TERMS USED ON BOREHOLE AND TEST PIT REPORTS

DRILLING/EXCAVATION METHOD

AS*	Auger Screwing	RD	Rotary blade or drag bit	NQ	Diamond Core - 47 mm
AD*	Auger Drilling	RT	Rotary Tricone bit	NMLC	Diamond Core - 52 mm
*V	V-Bit	RAB	Rotary Air Blast	HQ	Diamond Core - 63 mm
*T	TC-Bit, e.g. ADT	RC	Reverse Circulation	HMLC	Diamond Core - 63mm
HA	Hand Auger	PT	Push Tube	BH	Tractor Mounted Backhoe
ADH	Hollow Auger	CT	Cable Tool Rig	EX	Tracked Hydraulic Excavator
DTC	Diatube Coring	JET	Jetting	EE	Existing Excavation
WB	Washbore or Bailer	NDD	Non-destructive digging	HAND	Excavated by Hand Methods

PENETRATION/EXCAVATION RESISTANCE

- L Low resistance.** Rapid penetration possible with little effort from the equipment used.
- M Medium resistance.** Excavation/possible at an acceptable rate with moderate effort from the equipment used.
- H High resistance** to penetration/excavation. Further penetration is possible at a slow rate and requires significant effort from the equipment.
- R Refusal or Practical Refusal.** No further progress possible without the risk of damage or unacceptable wear to the digging implement or machine.

These assessments are subjective and are dependent on many factors including the equipment power, weight, condition of excavation or drilling tools, and the experience of the operator.

WATER



Water level at date shown



Partial water loss



Water inflow



Complete water loss

GROUNDWATER NOT OBSERVED The observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave in of the borehole/test pit.

GROUNDWATER NOT ENCOUNTERED The borehole/test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/test pit been left open for a longer period.

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm. N = Blows per 300mm penetration following 150mm seating
30/80mm	Where practical refusal occurs, the blows and penetration for that interval are reported
RW	Penetration occurred under the rod weight only
HW	Penetration occurred under the hammer and rod weight only
HB	Hammer double bouncing on anvil
DS	Disturbed sample
BDS	Bulk disturbed sample
G	Gas Sample
W	Water Sample
FP	Field permeability test over section noted
FV	Field vane shear test expressed as uncorrected shear strength (s_v = peak value, s_r = residual value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket penetrometer test expressed as instrument reading in kPa
U63	Thin walled tube sample - number indicates nominal sample diameter in millimetres
WPT	Water pressure tests
DCP	Dynamic cone penetration test
CPT	Static cone penetration test
CPTu	Static cone penetration test with pore pressure (u) measurement

Ranking of Visually Observable Contamination and Odour (for specific soil contamination assessment projects)

R = 0	No visible evidence of contamination	R = A	No non-natural odours identified
R = 1	Slight evidence of visible contamination	R = B	Slight non-natural odours identified
R = 2	Visible contamination	R = C	Moderate non-natural odours identified
R = 3	Significant visible contamination	R = D	Strong non-natural odours identified

ROCK CORE RECOVERY

TCR = Total Core Recovery (%)

SCR = Solid Core Recovery (%)

RQD = Rock Quality Designation (%)

$$= \frac{\text{Length of core recovered}}{\text{Length of core run}} \times 100$$

$$= \frac{\sum \text{Length of cylindrical core recovered}}{\text{Length of core run}} \times 100$$

$$= \frac{\sum \text{Axial lengths of core} > 100 \text{ mm}}{\text{Length of core run}} \times 100$$

METHOD OF SOIL DESCRIPTION USED ON BOREHOLE AND TEST PIT REPORTS



FILL

GRAVEL (GP or GW)

SAND (SP or SW)

SILT (ML or MH)



CLAY (CL, CI or CH)

ORGANIC SOILS (OL or OH or Pt)

COBBLES or BOULDERS

Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay.

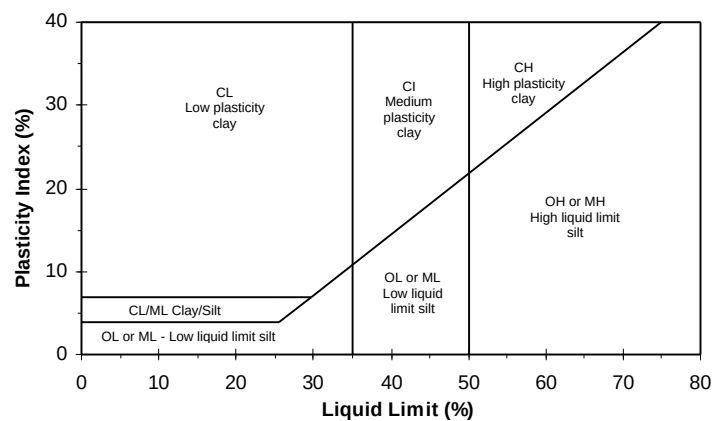
CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil and Rock is classified and described in Reports of Boreholes and Test Pits using the preferred method given in AS1726 – 1993, Appendix A. The material properties are assessed in the field by visual/tactile methods.

Particle Size

Major Division	Sub Division	Particle Size
BOULDERS		> 200 mm
COBBLES		63 to 200 mm
GRAVEL	Coarse	20 to 63 mm
	Medium	6.0 to 20 mm
	Fine	2.0 to 6.0 mm
SAND	Coarse	0.6 to 2.0 mm
	Medium	0.2 to 0.6 mm
	Fine	0.075 to 0.2 mm
SILT		0.002 to 0.075 mm
CLAY		< 0.002 mm

Plasticity Properties



MOISTURE CONDITION

AS1726 - 1993

Symbol	Term	Description
D	Dry	Sands and gravels are free flowing. Clays & Silts may be brittle or friable and powdery.
M	Moist	Soils are darker than in the dry condition & may feel cool. Sands and gravels tend to cohere.
W	Wet	Soils exude free water. Sands and gravels tend to cohere.

CONSISTENCY AND DENSITY

AS1726 - 1993

Symbol	Term	Undrained Shear Strength	Symbol	Term	Density Index %	SPT "N" #
VS	Very Soft	0 to 12 kPa	VL	Very Loose	Less than 15	0 to 4
S	Soft	12 to 25 kPa	L	Loose	15 to 35	4 to 10
F	Firm	25 to 50 kPa	MD	Medium Dense	35 to 65	10 to 30
St	Stiff	50 to 100 kPa	D	Dense	65 to 85	30 to 50
VSt	Very Stiff	100 to 200 kPa	VD	Very Dense	Above 85	Above 50
H	Hard	Above 200 kPa				

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.

SPT correlations are not stated in AS1726 – 1993, and may be subject to corrections for overburden pressure and equipment type.



TERMS FOR ROCK MATERIAL STRENGTH & WEATHERING AND ABBREVIATIONS FOR DEFECT DESCRIPTIONS

STRENGTH

Symbol	Term	Point Load Index, $I_s(50)$ (MPa)	Field Guide
EL	Extremely Low	< 0.03	Easily remoulded by hand to a material with soil properties.
VL	Very Low	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30 mm can be broken by finger pressure.
L	Low	0.1 to 0.3	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of pick point; has dull sound under hammer. A piece of core 150 mm long by 50 mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
M	Medium	0.3 to 1	Readily scored with a knife; a piece of core 150 mm long by 50 mm diameter can be broken by hand with difficulty.
H	High	1 to 3	A piece of core 150 mm long by 50 mm diameter cannot be broken by hand but can be broken with pick with a single firm blow; rock rings under hammer.
VH	Very High	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
EH	Extremely High	>10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

ROCK STRENGTH TEST RESULTS

▼	Point Load Strength Index, $I_s(50)$, Axial test (MPa)
◀	Point Load Strength Index, $I_s(50)$, Diametral test (MPa)
Relationship between $I_s(50)$ and UCS (unconfined compressive strength) will vary with rock type and strength, and should be determined on a site-specific basis. UCS is typically 10 to 30 x $I_s(50)$, but can be as low as 5.	

ROCK MATERIAL WEATHERING

Symbol	Term	Field Guide
RS	Residual Soil	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
EW	Extremely Weathered	Rock is weathered to such an extent that it has soil properties - i.e. it either disintegrates or can be remoulded, in water.
DW	HW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores. In some environments it is convenient to subdivide into Highly Weathered and Moderately Weathered, with the degree of alteration typically less for MW.
	MW	
SW	Slightly Weathered	Rock is slightly discoloured but shows little or no change of strength relative to fresh rock.
FR	Fresh	Rock shows no sign of decomposition or staining.

ABBREVIATIONS FOR DEFECT TYPES AND DESCRIPTIONS

Defect Type	Coating or Infilling	Roughness
B Bedding parting	Cn Clean	Sl Slickensided
X Foliation	Sn Stain	Sm Smooth
C Contact	Vr Veneer	Ro Rough
L Cleavage	Ct Coating or Infill	
J Joint	Planarity	
SS/SZ Sheared seam/zone (Fault)	Pl Planar	Vertical Boreholes – The dip (inclination from horizontal) of the defect is given. Inclined Boreholes – The inclination is measured as the acute angle to the core axis.
CS/CZ Crushed seam/zone (Fault)	Un Undulating	
DS/DZ Decomposed seam/zone	St Stepped	
IS/IZ Infilled seam/zone		
S Schistosity		
V Vein		