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GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND
SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **BH207**

Sheet 1 of 5

REFERENCE No **H12216**

PROJECT Mackay Ring Road

LOCATION Pioneer River Bridge, Pier 2 (LHS) COORDINATES 721296.6 E; 7660072.0 N

PROJECT No FG6184 SURFACE RL 7.15m PLUNGE 90° DATE STARTED 15/09/2015 GRID DATUM GDA 94 / MGA Z55

JOB No 242/10G/906 HEIGHT DATUM A.H.D. BEARING ° DATE COMPLETED 21/09/2015 DRILLER Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CORE DRILLING	RQD (%) CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH	DEFECT SPACING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
								EH VH H M J VI EI	EC VC C M W VW EW		
	6.75				Clayey SAND (Topsoil) Dark brown, dry, very loose to loose. Organics and rootlets.		(SC)				
	6.15				Sandy CLAY (Topsoil) Brown, dry, very soft. Organics and rootlets.		(CI)				
1				A	Silty CLAY trace sand (Alluvium) Brown to dark brown, moist, very stiff. Fine grained sand, low to medium plasticity.					4, 7, 11 N=18	SPT
2				B						9, 10, 15 N=25	SPT
3				C						6, 10, 15 N=25	SPT
4	3.15			D	Silty SAND (Alluvium) Pale grey, dry, very dense. Fine to medium grained sand.		(SM)			16, 30/140	SPT
5	2.15			E	Silty SAND (Alluvium) Pale grey, wet, dense. Fine grained sand.					14, 22, 23 N=45	SPT
6				F	6.10 to 6.20m: becomes brown orange.		(SM)			8, 16, 21 N=37	SPT
7				G						15, 23, 19 N=42	SPT
8	-0.15			H	Sandy CLAY (Alluvium) Brown grey, moist, hard. Fine grained sand, low to medium plasticity.					5, 7, 12 N=19	SPT
9				I			(CI)			6, 9, 14 N=23	SPT
	-2.85										

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REMARKS: Kgwu = Wundaru Granodiorite

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S.Foley



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BOREHOLE No **BH207**

Sheet 2 of 5

REFERENCE No **H12216**

PROJECT Mackay Ring Road

LOCATION Pioneer River Bridge, Pier 2 (LHS) COORDINATES 721296.6 E; 7660072.0 N

PROJECT No FG6184 SURFACE RL 7.15m PLUNGE 90° DATE STARTED 15/09/2015 GRID DATUM GDA 94 / MGA Z55

JOB No 242/10G/906 HEIGHT DATUM A.H.D. BEARING ° DATE COMPLETED 21/09/2015 DRILLER Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CORE DRILLING	RQD (%) CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH					DEFECT SPACING					ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS	
								EH _VH _H _M _J _VI _EL	EC _VC _C _M _W _VW _EW											
11				J	Silty CLAY (Alluvium) Grey, moist, very stiff. Medium plasticity.	(CI)											5, 11, 14 N=25	SPT		
				K	11.35 to 11.45m: Clayey SAND lens: Grey, moist, medium dense.														4, 10, 14 N=24	SPT
12				L															4, 6, 9 N=15	SPT
				M															5, 8, 12 N=20	SPT
14	-6.85			N	Sandy CLAY (Alluvium) Grey, moist, very stiff. Fine to medium grained sand, low to medium plasticity.	(CI)												5, 7, 10 N=17	SPT	
15	-7.85			O	Silty CLAY trace sand (Residual) Pale grey and brown, moist, hard. Fine grained sand, medium plasticity.	(CI)												5, 10, 16 N=26	SPT	
16	-8.85			P	Sandy CLAY trace gravel (Residual) Pale brown, moist, hard. Fine to medium grained sand, fine grained gravel, medium plasticity.	(CI)												10, 22, 30/120 hb	SPT	
17	-9.45			Q	MICRODIORITE (Kgwu) XW: Recovered as brown and grey, moist, hard, gravelly clay trace sand. Fine grained gravel, angular grains, medium plasticity.	XW												27, 30/80 hb	SPT	
18				R															15, 30/80 hb	SPT
19				S															15, 30/60 hb	SPT
	-12.85																			

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Sheet 3 of 5

REFERENCE No **H12216**

PROJECT	Mackay Ring Road				
LOCATION	Pioneer River Bridge, Pier 2 (LHS)			COORDINATES 721296.6 E; 7660072.0 N	
PROJECT No	FG6184	SURFACE RL	7.15m	PLUNGE	90°
				DATE STARTED	15/09/2015
				GRID DATUM	GDA 94 / MGA Z55
JOB No	242/10G/906	HEIGHT DATUM	A.H.D.	BEARING	°
				DATE COMPLETED	21/09/2015
				DRILLER	Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CORE DRILLING	RQD (%) CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH	DEFECT SPACING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
21				T	MICRODIORITE (Kgwu) HW: Dark grey, fine grained, massive, very low strength.						SPT
				U							
22			(47)								SPT
23	-16.00		100 (31)		MICRODIORITE (Kgwu) SW: Blue grey to grey, fine grained, massive, generally medium to high strength. Js: 5° to 30°(7/m); Pl/Sm; Tl; Fe St Js: 30° to 50°(5/m); Pl/Sm; Tl; Fe St Js: 60° to 90°(2/m); Pl/Sm; Tl; Fe St						
24			100 (0)								
25			100 (83)		From 25.15m: Js: 5° to 15°; (2/m); Pl/Ro; Tl; Fe St; Js: 60° to 75°; (3/m); Pl/Ro; Tl-FL; CA and Fe St. Very high strength.						
26											
27			100 (80)		From 27.1m: Js: 5° to 15°(2/m); Pl/Ro; Tl; Fe St. Js: 20° to 30°(2/m); Pl/Ro; Tl; Fe St.						
28											
29	-22.80		100 (94)								

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BOREHOLE No **BH207**

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REFERENCE No **H12216**

PROJECT	Mackay Ring Road				
LOCATION	Pioneer River Bridge, Pier 2 (LHS)			COORDINATES 721296.6 E; 7660072.0 N	
PROJECT No	FG6184	SURFACE RL	7.15m	PLUNGE	90°
				DATE STARTED	15/09/2015
				GRID DATUM	GDA 94 / MGA Z55
JOB No	242/10G/906	HEIGHT DATUM	A.H.D.	BEARING	°
				DATE COMPLETED	21/09/2015
				DRILLER	Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CORE DRILLING	RQD (%) % CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH										DEFECT SPACING										ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS	
								EH	VH	H	M	J	VI	EL	EC	VC	C	M	W	VW	EW									
31	-24.20		100 (37)		GRANODIORITE (Kgwu) SW: Pale grey, coarse grained, porphyritic, very high strength. Js: 0° to 10° ;(2/m); Pl/Ro-Sm; Tl; Fe St;		SW	VH										M										Is(50)=1.90 MPa Is(50)=7.10 MPa	D (30.15m)- A (30.22m)	
					FAULT ZONE		MW																					UCS=146.00 MPa	(31.00m)	
32	-25.25		100 (0)		XW: Green grey, Granodiorite clasts throughout, extremely low strength. Recovered as sandy clay with gravel.		XW	C																						
			100 (99)				HW	EL																						
							MW	VH																				32.20m-32.30m: MW zone, high strength		
33					GRANODIORITE (Kgwu) SW: Pale red grey, coarse grained, porphyritic, very high strength. Js: 5° to 10°; (1/m); Pl/Ro; Tl; Fe St; Js: 20° to 30°; (2/m); Pl/Ro; Tl; Fe St; Js: 60° to 70°; (<1/m); Pl/Ro; Tl; Fe St; Js: 80° to 90°; (<1/m); Pl/Ro; Tl; Fe St;													M										Is(50)=0.86 MPa Is(50)=1.30 MPa	A (32.56m)- D (32.65m)	
																		M										32.93m-33.03m: Microdiorite band		
34																		W										Is(50)=3.00 MPa	A (33.82m)	
																		M												
35																		C										Is(50)=7.30 MPa	A (34.77m)	
			100 (64)															M										Is(50)=5.00 MPa	D (35.29m)	
							SW											C										35.50m-35.75m: Microdiorite band 70°-75°, CA FL		
36								VH										M										Is(50)=11.00 MPa Is(50)=4.50 MPa	D (36.14m)- A (36.21m)	
																		C												
37																		M										UCS=156.00 MPa	(37.12m)	
			100 (58)															C												
																		M										Is(50)=3.30 MPa	A (37.76m)	
																		C												
																		WC										38.30m-38.65m: Multiple subvertical joints, HFZ		
38																		C										Is(50)=7.00 MPa	D (38.77m)	
39	-31.85				MICRODIORITE (Kgwu) SW: Blue grey, fine to medium grained, massive, high to very high strength. Calcite veins throughout. Js: 30° to 40°; (2/m); Pl/Sm; FL; CA;													M										39.00m: Contact; 70°-85°, Un/CD		
																		C										39.60m-39.75m: Vn; 60°, Pl/Ro, FL, CA; Granite clasts and clay.	Is(50)=4.60 MPa	A (39.39m)

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REMARKS: Kgwu = Wundaru Granodiorite

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BOREHOLE No **BH207**

Sheet 5 of 5

REFERENCE No **H12216**

PROJECT **Mackay Ring Road**

LOCATION **Pioneer River Bridge, Pier 2 (LHS)** COORDINATES **721296.6 E; 7660072.0 N**

PROJECT No **FG6184** SURFACE RL **7.15m** PLUNGE **90°** DATE STARTED **15/09/2015** GRID DATUM **GDA 94 / MGA Z55**

JOB No **242/10G/906** HEIGHT DATUM **A.H.D.** BEARING **°** DATE COMPLETED **21/09/2015** DRILLER **Cairns Drilling**

DEPTH (m)	R.L. (m)	AUGER	CASING	WASHBORING	CORE DRILLING	RQD () %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH						DEFECT SPACING						ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
						CORE REC %			EH		VH	H	M	J	VL	EL	EC	VC	C	M	W	VW			EW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	-33.20					100		Js: 50° to 70°; (3/m); Pl/Ro; FL; CA; Borehole completed at 40.35m	+ + +	SW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

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CORE PHOTO LOG

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Project Name	Mackay – Ring Road (Stage 2)		
Project No.	FG6184	Date	15/09/15
Borehole No.	BH 207	TMR H No.	H12216
Location	Pioneer River Bridge	Start Depth (m)	22.00
Detail	Pier 2, LHS	Finish Depth (m)	40.35
Chainage		Submitted By	M.Ensor
Remarks			

A photograph of a core sample. The sample is a long, dark, cylindrical object. On the left end, there is a label with "FG6184" and "BH207". On the right end, there is a label with "M.R.R." and "80x7". The core is placed on a light-colored surface.

A scale bar with markings from 0 to 700 in increments of 100. Below the scale bar, the text "SCALE 1:5" is printed.