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GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **BH261**

Sheet 1 of 4

REFERENCE No **H12270**

PROJECT Mackay Ring Road

LOCATION Pioneer River Bridge, Abutment B (LHS) COORDINATES 721364.5 E; 7660683.0 N

PROJECT No FG6184 SURFACE RL 9.39m PLUNGE 90° DATE STARTED 01/07/2015 GRID DATUM GDA 94 / MGA Z55

JOB No 242/10G/906 HEIGHT DATUM A.H.D. BEARING ° DATE COMPLETED 03/07/2015 DRILLER Saxon 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						
	8.79				Sandy SILT (Topsoil) Dark brown, moist, firm.		(ML)																						
1				A	Silty SAND (Alluvium) Brown, dry to moist, medium dense. Fine grained sand.																					3, 6, 7 N=13	SPT		
2				B	2.40m: becomes dry		(SM)																				8, 9, 7 N=16	SPT	
3	6.09			C																							6, 8, 14 N=22	SPT	
4				D	Gravelly SAND (Alluvium) Brown, moist, medium dense. Fine to medium grained sand, fine to coarse grained gravel, subrounded to angular grains.		(SW)																				5, 9, 10 N=19	SPT	
5	4.39			E	Sandy GRAVEL (Alluvium) Brown, medium dense to dense. Medium to coarse grained sand, medium to coarse grained gravel, subrounded to subangular grains.																						12, 17, 18 N=35	SPT	
6				F																							21, 18, 10 N=28	SPT	
7				G	7.00m: coarse grained gravel band. Very dense		(GP)																				20, 30, 26 N=56	SPT	
8				H	8.15 to 8.30m: clayey sand lens.																						8, 3, 13 N=16	SPT	
9	0.39			I	GRAVEL trace sand (Alluvium) Dark grey, wet, medium dense to dense. Medium to coarse grained sand, medium to coarse grained gravel, angular to subangular.		(GP)																				14, 17, 16 N=33	SPT	
	-0.61																												

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REMARKS: Kgwu = Wundaru Granodiorite

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GEOTECHNICAL BOREHOLE LOG






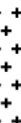
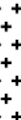

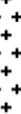


FOR GEOTECHNICAL TERMS AND
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BOREHOLE No **BH261**

Sheet 2 of 4

REFERENCE No **H12270**

PROJECT	Mackay Ring Road				
LOCATION	Pioneer River Bridge, Abutment B (LHS)			COORDINATES 721364.5 E; 7660683.0 N	
PROJECT No	FG6184	SURFACE RL	9.39m	PLUNGE	90°
				DATE STARTED	01/07/2015
				GRID DATUM	GDA 94 / MGA Z55
JOB No	242/10G/906	HEIGHT DATUM	A.H.D.	BEARING	°
				DATE COMPLETED	03/07/2015
				DRILLER	Saxon 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 _L _VH	H _H _M	M _L _VL	EL	EC _VC	C _C _M	M _W _VW	EW				
				J	GRAVEL trace sand (Alluvium) (Cont'd)		(GP)											11, 10, 9 N=19	SPT
					10.45m: becomes coarse grained gravel, with coarse grained sand and fine grained gravel.														
11	-1.91			K	Silty Clayey SAND (Alluvium) Mottled orange brown and pale grey, moist, medium dense. Fine grained sand, medium plasticity.		(SC)											28, 22, 9 N=31	SPT
12	-3.06			L	Sandy CLAY (Alluvium) Mottled orange and pale grey, moist, stiff. Fine grained sand.		(CI)											12, 11, 11 N=22	SPT
13	-4.31			M	Clayey SAND (Alluvium) Pale grey mottled orange, moist, medium dense. Fine grained sand.		(SC)											3, 3, 5 N=8	SPT
14				N			(SC)											9, 7, 6 N=13	SPT
15				O			(SC)											10, 12, 15 N=27	SPT
16	-7.01			P	GRANODIORITE (Kgwu) XW: Recovered as speckled dark grey, orange and pale grey, moist, dense to very dense, silty sand trace clay. Fine to coarse grained sand.													11, 8, 9 N=17	SPT
17				Q														19, 21, 30 N=51	SPT
18				R	18.00m: clay content decreasing.		XW											26, 20, 28 N=48	SPT
19				S	18.80m: dry clay band													19, 23, 30/115	SPT
	-10.61																		

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BOREHOLE No **BH261**

Sheet 3 of 4

REFERENCE No **H12270**

PROJECT	Mackay Ring Road				
LOCATION	Pioneer River Bridge, Abutment B (LHS)			COORDINATES 721364.5 E; 7660683.0 N	
PROJECT No	FG6184	SURFACE RL	9.39m	PLUNGE	90°
				DATE STARTED	01/07/2015
				GRID DATUM	GDA 94 / MGA Z55
JOB No	242/10G/906	HEIGHT DATUM	A.H.D.	BEARING	°
				DATE COMPLETED	03/07/2015
				DRILLER	Saxon 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	
				T	GRANODIORITE (Kgwu) HW: Speckled grey, orange and dark grey, coarse grained, massive, very low strength						30, 30/90	SPT
21				U			HW				28, 20/105	SPT
22				V							11, 30/85	SPT
-13.31												
23			(87)		GRANODIORITE (Kgwu) SW: Speckled dark grey, pale grey and pink, coarse grained, massive,, very high strength Js: 5° to 20°; (<1/m); Pl/Ro-Sm; OP; some Sinf; Js: 55° to 70°; (~2/m); Pl/Sm; TI-OP; CA VN; 22.95 to 23.44m: MICRODIORITE (SW): dark grey, fine grained, massive, very high strength. Calcite veining throughout <1mm thick.		MW	H-VH	M	22.95m: Contact 5°; Un/Ro; Is(50)=5.80 MPa Is(50)=2.60 MPa	A (22.82m)	
24			100 (100)				SW		C	23.44m: Contact J: 70°; Pl/Sm; 23.73m-23.75m: J: (x3); 15°; Pl/Ro; OP; Sinf; UCS=20.70 MPa	D (23.10m)	
25									C		Is(50)=11.00 MPa	(23.69m)
26			100 (73)		MICRODIORITE (Kgwu) SW: Grey, fine to medium grained, massive, hight to very high strength, some calcite veining <1mm thick Js: 40° to 60°; (<3/m); Pl/Sm; OP or CD; come CA VN; Js: 0° to 5°; (2/m); Pl/Ro; CD;		SW	H-VH	M		Is(50)=5.10 MPa Is(50)=1.70 MPa	A (24.11m)
27			100 (76)		26.60 to 27.00m: GRANODIORITE (SW) speckled dark grey, pale grey and pink, coarse grained, massive, very high strength.				VC	26.56m: DI; 26.60m: Contact 45°; Pl/Sm; 26.60m-27.00m: GRANODIORITE (SW) 26.92m-27.15m: QZ VN: Un/Sm; (<30mm); 27.00m: Contact 70°; Pl/Sm; CA VN; 27.52m-27.58m: BZ;	Is(50)=7.80 MPa	A (25.15m) A (25.23m)
28			100 (83)		GRANODIORITE (Kgwu) SW: Speckled dark grey, pale grey and pink, coarse grained, massive, very high strength Js: 40° to 70°; (<3/m); Pl/Sm-Ro; CD; some CA VN;		SW		W		Is(50)=2.70 MPa UCS=185.00 MPa E=75 GPa v= 0.103	A (26.06m)
29			100 (93)		29.47m: becomes green, grey and pink. Fine to medium grained.				M	28.93m: DI;		D (26.85m)
-20.61												(27.25m)
												A (28.31m)
												D (28.50m)
												A (29.41m)
												D (29.53m)

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REMARKS: Kgwu = Wundaru Granodiorite

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BOREHOLE No **BH261**

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REFERENCE No **H12270**

PROJECT Mackay Ring Road

LOCATION Pioneer River Bridge, Abutment B (LHS) COORDINATES 721364.5 E; 7660683.0 N

PROJECT No FG6184 SURFACE RL 9.39m PLUNGE 90° DATE STARTED 01/07/2015 GRID DATUM GDA 94 / MGA Z55

JOB No 242/10G/906 HEIGHT DATUM A.H.D. BEARING ° DATE COMPLETED 03/07/2015 DRILLER Saxon Drilling

DEPTH (m)	R.L. (m)	AUGER Casing Washing Cone 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			100 (100)		GRANODIORITE (Kgwu) \$W: (Cont'd) 30.13m: becomes coarse grained. Js: 0° to 10°; (1/m); Pl/Ro; OP; Cn;																
					31.21 to 31.60m: MICRODIORITE (SW): dark grey, fine grained, massive, very high strength.		SW														
					32.00m: No more defects.																
			100 (100)																		
33	-23.71		100																		
					Borehole completed at 33.10m																
34																					
35																					
36																					
37																					
38																					
39																					

REMARKS: Kgwu = Wundaru Granodiorite

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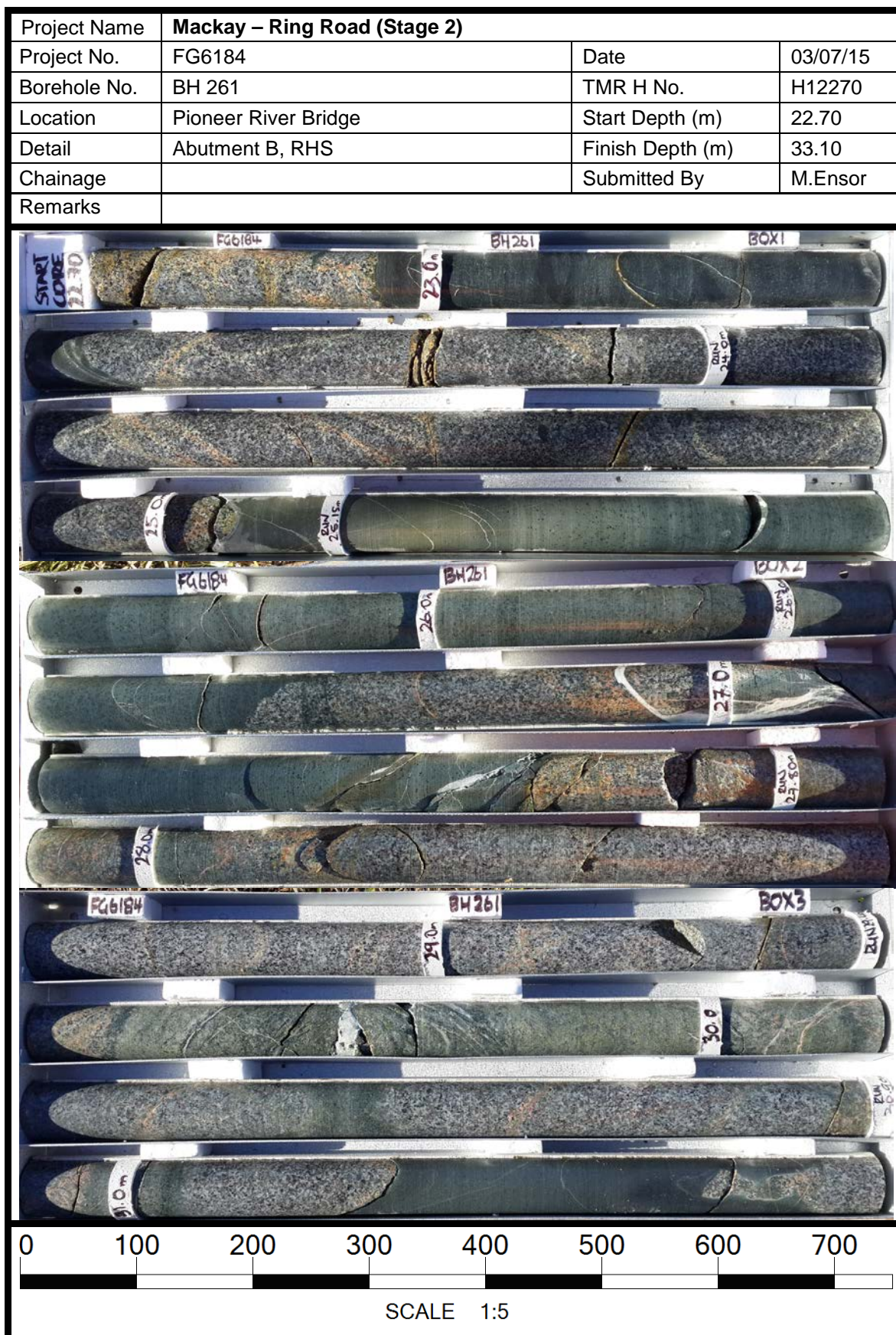
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Project Name	Mackay – Ring Road (Stage 2)		
Project No.	FG6184	Date	02/07/15
Borehole No.	BH 261	TMR H No.	H12270
Location	Pioneer River Bridge	Start Depth (m)	22.70
Detail	Abutment B, RHS	Finish Depth (m)	33.10
Chainage		Submitted By	M.Ensor
Remarks			

Two soil core samples are shown in a white box. The top sample is a dark, cylindrical core with a label 'FG6184' and 'BH261'. The bottom sample is a similar core with a label '32.10' and '33.10 EOH'.

A scale bar is provided at the bottom of the page, ranging from 0 to 700 mm in increments of 100 mm.

SCALE 1:5