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**Queensland
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GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **BH221**

Sheet 1 of 3

REFERENCE No **H12230**

PROJECT	Mackay Ring Road				
LOCATION	Pioneer River Bridge, Pier 6 (RHS)			COORDINATES 721316.1 E; 7660212.1 N	
PROJECT No	FG6184	SURFACE RL	7.71m	PLUNGE	90°
				DATE STARTED	31/08/2015
				GRID DATUM	GDA 94 / MGA Z55
JOB No	242/10G/906	HEIGHT DATUM	A.H.D.	BEARING	°
				DATE COMPLETED	01/09/2015
				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	
	7.21				Silty SAND (Topsoil) Dark brown, moist, very loose to loose. Fine grained sand, organics and rootlets.																			
1	6.61			A	SAND trace silt (Alluvium) Brown, dry, loose. Fine grained sand.		(SP)																3, 3, 4 N=7	SPT
	6.11				Sandy Silty CLAY (Alluvium) Dark brown, dry, firm. Fine grained sand, low plasticity, with organics.		(CL)																	
2				B	SAND (Alluvium) Brown, dry, loose. Fine grained sand.		(SP)																2, 2, 4 N=6	SPT
	4.81				Clayey SAND (Alluvium) Dark brown, wet, very loose to loose. Fine to medium grained sand, low plasticity.		(SC)																1, 2, 2 N=4	SPT
4	3.71			D	SAND trace gravel (Alluvium) Pale brown, wet, medium dense. Fine to coarse grained sand, fine grained gravel, subrounded grains.		(SP)																3, 7, 7 N=14	SPT
5	2.71			E	Gravelly SAND trace silt (Alluvium) Grey brown, wet, medium dense. Fine to coarse grained sand, fine to medium grained gravel.		(SP)																7, 10, 12 N=22	SPT
6	1.71			F	SAND trace silt and gravel (Alluvium) Grey brown, wet, medium dense. Fine to coarse grained sand.		(SP)																4, 6, 7 N=13	SPT
7				G			(SP)																4, 4, 5 N=9	SPT
8	-0.29			H	Gravelly SAND trace silt (Alluvium) Grey brown, wet, medium dense. Fine to coarse grained sand, fine to medium grained gravel, subrounded grains.		(SP)																12, 9, 7 N=16	SPT
9	-1.49			I	Clayey SAND (Alluvium) Grey, wet, medium dense. Fine to medium grained sand, low plasticity.		(SC)																12, 13, 13 N=26	SPT
	-2.29																							

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REMARKS: Kgwu = Wundaru Granodiorite

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T.Goosey

S.Foley



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BOREHOLE No **BH221**

Sheet 2 of 3

REFERENCE No **H12230**

PROJECT Mackay Ring Road

LOCATION Pioneer River Bridge, Pier 6 (RHS) COORDINATES 721316.1 E; 7660212.1 N

PROJECT No FG6184 SURFACE RL 7.71m PLUNGE 90° DATE STARTED 31/08/2015 GRID DATUM GDA 94 / MGA Z55

JOB No 242/10G/906 HEIGHT DATUM A.H.D. BEARING ° DATE COMPLETED 01/09/2015 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
11				J	Silty SAND (Alluvium) Pale grey, wet, medium dense. Fine to coarse grained sand, low plasticity.						8, 11, 17 N=28 SPT
				K							6, 9, 10 N=19 SPT
12				L		(SM)					8, 13, 14 N=27 SPT
13				M	13.00m: becoming dense. Clay content increasing.						13, 19, 25 N=44 SPT
14	-6.29			N	Silty CLAY trace sand (Alluvium) Brown grey, moist, very stiff. Fine grained sand, medium to high plasticity.		(CH)				6, 8, 12 N=20 SPT
15	-7.29			O	MICRODIORITE XW: Recovered as brown grey mottled white and black, moist, hard sandy gravelly clay. Fine to medium grained gravel, angular grains, medium to high plasticity.						30/90 hb SPT
16				P			XW				22, 30/70 hb SPT
17	-9.29			Q	GRANODIORITE (Kgwu) XW: Recovered as brown grey, wet, very dense, clayey sand trace gravel. Fine to coarse grained sand.						30/140 hb SPT
18				R			XW				30/70 hb SPT
19	-11.69			S							30/100 hb SPT
			(88)		MICRODIORITE (Kgwu) SW: Blue grey, fine to medium		SW			19.44m: J; 5°, Pl/Sm, Ti, Fe St; 19.64m: J; 30°, Pl/Ro, Ti, Fe St Is(50)=8.00 MPa Is(50)=9.50 MPa 20.00m: Contact; 65°-70°, CD;	A (19.44m) D (19.52m) (19.84m)
-12.29											

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Sheet 3 of 3

REFERENCE No **H12230**

PROJECT	Mackay Ring Road				
LOCATION	Pioneer River Bridge, Pier 6 (RHS)			COORDINATES 721316.1 E; 7660212.1 N	
PROJECT No	FG6184	SURFACE RL	7.71m	PLUNGE	90°
				DATE STARTED	31/08/2015
				GRID DATUM	GDA 94 / MGA Z55
JOB No	242/10G/906	HEIGHT DATUM	A.H.D.	BEARING	°
				DATE COMPLETED	01/09/2015
				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	VL	EL	EC	VC	C				M	W	VW	EW
	-12.94		100 (92)		grained, massive, high strength. GRANODIORITE (Kgwu)		SW										M					UCS=227.00 MPa E=65.8 GPa v= 0.141 Is(50)=7.70 MPa	D (20.30m)	
21					SW: Pale grey mottled black and pale red, coarse grained, porphyritic, very high strength. Js: 5°-10°(2/m); Pl/Ro; Tl; Fe St Js: 25°-35°(<2/m); Pl/Sm; Tl; Fe St		SW										C	M				20.65m: Contact; 65°, CD;		
	-13.74				MICRODIORITE (Kgwu)													C				21.20m-21.23m: Js; 5°-10° (x2); Pl/Ro, FL, Cly Vr and Fe St; 21.45m: Contact; 60°, CD	Is(50)=8.00 MPa	A (21.10m)
					SW: Blue grey, fine to medium grained, massive, high to very high strength. Js: 5° to 10°; (4/m); Pl/Ro; Tl; Fe St; GRANODIORITE (Kgwu)													W				Is(50)=7.10 MPa Is(50)=4.80 MPa	A (22.05m) D (22.20m)	
23					SW: Pale grey mottled black and pale red, coarse grained, porphyritic, very high strength. Js: 5° to 10°; (2-3/m); Pl/Ro; Tl; Fe St;		SW											M				Is(50)=14.00 MPa	D (23.10m)	
			100 (90)		Js: 25° to 35°; (3/m); Pl/Sm; Tl; Fe St;													M						
24			100 (100)															C				Is(50)=10.00 MPa Is(50)=7.00 MPa	D (24.10m) A (24.15m)	
																		M				24.30m-24.35m: DOLERITE DYKE (SW): high to very high strength.		
																		C						
25	-17.36				MICRODIORITE (Kgwu)													M				UCS=70.20 MPa	(25.56m)	
					SW: Blue grey, fine to medium grained, massive, very high strength. Js: 5° to 10°; (2/m); Pl/Ro; Tl; Fe St; Js: 40° to 50°; (<1/m); Pl/Sm; Tl; Fe St and CA;													C				Is(50)=9.40 MPa	A (26.38m)	
			100 (95)															M						
27																		W				Is(50)=8.80 MPa	A (27.15m)	
					27.60 to 28.22m: GRANODIORITE (SW): Pale grey mottled pale red and black, coarse grained, porphyritic, high to very high strength. Js: 5° to 20°; (4/m); Un/Ro; OP;		SW											C				27.60m: Contact; 70°, Pl, CD 27.86m-27.91m: Total water loss HFZ; Sinf 28.22m: Contact; 35°, Pl, CD;		
28																			W					
29																						UCS=174.00 MPa E=64.1 GPa v= 0.091 Is(50)=6.00 MPa	(28.65m) D (29.27m)	
	-22.09		100																					
Borehole completed at 29.80m																								

REMARKS: Kgwu = Wundaru Granodiorite

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CORE PHOTO LOG

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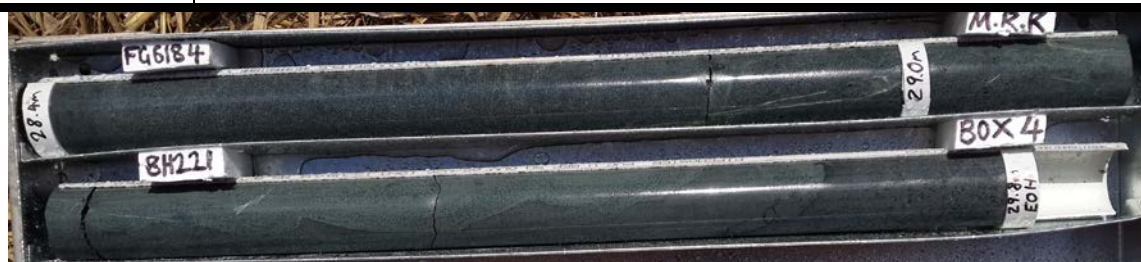


CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS
Geotechnical Section
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Project Name	Mackay – Ring Road (Stage 2)		
Project No.	FG6184	Date	01/09/15
Borehole No.	BH 221	TMR H No.	H12230
Location	Pioneer River Bridge	Start Depth (m)	19.40
Detail	Pier 6, RHS	Finish Depth (m)	29.80
Chainage		Submitted By	M. Ensor
Remarks			



SCALE 1:5