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Queensland

GEOTECHNICAL BOREHOLE LOG

FINAL 17/03/2016

BOREHOLE No BH204

Sheet 1 of 4

		% ,	Į,	GO	Vŧ	ernment	SY		GEOTECHNICAL TE REFER FORM F:GE			REFERENCE No	H:	12213
PROJE	:CT	N	/lac	kay Ring	Ro	pad								
LOCAT	ΓΙΟΝ	Р	ion	eer Rive	r B	ridge, Pier 1 (LHS)						COORDINATES 721291.4	E; 766003	37.6 N
PROJE	CT No	F	G6:	184		SURFACE RL 6.69m	PLU	JNGE S	00°	DATE STAF	RTED 11/09/2015	GRID DATUM	GDA 94 / N	MGA Z55
JOB N	0	2	42/	/10G/90	6	HEIGHT DATUM A.H.D.	BEA	RING °		DATE COMPLE	TED 13/09/2015	DRILLER	Cairns Dril	ling
DEPTH (m)	R.L. (m)	AUGER	WASH BORING CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	ПТНОСОБУ	USCS WEATHERING	INTACT STRENGTH	DEFECT SPACING		ADDITIONAL DATA AND TEST RESULTS		SAMPLES TESTS
-						Silty SAND (Topsoil) Dark brown, dry, very loose to	%		=	_				=
- - - - - - -						loose.	*		=					=
-	5.99	H				Fine to medium grained sand. Clayey SAND (Alluvium)			=	_ _ _				_
						Dark brown, moist, loose to		(SC)		<u> </u>				-
— 1 - - - - - -	5.44	1			Α	medium dense. Fine to medium grained.			- - -	_			4, 5, 6 N=11	SPT
_						SAND (Alluvium) Brown, moist, medium dense.		(SP)	_	_				
-	4.69					Fine to medium grained sand.			=	_				_
— 2 - -		П			В	Clayey SAND (Alluvium)	7						5, 3, 3	SPT
- - - - -						Dark brown, wet, loose. Fine to medium grained sand, low		(CL)		- - -			5, 5, 5 N=6	
_						plasticity.		(02)	_	_				=
- — з	3.69					CLAY to a cond (Alloudous)			_	_				
-					С	CLAY trace sand (Alluvium) Dark grey, moist, firm.	E		=	_			1, 2, 3	SPT
- - -						Fine grained sand, low to medium	=	(CI)	_	_			N=5	
_						plasticity.	_		_	_				_
4 4	2.69	1				Silty SAND (Alluvium)	- C.X.							_
-					D	Pale grey, moist, medium dense.	×.		=	_			8, 12, 16 N=28	SPT
_						Fine to medium grained sand.	×.		_	<u> </u>				_
_							×. ×		=	_				
- - - - - - - - - 5					_	5.00m: becomes dense.	×. ×		_	_				OPT
-					Е		×		=	_			10, 14, 17 N=31	SPT
_							×	(SM)	=					=
- - - 6							×		_	_				
-					F	6.00m: becomes medium dense.	Û×.	2	=	_			11, 10, 15	SPT
_							×		=	_			N=25	<u> </u>
- - - - - - -							×		_	_				-
- - 7	-0.31	$\left \cdot \right $				Sandy CLAY (Alluvium)	×			_				_
7 - 7 8 - 8 -					G	Brown grey, moist, hard.			=	-			7, 13, 18 N=31	SPT
-						Fine grained sand, low to medium plasticity.				_			14-31	-
-						plasticity.			=					
						8.00m: becomes very stiff.		(CI)	_	_				0.07
-					Н				=	_			5, 9, 13 N=22	SPT
- - - - - -									=	_				=
	-2.31									<u> </u>				
_					ı	Silty CLAY trace sand (Alluvium) Pale grey, moist, very stiff.	×_		=	_			6, 9, 14	SPT
- - - -						Medium plasticity.	×_	(CI)] =	_			N=23	_
-							×_		_					-
_	-3.31	Ш				Continued on next sheet	X_							-
D	FNAAD	Kc.		Κσννι –	. \^	/undaru Granodiorite						100000 57	DE: ""	WED DY
11	_ ı v ı/¬\ l \	٠,٠,٠	'	bwa-	٧٧	andara Granoulorite						LOGGED BY		WED BY
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GEOTECHNICAL BOREHOLE LOG

FINAL 17/03/2016

BH204 BOREHOLE No

Sheet 2 of 4

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014 H12213 REFERENCE No Mackay Ring Road PROJECT Pioneer River Bridge, Pier 1 (LHS) COORDINATES 721291.4 E; 7660037.6 N LOCATION FG6184 SURFACE RL 6.69m PLUNGE 90° DATE STARTED 11/09/2015 GRID DATUM GDA 94 / MGA Z55 PROJECT No 242/10G/906 DRILLER Cairns Drilling HEIGHT DATUM A.H.D. DATE COMPLETED 13/09/2015 JOB No BEARING USCS WEATHERING ADDITIONAL DATA INTACT DEFECT SPACING SAMPLES TESTS Ê LITHOLOGY AND TEST RESULTS STRENGTH RΙ DEPTH SAMP MATERIAL DESCRIPTION (m) CORE REC % ᇁᆂᆂᄫᅴᅿᆿᆸᇝᇰᄓᄫᇂᇂᇕ Silty CLAY trace sand (Alluvium) 5, 8, 10 Brown grey, moist, very stiff. N=18 Medium plasticity. (CI) 11.00m-11.45m: No sample recovered SPT 8, 12, 16 N=28 -5.31 Clayey SAND (Residual) SPT Pale grey brown, moist, medium 9, 11, 15 dense. Fine to medium grained sand. 13 SPT 5, 7, 10 N=17 (SC) 14.00m: becomes dense Ν SPT 6, 25, 21 15 0 15.00m: becoming very dense SPT -8.91 (40) GRANODIORITE (Kgwu) MW MW: Pale red grey, coarse grained, Is(50)=1.20 MPa D (15.90m) 16.00m-16.11m: XW Cly seam; 16 porphyritic, medium to high XW strength. MW Js: 5° to 15°; (2-3/m); PI/Ro; TI-FL; Fe St, some Sinf; 16.70m-16.90m: HW zone, CA; Js: 30° to 40°; (1-2/m); PI-St/Ro; TI; LM HW Fe St, Cly Vr; 17 Is(50)=6.80 MPa A (17.05m) Js: 70° to 80°; (1/m); PI/Ro; FL; Cly Is(50)=9.30 MPa D (17.18m) ☐ 17.35m-17.45m: DI 100 MW 17.59m-17.68m: HW zone, CA; ⊐ 17.97m-18.00m: CA zone 18 HW ⊐ 18.14m-18.17m: CA zone LM 18.36m-18.40m: CA zone; (18.50m) MW 19 Is(50)=1.20 MPa A (19.27m)-☐ 19.30m-19.35m: XW zone, Cly and -12.76 100 GRANODIORITE (Kgwu) 19.45m-19.75m: HW zone, Cly and Sinf HW (0) HW: Pale red and grey brown, Is(50)=2.50 MPa A (19.76m) MW 7 19.86m-19.94m: XW zone Cly and coarse grained, porphyritic, low to 19.94m-20.20m; HFZ, BZ, DI? Continued on next sheet REMARKS: Kgwu = Wundaru Granodiorite **REVIEWED BY LOGGED BY** T.Goosey S.Foley TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

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GEOTECHNICAL BOREHOLE LOG

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

FINAL 17/03/2016

BOREHOLE No BH204

Sheet 3 of 4

REFERENCE No H12213

Mackay Ring Road PROJECT Pioneer River Bridge, Pier 1 (LHS) COORDINATES 721291.4 E; 7660037.6 N LOCATION FG6184 DATE STARTED 11/09/2015 GRID DATUM GDA 94 / MGA Z55 SURFACE RL 6.69m PLUNGE 90° PROJECT No 242/10G/906 DRILLER Cairns Drilling DATE COMPLETED 13/09/2015 JOB No HEIGHT DATUM A.H.D. BEARING USCS WEATHERING ADDITIONAL DATA INTACT DEFECT SPACING SAMPLES TESTS Ê LITHOLOGY STRENGTH TEST RESULTS RΙ DEPTH MATERIAL DESCRIPTION CORE REC % ᅖᆂᆂᆂᄝᆜᆛᅖᆝᇛᇰᆟᄝᇂᄛᇕ medium strength. 100 MW 20.20m-20.46m: DOLERITE DYKE (0) GRANODIORITE (Kgwu) (HW) 20.30m-20.46m: XW zone, Cly; XW HW: (cont'd) 20.55m-20.70m: HFZ; sand and HW -14.01 Js: 5° to 15°; (10/m); Pl/Ro; FL; Fe St, gravel; Cly and Sinf; 100 MICRODIORITE (Kgwu) MW Is(50)=0.83 MPa I (21.10m) (0)MW: Blue grey, fine grained, massive, medium to high strength. Js: 5° to 15°; (6-8/m); PI/Ro; FL; Cly (0) Vr and Fe St; Js: 30° to 40°; (5/m); PI/Ro; FL; Cly Is(50)=5.00 MPa D (21.95m) 22 Vr. Fe St: SW Js: 60° to 70°; (6/m); PI/Ro; FL; Cly Vr and Fe St: Is(50)=2.80 MPa I (22.60m) 22.80m-23.10m: HW zone, brown, 23 MW -16.61 MICRODIORITE (Kgwu) SW SW: Blue grey, fine grained, -17.08 massive, high to very high strength 23.77m: Contact; 5°, PI/Ro, OP, Fe GRANODIORITE (Kgwu) SW: Pale red and grey, coarse grained, porphyritic, high to very high strength. Is(50)=14.00 MPa D (24.50m) SW Is(50)=8.50 MPa Js: 5° to 15°; (2/m); PI/Ro; TI; Fe St; A (24.57m) Js: 20° to 30°; (1/m); Pl/Ro; TI; Fe St; 25 Js: 70° to 80°; (1/m); Pl-Un/Ro; FL; CA 10-20mm; Is(50)=15.00 MPa D (25.16m)--18.76 25.45m: Contact; 65°, PI/Ro, TI, Fe MICRODIORITE (Kgwu) SW: Blue grey, fine grained, SW Is(50)=11.00 MPa A (25.84m)_ massive, high to very high strength. 100 (86) 26 Js: 5° to 10°; (2/m); PI/Ro; TI; Fe St; -19.59 \s: 65°; (1/m); PI/Ro; TI; Fe St; 26.28m: Contact; 5°, PI/Ro, TI, Fe GRANODIORITE (Kgwu) SW: Pale red and grey, coarse grained, porphyritic, high to very high strength. 27 Js: 5° to 15°; (2-3/m); PI/Ro; TI; Fe Js: 20° to 35°; (2/m); PI/Ro; TI; Fe St; Is(50)=10.00 MPa D (27.50m) Js: 70° to 80°; (<1/m); PI/Ro; FL; CA and Fe St; UCS=175.00 MPa (27.96m)-SW UCS=6.27 MPa (28.60m) Is(50)=0.91 MPa A (28.95m) (98) 29.75m-30.10m: Microdiorite (SW): Blue grey, fine to medium grained, massive, high to very hig Continued on next sheet REMARKS: Kgwu = Wundaru Granodiorite **LOGGED BY REVIEWED BY** S.Foley T.Goosey TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

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GEOTECHNICAL BOREHOLE LOG

FINAL 17/03/2016

BOREHOLE No BH204

Sheet 4 of 4

1	(Con	GU	٧.			SYN		REFER FORM F:G			REFERENCE No	н	12213
ROJECT Mackay Ring Road													
OCATION	Pion	eer Rive	er B	ridge, Pier 1 (LHS)		COORDINATES 721291.4 E; 7660037.6 N						37.6 N	
ROJECT No	FG61	L84		SURFACE RL 6.6	59m	plunge 90° dati		DATE STA	RTED 11/09/201	5 GRID DATU	лм GDA 94 /	MGA Z55	
OB No	242/	10G/90)6	HEIGHT DATUM A.	H.D.	BEAR	RING		DATE COMPL	ETED 13/09/201	5 DRILL	_{ER} Cairns Dri	lling
(ш) R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIF	PTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH □>====================================	DEFECT SPACING		ADDITIONAL DATA AND TEST RESULTS		SAMPLES TESTS
- 31	X 3 0	100 (97)		GRANODIORITE (Kgwu) SW: (Cont'd) MICRODIORITE (Kgwu) SW: Blue grey, fine to m grained, massive, high t strength. Calcite veins th GRANODIORITE (Kgwu) SW: Pale red grey, coars porphyritic, high to very strength. Js: 5° to 15°; (2-3/m); Pl st; ss: 50° to 60°; (<1/m); Pl e St; 32.77 to 33.40m: Minor microdiorite dykes throu 10-20mm thick. MICRODIORITE (Kgwu) SW: Blue grey, fine to m grained, massive, high t strength. Js: 5° to 15°; (2/m); Pl/R Borehole completed at	o very high hroughout. e grained, , high /Ro; TI; Fe I/Ro; FL; CA, Ighout, edium o very high to; TI; Cn;	+ <u>+</u> + <u>+</u> />/>/>/>/ }	sw	H-VH	M M C M M W C M M M M M M M M M M M M M	29.75m: Contact; 6 30.10m: Contact; 6 30.38m: Contact; 6 30.91m-31.13m: G 31.35m-31.50m: D 31.65m-31.80m: J; 5t; 33.43m-33.50m: D 34.15m-34.35m: G	35°, PI, CD; 55°, PI, CD; 5RANITE clast 9YKE; Green-grey, 35°, Un, CD 85°, PI/Ro, TI, Fe	Is(50)=3.10 MPa Is(50)=0.00 MPa Is(50)=0.52 MPa Is(50)=0.79 MPa Is(50)=1.00 MPa Is(50)=3.70 MPa UCS=95.50 MPa E=61.3 GPa v= 0.105	A (31.40m) D (31.48m) D (32.66m) D (32.82m) D (33.48m) (33.95m)
REMARI	KS: k	(gwu =	= W	undaru Granodiorite	е						LOGGED BY	/ REVI	EWED BY
											T.Goosey	S.	Foley

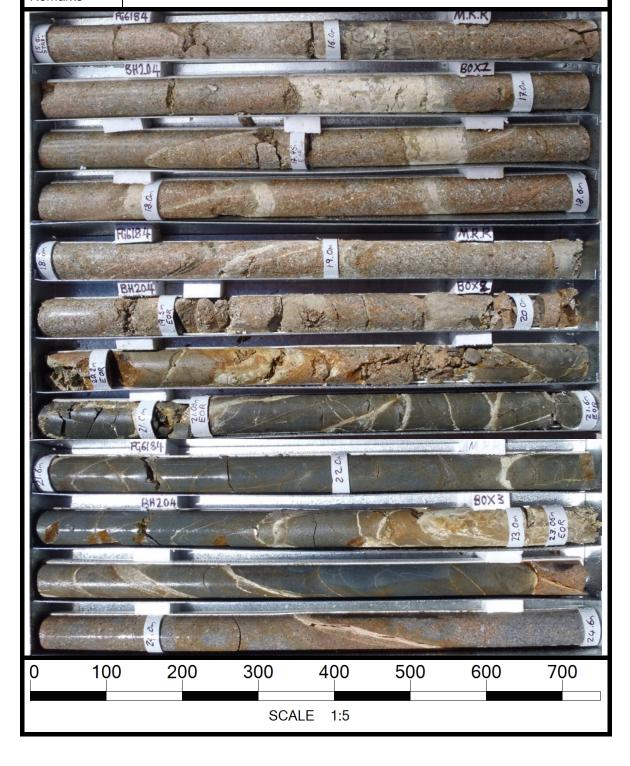
TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Project Name	Mackay – Ring Road (Stage 2)		
Project No.	FG6184	Date	12/09/15
Borehole No.	BH 204	TMR H No.	H12213
Location	Pioneer River Bridge	Start Depth (m)	15.60
Detail	Pier 1, LHS	Finish Depth (m)	35.10
Chainage		Submitted By	M.Ensor
Remarks			



CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Project Name						
	Mackay – Ring I	Road (Stage	2)			
Project No.	FG6184			Date	12/09/1	
Borehole No.	BH 204			TMR H No.	H12213	3
Location	Pioneer River Bri	idge		Start Depth (m)		
Detail	Pier 1, LHS			Finish Depth (n		
Chainage				Submitted By	M.Ensc	r
Remarks						
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CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS Geotechnical Section 35 Butterfield Street, Herston Qld 4006 Phone 07 3066 3336



Project Name	Mackay – Ring Road (Stage 2)		
Project No.	FG6184	Date	12/09/15
Borehole No.	BH 204	TMR H No.	H12213
Location	Pioneer River Bridge	Start Depth (m)	15.60
Detail	Pier 1, LHS	Finish Depth (m)	35.10
Chainage		Submitted By	M.Ensor
Remarks			

