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ENGINEERINGBOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No	BH604
SHEET	_1_ of _5_
REFERENCE No	11573

PRO.	JECT					Road Section 4 Dalrymple Overpass						
LOC	ATION	_D	<u>alry</u>	mple O	<u>verp</u>	<u>ass</u>					COC	ORDINATES 467173.3 E; 7867021.7 N
PRO	JECT No					SURFACE R.L. <u>16.54m</u> PLUNGE						
JOB	No	_			. . .	HEIGHT DATUM _AHD BEARING				DATE COMPLETED _	3/ <u>9/</u> 1 <u>3</u>	DRILLER <u>Cairns Drilling Pty Ltd</u>
DEPTH (m)	R.L. (m)	AUGER WASH BORING		RQD ()% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	гітногову	USC	WEATHERING	INTACT DEFECT STRENGTH SPACING (mm) UNITED A STRENGTH SPACING (mm) UNITED A STRENGTH SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS AMBLES AND TEST RESULTS
0				INEO //	0,	Sandy SILT (Topsoil): Pale brown, dry,	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		_			-
- - - - - - -	16.24					firm	7, 3		=			
- - - - - - - -					A	Colour change to pale grow brown						16,21,32 N>50 SPT
- - - - - - - - - -					В	Colour change to pale grey, brown.		(M	IL)	I I		12,18,25 N=43 SPT
- - - - - - -					С	High clay content				± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±		13,20,30/130 SPT =
-4 - - - - - - - - - - -					D	Becoming brown, orange. Thin layer of very dense, Silty SAND. Fine to medium grained sand.				<u>+</u>		30/50 N>50
- - - - - - - - - -	10.84				E	Clayey SAND: Brown, moist, very dense. Fine to medium grained sand.					. — —	15,30/130 SPT 3
- - - - - - - - - - - - - - - - - - -					F	rine to medium grained Sand.						14,30/150 SPT =
- - - - - - - - - - - - - - - - - - -					G	Fine to coarse grained sand.		(S	C)			13,22,30/120 N>50 SPT
-9 - - - - - - - - 10	EMA DIC				Н							20,26,30/100 N>50 SPT =
К	⊏IVIAKK\$	- د -	_				 	_	_ ·			MS



ENGINEERINGBOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No	BH604
SHEET	_2_ of _5_
REFERENCE No	11573

PRO	IECT	_T	<u>owr</u>	<u>sville R</u>	ing F	Road Section 4 Dalrymple Overpass									
LOCA	ATION	_D	<u>alry</u>	mple O	verp	ass						COC	ORDINATES <u>467173</u>	3.3 E; 7867021.7	7 N
PRO.	IECT No	<u> </u>	<u>G 6</u>	020		SURFACE R.L. <u>16.54m</u> PLUNGE				DATE START	ED _	2/ <u>9/</u> 1 <u>3</u>	GRID DATUM	MGA94 Zone	55
JOB 1	No	_				HEIGHT DATUM <u>AHD</u> BEARING				DATE COMPLET	ED _	<u>3/9/13</u>	DRILLER	Cairns Drilling	Pty Ltd_
DEPTH (m)	R.L. (m)	ÚGER ASH BORING	ORE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	SC	EATHERING	INTACT DEFE STRENGTH SPAC (mn		GRAPHIC LOG	ADDITIONAL AND TEST RESU		SAMPLES
10	6.54	⋖⋟	O	REC %	Ŋ	Clayey SAND: (Cont'd)	 ///	⊃	3		++	O			ο Ε
- - - - - - - - 11	6.04					Sandy SILT: Pale grey-brown, moist, hard. Some Silty SAND layers throughout.		(S	C)					15,15,18	SPT
- - - - - - - 12														N=33	
- -13 - - - - - - - - - - - - - - - - -					J	Low sand content.								12,18,22 N=40	SPT -
- - - - - - - - 15 - -					К	zow sand somenie.		(M	1L)					10,18,32 N=50	SPT -
- - - - - - - - - - - - - - - - - - -					L									6,14,28 N=42	SPT -
- - - - - - - - - 18					M	Becoming Sandy Clayey SILT. Some sand lenses. Zones of Sandy CLAY. Colour change to								7,16,30 N=46	SPT
- 19					N	orange brown.								6,13,30 N=43	SPT =
20			Ш				ШШ				-			LOGGED BY	
К	⊏IVIAKK!	۔ ۔	·					_ _	_					MS	



ENGINEERINGBOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No	BH604
SHEET	_3_ of _5_
REFERENCE No	11573

PROJECT	Townsville F	ting Road Section 4 Dalrymple Overpass		
LOCATION	<u>Dalrymple O</u>	verpass	COORDIN.	ATES <u>467173.3 E; 7867021.7 N</u>
PROJECT No	F <u>G 6020</u>	SURFACE R.L. <u>16.54m</u> PLUNGE _	DATE STARTED _2/9/13	GRID DATUM MGA94 Zone 55
JOB No		HEIGHT DATUM <u>AHD</u> BEARING _	DATE COMPLETED <u>3/9/13</u>	DRILLER <u>Cairns Drilling Pty Ltd</u>
R.L. (m)	RQD ()% WASH BORING CORE BORING CORE REC %	MATERIAL DESCRIPTION	LUTHOLOGY USC	ADDITIONAL DATA AND TEST RESULTS SHAPE SYMPH S
		Sandy SILT: (Cont'd)		8,14,25 N=39
		Colour change to pale grey-brown.		11,17,18 N=35
-23 		R Becoming very stiff. Low content of sand.		10,13,16 N=29
- - - - - - - - - - - - - - - - - - -		Becoming hard.	(ML)	12,20,23 N=43 SPT
		T Becoming orange brown.		10,21,30/130 N>50 SPT
-28		Colour change to orange brown.		11,22,30/130 N>50 SPT
		V Very low content of sand.		11,22,30/110 N>50 SPT =
REMARK	S			LOGGED BY
				MS



ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No ___BH604___

SHEET __4__ of __5__

REFERENCE No ___11573___

PROJECT	_Tov	<u>vnsville</u>	Ring I	Road Section 4 Dalrymple Overpass						
LOCATION	_Dal	r <u>ymple</u>	<u>Overp</u>	<u>ass </u>				COORE	DINATES <u>467173.3 E; 786702</u>	1.7 N
PROJECT No	_ <u>FG</u>	6020_		SURFACE R.L. <u>16.54m</u> PLUNGE			DATE STARTED _	2/9/13	GRID DATUM MGA94 Zo	ne <u>55</u>
JOB No				HEIGHT DATUM <u>AHD</u> BEARING			DATE COMPLETED	3/9/13	DRILLER <u>Cairns Drill</u>	ng Pty Ltd_
R.L. (m)	AÜGER WASH BORING CORE DRILLING		AMPLE	MATERIAL DESCRIPTION	гтногову	USC WEATHERING	INTACT DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES
			W	Sandy SILT: (Cont'd)		(ML)			12,26,30/11 N>£	0 SDT -
-32 -			_						12,18,30/8	0 _{CDT}
-15.76 			X	Clayey SAND (Residual): Orange-brown, moist, very dense. Fine to coarse grained. Some HW rock fragments.		(SC)			<u></u>	0 371 -
-34 -17.66			Y	Silty CLAY (Residual): Pale grey to pale brown, moist, hard. Mainly low to intermediate plasticity. Some fine grained HW rock fragments.					30/12 N>5	
35			Z			(CL- CI)			10,16,2 N=4	
-37 37 			AA						15,19,2 N=4	2 311 -
- 38 			AB	Medium to coarse grained, intrusive, igneous rock of felsic composition. XW: Generally exhibits the engineering properites of an orange, pink, grey, moist to dry, very dense, Clayey SAND.	- · - - + - - + - - + - - + - - + -	xw			30/6 N>5	0 SPT -
<u>-</u>			AC						30/4 N>5	
- 40					- + -					
[_40] REMARK	S				 			 	LOGGED BY	



ENGINEERINGBOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

BOREHOLE No __BH604 __ SHEET __5 _ of __5 _ REFERENCE No __11573 __

				Road Section 4 Dalrymple Overpass	- — -						. — — — — — — — — — — — — — — — — — — —	- — — 37021 7	
		<u>mple Ov</u> 020		ass			DATE S	- – – STARTED			467173.3 E; 78		
JOB No											ILLER <u>Cairns</u>		
R.L. (m)	GEK VSH BORING NRE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	C SATHERING	INTACT STRENGTH	(mm)	GRAPHIC LOG		IONAL DATA AND		SAMPLES
40 -23.46	2 ₹ 1 1	REC %	SA	CDANITE	5	ME	#¥±≥¬≥¤	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	GR		11200210		SA
- - - - -				GRANITE XW: (Cont'd).	-	xw							- - - - :
-41 -24.49		(14)	AD	MW: Pink, orange, grey, medium to	-			<u> </u>	-+-			30/30 N>50	SPT
-25.19		(1.7)		coarse grained, massive, medium strength. Defects: -Joints at 60° (2/m) -Joints at 75°-85° (6/m) Defects are generally close to medium spaced, planar, rough, open, weathered an iron stained.	- - - - - - - - - - - - - - - - - - -	MW							- - - - -
				HW: Pink, orange, grey, medium to coarse grained, massive, low strength.	 - - -								-
5 -		100		XW zones with extremely low to very low strength throughout.	+	HW							-
-43		35		Defects:	_+ -+								-
		(0)		-Joints at 5°-10° (1/m) -Joint at subvertical (<1/m) Defects are mainly extremely close to closely spaced and generally planar, rough,	+ -+ -+ -+				— I	Rock broken inte	o coarse gravel.		- - -
-44 -45 -46		(34)		open, weathered and clay infilled. MW: Pink, orange, grey, medium to coarse grained, massive, low to medium strength. Defects: -Joints at 50°-60° (1/m) -Joints at 70° (2/m) -Joints at 80° (1/m) Defects are mainly medium spaced, and generally rough, open, weathered and clay infilled.	 	SW							
-29.66		100		SW: Orange, grey, medium to coarse grained, massive, medium to high strength. Defects: -Joints at 20°-30°(1/m) -Joints at 80°-90° (4/m)	+								- - - - - -
47 -30.46				Defects are generally planar, rough, open and clay coated.									
				Borehole terminated at 47m									- - -
48													-
- - -													-
} -													-
-49													-
													- - -
							: : : : : : <u>-</u>						-
50													=
REMARKS	B										LOGGEI) BY	

CORE PHOTO LOG

DEPARTMENT OF TRANSPORT & MAIN ROADS Geotechnical Branch 35 Butterfield Street, HERSTON Qld 4006 Phone 07 3066 3336



Project No FG 6020 Date 3/9/13 Borehole No BH 604 TMR H No 11573 Location Dalrymple Overpass Start Depth (m) 41.03 Detail Finish Depth (m) 47.00 Chainage Submitted By J. Lope Remarks				
Borehole No BH 604 TMR H No 11573 Location Dalrymple Overpass Start Depth (m) 41.03 Detail Finish Depth (m) 47.00 Chainage Submitted By J. Lope Remarks Core Loss BH 604 TMR H No 11573 Location Dalrymple Overpass Start Depth (m) 47.00 Chainage Submitted By J. Lope BH 604 TMR H No 11573 Location Dalrymple Overpass Start Depth (m) 47.00 Location		Townsville Ring Road Section 4		
Location Dalrymple Overpass Start Depth (m) 41.03 Detail Finish Depth (m) 47.00 Chainage Remarks Submitted By J. Lope Remarks Submitted By J. Lope Remarks Remarks				3/9/13
Detail Finish Depth (m) 47.00 Chainage Submitted By J. Lope Remarks CORE LOSS 42.75-42.85 BH604 BH604	Borehole No	BH 604	TMR H No	11573
Chainage Remarks Submitted By J. Lope Remarks Submitted By J. Lope Remarks Submitted By J. Lope Remarks	Location	Dalrymple Overpass		
Remarks 8 9 12 42.75-42.85 BH604 8 9 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	Detail		Finish Depth (m)	47.00
BH604 BAN 1 BA			Submitted By	J. Lopez
F66020 BH604 BOX 1	Remarks			
	56.5°) Fig. 60.20	CORE LOSS (42.775-42.85 MBH 604	100 Pt 10	BOA2 AND
0 100 200 300 400 500 600 700	0 100	200 300 40	00 500 600	700

SCALE 1:5