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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH109
SHEET 1 of 5
REFERENCE No 11468

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467781.4 E; 7866516.7 N
PROJECT No FG6020 SURFACE R.L. 13.90m PLUNGE DATE STARTED 12/3/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 14/3/13 DRILLER Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING						DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
									EH	VH	H	M	L	J				
0	13.90					Silty SAND (TOPSOIL) Brown, moist, loose. Fine grained. Some tree roots.												
1					A	Silty SAND Grey, yellow, brown, moist, loose. Fine grained, trace clay.											1,3,4 N=7	SPT
2					B	Becoming moist to wet.											2,2,2 N=4	SPT
3					C	Becoming very dense, medium to coarse grained, minor clay content in parts, some medium sized gravel. (weakly cemented sand?).											19,30/135 N>50	SPT
4					D		(SM)										24,30/110 N>50	SPT
5					E												28,30/90 N>50	SPT
6					F												30/135 N>50	SPT
7	6.90					Silty CLAY Yellow, brown, moist, hard. Low to medium plasticity, trace fine sand.											LL=35.6% PI=13.2% LS=9.6% 10,16,25 N=41	SPT
8					G		(CL-CI)											
9					H	Becoming pale grey, pale brown.											7,13,23 N=36	SPT
10	3.90																	

REMARKS Borehole has been shifted 1.35m NE from its original position.

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BOREHOLE No	BH109
SHEET	2 of 5
REFERENCE No	11468

PROJECT Townsville Ring Road Section 4 -----
 LOCATION Kalynda Parade Overpass ----- COORDINATES 467781.4 E; 7866516.7 N -----
 PROJECT No FG6020 SURFACE R.L. 13.90m PLUNGE ----- DATE STARTED 12/3/13 GRID DATUM GDA 94 -----
 JOB No 268/10M/5 HEIGHT DATUM AHD BEARING ----- DATE COMPLETED 14/3/13 DRILLER Cairns Drilling -----

DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH					DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
									EH	VH	H	M	L				
10	3.90					Silty CLAY (Cont'd)											
11					I											LL=31.4% PI=14% LS=8.2% 13,19,21 N=40	SPT
12					J	Some fine grained sand and trace fine gravel.	(CL-CI)									8,13,19 N=32	SPT
13					K	Becoming pale grey, medium plasticity Silty Clay with fine sand.										MC = 19.7% LL=23.6% PI=8% LS=5.4% 9,15,22 N=37	SPT
14																	
15	-0.85				L	Clayey SAND Pale grey, moist, medium dense. Medium to coarse grained, low content of clay.										16,13,17 N=30	SPT
16					M												
17							(SC)									11,13,14 N=27; No recovery	SPT
18					N	Becoming pale grey, brown, fine grained sand. Low content of sand.										11,13,17 N=30	SPT
19					O	Becoming mottled yellow, brown, grey. Fine grained sand. High content of clay.										7,12,16 N=28	SPT
20																	

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BOREHOLE No BH109
SHEET 3 of 5
REFERENCE No 11468

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467781.4 E; 7866516.7 N
PROJECT No FG6020 SURFACE R.L. 13.90m PLUNGE DATE STARTED 12/3/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 14/3/13 DRILLER Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING						DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
									EH	VH	H	M	L	VL				
20	-6.10					Clayey SAND (Cont'd) Colour change to pale grey, pale yellow. Low content of clay.												
21					P												11,12,13 N=25	SPT
22							(SC)											
23					Q	Becoming medium to coarse grained, dense, Sand.											11,16,20 N=36	SPT
24					R	Changed to medium dense, coarse Sand.											13,14,13 N=27	SPT
25	-10.80					Silty CLAY Mottled yellow, grey, brown, moist, hard. Medium plasticity, trace coarse sand.												
26					S												MC = 36.4% LL=42.4% PI=18.8% LS=11.2% 13,19,27 N=46	SPT
27					T	Colour changed to pale grey, pale yellow. Medium to high plasticity.											17,30/145 N>50	SPT
28							(CI)											
29					U	Becoming pale grey.											MC = 21.3% LL=39.6% PI=22% LS=11.2% 14,22,30/120 N>50	SPT
30																		

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BOREHOLE No BH109
SHEET 4 of 5
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PROJECT Townsville Ring Road Section 4
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DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH						DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
									EH	VH	H	M	L	J				
30	-16.10				V	Silty CLAY (Cont'd) Trace coarse sand, medium plasticity.											14,25,30/130 N>50	SPT
31																		
32					W	Pale grey with orange patches.	(C)										MC = 29.7% LL=39.6% PI=17.8% LS=9.8% 14,20,25 N=45	SPT
33					X												13,19,23 N=42	SPT
34																		
35	-20.60				Y	Sandy CLAY Pale grey with brown patches, moist, hard. Low plasticity clay, fine grained sand.	(CL)										MC = 49.4% LL=31.2% PI=13.6% LS=6.6% 15,24,30 N>50	SPT
36					Z	Becoming medium to coarse grained Sand.											27,30/40 N>50	SPT
37					AA	GRANITE Medium to coarse grained, intrusive igneous rock of felsic composition. XW: Generally exhibits engineering properties of a orange, grey, brown, moist to dry, very dense Clayey Sand. Medium to coarse grained sand. Some HW rock particles.		XW									30/100 N>50	SPT
38	-24.10			(19)		MW: Orange, pale grey, pale brown, medium to coarse grained, massive, low to medium strength. Defects: -Joints at 30° (1/m) -Joints at 40° (2/m) -Joints at 50°-60° (5/m) -Joints at 70°-80° (7/m) -Irregular joints (7/m) Defects are generally medium spaced, planar or irregular, rough, open, weathered and clay coated.											Is(50) = 0.26MPa	o
39								MW									HW Zone: Pale grey, pale orange, very low to low strength.	
40				100 (0) 100 (0) (0)													Is(50) = 0.27MPa	o

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BOREHOLE No BH109
SHEET 5 of 5
REFERENCE No 11468

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467781.4 E; 7866516.7 N
PROJECT No FG6020 SURFACE R.L. 13.90m PLUNGE DATE STARTED 12/3/13 GRID DATUM GDA 94
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DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH						DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
									EH	VH	H	M	J	VL				
40	-26.10					GRANITE MW (Cont'd): Some HW low strength zones along joints.												
			100	(0)														
			100	(13)														
41																		
	-27.90		100	(11)													Is(50) = 0.49MPa	o
42	-28.40					SW: Pale grey / orange, medium to coarse grained, massive, high strength. Defects: -Joints at 20° (1/m) -Joints at 35° (1/m) -Joints at 45° (3/m)												
			100	(33)		Defects are mainly medium spaced and generally planar, rough, open and iron stained.												
43						MW: Brown / pale grey / pale orange, medium to coarse grained, massive, generally medium strength. Defects:												
	-29.90		100			-Joints at 15° (1/m) -Joints at 40° (4/m) -Joints at 60°-70° (1/m) -Irregular joints (3/m) Defects are mainly medium spaced, and generally planar to irregular, rough, open, iron stained and weathered.												
44						Borehole terminated at 43.8m												
45																		
46																		
47																		
48																		
49																		
50																		

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CORE PHOTO LOG

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



Department of
 Transport and Main Roads

Project Name	Townsville Ring Road Section 4		
Project No	FG 6020	Date	14/03/13
Borehole No	BH 109	TMR H No	11468
Location	Kalynda Parade Overpass	Start Depth (m)	38.00
Detail	Abutment B (Right)	Finish Depth (m)	43.80
Chainage		Submitted By	BW
Remarks			

