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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH106
SHEET 1 of 5
REFERENCE No 11465

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467742.0 E; 7866499.6 N
PROJECT No FG6020 SURFACE R.L. 14.16m PLUNGE DATE STARTED 4/4/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 9/4/13 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				
0	14.16																	
	13.96					Silty SAND (TOPSOIL) Dark brown, slightly moist, loose. Fine grained sand, some tree roots.												
1					A	Clayey SAND Brown, slightly moist, dense. Fine to medium grained sand.											4,15,24 N=39	SPT
2					B	Becoming very dense.											15,27,31 N>50	SPT
3					C	Medium to coarse grained sand.	(SC)										26,30/100 N>50	SPT
4					D	Brown to orange. Trace gravel.											19,29,30/120 N>50	SPT
5					E												19,28,30/115 N>50	SPT
6	8.66				F	Silty SAND Brown, moist, very dense. Fine grained sand.											30/130 N>50	SPT
7																		
8					G	Becoming dense. Fine to medium grained sand.	(SM)										11,18,22 N=40	SPT
9					H	Becoming pale brown, very dense with medium to coarse grained sand.											10,23,30/120 N>50	SPT
10																		

REMARKS _____

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ENGINEERING BOREHOLE LOG

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BOREHOLE No BH106
SHEET 2 of 5
REFERENCE No 11465

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467742.0 E; 7866499.6 N
PROJECT No FG6020 SURFACE R.L. 14.16m PLUNGE DATE STARTED 4/4/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 9/4/13 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	J	VL				
10	4.16					Silty SAND (Cont'd)												
11					J	Becoming pale brown to brown and dense.											8,19,24 N=43	SPT
12					K	Becoming very dense. Some iron staining.											14,28,30/100 N>50	SPT
13																		
14					L												12,25,30/110 N>50	SPT
15					M												9,18,30/150 N>50	SPT
16																		
17					N	Becoming dense with medium to coarse grained sand.											10,19,29 N=48	SPT
18					P	Fine to medium grained sand.											8,15,26 N=41	SPT
19																		
20					Q	Some medium to coarse grained sand layers sizing up to 100m.											7,16,28 N=44	SPT

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BOREHOLE No BH106
SHEET 3 of 5
REFERENCE No 11465

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467742.0 E; 7866499.6 N
PROJECT No FG6020 SURFACE R.L. 14.16m PLUNGE DATE STARTED 4/4/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 9/4/13 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	-5.84					Silty SAND (Cont'd)												
21					R	Becoming very dense. Fine to medium grained sand.											13,21,30/135 N>50	SPT
22																		
23					S	Becoming medium dense to dense, medium to coarse grained. Occasional minor interbeds of sandy clay.	(SM)										11,14,14 N=28	SPT
24																		
25					T												10,15,16 N=31	SPT
26	-11.04																	
27					U	Sandy SILT Pink brown, grey, moist, hard. Low to medium plasticity, fine to medium grained sand, trace fine gravel sizing up to 10 mm and sub-angular.											13,18,25 N=43	SPT
28					V		(ML)										16,27,30/120 N>50	SPT
29					W												19,30/115 N>50	SPT
30																		

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BOREHOLE No BH106
SHEET 4 of 5
REFERENCE No 11465

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	VL				
30	-15.84				X	Sandy SILT (Cont'd)										16,30/120 N>50	SPT	
32					Y		(ML)									13,22,30/150 N>50	SPT	
33					Z											9,15,20 N=35	SPT	
35	-20.34				AA	Silty SAND (Residual) Pale brown, grey, patches of orange-brown mottling, moist, dense. Fine grained sand.									Rock Roller used from 34.5m to 40m	9,18,25 N=43	SPT	
36					AB		(SM)									15,27,30/115 N>50	SPT	
37	-22.84				AC	Granite Medium to coarse grained, intrusive, igneous rock of felsic composition. XW: Generally exhibits the engineering properties of a pale grey to orange/brown, moist, very dense, Gravelly Silty SAND. Medium to coarse grained sand.										30/110 N>50	SPT	
39					AD		XW									30/40 N>50	SPT	
40	-25.84																	

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BOREHOLE No BH106
SHEET 5 of 5
REFERENCE No 11465

PROJECT Townsville Ring Road Section 4
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									EH	VH	H	M	J	VL				
40	-25.84		(0)			MW: Brown to orange/brown, medium to coarse grained, massive, generally low to medium strength, some high strength zones. Defects: -Joint at 20° (6-7/m) -Joint at 40° (1-2/m) -Joint at 60°-70° (1-2/m) -HW clayey zones sizing up to 150mm.										J, Ir, R, O, Cly. Is(50) = 2.33MPa J, 60°, Pl, T, SR, Cn. Is(50) = 0.40MPa	o	
41																HW Cly Zone HW Cly Zone J, 20°, Pl, T, Clnf	Is(50) = 0.21MPa Is(50) = 0.89MPa Is(50) = 0.14MPa Is(50) = 1.08MPa	o o o o
42			100 (13)															
43	-28.84		100													HW Cly Zone		
43						Borehole terminated at 43m												
44																		
45																		
46																		
47																		
48																		
49																		
50																		

REMARKS _____

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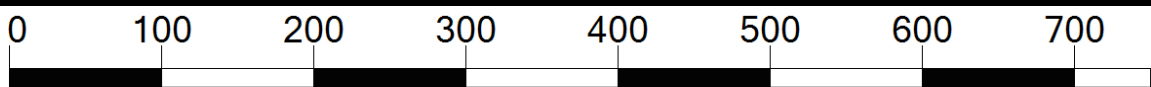
CORE PHOTO LOG

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	09/04/13
Borehole No	BH 106	TMR H No	11465
Location	Kalynda Parade Overpass	Start Depth (m)	40.00
Detail	Pier 2 (Left)	Finish Depth (m)	43.00
Chainage		Submitted By	MS
Remarks			



SCALE 1:5