ENGINEERING BOREHOLE LOG

Queensland Government

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

BOREHOLE No **BH108**
SHEET 1 of 5
REFERENCE No **11467**

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467758.6 E; 7866518.3 N
PROJECT No FG6020 SURFACE R.L. 14.17m PLUNGE DATE STARTED 9/4/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 12/4/13 DRILLER Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
0	14.17				**Sandy SILT(TOPSOIL)**									
	13.87				Brown, moist, firm. Low plasticity, some tree roots.									
				A	**Sandy SILT** Brown, moist, very stiff. Low plasticity. Zones of silty sand.		(ML)					2,7,13 N=20		SPT
1	12.67													
				B	**Silty SAND** Brown, moist, medium dense to dense. Fine to medium grained sand.							3,4,9 N=13		SPT
2				C	Becoming medium to coarse grained.							12,16,23 N=39		SPT
3				D	Becoming very dense.							20,30/110 N>50		SPT
4				E								29,30/70 N>50		SPT
5							(SM)							
6				F								30/120 N>50		SPT
7					6.7-7.4m: Silty Gravelly Sand bed. Very dense with sub-rounded to sub-angular gravel.									
8				G								15,19,26 N=45		SPT
9	5.17													
				H	**Sandy SILT** Pale grey to brown, moist, hard. Low plasticity silt, fine grained sand.		(ML)					11,17,25 N=42		SPT
10														

REMARKS

LOGGED BY JA

QLD_DMR_LIB_01A.GLB Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY TOWNSVILLE RING ROAD 4 KALYNDA PARADE.GPJ <<DrawingFile>> Datgel CPT Tool gINt Add-In 17/10/2013 11:45

ENGINEERING BOREHOLE LOG

Queensland Government

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

BOREHOLE No BH108
SHEET 2 of 5
REFERENCE No 11467

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467758.6 E; 7866518.3 N
PROJECT No FG6020 SURFACE R.L. 14.17m PLUNGE DATE STARTED 9/4/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 12/4/13 DRILLER Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
10	4.17				**Sandy SILT (Cont'd)**									
				J								16,30/30 N>50		SPT
11														
12				K								12,22,30 N>50		SPT
13														
				L	Sand content increasing and becoming silty sand in parts. Colour change to brown - grey to slightly orange.							12,22,30/130 N>50		SPT
14							(ML)							
15				M								9,14,20 N=34		SPT
16														
				N								10,17,26 N=43		SPT
17														
18				P								6,12,20 N=32		SPT
19					Silt content decreasing.									
	-5.33													
				Q	**Silty SAND** (See over)		(SM)					10,15,19 N=34		SPT
20														

REMARKS

LOGGED BY
JA

ENGINEERING BOREHOLE LOG

Queensland Government

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

BOREHOLE No **BH108**
SHEET 3 of 5
REFERENCE No **11467**

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467758.6 E; 7866518.3 N
PROJECT No FG6020 SURFACE R.L. 14.17m PLUNGE DATE STARTED 9/4/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 12/4/13 DRILLER Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES / TESTS
20	-5.83				**Silty SAND (Cont'd)** Pale brown, moist, dense. Medium to coarse grained sand.								
21				R	Becoming fine grained.							10,15,20 N=35	SPT
22							(SM)						
23				S	Becoming medium to coarse grained with some fine gravel.							11,17,17 N=34	SPT
	-9.73												
24				T	**Sandy SILT** Pale brown, moist, hard. Low plasticiy silt, fine grained.							12,17,22 N=39	SPT
25													
26				U								14,22,30 N>50	SPT
27				V	27.15-27.45m: Silty Sand layer. Very dense.		(ML)					13,26,30/100 N>50	SPT
28													
29				W	Becoming very stiff.							9,12,16 N=28	SPT
30													

REMARKS

LOGGED BY JA

Queensland Government

ENGINEERING BOREHOLE LOG

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

BOREHOLE No **BH108**
SHEET 4 of 5
REFERENCE No **11467**

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467758.6 E; 7866518.3 N
PROJECT No FG6020 SURFACE R.L. 14.17m PLUNGE DATE STARTED 9/4/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 12/4/13 DRILLER Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
30	-15.83			X	**Sandy SILT (Cont'd)** Becoming hard.							15,23,30/130 N>50	SPT
31				Y								13,19,29 N=48	SPT
32													
33				Z	Sand content increasing.		(ML)					8,14,22 N=36	SPT
34													
				AA	Grading into Silty Sand.							Rock Roller used from 34.5m to 40.55m 15,27,30/120 N>50	SPT
35													
36	-21.83			AB	**Silty SAND** Pale brown to grey, moist, very dense. Medium to coarse grained.		(SM)					20,28,30/140 N>50	SPT
37													
	-23.33			AC	**GRANITE** **Medium to coarse grained, intrusive, igneous rock of felsic composition.** **XW:** Generally exhibits engineering properties of a brown, moist, very dense, fine to medium grained Silty Sand. Relict rock defects.		XW					18,30/70 N>50	SPT
38													
39	-24.83			AD	**DOLERITE** **Fine grained intrusive igneous rock of mafic composition** **XW:** Generally exhibits the engineering properties of dark grey, moist, very dense, fine to medium grained Silty Sand.							30/60 N>50	SPT
40													

REMARKS

LOGGED BY
JA

ENGINEERING BOREHOLE LOG

Queensland Government

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

BOREHOLE No **BH108**
SHEET 5 of 5
REFERENCE No **11467**

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467758.6 E; 7866518.3 N
PROJECT No FG6020 SURFACE R.L. 14.17m PLUNGE DATE STARTED 9/4/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 12/4/13 DRILLER Cairns Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
40	-25.83				**XW: (Cont'd)**		XW							
	-26.38			AE							HW Cly Zone	30/50 N>50		SPT
41			(0)		**MW:** Dark brown to grey, fine to medium grained, massive, medium to high strength. Defects: -Joint at 10°-20° (7-8/m) -Joint at 40°-60° (3-4/m) -Joint at 70°-80° (2/m)						HW Cly Zone			
			100									Is(50) = 1.37MPa		o
42			(0)		Defects are generally closely spaced, planar, open or closed, rough, iron stained and clay infilled.		MW					Is(50) = 0.77MPa		o
												Is(50) = 0.17MPa		o
43												UCS = 2.60 MPa		
												Is(50) = 1.68MPa		o
	-29.38		100								Crushed Zone	Is(50) = 0.96MPa		o
					Borehole terminated at 43.55m									
44														
45														
46														
47														
48														
49														
50														

REMARKS

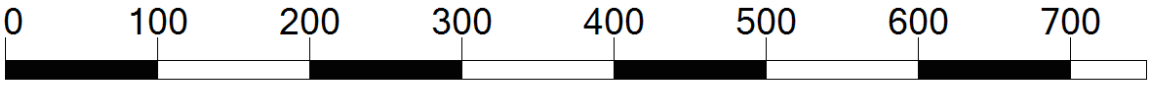
LOGGED BY JA

CORE PHOTO LOG

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

Queensland Government
Department of Transport and Main Roads

Project Name	**Townsville Ring Road Section 4**		
Project No	FG 6020	Date	12/04/13
Borehole No	BH 108	TMR H No	11467
Location	Kalynda Parade Overpass	Start Depth (m)	40.55
Detail	Pier 3 (Left)	Finish Depth (m)	43.55
Chainage		Submitted By	MS
Remarks			



SCALE 1:5