Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

BOREHOLE No BH111
SHEET 1 of 4
REFERENCE No H9420

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 20093.7 - OFFSET 3.0 L
COORDINATES 8975.0 E; 170571.7 N
PROJECT No FM2055
SURFACE R.L. 4.77
DATE STARTED 23/7/04
DATUM SETP
JOB No
DATUM AHD
DATE COMPLETED 27/7/04
DRILLER R & D Drilling Pty Ltd

DEPTH (m)	R.L. (m)	MATERIAL DESCRIPTION	USC	WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	4.77	**SILTY CLAY - FILL [EARTH BUND]** Brown to mottled red, moist, mainly firm to occasionally stiff. Medium plasticity, slightly organic in the upper area.	CI		Bund wall 3,3,4 N=7	SPT
2.07		**SILTY CLAY - FILL (??)** Grey, moist, firm. High organic content.	OL		2,2,3 N=5 Possible hydraulically placed deposit	SPT
0.87		**SAND / SILTY SAND - FILL** Grey brown, wet, very loose.	SP-SM		HW,-,- N<1 Possible hydraulically placed deposit	SPT
-0.23		**SAND / SILTY SAND** Pale brown, wet, medium dense.	SP-SM		7,8,11 N=19	SPT
-2.03		**CLAYEY GRAVEL - ALLUVIUM** Red brown to mottled red brown, moist, medium dense. Some lateritic and concreted zones, angular to subangular gravel sizing up to 30mm.	GC		4,7,8 N=15 7,7,9 N=16	SPT SPT
-5.23						

AUGER / CASING / WASH BORING / CORE DRILLING
RQD ( )% CORE REC %
SAMPLE
INTACT STRENGTH: EH VH H M L VL EL
DEFECT SPACING (mm): 20 60 200 600 2000
GRAPHIC LOG

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 28/4/05

REMARKS SPT N values in clayey gravel can overestimate density due to influence of coarser size gravel particles. Defect angles have been measured with respect to a horizontal plane.

LOGGED BY
B.Woodgate & A.Dissanayake

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Department of Main Roads

ENGINEERING BOREHOLE

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

BOREHOLE No BH111
SHEET 2 of 4
REFERENCE No H9420

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 20093.7 - OFFSET 3.0 L
COORDINATES 8975.0 E; 170571.7 N
PROJECT No FM2055
SURFACE R.L. 4.77
DATE STARTED 23/7/04
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DRILLER R & D Drilling Pty Ltd

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	-5.23				**CLAYEY GRAVEL - ALLUVIUM** (As above)		GC					7,10,10 N=20	SPT
11	-6.23				**CLAYEY GRAVEL - ALLUVIUM** Pale orange, moist, medium dense. Subangular to subrounded gravel sizing up to 30mm.							9,9,9 N=18	SPT
12													
13												10,9,11 N=20	SPT
14													
15							GC					7,8,9 N=17	SPT
16												6,9,14 N=23	SPT
17													
18												9,11,18 N=29	SPT
19													
20	-15.23											9,12,16 N=28	SPT

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ENGINEERING BOREHOLE

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BOREHOLE No BH111
SHEET 3 of 4
REFERENCE No H9420

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 20093.7 - OFFSET 3.0 L
COORDINATES 8975.0 E; 170571.7 N
PROJECT No FM2055
SURFACE R.L. 4.77
DATE STARTED 23/7/04
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DRILLER R & D Drilling Pty Ltd

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	-15.23				**CLAYEY GRAVEL - ALLUVIUM** (As above) Becoming dense with depth.		GC					11,17,22 N=39		SPT
21	-16.73				**BASALT** FINE TO MEDIUM GRAINED LAYERED, INTERMEDIATE TO BASIC, EXTRUSIVE IGNEOUS ROCK. HW : Pale green to green brown, moist, very dense silty sand comprising very low to low strength corestones and rock kernels throughout.		HW					11,13,30/120 N>50		SPT
22														
23														
24												30/100,-,- N>50		SPT
25	-20.23		(0)		**MW :** Orange green to orange brown, subhorizontally layered, very low to low strength. Defects : - Subhorizontal stress relief joints <30deg (10-30/m). - Joints <20deg (>10/m)		MW					Is(50)=0.37 MPa		o
26												Is(50)=0.08 MPa		x
27	-22.28		100 (60)									Is(50)=0.10 MPa Is(50)=0.59 MPa		o o
28					**SW :** Dark grey to blue grey, subhorizontally layered, mainly medium to high strength. Defects : - Subhorizontal stress relief joints <30deg (3-7m). - Joints @ 40deg (1/2m).		SW					Highly fractured zone		
29			100 (80)									Is(50)=2.46 MPa Is(50)=0.81 MPa Is(50)=1.50 MPa		o x o
30	-25.23													

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 28/4/05

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BOREHOLE No BH111
SHEET 4 of 4
REFERENCE No H9420

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 20093.7 - OFFSET 3.0 L COORDINATES 8975.0 E; 170571.7 N
PROJECT No FM2055 SURFACE R.L. 4.77 DATE STARTED 23/7/04 DATUM SETP
JOB No DATUM AHD DATE COMPLETED 27/7/04 DRILLER R & D Drilling Pty Ltd

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	-25.23				**SW :** (As above) Rock mass tends to break along subhorizontal layering joints with mild handling. Defects are generally planar to irregular open becoming tight with depth, rough, slightly altered and ironstained and occasionally infilled with concordant calcite and zeotile veinlets (<20mm thick).		SW					Is(50)=0.17 MPa Is(50)=1.07 MPa Is(50)=2.65 MPa		x o x
31	-26.78		100		Borehole terminated at 31.55m									
32														
33														
34														
35														
36														
37														
38														
39														
40														

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 28/4/05

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B.Woodgate & A.Dissanayake

Project: **Gateway Upgrade Project Geotechnical Investigation**

Borehole No: **BH 111**

Start Depth: 25.00m
Finish Depth: 31.55m
Project No: FM2055
H No: 9420