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**Queensland  
Government**

Department of  
Main Roads

## ENGINEERING BOREHOLE

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

BOREHOLE No BH112

SHEET 1 of 4

REFERENCE No H9421

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 20523 - OFFSET 18.8 R COORDINATES 8844.7 E; 170976.8 N

PROJECT No FM2055 SURFACE R.L. 4.06 DATE STARTED 27/7/04 DATUM SETP

JOB No                      DATUM AHD DATE COMPLETED 28/7/04 DRILLER R & D Drilling Pty Ltd

DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	ROD ( ) % CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	4.06				<b>SANDY SILTY CLAY - FILL</b> Dark grey, wet, very soft.  High content of partly decomposed shell fragments; minor organic fraction.						Possible hydraulically placed deposit.	
1						OL-CL					1.1-1.2 N<1	SPT
2												
3	1.56				<b>ESTUARINE WEATHERED OC CRUST</b> Dark grey to mottled brown, moist, soft to mainly firm.  High organic content.	OL					1.2, 2 N=4	SPT
4	0.56				<b>ESTUARINE SILTY CLAY</b> Dark grey, moist, very soft to soft, sensitive.							
5											HW, 1 N<1	SPT
6												U50
7						OH					Peak Su=35.2kPa, Res Su=8.0kPa	FSV
8												
9												U50
10	-5.94											

REMARKS SPT N values in gravelly clay can overestimate consistency 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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## ENGINEERING BOREHOLE

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BOREHOLE No BH112

SHEET 2 of 4

REFERENCE No H9421

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 20523 - OFFSET 18.8 R COORDINATES 8844.7 E; 170976.8 N

PROJECT No FM2055 SURFACE R.L. 4.06 DATE STARTED 27/7/04 DATUM SETP

JOB No                      DATUM AHD DATE COMPLETED 28/7/04 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	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
10	-5.94					<b>SANDY SILTY CLAY - ALLUVIUM</b> Pale grey to orange brown, moist, very stiff.  Medium plasticity, fine grained sand.						4,7,11 N=18	SPT
11													
12												6,9,13 N=22	SPT
13													
14												6,8,12 N=20	SPT
15													
16												5,7,11 N=18	SPT
17	-12.94					<b>SILTY CLAY - ALLUVIUM</b> Pale green grey to mottled orange, moist, very stiff.							
18	-14.14											6,10,13 N=23	SPT
19						<b>GRAVELLY CLAY - ALLUVIUM</b> Pale grey to orange, moist, very stiff to hard.  Subangular to subrounded quartzitic and lithic fragments sizing up to 30mm.							
20	-15.94											8,17,13 N=30	SPT

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# ENGINEERING BOREHOLE

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BOREHOLE No BH112

SHEET 3 of 4

REFERENCE No H9421

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 20523 - OFFSET 18.8 R COORDINATES 8844.7 E; 170976.8 N

PROJECT No FM2055 SURFACE R.L. 4.06 DATE STARTED 27/7/04 DATUM SETP

JOB No                      DATUM AHD DATE COMPLETED 28/7/04 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	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
20	-15.94												
21						GRAVELLY CLAY - ALLUVIUM (As above)						10,13,12 N=25	SPT
22						Gravel size increases with depth.						25,23,30/100 N>50	SPT
23	-18.94					ASH TUFF FINE GRAINED, MASSIVE WELDED, INTERMEDIATE PYROCLASTIC IGNEOUS ROCK.						30/110, N=50	SPT
24						HW : Generally exhibits engineering properties of dark brown, moist, hard sandy clay comprising very low strength corestones and rock kernels.		HW					
25	-20.94		(38)			MW : Pale grey to green grey, massive, mainly medium to high strength. Defects - Generally rare with drilling induced fractures.		MW				Is(50)=0.79 MPa Is(50)=0.22 MPa Is(50)=1.54 MPa Is(50)=1.39 MPa	x o x o
26	-21.69					BASALT FINE TO MEDIUM GRAINED, GENERALLY MASSIVE, INTERMEDIATE TO BASIC EXTRUSIVE IGNEOUS ROCK.		MW				Highly fractured zone	
27	-22.94		100 (80)			MW : Dark green brown to blue, generally massive, mainly low to medium strength.						Is(50)=0.13 MPa Is(50)=0.38 MPa	o x
28						SW : Dark grey to blue grey, mainly massive to slightly laminated, mainly medium to high strength.						Highly fractured and healed zone	
29			100 (90)			Frequent subhorizontal calcite and zeolitic veinlets (<10mm).		SW				Is(50)=0.20 MPa	o
30	-25.94		100									Is(50)=5.13 MPa Is(50)=2.58 MPa	o x

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## ENGINEERING BOREHOLE

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BOREHOLE No BH112

SHEET 4 of 4

REFERENCE No H9421

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 20523 - OFFSET 18.8 R

COORDINATES 8844.7 E; 170976.8 N

PROJECT No FM2055

SURFACE R.L. 4.06

DATE STARTED 27/7/04

DATUM SETP

JOB No \_\_\_\_\_

DATUM AHD

DATE COMPLETED 28/7/04

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	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
30	-25.94														
31						SW : (As above)  Defects : - Subhorizontal joints <30deg (2-6/m). - Joints @ 45deg (1/m). - Fractured zone (<850mm).							Is(50)=0.59 MPa Is(50)=0.35 MPa	o	o
32	-28.04			100		Borehole terminated at 32.1m							Is(50)=2.15 MPa Is(50)=2.25 MPa	x	o
33															
34															
35															
36															
37															
38															
39															
40															

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Project: **Gateway Upgrade Project Geotechnical Investigation**  
Borehole No: **BH 112**  
Start Depth: 25.00m  
Finish Depth: 32.10m  
Project No: FM2055  
H No: 9421

