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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 BH108

SHEET 1 of 3

REFERENCE No H9417

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 19146.8 - OFFSET 8.8 R COORDINATES 9378.6 E; 169715.0 N

PROJECT No FM2055 SURFACE R.L. 2.53 DATE STARTED 28/7/04 DATUM SETP

JOB No DATUM AHD DATE COMPLETED 29/7/04 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
0	2.53					GRAVELLY CLAY - FILL Grey brown, moist, firm to stiff.	CL					Drilling record only	
1	1.83					ORGANIC CLAY - FILL Dark grey to black, moist, soft to mainly firm. Highly organic content in the upper area.	OL						1,2,2 N=4 SPT
2	0.53					CLAYEY SAND - FILL Pale grey, moist, mainly loose.	SC					Sandy clay pHf=6.04, pHfox=2.93	U48
3	0.03					SILTY CLAY - FILL Pale grey to green grey, moist, mainly soft to firm. Some organic; some stiff layers towards bottom.	OL					LL=58.4%, PI=31.6%, LS=16.8% MC=30.4% WD=1.86t/m3, DD=1.42t/m3 Blade bit is used	1,1,2 N=3 SPT
4	-1.67					SILTY CLAY - ALLUVIUM Pale grey green to mottled red, moist, stiff to very stiff. Medium plasticity, minor sand fraction.	CI					MC=40.8%, WD=1.82t/m3, DD=1.30t/m3 pHf=4.94, pHfox=3.16	U48
6							CI						5,6,11 N=17 SPT
7												Slickensided joint at 7.0m	3,5,7 N=12 SPT
9	-5.77					SANDY CLAY - ALLUVIUM Pale grey to orange, moist, firm. Fine to medium grained sand.	CI						2,2,4 N=6 SPT
10	-7.47												

REMARKS SPT N values in gravelly sandy 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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BOREHOLE No BH108

SHEET 2 of 3

REFERENCE No H9417

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 19146.8 - OFFSET 8.8 R COORDINATES 9378.6 E; 169715.0 N

PROJECT No FM2055 SURFACE R.L. 2.53 DATE STARTED 28/7/04 DATUM SETP

JOB No DATUM AHD DATE COMPLETED 29/7/04 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	
													USC
10	-7.47				SANDY CLAY - ALLUVIUM (As above).						3,4,5 N=9	SPT	
11						CI							
12											3,4,5 N=9	SPT	
13	-9.97				CLAYEY SAND Pale grey to orange, moist, medium dense.						Roller bit was used below 13.0m		
14						SC					4,7,13 N=20	SPT	
15											11,14,14 N=28	SPT	
16	-12.97				GRAVELLY SANDY CLAY - ALLUVIUM Pale brown to orange brown, moist, mainly hard. Occasional angular to subangular quartzitic and lithic fragments sizing up to 20mm more towards bottom.							30/100,-- N>50	SPT
17													
18						CL					9,16,14 N=30	SPT	
19											Large gravel bed at 18.4m		
20	-17.47										13,25,30/135 N>50	SPT	

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 Defect angles have been measured with respect to a horizontal plane.

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BOREHOLE No BH108

SHEET 3 of 3

REFERENCE No H9417

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 19146.8 - OFFSET 8.8 R COORDINATES 9378.6 E, 169715.0 N

PROJECT No FM2055 SURFACE R.L. 2.53 DATE STARTED 28/7/04 DATUM SETP

JOB No DATUM AHD DATE COMPLETED 29/7/04 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	-17.47					GRAVELLY SANDY CLAY - ALLUVIUM (As above). SANDSTONE FINE TO MEDIUM GRAINED, LAMINATED, POORLY CEMENTED SEDIMENTARY ROCK.	CL						
21	-17.67					XW : Generally exhibits engineering properties of orange, moist to wet, hard sandy clay, medium plasticity.	XW					16,21,25 N=46	SPT
22	-19.47		(100)			MW : Grey brown to orange brown, thinly laminated to slightly massive with depth, mainly very low to low strength. Defects - Generally rare. - Occasional drilling induced lamination partings <30deg (1/2m).	MW					Is(50)=0.09 MPa Is(50)=0.09 MPa Is(50)=0.02 MPa Is(50)=0.06 MPa Is(50)=0.04 MPa Is(50)=0.12 MPa	o x o x o x
23			100 (100)									Is(50)=0.01 MPa Is(50)=0.01 MPa	o x
24												Is(50)=0.01 MPa Is(50)=0.01 MPa	o x
25	-22.85					MW - SW MUDSTONE (See Remarks) Dark grey to black, thinly laminated to slightly massive, very low to low strength. Defects - Generally rare. - Drilling induced lamination partings 35deg (2-4/m). Rockmass is brittle when dry, fissile when wet.	MW SW MW					Is(50)=0.02 MPa Is(50)=0.04 MPa Is(50)=0.15 MPa Is(50)=0.13 MPa Is(50)=0.15 MPa Is(50)=0.22 MPa Is(50)=0.13 MPa Is(50)=0.28 MPa Is(50)=0.26 MPa	o x o o x o x o
26	-24.47		90									Core lost in the hole	
27						Borehole terminated at 27m							
28													
29													
30													

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

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LOGGED BY

B.Woodgate & A.Dissanayake

Project: **Gateway Upgrade Project Geotechnical Investigation**

Borehole No: **BH 108**

Start Depth: 22.00m

Finish Depth: 27.00

Project No: FM2055

H No: 9417

