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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 BH124

SHEET 1 of 4

REFERENCE No H9433

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 22276.8 - OFFSET 10.7 L COORDINATES 9435.8 E; 172544.4 N

PROJECT No FM2055 SURFACE R.L. 1.06 DATE STARTED 13/7/04 DATUM SETP

JOB No _____ DATUM AHD DATE COMPLETED 14/7/04 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	1.06					ESTUARINE WEATHERED OC CRUST Grey to mottled orange brown, moist, firm to stiff.						Peak Su=57.6kPa; Res Su=8kPa	FSV
1						High plasticity, partly decomposed plant material, slightly fissured and cubic structures.	OH					pHf=4.89, pHfox=3.24 MC=55.0%, WD=1.70t/m3, DD=1.10t/m3	U100
2	-0.54					ESTUARINE SANDY SILTY CLAY Dark grey, moist to slightly wet, mainly soft to firm, sensitive to extra sensitive.						Peak Su=27.9kPa; Res Su=0.9kPa	FSV
3						High shell content, fine to medium sand; silty sand interbeds (<10mm). Becoming clayey sand with depth.						pHf=5.50, pHfox=1.66 MC=44.2%, WD=1.80t/m3, DD=1.26t/m3	U100
4							CL-CI					pHf=6.80, pHfox=1.04 LL=29.4%, PI=5.6%, LS=5.8% APD=2.688t/m3 MC=37.6%, WD=1.86t/m3, DD=1.36t/m3	U100
5												Peak Su=21.6kPa; Res Su=2.7kPa	FSV
6	-5.44											LL=48.8%, PI=23.4%, LS=14.8% APD=2.701t/m3 pHf=7.87, pHfox=0.76 MC=53.0%, WD=1.64t/m3, DD=1.08t/m3	U100
7						ESTUARINE SILTY CLAY Dark grey, moist to slightly wet, soft to mainly firm, extra sensitive.						MC=45.0%, WD=1.90t/m3, DD=1.30t/m3	U100
8							OH					Peak Su=31.5kPa; Res Su=3.6	FSV
9												MC=56.6%, WD=1.76t/m3, DD=1.12t/m3	U100
10	-8.94												

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

LOGGED BY
B.Woodgate & A.Dissanayake



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SHEET 2 of 4

REFERENCE No H9433

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 22276.8 - OFFSET 10.7 L COORDINATES 9435.8 E: 172544.4 N

PROJECT No FM2055 SURFACE R.L. 1.06 DATE STARTED 13/7/04 DATUM SETP

JOB No _____ DATUM AHD DATE COMPLETED 14/7/04 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						DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
									EH	VH	H	M	J	VL				
10	-8.94					ESTUARINE SILTY CLAY Dark brown to dark grey, moist, firm to stiff, medium sensitive to sensitive. High organic content, high plasticity, minor shell content.										MC=59.0%, WD=1.76t/m3, DD=1.10t/m3	U100	
11																Peak Su=35.2kPa; Res Su=6.4kPa	FSV	
12																MC=50.0%, WD=1.78t/m3, DD=1.18t/m3, APD=2.714t/m3	U100	
13																MC=57.4%, WD=1.80t/m3, DD=1.14t/m3	U100	
14																Peak Su=54.4kPa; Res Su=9.6 kPa	FSV	
15																MC=64.8%, WD=1.74t/m3, DD=1.04t/m3	U100	
16																Peak Su=70.4kPa; Res Su=20.8kPa	FSV	
17																MC=68.2%, WD=1.68t/m3, DD=1.00t/m3	U100	
18																Peak Su=67.2; Res Su=19.2kPa	FSV	
19																LL=55.2%, PI=28.6%, LS=15.4% MC=45.4%, WD=1.82t/m3, DD=1.26t/m3, APD=2.742t/m3	U100	
20	-18.69					ESTUARINE SILTY SAND / SANDY SILT												
	-18.94																	

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									EH	VH	HN	HL	EL				
20	-18.94					ESTUARINE SILTY SAND / SANDY SILT Grey brown, moist, medium dense. Fine to medium sand.		SM							5,8,10 N=18	SPT	
21	-19.89					ESTUARINE GRAVELLY CLAY Grey, wet, medium dense.		CL							7,9,12 N=21	SPT	
22	-21.29					SILTY CLAY - ALLUVIUM Pale green to slightly mottled orange, moist, very stiff. Medium to high plasticity.		CL						Probable medium alluvium	10,11,11 N=22	SPT	
23	-22.24					CLAYEY GRAVEL - ALLUVIUM Pale green, wet, medium dense.		GC						Probable medium alluvium	13,10,12 N=22	SPT	
24	-22.94					CLAYEY GRAVEL - ALLUVIUM Pale grey to orange, wet, dense to very dense. Subangular to angular, gravel size increases with depth (<30mm).		GC							20,22,25 N=47	SPT	
25								GC							18,28,30/140 N>50	SPT	
26								GC							15,30/70 - N>50	SPT	
27	-26.44							GC							30/50 - - N>50	SPT	
28	-26.94				(100)	SANDSTONE FINE TO MEDIUM GRAINED, MAINLY MASSIVE TO SLIGHTLY LAMINATED, POORLY CEMENTED SEDIMENTARY ROCK. HW : Generally exhibits engineering properties of pale grey, moist, very dense silty sand, grading in to low strength rock. MW : Red orange to pale grey, mostly massive to slightly laminated, very low to low strength. Defects - Generally rare. - Occasional drilling induced lamination partings <10deg (1/m).		HW									
29								MW									
30	-28.94														Is(50)=0.14 MPa	o	

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

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

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BOREHOLE No BH124

SHEET 4 of 4

REFERENCE No H9433

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

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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	HM	VM	VL	EL				
30	-28.94					SW : Grey to white grey, mainly massive, low to medium strength. Defects - Generally rare.									Is(50)=0.26 MPa	X	
31			100	(100)											Is(50)=0.10 MPa Is(50)=0.17 MPa	O X	
32																	
33	-31.94		100			Borehole terminated at 33m									Is(50)=0.58 MPa Is(50)=0.34 MPa	O X	
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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Project: **Gateway Upgrade Project Geotechnical Investigation**

Borehole No: **BH 124**

Start Depth: 28.00m

Finish Depth: 33.00m

Project No: FM2055

H No: 9433

