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Queensland
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ENGINEERING BOREHOLE

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

BOREHOLE No BH115

SHEET 1 of 4

REFERENCE No H9424

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION

LOCATION CONTROL LINE: MCAO - Ch. 21290.2 - OFFSET 0.9 R COORDINATES 8901.5 E; 171724.7 N

PROJECT No FM2055 SURFACE R.L. 1.40 DATE STARTED 19/7/04 DATUM SETP

JOB No DATUM AHD DATE COMPLETED 19/7/04 DRILLER R & D Drilling Pty Ltd

DEPTH (m)	R.L. (m)	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	1.40				SILTY CLAY - FILL Pale grey to green grey, slightly moist to mainly dry, mainly firm to stiff. Some fine grained sand, slightly organic and mottled, some partly decomposed plant material, decomposed shell fragments.						Access Track	
1							CI				MC=17.5%, WD=1.95t/m3, DD=1.65t/m3	U50
2											Shell fragments	2,2,3 N=5 SPT
-1.30					ESTUARINE WEATHERED OC CRUST Pale grey to mottled orange, moist, mainly stiff. Some shell fragments.		CL				MC=36.8%, WD=1.78t/m3, DD=1.30t/m3 pHf=5.86, pHfox=5.23	U50
-2.30					ESTUARINE SANDY CLAY Dark grey, moist, soft to firm. High organic content, some plant materials.		CL-ML				APD=2.688t/m3 LL=25.8%, PI=7.8%, LS=6.2% pHf=7.26, pHfox=0.96 MC=51.6%, WD=1.72t/m3, DD=1.14t/m3	U100
-3.30					SILTY CLAY - ALLUVIUM Grey green to mottled brown, moist, firm to mainly stiff. Medium to high plasticity, minor sand fraction towards bottom.						MC=26.8%, WD=1.96t/m3, DD=1.54t/m3	U100
5												
6												2,3,5 N=8 SPT
7							CI					3,4,5 N=9 SPT
8												
9												4,6,7 N=13 SPT
10	-8.60											

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

LOGGED BY
B.Woodgate & A.Dissanayake



ENGINEERING BOREHOLE

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BOREHOLE No BH115
SHEET 2 of 4
REFERENCE No H9424

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 21290.2 - OFFSET 0.9 R COORDINATES 8901.5 E 171724.7 N
PROJECT No FM2055 SURFACE R.L. 1.40 DATE STARTED 19/7/04 DATUM SETP
JOB No _____ DATUM AHD DATE COMPLETED 19/7/04 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
									q _t	f _{cd}	f _{cs}	f _{cl}	f _{cu}				
10	-8.60					SILTY SAND - ALLUVIUM Pale grey to mottled orange, moist, loose to mainly medium dense. Fine to medium grained sand; minor silt fraction.											
11																	
12																	
13								SM									
14																	
15																	
16	-14.10					SILTY CLAY - ALLUVIUM Pale grey to mottled orange, slightly moist to mainly dry, very stiff. Medium to high plasticity, minor sand fraction throughout.											
17								CI-CH									
18																	
19	-17.10					SILTY CLAY - ALLUVIUM Grey, moist, very stiff. Medium to high plasticity.											
20	-18.60							CI-CH									

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

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BOREHOLE No **BH115**
SHEET **3** of **4**
REFERENCE No **H9424**

PROJECT **GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION**
LOCATION **CONTROL LINE: MCAO - Ch. 21290.2 - OFFSET 0.9 R** COORDINATES **8901.5 E; 171724.7 N**
PROJECT No **FM2055** SURFACE R.L. **1.40** DATE STARTED **19/7/04** DATUM **SETP**
JOB No DATUM **AHD** DATE COMPLETED **19/7/04** DRILLER **R & D Drilling Pty Ltd**

DEPTH (m)	R.L. (m)	ALGER 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	-18.60					SILTY CLAY - ALLUVIUM (As above)							
21								CI-CH				7,10,15 N=25	SPT
22	-20.10					SILTY CLAY - ALLUVIUM Dark grey brown, slightly moist, very stiff. Medium plasticity.						6,9,13 N=22	SPT
23								CI				4,6,9 N=15	SPT
24												7,7,10 N=17	SPT
25	-23.85					SILTY SAND / SAND Pale brown to brown, wet, medium dense to dense. Fine grained sand.						7,12,16 N=28	SPT
26								SM-SP				8,12,22 N=34	SPT
27						Becoming more coarse sand below 27.40m. Some gravel fraction more towards bottom.							
28	-27.30					ASH TUFF FINE GRAINED MASSIVE, WELDED, INTERMEDIATE PYROCLASTIC IGNEOUS ROCK.						30/85,- N=50	SPT
29						HW : See next page.		HW					
30	-28.60												

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

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BOREHOLE No **BH115**

SHEET **4** of **4**

REFERENCE No **H9424**

PROJECT **GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION**

LOCATION **CONTROL LINE: MCAO - Ch. 21290.2 - OFFSET 0.9 R** COORDINATES **8901.5 E; 171724.7 N**

PROJECT No **FM2055** SURFACE R.L. **1.40** DATE STARTED **19/7/04** DATUM **SETP**

JOB No DATUM **AHD** DATE COMPLETED **19/7/04** 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	-28.60														
	-29.10					HW: Generally exhibits engineering properties of grey green to green, moist, gravelly silt consisting low strength corestones and rock kernels.									
31						SW: Grey green to pale green, mainly massive to occasionally laminated and contorted, low to medium strength down to 32.6 and then mainly medium strength.							Is(50)=0.06 MPa Is(50)=0.26 MPa Is(50)=0.18 MPa Is(50)=0.40 MPa	o x x o	
32			100 (97)			Occasional high to very high strength quartz bands up to 50mm, rock mass tends to show some brittle properties.							Is(50)=0.14 MPa Is(50)=0.68 MPa	o x	
33			100 (100)			Defects - Generally rare. - Some drilling induced fractures. - Joints @ 70-80deg (1/m). - Joints @ 40-50deg (2-3/m).									
34						Defects are generally planar to irregular, rough to occasionally smooth, close to tight with some ironstaining and clay infillings.							Is(50)=0.75 MPa Is(50)=1.46 MPa	o x	
35													Is(50)=1.13 MPa Is(50)=0.95 MPa	o x	
36			100 (100)										Is(50)=0.33 MPa Is(50)=0.70 MPa	o x	
37													Is(50)=0.51 MPa Is(50)=0.30 MPa	o x	
38	-36.10		100										Is(50)=0.39 MPa Is(50)=0.72 MPa	o x	
39													Is(50)=0.46 MPa Is(50)=0.43 MPa	o x	
40													Is(50)=0.15 MPa Is(50)=0.55 MPa	x o	
						Borehole terminated at 37.5m									

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

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Project: **Gateway Upgrade Project Geotechnical Investigation**
Borehole No: **BH 115**
Start Depth: 30.50m
Finish Depth: 37.50m
Project No: FM2055
H No: 9424

