Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE

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

BOREHOLE No BH101
SHEET 1 of 4
REFERENCE No H9410

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 18115.5 - OFFSET 38.4 R
COORDINATES 9788.3 E; 168773.4 N
PROJECT No FM2055
SURFACE R.L. 3.30
DATE STARTED 4/8/04
DATUM SETP
JOB No
DATUM AHD
DATE COMPLETED 5/8/04
DRILLER R & D Drilling Pty Ltd

DEPTH (m)	R.L. (m)	MATERIAL DESCRIPTION	USC	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	3.30	**SANDY GRAVEL - FILL** Dark brown, dry, medium dense, sizing up to 40mm.	GP	Drilling record only	
	2.70	**ESTUARINE (??) SILTY CLAY** Dark grey, moist, soft to firm.			
1		Highly fissured; high organic content; medium plasticity.	OL	Organic matter 1,2,2 N=4	SPT
	1.55	**ESTUARINE (??) SILTY SAND** Pale brown, moist, medium dense.			
2		Fine to medium sand.	SM	MC=39.6%,WD=1.82t/m3, DD=1.3t/m3	U50
	0.55	**ESTUARINE (??) SILTY CLAY** Grey, moist, soft to mostly firm. Minor organic content.	OL	PP=25kPa	
3	0.10	**SILTY SAND - ALLUVIUM** Pale brown to mottled orange, moist, medium dense.			
4					U50
			SM	Silty clay layer	
5				Silty clay layer	
	-2.05	**SILTY SAND - ALLUVIUM** Dark grey to grey, wet, very loose.			
6		Fine to medium grained sand; high shell content towards bottom; some clayey silt interlayers.		100% passing 2.36mm sieve RW,RW,1 N<1	SPT
7			SM	18% passing 75um sieve RW,1,1 N=2	SPT
8					
9				2% passing 2um sieve RW,RW,1 N<1	SPT
	-5.95	**SILTY CLAY - ALLUVIUM** Grey to green grey, moist, very stiff. Some MnO2 concretions.			
10	-6.70		CL	Some shell fragments	

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

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

LOGGED BY
D.Dobe & A.Dissanayake

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 30/4/05

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BOREHOLE No BH101
SHEET 2 of 4
REFERENCE No H9410

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 18115.5 - OFFSET 38.4 R
COORDINATES 9788.3 E; 168773.4 N
PROJECT No FM2055
SURFACE R.L. 3.30
DATE STARTED 4/8/04
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JOB No
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DATE COMPLETED 5/8/04
DRILLER R & D Drilling Pty Ltd

DEPTH (m)	R.L. (m)	MATERIAL DESCRIPTION	USC	SAMPLES / TESTS
10	-6.70	**SILTY CLAY - ALLUVIUM** Grey to green grey, moist, very stiff. Some MnO2 concretions.	CL	5,7,10 N=17 SPT
11	-8.00	**SAND - ALLUVIUM** Pale brown to orange brown, wet, medium dense. Fine grained sand, minor silt fraction in the upper area.	SP	6,8,11 N=19 SPT 10,13,15 N=28 SPT 4,9,7 N=16 SPT 5,6,11 N=17 SPT
17	-14.10	**SILTY CLAY - ALLUVIUM** Pale grey to grey, moist, stiff to very stiff. Becoming fine sandy below 19.30m.	CI	6,9,12 N=21 SPT 4,6,8 N=14 SPT
20	-16.70			

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

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 30/4/05

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BOREHOLE No BH101
SHEET 3 of 4
REFERENCE No H9410

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
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PROJECT No FM2055
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DATE STARTED 4/8/04
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DEPTH (m)	R.L. (m)	MATERIAL DESCRIPTION	USC	WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES / TESTS
20	-16.70					
	-16.90	**SILTY CLAY - ALLUVIUM** (As above)	CH			
21		**GRAVELLY CLAYEY SAND - ALLUVIUM** Pale brown to orange brown, moist, dense to very dense. Gravels are mainly subangular to subrounded quartzitic particles sizing up to 40mm.	SP		30/115,-,- N>50	SPT
22					14,21,20 N=41	SPT
23						
24					16,19,30/115 N>50	SPT
	-21.50					
25		**INTERBEDDED SANDSTONE AND MUDSTONE** FINE TO MEDIUM GRAINED, POORLY CEMENTED, THINLY LAMINATED / BEDDED SEDIMENTARY ROCK. HW : Generally exhibits engineering properties of dark grey, moist, hard sandy silt grading to very low strength rock.	HW		30/100,-,- N>50	SPT
	-22.70					
26		(100) **SW** Pale grey to dark grey, thinly laminated and thinly bedded, mainly medium strength with some low and high strength bands. Defects - Generally rare. - Occasional drilling induced lamination /bedding partings (<30°). - Joints @ 45° (1/3m). Defect Index : In sandstone - (1/m) In sandstone - (3-5/m)	SW		Is(50)=0.96 MPa Is(50)=0.55 MPa	o x
27					Mudstone bed Is(50)=0.29 MPa Is(50)=0.16 MPa	 o x
28					Is(50)=0.89 MPa Is(50)=0.20 MPa	o x
29		100 (76)			Sandstone bed Is(50)=0.59 MPa Is(50)=0.44 MPa XW mudstone bed	 o x
30	-26.70				Is(50)=0.31 MPa Is(50)=0.71 MPa Sandstone bed	x o

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 30/4/05

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BOREHOLE No BH101
SHEET 4 of 4
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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 (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	-26.70				**SW** (As above)									
			99 (73)					SW				Mudstone bed		
31												Mudstone bed		
32												Sandstone bed		
												Is(50)=1.19 MPa		o
												Is(50)=1.87 MPa		x
												Is(50)=1.30 MPa		o
												Is(50)=0.50 MPa		x
33	-29.70		99									Core lost in the hole		
					Borehole terminated at 33m									
34														
35														
36														
37														
38														
39														
40														

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 30/4/05

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D.Dobe & A.Dissanayake

Project: **Gateway Upgrade Project Geotechnical Investigation**

Borehole No: **BH 101**

Start Depth: 26.00m
Finish Depth: 32.86m
Project No: FM2055
H No: 9410