Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE

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

BOREHOLE No BH21
SHEET 1 of 5
REFERENCE No H9570

PROJECT GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT
LOCATION PIER 9 - DOWN STREAM END
COORDINATES 10114.0 E; 168150.7 N
PROJECT No FG5388
SURFACE R.L. 2.70
DATE STARTED 4/6/05
DATUM SETP
JOB No
DATUM AHD
DATE COMPLETED 7/6/05
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 (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	2.70				**SAND (FILL ?)** Orange to brown, moist, loose, fine to medium grained.		SP					2,4,2 N=6	SPT
0.10					**ESTUARINE SILTY CLAY** Dark grey to dark grey brown, moist, very soft. High plasticity; minor fissuring throughout; slightly sandy with depth.		OH					HW,-,- N<1	SPT
-1.50					**SILTY SAND** Pale grey brown to brown, wet, mainly medium dense. Fine to medium grained sand.		SM					6,9,8 N=17	SPT
-2.80					**ESTUARINE SANDY SILTY CLAY** Dark grey to dark grey brown, moist, firm. Minor fraction of fine grained sand; high plasticity; occasional shell fragments.		OH					HW,2,7 N=9	SPT
-4.90					**SILTY SAND/SAND** Dark grey brown to dark brown, moist to mainly wet, very loose to mainly loose with occasional coarse shelly sandy beds. Fine to medium grained sand; some infrequent very soft to soft silty clay interbeds.		SP-SM					1,3,8 N=11	SPT
-7.30												1,1,1 N=2	SPT

BOREHOLE WITH LITHOLOGY 24_5_2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLES.GPJ ENGINEERING BOREHOLE 09_04.GDT 31/8/05

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

LOGGED BY
A. DISSANAYAKE (DISS)

Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE

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

BOREHOLE No BH21
SHEET 2 of 5
REFERENCE No H9570

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10	-7.30				**SILTY SAND/SAND** (As above).							RW,-,-1 N<1	SPT
11													
12												RW,-,-1 N<1	SPT
13													
14												RW,-,- N<1	SPT
15							SP-SM					1,-,2 N=2	SPT
16													
17												RW,1,3 N=4	SPT
18												1,3,6 N=9	SPT
19													
20	-17.30											2,3,5 N=8	SPT

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20	-17.30				**SILTY SAND** Dark grey brown to dark brown, moist to mainly wet, loose to mainly medium dense.								
21												3,9,10 N=19	SPT
22													
23												1,1,6 N=7	SPT
24							SM						
25												2,6,10 N=16	SPT
26													
27												7,10,8 N=18	SPT
28												2,8,10 N=18	SPT
29	-26.30				**ESTUARINE SILTY CLAY** Dark grey brown to dark brown, moist, firm.		OH					1,6,8 N=14	SPT
30	-27.30												

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30	-27.30				**ESTUARINE SILTY CLAY** (As above).		OH					1,2,5 N=7	SPT
31	-28.60				**SAND AND GRAVEL** Grey to grey brown, wet, dense to mainly very dense with depth. Sub-angular to sub-rounded quartzitic and lithic fragments sizing up to 300mm, minor clay fraction; Particle size increases with depth. (Gravel fraction > Sand fraction)							12,16,26 N=42	SPT
32													
33												No recovery 30/100 N>50	SPT
34													
35												No recovery. SPT sampler tip was broken. 30/100 N>50	SPT
36							GP-GM					Casing could not penetrate large sized pebble to cobble sized particles. SPT sampler and casing shoe was damaged. The borehole was unable to be advanced and therefore abondoned. A new borehole was drilled 600mm downstream. Tried to core through boulders in the second borehole, but was not successful. Only a few core pices was recovered between 37.95m and 38.20m.	
37			(0)										
38			12 (53)									Medium to very high strength quartzitic cobbles and boulders coated with sand and clayey matrix.	
39	-36.78												
40	-36.90 / -37.30				**INTERBEDDED MUDSTONE AND SANDSTONE** MW : mainly low strength. SW : (As below)		MW / SW					Is(50)=0.13 MPa Is(50)=0.62 MPa	x o

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SHEET 5 of 5
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40	-37.30													
	-37.48				SW : Grey to dark grey, thinly laminated and bedded, low to mainly medium strength. Defects - Generally rare. - Occasional drilling induced lamination partings <10° (1-2/m)		SW					Is(50)=1.15 MPa Is(50)=0.25 MPa Is(50)=0.45 MPa Is(50)=0.16 MPa	o x o x	
41			57 (75)		**MUDSTONE** **FINE GRAINED, THINLY LAMINATED SEDIMENTARY ROCK** SW : Dark grey to black, thinly laminated, medium to high strength. Defects - Generally rare - Frequent drilling induced lamination partings 10° (2-3/m)							Is(50)=0.25 MPa Is(50)=0.88 MPa	x o	
42							SW					Is(50)=0.68 MPa Is(50)=1.49 MPa Is(50)=0.36 MPa Is(50)=2.39 MPa Is(50)=2.00 MPa Is(50)=0.77 MPa	x o x o o x	
43	-40.52											Is(50)=1.39 MPa Is(50)=0.68 MPa	o x	
			100 (50)		**LOW GRADE COAL** HW : Dark grey to black, fine grained, thinly laminated, mainly dull to slightly vitreous, very low to low strength. Highly fractured, broken and altered through out.		HW							
44	-41.50				**SILTSTONE** **FINE GRAINED, THINLY LAMINATED SEDIMENTARY ROCK** SW : Pale grey to pale green grey, fine grained, thinly laminated, low to mainly medium strength.		SW					Is(50)=0.13 MPa Is(50)=0.83 MPa	x o	
45	-42.40				**MUDSTONE** SW : Dark grey to black, thinly laminated, medium to high strength. Defects - Generally rare - Lamination partings 30° (2-3/m) - Joints @ 80° (1/m)		SW					Is(50)=1.25 MPa Is(50)=3.53 MPa Is(50)=2.15 MPa	o o x	
46	-43.42		81								XW rock/clay band	Is(50)=0.73 MPa Is(50)=1.53 MPa Is(50)=0.73 MPa	x o x	
					Borehole terminated at 46.12m							Is(50)=1.53 MPa	o	
47														
48														
49														
50														

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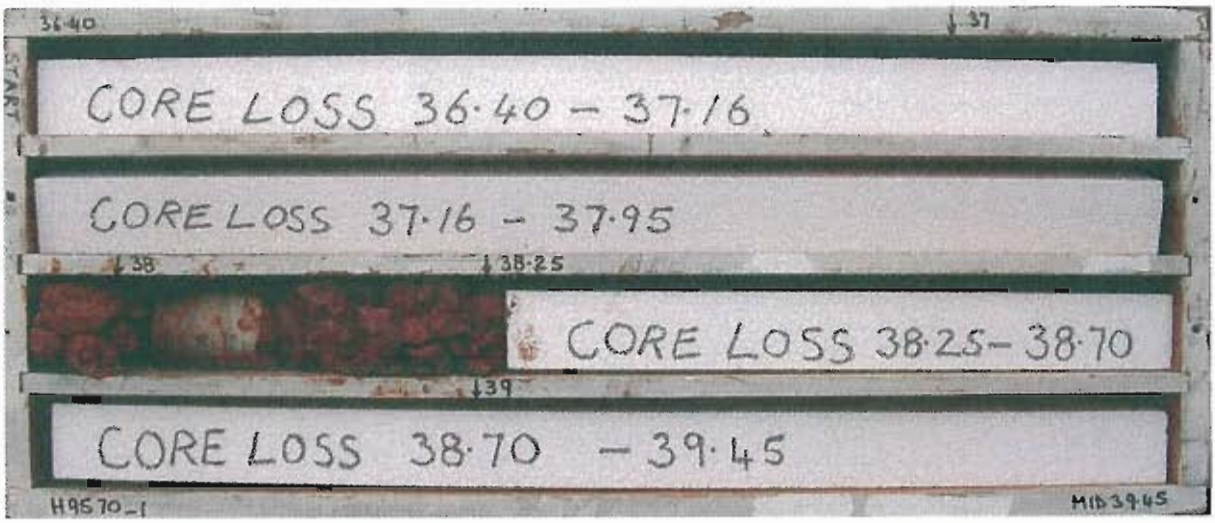
Project: **Gateway Upgrade Project - Gateway Bridge**

Borehole No: **BH 21**

Start Depth: 36.40m
Finish Depth: 46.12m
Project No: FG 5388
H No: 9570



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