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**Queensland  
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Main Roads

## ENGINEERING BOREHOLE

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

BOREHOLE No **BH24**

SHEET **1** of **5**

REFERENCE No **H9573**

PROJECT **GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT**

LOCATION **PIER 12 - DOWN STREAM END** COORDINATES **10017.6 E: 168341.4 N**

PROJECT No **FG5388** SURFACE R.L. **4.41** DATE STARTED **29/05/05** DATUM **SETP**

JOB No  DATUM **AHD** DATE COMPLETED **31/05/05** DRILLER **R&D DRILLING PTY LTD**

DEPTH (m)	R.L. (m)	BOREHOLE LOG	REMARKS	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	4.41	4.41		SAND (FILL ?) Black, moist, loose, fine grained.								
1	3.71			ESTUARINE WEATHERED OC CRUST Dark grey to mottled grey brown, moist, soft to mainly firm.								
2	2.01			ESTUARINE SILTY CLAY Dark grey to dark grey brown, moist, very soft. High plasticity; minor fissuring throughout.								
3												
4												
5												
6	-1.19			SILTY SAND/SAND Dark grey brown to brown, wet, mainly medium dense. Fine to medium grained sand.								
7	-1.89			ESTUARINE SANDY SILTY CLAY Dark grey to dark grey brown, moist, very soft to soft. High plasticity; minor fine sand fraction.								
8	-2.79			SILTY SAND/SAND Grey brown to orange brown, wet, very loose to mainly loose. Fine to medium grained sand; some silty clay interbeds; gradually becoming clayey sand with depth.								
9												
10	-5.59											

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

LOGGED BY  
**A. DISSANAYAKE (DISS)**



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## ENGINEERING BOREHOLE

FOR GEOTECHNICAL TERMS AND  
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BOREHOLE No BH24

SHEET 2 of 5

REFERENCE No H9573

PROJECT GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT

LOCATION PIER 12 - DOWN STREAM END COORDINATES 10017.6 E; 168341.4 N

PROJECT No FG5388 SURFACE R.L. 4.41 DATE STARTED 29/05/05 DATUM SETP

JOB No                      DATUM AHD DATE COMPLETED 31/05/05 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
									EH	VS	IS	VL	EL	20	60	200	600	2000	
10	-5.59					<b>SILTY SAND/SAND</b> (As above).													
11								SP-SM											1,1,3 N=4 SPT
12	-7.29					<b>CLAYEY SAND</b> Grey brown to grey, wet, mainly very loose. Fine to medium grained sand.													HW,1,3 N=4 SPT
13								SC											1,1,2 N=3 SPT
14																			
15	-10.74					<b>ESTUARINE SANDY SILTY CLAY</b> Dark grey to dark grey brown, moist, very soft to soft. High plasticity; minor fine sand fraction; occasional shell fragments.													HW,1,1 N=2 SPT
16																			
17								OH											1,2,2 N=4 SPT
18																			HW,HW,1 N<1 SPT
19																			
20	-15.09					<b>SILTY SAND/CLAYEY SAND</b> Pale grey to grey brown, wet, loose to mainly medium dense. Very fine sand.		SC-SM											4,11,10 N=21 SPT
	-15.59																		

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

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## ENGINEERING BOREHOLE

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BOREHOLE No BH24

SHEET 3 of 5

REFERENCE No H9573

PROJECT GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT

LOCATION PIER 12 - DOWN STREAM END COORDINATES 10017.6 E; 168341.4 N

PROJECT No FG5388 SURFACE R.L. 4.41 DATE STARTED 29/05/05 DATUM SETP

JOB No                      DATUM AHD DATE COMPLETED 31/05/05 DRILLER R&D DRILLING PTY LTD

DEPTH (m)	R.L. (m)	CORE RECORDING WASH BORING CORE DRILLING	RQD (%)	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH (kPa)	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
20	-15.59				SILTY SAND/CLAYEY SAND (As above).							
21						SC-SM					HW, 1.5 N=6	SPT
22	-17.79				ESTUARINE SANDY SILTY CLAY Dark grey to dark grey brown, moist, very soft to soft. High plasticity; occasional shell fragments.						RW, - N<1	SPT
23											RW, 4.3 N=7	SPT
24												
25												
26						OH					RW, - N<1	SPT
27												
28											9, 12, 6 N=18	SPT
29	-24.44				SAND AND GRAVEL Grey to grey brown, wet, medium dense to dense.						1, 1, 5 N=6	SPT
30	-25.59					SW-SM						

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BOREHOLE No BH24

SHEET 4 of 5

REFERENCE No H9573

PROJECT GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT

LOCATION PIER 12 - DOWN STREAM END COORDINATES 10017.6 E; 168341.4 N

PROJECT No FG5388 SURFACE R.L. 4.41 DATE STARTED 29/5/05 DATUM SETP

JOB No                      DATUM AHD DATE COMPLETED 31/5/05 DRILLER R&D DRILLING PTY LTD

DEPTH (m)	R.L. (m)	ALGER 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
30	-25.59					<b>SAND AND GRAVEL</b> (As above). Sub-angular to sub-rounded quartzitic and lithic fragments sizing up to 50mm, minor clay fraction; partly decomposed shell fragments.  (Gravel fraction < Sand fraction)							7,18,21 N=39	SPT
31														
32													5,9,9 N=18	SPT
33														
34													9,13,17 N=30	SPT
35	-29.99 -30.44		(55)			<b>INTERBEDDED MUDSTONE AND SANDSTONE</b> XW : Pale grey to black, moist, hard sandy silty clay. SW : White, pale grey to dark grey, thinly laminated and bedded, fine to coarse grained, low to mainly medium strength. Frequent coarse grained high strength sandstone interbeds with thickness up to 200mm.  Defects - Generally rare. - Occasional drilling induced lamination partings <25° (3-4/m) - Occasional Joints @ 65° (1-2/m).							30/75 N>50	SPT
36													Is(50)=0.26 MPa Is(50)=0.30 MPa	x o
37													Is(50)=0.46 MPa Is(50)=0.28 MPa	x o
38			90 (83)										Predominantly mudstone between 35.5m and 36.90m. Is(50)=0.39 MPa Is(50)=0.51 MPa Is(50)=0.38 MPa Is(50)=0.45 MPa	x o x o
39			100 (95)										Is(50)=0.19 MPa Is(50)=0.20 MPa	x o
40	-35.59												Is(50)=0.14 MPa Is(50)=0.47 MPa	x o
													Is(50)=0.45 MPa Is(50)=0.91 MPa	x o

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

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## ENGINEERING BOREHOLE

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BOREHOLE No **BH24**

SHEET **5** of **5**

REFERENCE No **H9573**

PROJECT **GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT**

LOCATION **PIER 12 - DOWN STREAM END**

COORDINATES **10017.6 E; 168341.4 N**

PROJECT No **FG5388**

SURFACE R.L. **4.41**

DATE STARTED **29/5/05**

DATUM **SETP**

JOB No

DATUM **AHD**

DATE COMPLETED **31/5/05**

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	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
40	-35.59												
41	-36.99		100			<b>SANDSTONE MEDIUM TO COARSE GRAINED, LAMINATED, CEMENTED SEDIMENTARY ROCK</b> SW : Pale grey to white, laminated to massive, fine to medium grained, medium to mainly high strength. Defects : Generally rare. Drilling induced lamination partings <35° (2-3/m) Occasional joints @ 75° to 85° (1/m) Minor mudstone laminations throughout. Borehole terminated at 41.4m	SW					Is(50)=1.87 MPa Is(50)=3.67 MPa  Core was left in the hole.	o x
42													
43													
44													
45													
46													
47													
48													
49													
50													

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

LOGGED BY  
**A. DISSANAYAKE (DISS)**

Project: **Gateway Upgrade Project - Gateway Bridge**  
Borehole No: **BH 24**  
Start Depth: 34.50m  
Finish Depth: 47.55m  
Project No: FG 5388  
H No: 9573

