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**Queensland
Government**

Department of
Main Roads

ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND
SYMBOLS REFER FORM F:GEOT 017/3-2005

BOREHOLE No BHP32

SHEET 1 of 3

REFERENCE No H9904

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT

LOCATION 24m RIGHT FROM EASTN PILE OF PIER 32 OF EXIST BRIDGE COORDINATES 39250.0 E; 52724.3 N

PROJECT No FG5423 SURFACE R.L. -0.95 PLUNGE _____ DATE STARTED 10/05/06 GRID DATUM PROJECT DATUM

JOB No 165/122/35 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 10/05/06 DRILLER CAIRNS DRILLING

DEPTH (m)	R.L. (m)	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
0	-0.95					ESTUARINE SILTY SAND Dark grey, wet, very loose. Very fine to fine sand; occasional fragments of partly decomposed shell fragments. Gradually becoming more silt and clay with depth.						pH _e = 7.90 pH _{Fox} = 6.84	1,2 N<1	SPT
1					A									
2					B		(SM)					pH _e = 7.99 pH _{Fox} = 6.53		U50
3					C							pH _e = 8.22 pH _{Fox} = 4.81	1,3 N=3	SPT
4	-4.95				D							pH _e = 7.72 pH _{Fox} = 5.12		U50
5					E	ESTUARINE SILTY CLAY Dark grey to dark brown, moist, very soft. Minor fraction of fine sand.						pH _e = 7.74 pH _{Fox} = 4.55	RW N<1	SPT
6	-6.45				F		(OH)					pH _e = 7.13 pH _{Fox} = 5.17		U50
7	-7.45				G	ALLUVIAL SILTY CLAY Pale green grey to mottled orange brown, moist, firm. High plasticity.						pH _e = 7.14 pH _{Fox} = 4.91	2,2,4 N=6 ASS Sample stored at Herston Geotechnical Laboratory	SPT
8					H	ALLUVIAL SILTY SANDY CLAY Pale green grey to mottled orange brown, moist, very stiff.							5,8,12 N=20	SPT
9							(CI)							
10	-10.95													

A_ENGINEERING BOREHOLE LOG W/ LITHOLOGY_MRD_LIB_V1.2.GLB_25/10/06

REMARKS FINE TO MEDIUM GRAINED MAINLY LAMINATED POORLY CEMENTED SEDIMENTARY ROCK

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ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND
SYMBOLS REFER FORM F:GEOT 017/3-2005

BOREHOLE No BHP32

SHEET 2 of 3

REFERENCE No H9904

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT

LOCATION 24m RIGHT FROM EASTN PILE OF PIER 32 OF EXIST BRIDGE COORDINATES 39250.0 E; 52724.3 N

PROJECT No FG5423 SURFACE R.L. -0.95 PLUNGE _____ DATE STARTED 10/05/06 GRID DATUM PROJECT DATUM

JOB No 165/122/35 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 10/05/06 DRILLER CAIRNS DRILLING

DEPTH (m)	R.L. (m)	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
10	-10.95				J	ALLUVIAL SILTY CLAY Pale brown to brown, moist, very stiff. Medium to high plasticity.	(Cl-CH)					4,6,11 N=17	SPT
13					K							4,7,10 N=17	SPT
15	-15.95					ALLUVIAL SANDY CLAY / CLAYEY SAND (Driller's record only.) Brown to yellow.	(Cl-SC)						
18	-16.95				L	ALLUVIAL SILTY CLAY Pale green grey to mottled orange, moist, very stiff. High plasticity.	(CH)					7,11,15 N=28	SPT
17	-17.75					ALLUVIAL GRAVELLY SAND Orange brown to brown, wet, medium dense becoming dense with depth. (Fine fraction > Coarse fraction) Coarse fraction - Subangular to subrounded quartzitic fragments sizing up to 15mm.	(SP)						
18													
19					M							6,8,8 N=16	SPT
20	-20.95												

A-ENGINEERING BOREHOLE LOG W/ LITHOLOGY FG5423 HIGHWAY BRIDGE.GPJ MRD_LIB_V1.2.GLB 25/10/06

REMARKS FINE TO MEDIUM GRAINED MAINLY LAMINATED POORLY CEMENTED SEDIMENTARY ROCK

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ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND
SYMBOLS REFER FORM F:GEOT 017/3-2005

BOREHOLE No BHP32

SHEET 3 of 3

REFERENCE No H9904

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT

LOCATION 24m RIGHT FROM EASTN PILE OF PIER 32 OF EXIST BRIDGE COORDINATES 39250.0 E; 52724.3 N

PROJECT No FG5423 SURFACE R.L. -0.95 PLUNGE _____ DATE STARTED 10/05/06 GRID DATUM PROJECT DATUM

JOB No 165/122/35 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 10/05/06 DRILLER CAIRNS DRILLING

DEPTH (m)	R.L. (m)	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	VH	H	M	VL	EL				
20	-20.95					ALLUVIAL GRAVELLY SAND (As above.)												
21					N												8,12,12 N=24	SPT
22					P												2,10,16 N=26	SPT
23							(SP)											
24																		
25					Q												27,20,12 N=32 No recovery	SPT
26																		
27	-27.45					SANDSTONE (See Remarks.) HW: Pale grey, dry, very dense silty sand gradually grading into very low to low strength rock. Relic rock structures throughout.		HW									30/90 N≥50	SPT
28	-28.05			(100)	R	SW: Pale grey to grey, mainly laminated, fine grained, mainly medium strength with occasional low strength bands.		SW									Is(50)=0.48 MPa Is(50)=0.79 MPa	x o
29	-28.80					INTERBEDDED SANDSTONE AND SILTSTONE SW: White to banded dark grey, laminated to contorted, fine to medium grained, mainly medium to high strength. Healed contorted and sheared with some rip-up clasts. Defects: Generally rare. - Occasional drilling-induced lamination partings <10° (1/m).		SW									Is(50)=0.44 MPa Is(50)=0.39 MPa Is(50)=0.77 MPa Is(50)=0.85 MPa	x o x o
30	-30.95			100				SW									Is(50)=0.55 MPa Is(50)=0.56 MPa Is(50)=0.80 MPa Is(50)=0.77 MPa Is(50)=1.23 MPa Is(50)=0.34 MPa Is(50)=0.56 MPa	x o x o x o x o

REMARKS Borehole terminated at 30m
FINE TO MEDIUM GRAINED MAINLY LAMINATED POORLY CEMENTED SEDIMENTARY ROCK

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Project: **Houghton Highway Bridge Duplication**
Borehole No: **BHP32**
Start Depth: 27.10m
Finish Depth: 30.10m
Project No: FG5423
H No: 9904



Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation

Project No: FG5423

Date Sampled 10/05/06

Date Tested 31/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-417/AS4133.4.1

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/417.A	BHP 32	27.26	D	0.49	0.48	M	Sandstone
GS06/417.B	BHP 32	27.28	A	0.87	0.79	M	Sandstone
GS06/417.C	BHP 32	27.62	D	0.45	0.44	M	Sandstone
GS06/417.D	BHP 32	27.65	A	0.38	0.39	M	Sandstone
GS06/417.E	BHP 32	27.88	D	0.78	0.77	M	I/B Sandstone/Siltstone
GS06/417.F	BHP 32	27.90	A	0.91	0.85	M	I/B Sandstone/Siltstone
GS06/417.G	BHP 32	28.50	D	0.56	0.55	M	I/B Sandstone/Siltstone
GS06/417.H	BHP 32	28.52	A	0.57	0.56	M	I/B Sandstone/Siltstone
GS06/417.J	BHP 32	29.27	D	0.80	0.80	M	I/B Sandstone/Siltstone
GS06/417.K	BHP 32	29.29	A	0.85	0.77	M	I/B Sandstone/Siltstone

Sample Remarks

* D - Diametral; A - Axial; B - Block; I - Irregular;

** EL - Extremely Low; VL - Very Low; L - Low; M - Medium; H - High; VH - Very High; EH - Extremely High (taken from AS1726 Table 8A)

Remarks / Variations to Test Procedures:
I/B - Interbedded

Test Method: AS4133.4.1

Software Version 2.03 April 2005

Client Name: Department of Main Roads

Client Address: PO Box 70, Spring Hill QLD 4004

Signatory *P. Simson* 14.1.6.06

(Peter Simson)



Accreditation Number: 2302
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Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation

Project No: FG5423

Date Sampled 10/05/06

Date Tested 31/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-417/AS4133.4.1

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/417.L	BHP 32	29.65	D	1.23	1.23	H	I/B Sandstone/Siltstone
GS06/417.M	BHP 32	29.67	A	1.39	1.31	H	I/B Sandstone/Siltstone
GS06/417.N	BHP 32	29.93	D	0.35	0.34	M	I/B Sandstone/Siltstone
GS06/417.P	BHP 32	29.95	A	0.63	0.56	M	I/B Sandstone/Siltstone

Sample Remarks

* D - Diametral; A - Axial; B - Block; I - Irregular;

** EL - Extremely Low; VL - Very Low; L - Low; M - Medium; H - High; VH - Very High; EH - Extremely High (taken from AS1726 Table 8A)

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