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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 **BHP70**  
SHEET **1** of **4**  
REFERENCE No **H9913**

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT  
LOCATION 24m RIGHT 0.5m STH FROM EASTN PILE OF PIER 70 OF EXIST BRIDGE COORDINATES 39696.5 E; 53666.1 N  
PROJECT No FG5423 SURFACE R.L. -1.20 PLUNGE \_\_\_\_\_ DATE STARTED 30/05/06 GRID DATUM PROJECT DATUM  
JOB No 165/122/35 HEIGHT DATUM AHD BEARING \_\_\_\_\_ DATE COMPLETED 31/05/06 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
0	-1.20					<b>ESTUARINE SILTY SAND</b> Dark grey, wet, very loose.  Frequent partly decomposed shell fragments; mainly fine grained sand; slightly organic throughout.							
1					A							pH <sub>F</sub> = 7.56 pH <sub>FOX</sub> = 6.49  1,1,1 N=2 ASS Sample stored at Herston Geotechnical Laboratory	SPT
2							(SM)						
3					B							pH <sub>F</sub> = 7.83 pH <sub>FOX</sub> = 5.89  1,1,1 N<1	SPT
4	-5.10				C	<b>ESTUARINE SILTY CLAY</b> Dark grey, moist, very soft.  High plasticity; high organic content; minor fraction of shell fragments.						pH <sub>F</sub> = 7.87 pH <sub>FOX</sub> = 6.33  RW N<1	SPT
5													
6					D	Becoming sandy silty clay with depth; minor fine grained sand.						pH <sub>F</sub> = 8.07 pH <sub>FOX</sub> = 4.44  RW N<1 ASS Sample stored at Herston Geotechnical Laboratory	SPT
7					E		(OH)					pH <sub>F</sub> = 8.04 pH <sub>FOX</sub> = 4.59  RW N<1	SPT
8													
9					F							pH <sub>F</sub> = 8.03 pH <sub>FOX</sub> = 3.10  RW,RW,HW N<1 ASS Sample stored at Herston Geotechnical Laboratory	SPT
10	-11.20												

REMARKS

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# ENGINEERING BOREHOLE LOG

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

BOREHOLE No **BHP70**

SHEET **2** of **4**

REFERENCE No **H9913**

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT

LOCATION 24m RIGHT 0.5m STH FROM EASTN PILE OF PIER 70 OF EXIST BRIDGE COORDINATES 39696.5 E; 53666.1 N

PROJECT No FG5423 SURFACE R.L. -1.20 PLUNGE DATE STARTED 30/05/06 GRID DATUM PROJECT DATUM

JOB No 165/122/35 HEIGHT DATUM AHD BEARING DATE COMPLETED 31/05/06 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	-11.20				G	<b>ESTUARINE SILTY CLAY</b> (As above.)						pH <sub>F</sub> = 7.87 pH <sub>FOX</sub> = 2.23	1,1,- N=1 SPT
11					H			(OH)				Very loose fine grained sand-silt and shell fragments; little or no return in wash.	
12						High shell content below 11.5m. Grading into firm to stiff clay with depth.						High shell content below 11.5m.	RW N<1 SPT
13					J							pH <sub>F</sub> = 7.66 pH <sub>FOX</sub> = 1.76	U50
14	-14.60				K	<b>ALLUVIAL SANDY SILTY CLAY</b> Pale green grey to mottled orange brown, moist, stiff to very stiff.							
15						Medium to high plasticity.						pH <sub>F</sub> = 7.71 pH <sub>FOX</sub> = 6.40	5,6,8 N=14 SPT
16					L			(CL- CH)					
17													
18													
19	-19.60				M	<b>ALLUVIAL SANDY GRAVEL</b> Orange brown to brown, wet, medium dense.							
20	-21.20					(Coarse fraction > Fine fraction)		(GP)					5,7,11 N=18 SPT

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# ENGINEERING BOREHOLE LOG

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BOREHOLE No BHP70

SHEET 3 of 4

REFERENCE No H9913

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT

LOCATION 24m RIGHT, 0.5m STH FROM EASTN PILE OF PIER 70 OF EXIST BRIDGE COORDINATES 39696.5 E; 53666.1 N

PROJECT No FG5423 SURFACE R.L. -1.20 PLUNGE DATE STARTED 30/05/06 GRID DATUM PROJECT DATUM

JOB No 165/122/35 HEIGHT DATUM AHD BEARING DATE COMPLETED 31/05/06 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	-21.20					<b>ALLUVIAL SANDY GRAVEL</b> (As above.)  Coarse fraction - Subangular to subrounded quartz fragments sizing up to 35mm.  Fine fraction - Angular to subangular medium to coarse sand.							
21													
22					N		(GP)					16,16,17 N=33	SPT
23													
24													
25	-26.50				P	<b>ALLUVIAL CLAY</b> Grey, stiff. (Driller's record only.)	(OL)					5,30,9 N=39	SPT
26	-27.35					<b>ALLUVIAL SAND</b> Grey, medium grained, clean. (Driller's record only.)	(SP)						
27	-28.00					<b>ALLUVIAL SILTY CLAY / SANDY SILTY CLAY</b> Dark grey, moist, very stiff.  High plasticity; some organic fragments.							
28					D		(OL)					pH <sub>e</sub> = 6.57 pH <sub>FOX</sub> = 0.85  4,7,10 N=17 ASS Sample stored at Herston Geotechnical Laboratory	SPT
29													
30	-31.20												

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# ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND  
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BOREHOLE No BHP70

SHEET 4 of 4

REFERENCE No H9913

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT

LOCATION 24m RIGHT, 0.5m STH FROM EASTN PILE OF PIER 70 OF EXIST BRIDGE COORDINATES 39696.5 E; 53666.1 N

PROJECT No FG5423 SURFACE R.L. -1.20 PLUNGE DATE STARTED 30/05/06 GRID DATUM PROJECT DATUM

JOB No 165/122/35 HEIGHT DATUM AHD BEARING DATE COMPLETED 31/05/06 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
30	-31.20												
	-31.40					ALLUVIAL SILTY CLAY / SANDY SILTY CLAY (As above.)		(OL)				Quartz 5mm grains sizing up to 50mm on bedrock surface	
	-32.20					SANDSTONE FINE GRAINED MASSIVE TO SLIGHTLY LAMINATED POORLY CEMENTED SEDIMENTARY ROCK							
31					(97)	HW: ? (Driller's record only.)						Is(50)=1.40 MPa	x
						SW: Pale grey to white, mainly fine grained, massive to slightly laminated, medium to high strength with some low strength bands around lamination partings.						Is(50)=1.74 MPa	o
32						Some basaltic rip-up clasts upto 40mm; occasional carbonaceous laminations <10mm.						Is(50)=0.88 MPa	x
						Defects: Generally rare.						Is(50)=1.00 MPa	o
						- Occasional drilling induced lamination partings <20° (1-3/m).						Is(50)=0.84 MPa	o
33												Is(50)=1.27 MPa	x
												Is(50)=0.80 MPa	o
34	-35.20			100		Borehole terminated at 34m						Is(50)=3.64 MPa	o
												Is(50)=1.26 MPa	x
35													
36													
37													
38													
39													
40													

REMARKS

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Project: **Houghton Highway Bridge Duplication**  
Borehole No: **BHP70**  
Start Depth: 31.00m  
Finish Depth: 34.00m  
Project No: FG5423  
H No: 9913



0 100 200 300 400 500 600mm

SCALE 1:5



## Point Load Strength Index - Test Report

Project: Houghton Highway Bridge Investigation

Project No: FG5423

Date Sampled 30/05/06

Feature: N/A

Sample Type: NMLC Core

Date Tested 13/06/06

Report No. FG5423/GS06-483/AS4133.4.1

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/483.A	BHP 70	31.12	D	1.40	1.40	H	Sandstone
GS06/483.B	BHP 70	31.15	A	1.81	1.74	H	Sandstone
GS06/483.C	BHP 70	31.71	D	0.89	0.88	M	Sandstone
GS06/483.D	BHP 70	31.73	A	1.02	1.00	M	Sandstone
GS06/483.E	BHP 70	31.78	A	0.85	0.84	M	Sandstone
GS06/483.F	BHP 70	31.80	D	1.28	1.27	H	Sandstone
GS06/483.G	BHP 70	32.14	A	0.82	0.80	M	Sandstone
GS06/483.H	BHP 70	33.27	A	3.42	3.64	VH	Sandstone
GS06/483.J	BHP 70	33.30	D	1.25	1.26	H	Sandstone

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:

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.REYNOLDS )



Accreditation Number: 2302  
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# Point Load Strength Index - Test Report

**Project: Houghton Highway Bridge Investigation**

**Project No: FG5423**

**Date Sampled 30/05/06**

**Feature: N/A**

**Sample Type: NMLC Core**

**Date Tested 13/06/06**

**Report No. FG5423/GS06-483/AS4133.4.1**

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/483.K	BHP 70	33.90	D	1.02	1.01	H	Sandstone
GS06/483.L	BHP 70	33.92	A	1.52	1.46	H	Sandstone

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:

Test Method: AS4133.4.1

Software Version 2.03 April 2005

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