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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BHP28

SHEET 1 of 4

REFERENCE No H9902

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT
 LOCATION 24m RIGHT, 1m STH FROM EASTN PILE OF PIER 28 OF EXIST BRIDGE COORDINATES 39202.8 E; 52624.1 N
 PROJECT No FG5423 SURFACE R.L. -1.01 PLUNGE _____ DATE STARTED 08/05/06 GRID DATUM PROJECT DATUM
 JOB No 165/122/35 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 08/05/06 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		
									CU	U	H	M	VL	EL					20	60
0	-1.01					ESTUARINE SAND / SILTY SAND Dark grey, wet, mainly very loose to loose. Frequent partly decomposed shell fragments; mainly fine to medium grained sand; some high plastic silty clay seams with thickness up to 20mm.														
1					A												pH _e = 7.59 pH _{Fox} = 6.45	1,1- N=1	SPT	
2					B												pH _e = 8.17 pH _{Fox} = 5.87		U50	
3					C		(SP-SM)										pH _e = 7.72 pH _{Fox} = 6.79	1,-,1 N=1	SPT	
4					D												pH _e = 7.60 pH _{Fox} = 6.52		U50	
5	-5.71				E												pH _e = 7.73 pH _{Fox} = 6.80	2,1,1 N=2	SPT	
6					F	ALLUVIAL SANDY CLAY Green grey, moist, firm to stiff. High plasticity.											pH _e = 8.27 pH _{Fox} = 6.42	ASS Sample stored at Herston Geotechnical Laboratory	U50	
7					G		(CH)											5,10,13 N=23	SPT	
8	-7.31				H	ALLUVIAL SILTY CLAY Pale green grey to orange brown, moist, stiff to very stiff. Medium to high plasticity; slightly sandy in some places.													4,6,9 N=15	SPT
9							(CI-CH)													
10	-11.01																			

REMARKS _____

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Main Roads

ENGINEERING BOREHOLE LOG

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

BOREHOLE No BHP28

SHEET 2 of 4

REFERENCE No H9902

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT

LOCATION 24m RIGHT, 1m STH FROM EASTN PILE OF PIER 28 OF EXIST BRIDGE COORDINATES 39202.8 E; 52624.1 N

PROJECT No FG5423 SURFACE R.L. -1.01 PLUNGE _____ DATE STARTED 08/05/06 GRID DATUM PROJECT DATUM

JOB No 165/122/35 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 08/05/06 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	
														U
10	-11.01				J	ALLUVIAL CLAYEY SAND Pale brown to orange brown, wet, medium dense.	(SC)					3,5,8 N=13	SPT	
11														
12														
13					K							8,10,10 N=20	SPT	
14	-15.01					ALLUVIAL GRAVEL (Driller's log only.) Brown, wet, ironstained quartz up to 20mm.	(GP)							
15	-16.01					ALLUVIAL SANDY SILTY CLAY Brown, moist, stiff to mainly very stiff. Fine grained sand.	(CI)							
16					L							7,12,16 N=28	SPT	
17														
18														
19	-19.51				M	ALLUVIAL SILTY SAND / SANDY SILT Orange brown to brown, wet, medium dense. Minor clay fraction; fine sand becoming medium with depth.	(SM)					4,8,11 N=19	SPT	
20	-21.01													

A. ENGINEERING BOREHOLE LOG W/ LITHOLOGY FG5423 HIGHWAY BRIDGE.GPJ MRD.LIB.V1.2.GLB.25/10/06

REMARKS _____

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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BHP28

SHEET 3 of 4

REFERENCE No H9902

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT

LOCATION 24m RIGHT, 1m STH FROM EASTN PILE OF PIER 28 OF EXIST BRIDGE COORDINATES 39202.8 E; 52624.1 N

PROJECT No FG5423 SURFACE R.L. -1.01 PLUNGE DATE STARTED 08/05/06 GRID DATUM PROJECT DATUM

JOB No 165/122/35 HEIGHT DATUM AHD BEARING DATE COMPLETED 08/05/06 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	-21.01					ALLUVIAL SILTY SAND / SANDY SILT (As above.)							
21							(SM)						
22					N							6, 10, 18 N=28	SPT
23	-23.51					ALLUVIAL SANDY GRAVEL Pale grey to white, wet, dense to very dense. (Coarse fraction > Fine fraction)							
24					P	Coarse fraction - Subangular to subrounded quartzitic gravel sizing up to 20mm. Fine fraction - Angular to subangular quartzitic gravel with minor silt fraction.						11, 16, 16 N=32	SPT
25					Q		(GP)				No recovery	30/100 N>50	SPT
26													
27													
28	-28.91				R	SANDSTONE FINE TO MEDIUM GRAINED LAMINATED POORLY CEMENTED SEDIMENTARY ROCK HW : Grey to dark grey, mainly dry, very dense silty sand abruptly grading into very low to low strength rock. SW: Pale grey to grey, fine grained, mainly laminated, very low to low strength.						30/80 N>50	SPT
29	-29.91			(28)							Mudstone interbed	Is(50)=0.11 MPa Is(50)=0.15 MPa	x o
30	-31.01					Defects: - Numerous drilling-induced lamination partings <15° (>5/m).						Is(50)=0.04 MPa Is(50)=0.06 MPa	x o

REMARKS

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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BHP28
SHEET 4 of 4
REFERENCE No H9902

PROJECT HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT
LOCATION 24m RIGHT 1m STH FROM EASTN PILE OF PIER 28 OF EXIST BRIDGE COORDINATES 39202.8 E; 52624.1 N
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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
									ET	VL	2	1			
30	-31.01					SW: (As above.) Highly erodable core cruble in hand with excessive drying.		SW						Coreloss	
31	-31.86		77 (100)			SANDSTONE MEDIUM TO COARSE GRAINED, MAINLY MASSIVE TO SLIGHTLY LAMINATED POORLY CEMENTED SEDIMENTARY ROCK SW: Pale grey to grey, mainly medium to coarse grained, mainly massive to slightly laminated, mainly medium strength to occasionally high strength bands. Defects: Generally rare. - Occasional drilling-induced lamination partings <15° (1/1-2m).		SW					Is(50)=0.41 MPa Is(50)=0.49 MPa Is(50)=1.39 MPa Is(50)=1.74 MPa Is(50)=0.63 MPa Is(50)=0.73 MPa Is(50)=0.37 MPa Is(50)=0.86 MPa Is(50)=0.43 MPa Is(50)=0.56 MPa Is(50)=0.37 MPa Is(50)=0.40 MPa	x o x o x o x o x o	
34	-34.91		100			Borehole terminated at 33.9m									
35															
36															
37															
38															
39															
40															

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

REMARKS _____

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Project: **Houghton Highway Bridge Duplication**
Borehole No: **BHP28**
Start Depth: 28.90m
Finish Depth: 33.90m
Project No: FG5423
H No: 9902



Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation

Project No: FG5423

Date Sampled 08/05/06

Date Tested 31/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-416/AS4133.4.1

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/416.A	BHP 28	29.33	D	0.12	0.11	L	Sandstone
GS06/416.A	BHP 28	29.36	A	0.17	0.15	L	Sandstone
GS06/416.A	BHP 28	29.70	D	0.04	0.04	VL	Sandstone
GS06/416.A	BHP 28	29.73	A	0.06	0.06	VL	Sandstone
GS06/416.A	BHP 28	31.08	D	0.42	0.41	M	Sandstone
GS06/416.A	BHP 28	31.11	A	0.52	0.49	M	Sandstone
GS06/416.A	BHP 28	31.49	D	1.40	1.39	H	Sandstone
GS06/416.B	BHP 28	31.51	A	1.80	1.74	H	Sandstone
GS06/416.C	BHP 28	31.82	D	0.64	0.63	M	Sandstone
GS06/416.D	BHP 28	31.85	A	0.74	0.73	M	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  14/6/06

(Mr Peter Simson)



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Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation

Project No: FG5423

Date Sampled 08/05/06

Date Tested 31/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-416/AS4133.4.1

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	Is (MPa)	Is50 (MPa)	Strength Descriptor**	Lithology
GS06/416.E	BHP 28	32.55	D	0.38	0.37	M	Sandstone
GS06/416.F	BHP 28	32.62	A	0.84	0.86	M	Sandstone
GS06/416.G	BHP 28	33.30	D	0.43	0.43	M	Sandstone
GS06/416.H	BHP 28	33.40	A	0.54	0.56	M	Sandstone
GS06/416.J	BHP 28	33.85	D	0.38	0.37	M	Sandstone
GS06/416.K	BHP 28	33.88	A	0.40	0.40	M	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)

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Client Name: Department of Main Roads

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Signatory *P. Simson* 14, 6, 06

(Mr Peter Simson)



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