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ENGINEERING BOREHOLE LOG

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

BOREHOLE No	BHP05
SHEET	_ <u>1</u> _ of _ <u>3</u> _
REFERENCE No	<u>H9898</u>

	JECT ATION				HWAY BRIDGE DUPLICATION - HOUGHT							 :S <u>38931.9 E</u>	 :: 52055.2 N	
PRO JOB					SURFACE R.L0_76 PLUNGE HEIGHT DATUMAHD BEARING							DRILLER _C		
O DEPTH (m)	R.L. (m) -0.76	CASING WASH BORING CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	MTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG		DDITIONAL DA AND TEST RESULT		SAMPLES
-1	-3.16			В	ESTUARINE SAND & SHELL. Dark grey to grey brown, wet, mainly very loose to loose. Slightly organic in some places.		(SP- SM)				pH _F = 8.0 pH _{Fox} = 6	.79 A .02 A .63 A	HW,1,1 N=2 SS Sample stored at Herston Geotechnical Laboratory 2,1,3 N=4 SS Sample stored at Herston Geotechnical Laboratory	SPT
3	-4 .56			С	ESTUARINE SILTY SAND Dark grey, wet, very toose. Gradually becoming sandy silty clay with depth.		(SM)				$pH_{F} = 7.3$ $pH_{Fox} = 3$		HW N<1	SPT
5	-5.76			D	ALLUVIAL SILTY SANDY CLAY Mottled grey to yellow brown, moist, soft to firm. Medium plasticity.		(CI)				pH _F = 6.2 pH _{Fex} = 5	25 .41	N=4 NSS Sample stored at Herston Geotechnical Laboratory	SPT
-6				E	ALLUVIAL SILTY CLAY Grey green to mottled orange brown/red, moist, mainly very stiff. Medium to high plasticity.						pH _F = 4.7 pH _{Fox} = 3	'0 .35	5,8,11 N=19 NSS Sample stored at Herston Geotechnical Laboratory	SPT
-7				F			(CI- CH)						7,9,14 N=23	SPT
10	-10.76	FIA		G	AANN VI AANNATER OEEN TUTA EV EO O			† † † † † † † † † † † † † † † † † † †					7,13,18 N=31	SPT
rt	EMARKS		<u>GRAII</u>	ZEN.	MAINLY LAMINATED SEDIMENTARY ROCK						•		GGED BY / ADISS	



ENGINEERING BOREHOLE LOG

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

BOREHOLE No	BHP05
SHEET	_2_ of _3_
REFERENCE No	H9898

PRO	JECT				GHWAY BRIDGE DUPLICATION - HOUGH					CT			
					M EASTN PILE OF PIER 5 OF EXIST BRID						S 38931.9 E;		
JOB					SURFACE R.L						RID DATUM _PE		
, , , , , , , , , , , , , , , , , , ,		_100/_			TEIGHT DATOM _AND BEARING _						DRILLER <u>CA</u>	IKINS DRIF	LING_
<u>@</u>	R L. (m)	SNG	RQD ()%		MATERIAL		ស្ន		FECT SCING Somm)	A	DDITIONAL DAT	A	
DEPTH (m)		AG BORING DRILLING		ا پر ا	MATERIAL DESCRIPTION	LOGY	FRIN	(m	nm) 일		AND		SÃ.
10	-10.76	득ਨ띴	CORE REC %	SAMPLE	DESCRIPTION	LITHOLOGY	USC	STRENGTH SPAC (m) \$88 \$28 च≒===	200 600 2000 GRAPHIC		TEST RESULTS		SAMPLES
- 10	-10.76		TREO 70		ALLUVIAL SANDY SILTY CLAY		-1-	<u> </u>	11110			7,11,15	SPT
				ALC: UKAN	Grey to mottled orange brown, moist, stiff to mainly very stiff.			<u> </u>				N=26	SFI
			9		Medium to high plasticity.			<u> </u>					54
- 11								+					-
								‡					
-							'	<u> </u>				5,4,7	COT
- 12				J			(CI-	1				N≂11	SPT
["]			1				(CI- CH)	Ŧ					-
-								-					_
								‡					
- 13								+				250	103
				K				‡				3,5,9 N=14	SPT
								<u> </u>					8
-14	-14.76												
		III.			SANDSTONE FINE TO MEDIUM GRAINED MASSIVE			<u> </u>					
5/10/0			3		TO MAINLY LAMINATED POORLY CEMENTED SEDIMENTARY ROCK			+					
18 2				L	XW: Generally exhibits engineering properties of pale yellow brown to mottled			Ŧ				3,10,13 N=23	SPT
75 - 15 5 - 15					orange brown, moist, mainly very stiff to hard silty clay.	:::		T					-
MRD LIB_V1.2.GLB 25/10/06				1	Medium plasticity.	:::		† †					
MRD -					Gradually becoming hard with depth.	:::		+					
16 16	Ì				craddany becoming hard with depart.	:::		‡					
				М		:::		‡				3,6,9 N=15	SPT
AY BR					0	1:::		+					
NE L						:::		<u>†</u>					
A ENGINEERING BOREHOLE LOG W LITHOLOGY FG5423 HIGHWAY BRIDGE.GPJ						::::	XW	+					
F.G.								1					£
507				N				Ŧ				3,6,13 N=19	SPT
위 - 18						:::		‡				N=19	
% - 						::::		‡					
								‡					-
ž[`								‡					
OR - 19 - 19 19				Р				‡				7,16,30 N=46	SPT
								‡				N=46	
ENGIN						:::		‡]
	-20.76 EMARKS	EIN	E CDAIN		MAINI VI AMINIATED PEDIMENTADY DOOY	:::						OCD D:	-
K			<u> </u>	الاعد	MAINLY LAMINATED SEDIMENTARY ROCK						1	GED BY ADISS	



ENGINEERING BOREHOLE LOG

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

PROJE LOCAT	TION	_24m	RIGHT	<u>FRO</u>	HWAY BRIDGE DUPLICATION - HOUGHT MEASTN PILE OF PIER 5 OF EXIST BRID SURFACE R.L0.76 PLUNGE	GE.			CC	OORDINATES 38931.9 E; 52055.2 N	
JOB N			<u>423</u> 122/35 _		HEIGHT DATUM _AHD BEARING						
S DEPTH (m)	R.L. (m)	CASING WASH BORING CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	INTACT DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
-21				Q	HW : Pale orange brown to brown, moist, very dense silty sand gradually grading into very low to low strength rock.					30/110 N>50	SPT
-22				R			нw	+ + + + + + + + + + + + + + + + + + +		30/100 N>50	SPT
-24	-24.26		(100)		MW: Pale orange brown to brown, fine to medium grained, slightly massive to mainly laminated, mainly low to medium strength. Defects: Generally rare. - Occasional drilling-induced lamination partings <10° (1-2/m).		MW			Is(50)=0.18 MPa Is(50)=0.12 MPa Is(50)=0.21 MPa Is(50)=0.21 MPa Is(50)=0.20 MPa Is(50)=0.42 MPa Is(50)=0.29 MPa Is(50)=0.25 MPa	0 x - 0 x x - 0
	-26.22 -27.21		(93)		MUDSTONE (See Remarks) MW: Dark grey to black, fine grained, thinly laminated, mainly low to occasionally medium low strength. Defects: Frequent drilling-induced lamination partings <10° (6/m). INTERBEDDED MUDSTONE AND SANDSTONE		MW			Is(50)=0.16 MPa Is(50)=0.22 MPa Is(50)=0.22 MPa Is(50)=0.29 MPa Is(50)=0.19 MPa Is(50)=0.44 MPa Is(50)=0.44 MPa Is(50)=0.66 MPa Is(50)=0.72 MPa Is(50)=0.73 MPa Is(50)=0.73 MPa Is(50)=0.13 MPa	0 0 0 X 0 X 0 X
-27	-27.86 -28.76		93	X	FINE TO MEDIUM GRAINED MAINLY LAMINATED POORLY CEMENTED SEDIMENTARY ROCK SW: Dark grey, black to white banded, fine to medium grained, mainly laminated, mainly low to medium strength. Defects: Some drilling-induced lamination partings <10° (2/m).		SW			is(50)=0.37 MPa is(50)=0.25 MPa is(50)=0.39 MPa is(50)=0.69 MPa - Core left in the borehole	0 0 X 0
-26 27 27 29 29	MARKS				MUDSTONE (As above.) MW: Dark grey to black, fine grained, thinly laminated, very low to mainly low strength. Defects: Generally rare. - Occasional drilling-induced lamination partings <10° (1/m). Borehole terminated at 28m WAINLY LAMINATED SEDIMENTARY ROCK		•			LOGGED BY	

Project: Houghton Highway Bridge Duplication

Borehole No: BHP5
Start Depth: 23.50m
Finish Depth: 28.00m
Project No: FG5423
H No: 9898

Gox 2



8P8PH

FG5423



Road System & Engineering 35 Butterfield Street Herston Qld 4006

Point Load Strength Index - Test Report

Project: Houghton Highway Bridge Investigation

Project No: FG5423

Date Sampled Feature: N/A

17/05/06

Sample Type: NMLC Core

Report No. FG5423/GS06-426/AS4133.4.1

Date Tested 06/06/06

			,				
Sample	Sample	Depth	Test Type	ls	ls50	Strength	Lithology
Number	Location	(m)	D,A,B;I*	(MPa)	(MPa)	Descriptor*	k*
GS06/426.A	BHP 05	23.85	Α	0.18	0.18	L	Sandstone
GS06/426.B	BHP 05	23.88	D	0.12	0.12	L	Sandstone
GS06/426.C	BHP 05	24.15	Α	0.22	0.21	L	Sandstone
GS06/426.D	BHP 05	24.18	D	0.21	0.21	L	Sandstone
GS06/426.E	BHP 05	24.55	Α	0.42	0.42	M	Sandstone
G\$06/426.F	BHP 05	24.50	D	0.20	0.20	i_	Sandstone
GS06/426.G	BHP 05	24.90	Α	0.28	0.29	L	Sandstone
GS06/426.H	BHP 05	24.95	D	0.25	0.25	L	Sandstone
GS06/426.J	BHP 05	25.38	Α	0.16	0.16	L.	Sandstone
GS06/426.K	BHP 05	25.40	D	0.22	0.22	L	Sandstone

Sample Remarks

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

** EL - Exfremely 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

(Peter W Reynolds)

Accreditation Number: 2302 Accordited for compliance with ISO/IEC 17025

This document is issued in accordance with NATA's on attached cover page.



Road System & Engineering 35 Butterfield Street Herston Old 4006

Point Load Strength Index - Test Report

Project: Houghton Highway Bridge Investigation

Project No: FG5423

Date Sampled 17/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-426/AS4133.4.1

Date Tested 06/06/06

Sample	Sample	Depth	Test Type	ls	Is50	Strength	Lithology
Number	Location	(m)	D,A,B,I*	(MPa)	(MPa)	Descriptor*	*
GS06/426.L GS06/426.M GS06/426.N GS06/426.P GS06/426.Q GS06/426.R GS06/426.S GS06/426.T	BHP 05 BHP 05 BHP 05 BHP 05 BHP 05 BHP 05 BHP 05 BHP 05	25.48 25.51 25.70 25.90 25.95 26.42 26.40 26.50	A A D D A A D D	0.30 0.20 0.23 0.44 0.16 0.70 0.67 0.13	0.29 0.19 0.23 0.44 0.16 0.72 0.66 0.13	L L M L M M	Mudstone Mudstone Mudstone Mudstone Mudstone Mudstone Mudstone Mudstone
GS06/426.U	BHP 05	26.52	A	0.39	0.37	M	Mudstone
GS06/426.V	BHP 05	26.85	D	0.43	0.39	M	Mudstone

Sample Remarks

* D - Diametral; A - Axial; B - Block; f - 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

(Peter W Reynolds

Accreditation Number: 2302 Accedited for compliance with ISO/IEC 17025

This document is assect in accordance with WATA's



Road System & Engineering 35 Butterfield Street Herston Qld 4006

Point Load Strength Index - Test Report

Project: Houghton Highway Bridge Investigation

Project No: FG5423

Date Sampled 17/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-426/AS4133.4.1

Date Tested 06/06/06

Sample	Sample	Depth	Test Type	Is	Is50	Strength	Lithology
Number	Location	(m)	D,A,B,1*	(MPa)	(MPa)	Descripto	or**
GS06/426.X	BHP 05	26.83	A	0.25	0.25	L	Mudstone
GS06/426.Y	BHP 05	27.15	A	0.71	0.69	M	Mudstone

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

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Signatory .

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