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

BOREHOLE No	BHP70
SHEET	_1_of_4_
REFERENCE No	H9913

PROJECT PROJECT JOB No.	ION <u>24</u> CT No <u>F</u>	m RIC 35423	<u>3HT,0</u>	0 <u>.5m</u>	SHWAY BRIDGE DUPLICATION - HOUGHTO STH FROM EASTN PILE OF PIER 70 OF E SURFACE R.L1.20 _ PLUNGE _ HEIGHT DATUMAHD _ BEARING	XIS	<u>T BR</u>	IDGE	C0 30/05	OORDINATES 39696 5/06 GRID DATUM	5 E; 53666.1 N PROJECT DA CAIRNS DRIL	
PTH (m)	R.L. (m) CASING	(DAILLING	QD)% ORE	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	INTACT DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL AND TEST RESU		SAMPLES TESTS
ENGINEERING BOREHOLE LOG W LITHOLOGY FG5423 HIGHWAY BRIDGE.GPJ MRD LIB V1.2.GLB 25/10/06	-5.10			A B C D	ESTUARINE SILTY SAND Dark grey, wet, very loose. Frequent partly decomposed shell fragments; mainly fine grained sand; slightly organic throughout. ESTUARINE SILTY CLAY Dark grey, moist, very soft. High plasticity; high organic content; minor fraction of shell fragments. Becoming sandy silty clay with depth; minor fine grained sand.		O) USC (MEC)		GRAPH	TEST RESULT $ pH_{F} = 7.56 \\ pH_{FOX} = 6.49 $ $ pH_{F} = 7.83 \\ pH_{FOX} = 5.89 $ $ pH_{F} = 8.07 \\ pH_{FOX} = 6.33 $ $ pH_{F} = 8.07 \\ pH_{FOX} = 4.44 $ $ pH_{FOX} = 4.44 $ $ pH_{FOX} = 3.10 $	RW N<1 ASS Sample stored at Herston Geotechnical Laboratory RW,RW,HW N<1 ASS Sample stored at Herston Geotechnical Laboratory RW,C1 RW,RW,HW N<1 ASS Sample stored at Herston Geotechnical Laboratory	SPT SPT SPT
	IARKS _									- 1	LOGGED BY BW / ADISS	



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

PRO	JECT	HQU	IGHTO <u>I</u>	1 HIG	CHWAY BRIDGE DUPLICATION - HOUGHT	<u>ON F</u>	<u>IIG</u> H	<u>WAY UPG</u> F	RADE PR	OJE	<u></u>			
	ATION				STH FROM EASTN PILE OF PIER 70 OF I							S 39696.5 E; 53		
JOB JOB					SURFACE R.L1.20 PLUNGE HEIGHT DATUMAHD BEARING				TARTED _. IPLETED			RID DATUM <u>PRO</u> DRILLER <u>CAI</u> F		
DEPTH (m)	R.L. (m)	SING SH BORING RE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	LOGY	HERING	INTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	Αſ	DDITIONAL DATA AND TEST RESULTS		SAMPLES TESTS
10	-11.20	5 ≱8	REC %	SA	ESTUARINE SILTY CLAY	<u>E</u>	SN WE	┯╤┸≊⋾≷╓		8	1	TCOT NEGGETO		SA SE
- 11				G	(As above.)		(OH)				sand-silt little or no	2.23 se fine grained and shell fragment o retum in wash. Il content below	1,1,- N=1 3; RW N<1	SPT
- 12	-14.60			J	High shell content below 11.5m. Grading into firm to stiff clay with depth.						pH _F = 7.6	56 76	NSI	U50
14	17.00			к	ALLUVIAL SANDY SILTY CLAY Pale green grey to mottled orange brown, moist, stiff to very stiff. Medium to high plasticity.						$pH_{\rm F} = 7.7$		5,6,8	007
15				2			(CI- CH)				$\int_{\rho}^{\rho} \rho H_{\text{FOX}} = 6$		N=14	SPT
16 17 17 18				L									6,7,†0 N=17	SPT
- 19	-19.60			М	ALLUVIAL SANDY GRAVEL Orange brown to brown, wet, medium dense. (Coarse fraction > Fine fraction)		(GP)			0,000	- 	· 	5,7.11	SPT
20	-21.20 EMARKS			141				-	-	0000			N=18	SFI
r.		<i>'</i>									-	LOGG BW / A		



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

BOREHOLE No	BHP70
SHEET	_3_ of _4_
REFERENCE No	H9913

	JECT	HOUGHTON HIGHWAY BRIDGE DUPLICATION - HOUGHTON HIGHWAY UPGRADE PROJECT 24m RIGHT, 0.5m STH FROM EASTN PILE OF PIER 70 OF EXIST BRIDGE COORDINATES 39696.5 E; 53666.1 N												
JOB					SURFACE R.L1_20 PLUNGE _ HEIGHT DATUM _AHD BEARING								PROJECT DA	
- T		_,			TEIGHT DATON _AID _ BLANKS _					<u>3 1700</u>	<u> </u>	DRILLER	CAIRING DAIL	LING _
e	R.L. (m) -21.20	9 N N N	RQD ()%				_ဖ	INTACT STRENGTH	DEFECT SPACING	ဖွ	Αſ	DDITIONAL	DATA	
DEPTH (m)		BORIL		ωį	MATERIAL	OGY	S S		(mm)	907 OI		AND		<u>s</u>
-		ASH ASH ORE	CORE	SAMPLE	DESCRIPTION	LITHOLOGY	USC WEATH	STRENGTH	00000 00000000000000000000000000000000	GRAPHIC	٦ -	TEST RESU	LTS	SAMPLES
20	-21.20	0>0	REC %	S	ALLUVIAL SANDY GRAVEL	2	⊃∣≥			Ž (S ₽
Ė					(As above.)	60		‡		0				-
F					Coarse fraction - Subangular to	000		+		0				
F					subrounded quartz fragments sizing up to 35mm.	00		‡		þ.				
-21		10			Fine fraction - Angular to subangular	000		+						_
-					medium to coarse sand.			Ī		Ö				-
F						00		Ī	•					
- 22		10				00		‡		b'				-
				N		000		Ī	•	0			16,16,17	SPT -
		П.				000		‡	_				N=33	
Ė						10/7	(GP)	‡		6				-
-23						00		1	-	0]
E						100		#		3]
-						000	1	+		Ď,	-			_
[]						100		‡		0				
-24						000		+	-	jŏ				-
96						101		‡						-
MRD LIB V1.2.GLB 25/10/06						000		_		6				_
SIB.						60		1		0				_
7.i - 25 5	00.00			Р		00		1 1	•	3			5,30.9	ens -
뽜	-26.50			100	ALLUVIAL CLAY	+		‡		<u>'</u>	-		N=39-	SPT
MRO L					Grey, stiff. (Driller's record only.)		(01)	Ī						1
26 26	-				, , , , , , , , , , , , , , , , , , , ,		1(01)	1						_
	-27.35	ш			ALLUVIAL SAND			‡						-
					Grey, medium grained, clean. (Driller's record only.)		(SP)	1]
A	-28.00		LII											-
위 27					ALLUVIAL SILTY CLAY / SANDY SILTY CLAY			‡	-					_
6542					Dark grey, moist, very stiff.		}	1						-
A ENGINEERING BOREHOLE LOG W LITHOLOGY FG5423 HIGHWAY BRIDGE.GPJ					High plasticity; some organic fragments.		1	‡	-					
와							1						4,7,10	-
<u></u> = -28				1911		<u></u>		‡	-		h	_	N=17 ASS Sample	
8				Q			(OL)				$\rho H_F \approx 6.5$ $\rho H_{FOX} = 0$	67 0.85	stored at Herston	SPT :
							1,52,		-		Γ		Geotechnical Laboratory	-
							-						1	
요 - 29 일 -							1		-					-
						-		<u> </u>						:
NÖ.								+						-
w	-31.20					-		<u>†</u>						
RI	EMARKS					-						I	LOGGED BY	
												١٤	BW / ADISS	



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

BOREHOLE No	BHP70
SHEET	_4_ of _4_
REFERENCE No	H9913

PRO.	JECT	HOU.	<u>JGHTON</u>	<u> </u>	SHWAY BRIDGE DUPLICATION - HOUGHT	<u>N</u> 0	<u>HIG</u> H	I <u>WAY</u> UPGRADE PR	OJE	CT	
		<u>24m</u>	RIGHT	<u>0.5</u> n	STH FROM EASTN PILE OF PIER 70 OF E	XIS	T BR	RIDGE		OORDINATES 39696.5 E; 53666.1	N
					SURFACE R.L1.20 PLUNGE					5/06 GRID DATUM PROJECT	
JOB I	No	_165/_ 	<u> 122/35</u>		HEIGHT DATUMAHD BEARING			DATE COMPLETED	<u>31/05</u>	5/06 DRILLER <u>CAIRNS DE</u>	ILLING_
© DEPTH (m)	R.L. (m)	CASING WASH BORING CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT DEFECT SPACING (mm) THE STRENGTH SPACING (mm) RESTRENGTH SPACING (mm) RESTRENGTH SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES
- "	-31.40				ALLUVIAL SILTY CLAY / SANDY SILTY		(OL)			Quartz 5mm grains	 "
-31	-32.20		(97)		CLAY (As above.) SANDSTONE FINE GRAINED MASSIVE TO SLIGHTLY LAMINATED POORLY CEMENTED SEDIMENTARY ROCK HW:?					on bedrock surface	
-32					(Driller's record only.) SW: Pale grey to white, mainly fine grained, massive to slightly laminated, medium to high strength with some low strength bands around lamination partings. Some basaltic rip-up clasts upto 40mm;				71 N	Is(50)=1.40 MP Is(50)=1.74 MP Is(50)=0.88 MP Basalt rip up clast Is(50)=0.84 MP Is(50)=0.84 MP	a x
-33					occasional carbonaceous laminations <10mm. Defects: Generally rare Occasional drilling induced lamination partings <20° (1-3/m).					Discontinuous carbonaceous laminations. Is(50)=1.27 MP Is(50)=0.80 MP Is(50)=0.80 MP	a x
- - - - -	-35.20		100							Is(50)=3.64 MP Is(50)=1.26 MP Is(50)=1.01 MP Is(50)=1.46 MP	a x
-35 -36 -37 -38 -38					Borehole terminated at 34m						
40 RE	REMARKS LOGGED BY BW / ADISS										

Project: Houghton Highway Bridge Duplication

Borehole No: BHP70
Start Depth: 31.00m
Finish Depth: 34.00m
Project No: FG5423
H No: 9913





ROAD SYSTEM & ENGINEERING GEOTECHNICAL BRANCH 35 Butterfield St Herston Q 4006

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

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

Date Tested 13/06/06

Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	ls (MPa)	ls50 (MPa)	Strength Descriptor*	Lithology *
GS06/483.A	BHP 70	31.12	D	1.40	1.40	Н	Sandstone
GS06/483.B	BHP 70	31.15	Α	1.81	1.74	Н	Sandstone
GS06/483.C	BHP 70	31.71	D	0.89	0.88	M	Sandstone
GS06/483.D	BHP 70	31.73	Α	1.02	1.00	M	Sandstone
GS06/483.E	BHP 70	31.78	Α	0.85	0.84	M	Sandstone
GS06/483.F	BHP 70	31.80	Ď	1.28	1.27	Н	Sandstone
GS06/483.G	BHP 70	32.14	Α	0.82	0.80	M	Sandstone
GS06/483.H	BHP 70	33.27	Α	3.42	3.64	VH	Sandstone
GS06/483.J	BHP 70	33.30	D	1.25	1.26	Н	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
Accredited for compliance
with ISO/IEC 17025
This document is issued in



ROAD SYSTEM & ENGINEERING GEOTECHNICAL BRANCH 35 Butterfield St Herston Q 4006

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

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

Date Tested 13/06/06

Sample	Sample	Depth	Test Type	ls	Is50	Strength	Lithology
Number	Location	(m)	D,A,B,I*	(MPa)	(MPa)	Descriptor*	*
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)

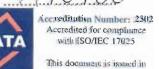
Remarks / Variations to Test Procedures:

 Test Method: AS4133.4.1 Software Version 2.03 April 2005

Client Name: Department of Main Roads
Client Address: PO Box 70, Spring Hill QLD 4004

Signatory

P.REYNOLD'S



accordance with NATA's

es on attached cover page.