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

BOREHOLE No	BHP20
SHEET	_1_ of _4_
REFERENCE No	H9903

PROJECT No. FG5423   SURFACE RL.	PROJECT LOCATION				SHWAY BRIDGE DUPLICATION - HOUGHT					<del></del>		
DOB NO 165/122/35 HEIGHT DATUM AHD BEARING DATE COMPLETED 02/05/06 DRILLER CAIRNS DRILLING  RL. (m) 92 MATERIAL DESCRIPTION DE												
MATERIAL DESCRIPTION  O												
Dark grey, wet, very soft.  Frequent partly decomposed shell fragments; slightly organic content.  A  Becoming fine sand with depth.  CL-ML  Dark grey, wet, very soft.  Becoming fine sand with depth.  CL-ML  Dark grey, moist to mainly wet, very soft.  High organic content and high plasticity; occasional shell fragments.  CH  Dark grey, moist to mainly wet, very soft.  High organic content and high plasticity; occasional shell fragments.  CH  Dark grey, moist to mainly wet, very soft.  Dark grey, wet, very soft.	(m)	ASING ASH BORING ORE DRILLING	()%	AMPLE		тногову	SC EATHERING			ANI	0	MPLES STS
Dark grey, wet, very soft.  Frequent partly decomposed shell fragments; slightly organic content.  A  Becoming fine sand with depth.  CL- ML)  pH <sub>r</sub> = 7.50 pH <sub>rox</sub> = 2.80 pH <sub>re</sub> = 8.30 pH <sub>rox</sub> = 7.47  USO  PH <sub>re</sub> = 7.39 pH <sub>rex</sub> = 2.68  Dark grey, moist to mainly wet, very soft. High organic content and high plasticity; occasional shell fragments.  (OH)  pH <sub>r</sub> = 6.94 RW.RW.1 Spt.	0 -0.81	088	REC %	'S	ESTUARINE SILTY CLAY / CLAYEY SILT		]  ≊ ≩	111111111111111111111111111111111111111	1 6			Sy II
Becoming fine sand with depth.  Becoming fine sand with depth.  CL-ML) $pH_{Fox} = 2.80$	-				Dark grey, wet, very soft.  Frequent partly decomposed shell							-
ESTUARINE SILTY CLAY  Dark grey, moist to mainly wet, very soft.  High organic content and high plasticity; occasional shell fragments.    Ph <sub>Fex</sub> = 2.68	-1				Becoming fine sand with depth.			† † † † † † † † † † † † † † † † † † †		$pH_{Fox} = 2.80$ $pH_{F} = 8.30$		
D Dark grey, moist to mainly wet, very soft.  High organic content and high plasticity; occasional shell fragments.    D Dark grey, moist to mainly wet, very soft.   D   PH <sub>F</sub> = 7.77   PH <sub>FOX</sub> = 6.75   D   PH <sub>F</sub> = 7.77   PH <sub>FOX</sub> = 6.75   D   PH <sub>F</sub> = 6.94   PH <sub>F</sub>   PH	3 -3.8			С	ESTUARINE SILTY CLAY					pH <sub>F</sub> = 7.39 pH <sub>Fox</sub> = 2.68		SPT
				D	Dark grey, moist to mainly wet, very soft.  High organic content and high plasticity;		(OH)					U50
ALLUVIAL CLAYEY SAND	φ - 5 2 ·			Е				<u> </u>		pH <sub>F</sub> = 6.94		SPT
Pale grey green to grey, moist, dense.  Fine to medium grained sand.  (SC)	GLB 25/10/			0	Pale grey green to grey, moist, dense.		(SC)				<u>``</u>	
- N=40 SP	- I			F				Ŧ				SPT ]
ALLUVIAL SILTY CLAY Pale mottled orange to pale grey brown, moist, stiff to mainly very stiff.  Medium to high plasticity; slightly lateritic and concreted zones.  5,6,10 N=16  SPT.	∢ <u>[ 10] -10.8</u>			G	Pale mottled orange to pale grey brown, moist, stiff to mainly very stiff.  Medium to high plasticity; slightly lateritic		(CI- CH)				N=16	SPT
REMARKS LOGGED BY BW / ADISS	REMARK	S								-		



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

BOREHOLE No	BHP20
SHEET	_2_ of _4_
REFERENCE No	H9903

PROJECT													
LOCATION													
				SURFACE R.L0.81 PLUNGE						•		PROJECT DA	
JOB No	_100/12						DRILLER	<u>CAIRNS DRIL</u>	LING _				
R.L. (m)	ASING ASH BORING ORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT STRENGTH 프뜻프ջ그것집	DEFECT SPACING (mm) 0000 0000 0000 0000 0000 0000 0000	GRAPHIC LOG		DDITIONAL I AND EST RESUI		SAMPLES TESTS
-			н	ALLUVIAL SILTY CLAY (As above.)			-	-				7,7,11	SPT -
-112				Becoming clayey sand with depth.		(CI- CH)						N=18	351
MRD LIB V1.2.GLB 25/10/06	4		J	ALLUVIAL CLAYEY / SILTY SAND Pale green brown to mottled red brown, moist, medium dense. Fine grained sand.		(SC- SM)						5,7,11 N=18	SPT
ENGINEERING BOREHOLE LOG W LITHOLOGY F65423 HIGHWAY BRIDGE.GPJ MRD LIB V	1		K	ALLUVIAL SANDY GRAVEL. Brown to dark brown, wet, medium dense to dense.  Coarse fraction - Subangular to subrounded, quartzitic gravel sizing up to 50mm.  Fine fraction - Angular to subangular quartz particles with minor silt and clay fraction.  Becoming less sand and no clay fraction.		(GP:						7,12,14 N=26 9,20,15 N=35	SPT
A ENGINEERING BOREHOLE LOG W LITI	100 17 27		М							-		20,18,22 N=40 LOGGED BY BW / ADISS	SPT
										-			



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

BOREHOLE No	BHP20
SHEET	_3_ of _4_
REFERENCE No	H9903

	JECT ATION												
		10 FG5423 SURFACE R.L0.81 PLUNGE DATE STARTED 02/05/06 GRID DATUM PROJECT DATU											
JOB				HEIGHT DATUM AHD BEARING DATE COMPLETED 02/05/06 DRILLER CAIRNS DRILL									
DEPTH (m)		ASING ASH BORING ORE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	INTACT DEFECT STRENGTH SPACING (mm)	GRAPHIC LOG		DDITIONAL DATA  AND TEST RESULTS	SAMPLES	
20	-20.81	050	REC %	σ	ALLUVIAL SANDY GRAVEL		2 5	<del></del>	9			σ F	
-21	-22.81			Z	(As above.)  Minor clay seams along the profile.		(GP- GM)	† † † † † † † † †			6,12,24 N=36	SPT	
- 22				Р	ALLUVIAL SANDY GRAVEL Mainly pale grey, wet, mainly medium dense becoming very dense with depth.	0000					12,12,11 N=23	SPT	
23				Q	(Coarse fraction > Fine fraction)  Coarse fraction - Subangular to subrounded, quartzitic and sandstone particles sizing up to 40mm.  Fine fraction - Angular to subangular quartzitic particles with minor silt and clay fraction.  Becoming less sand with no clay fraction.			+++++++++++++++++++++++++++++++++++++++	•		8,9,14 N=23	SPT	
GPJ MRD LIB V12.GLB 25/10/06				R			(GP)				10,9,10 N=19		
HIGHWAY BRIDGE	-27.81			s				+ + + + + + + +			23,24,30 N=54	SPT	
ENGINEERING BOREHOLE LOG W LITHOLOGY FG5423 HIGHWAY BRIDGE. GPJ				T	SANDSTONE FINE GRAINED LAMINATED POORLY CEMENTED SEDIMENTARY ROCK HW: Grey to dark grey, slightly moist to mainly dry, very dense silty sand, gradually grading into very low to low strength rock.		нw	+++++++++++++++++++++++++++++++++++++++			25,30/70 N>50	SPT	
	-30.31		(98)		SIV: Pale grey to grey, fine grained,	1:::	C)A/			<del> </del>		-	
Ä- - 30	-30.81			16	laminated, low to medium strength.	:::	SW				Is(50)=0.08 MPa	x	
RE	EMARKS									-	LOGGED BY BW / ADISS		



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

BOREHOLE No \_\_BHP20\_\_

SHEET \_\_4\_\_ of \_\_4\_\_

REFERENCE No \_\_H9903\_\_\_

LOC		_24m	RIGHT	<u>1 m</u> [	EHWAY BRIDGE DUPLICATION - HOUGHT NTH FROM EASTN PILE OF PIER 20 OF EX	IST	BRIC	GE	CC	OORDINATES 39108.8 E; 52427.9 N	
PRO JOB					SURFACE R.L						
00 DEPTH (m)	R.L. (m) -30.81	CASING WASH BORING CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	INTACT DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA  AND  TEST RESULTS	SAMPLES TESTS
- - - - - - - 31					SW: (As above.) Frequent mudstone interbeds up to 20mm.  Defects: Generally rare.  - Drilling-induced lamination partings <20° (3-5/m).				II.	Is(50)=0.10 MPa Is(50)=0.22 MPa Is(50)=0.31 MPa Is(50)=0.29 MPa Is(50)=0.26 MPa	0 X 0 X
-				81			sw			Is(50)=0.38 MPa Is(50)=0.58 MPa Is(50)=0.30 MPa Is(50)=0.64 MPa	x 0 -
-32	-33.31		96	×	Borehole terminated at 32.5m					S(50)=0.13 MPa   Is(50)=0.04 MPa   Is(50)=0.23 MPa   Core left down	0 - X X 0
-34								1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			-
35											- - -
-36 -37 -38 -38											-
-39											
RI	EMARKS	·								LOGGED BY BW / ADISS	

Project: Houghton Highway Bridge Duplication

Borehole No: BHP20
Start Depth: 29.50m
Finish Depth: 32.50m
Project No: FG5423

Project No: FG542 H No: 9903





Main Roads Department Geotechnical Branch 35 Butterfield Street Herston Old 4006

# Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation

Project No: FG5423

Date Sampled 02/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-414/AS4133.4.1

Date Tested 31/05/06

			,				
Sample	Sample	Depth	Test Type	ls	ls50	Strength	Lithology
Number	Location	(m)	D,A,B,1*	(MPa)	(MPa)	Descriptor	
		, ,		` ,	` ,	·	
GS06/414.A	BHP 20	29.82	D	0.08	0.08	VL	Sandstone
GS06/414.B	BHP 20	29.85	Α	0.11	0.10	VL	Sandstone
GS06/414.C	BHP 20	30.18	D	0.23	0.22	L	Sandstone
GS06/414.D	BHP 20	30.20	Α	0.30	0.31	M	Sandstone
GS06/414.E	BHP 20	30.57	D	0.29	0.29	L	Sandstone
GS06/414.F	BHP 20	30.60	Α	0.25	0.26	L	Sandstone
GS06/414.G	BHP 20	31.18	D	0.39	0.38	M	Sandstone
GS06/414.H	BHP 20	31.20	Α	0.59	0.58	M	Sandstone
GS06/414.J	BHP 20	31.76	D	0.30	0.30	L	Sandstone
GS06/414.K	BHP 20	31.79	Α	0.63	0.64	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

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Accreditation Number: 2302
Accredited for compliance
with ISO/IEC 17025
This document is issued in

accordance with NATA's

s on attached cover page:

(Mr Peter Simson)



Main Roads Department Geotechnical Branch 35 Butterfield Street Herston Qld 4006

## Point Load Strength Index - Test Report

Project: Houghton Highway Bridgesite Investigation

Project No: FG5423

Date Sampled 02/05/06

Feature: N/A

Sample Type: NMLC Core

Report No. FG5423/GS06-414/AS4133.4.1

Date Tested 31/05/06

			:				
Sample Number	Sample Location	Depth (m)	Test Type D,A,B,I*	ls (MPa)	ls50 (MPa)	Strength Descriptor	Lithology
GS06/414.L	BHP 20	32.05	Α	0.13	0.13	L	Sandstone
GS06/414.M	BHP 20	32.07	D	0.04	0.04	VL	Sandstone
GS06/414.N	BHP 20	32.30	D	0.24	. 0.23	L	Sandstone
GS06/414.P	BHP 20	32.33	Α	0.24	0.24	L	Sandstone

Sample Remarks

\* D - Diametral; A - Axial; B - Block; J - 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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