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BOREHOLE WITH LITHOLOGY 24_5_2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLES.GRJ ENGINEERING BOREHOLE 09_04.GDT 31/8/05

ENGINEERING BOREHOLE

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

BOREHOLE No	BH22
SHEET	_1_ of _5_
REFERENCE No	H9571

	JECT				DGE DUPLICATION FOUNDATION INVESTIG				UPGRA			
	ATION								OORDINATES 10082.0 E; 168216.8			
JOB		0 1 00										
JOB					DATUM AHD		DAT	E COMPLETE	D 3/6/05	2	DRILLER R&D DRILLIN	IG PTY LTD
DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING	RQD ()%	SAMPLE	MATERIAŁ DESCRIPTION	итногосу	SC EATHERING	INTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES
0	3.37	40≥0	REC %	ζŷ	OH TV CDAVEL FILL	5	3 3	1.1.1.1.1	1.1.1.7	Q.		SA
- 1	2.47				SILTY GRAVEL - FILL Grey, moist, loose, crusher dust. SANDY SILTY GRAVEL - FILL Brown to dark grey brown, moist, very		GM					
-2	1.17				loose to loose.		SM		-		1,1,1 N=2	SPT
-3					Dark grey to dark grey brown, moist, very soft. High plasticity; minor fissuring throughout.			‡ ‡ 1	. :		No recovery.	007
-4	-1.13						ОН				No recovery. N<1	SPT
-5					SILTY SAND/SANDY SILT Dark brown to dark grey brown, moist to wet, very loose (or very soft) to mainly loose (soft). Very fine grained sand; some silty clay interbeds; gradually becoming clayey sand with depth.						HW,-,∙ N<1	SPT
7							SM				RW,RW,1 N≃1	SPT
-8									-		RW.1,4 N=5	SPT
10	-6.63										RW,1,1 N=2	SPT
R	EMARK	S Defe	ct angles	have	e been measured with respect to a horizontal plane.						LOGGED BY	2100)
				_							A. DISSANAYAKE (DISS)



ENGINEERING BOREHOLE

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

BOREHOLE No	BH22
SHEET	2 of5
REFERENCE No	H9571

PROJECT GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT PIER 10 - DOWN STREAM END LOCATION COORDINATES 10082.0 E; 168216.8 N PROJECT No _FG5388 _ _ _ _ SURFACE R.L. 3.37 DATE STARTED 31/5/05_ DATUM SETP _ _ _ JOB No DATUM __AHD __. DATE COMPLETED 3/6/05 DRILLER R&D DRILLING PTY LTD R.L RQD INTACT DEFECT ()% STRENGTH SPACING ADDITIONAL DATA Έ MATERIAL (mm) DEPTH (LITHOLOGY AND SAMPLES DESCRIPTION TESTS WEAT WEAT CORE 88888 TEST RESULTS 10 -6.63 REC % ESTUARINE SANDY SILTY CLAY Dark grey to dark grey brown, moist to slightly wet, very soft to soft. Minor fraction of fine grained sand; high HW,-,-SPT plasticity; occasional shell fragments. N<1 ENGINEERING BOREHOLE 09 04.GDT 31/8/05 RW.-.-SPT ОН RW,-,-N<1 SPT 2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLES,GPJ -11.43 SILTY SAND/SAND Grey brown to dark grey brown, moist to mainly wet, loose to mainly medium dense. SPT Some sifty clay interbeds; fine grained SPT SM-RW,6,5 SPT BOREHOLE WITH LITHOLOGY 24 4,5,6 N=11 REMARKS Defect angles have been measured with respect to a horizontal plane. LOGGED BY A. DISSANAYAKE (DISS)



ENGINEERING BOREHOLE

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

BOREHOLE No	BH22
SHEET	_3_ of _5_
REFERENCE No	H9571

PROJI LOCA		GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT PIER 10 - DOWN STREAM END COORDINATES 10082.0 E;									
		PIER 10 - DOWN 51 REAM END COORDINA No FG5388 DATE STARTED 31/5/05						OORDINATES 10082.0 E; 168216.8 N			
JOB No					DATUM AUD			E COMPLET			
					57.10M _7 <u>4.15</u>		יאכ				DRILLER R&D DRILLING PTY LT
(F)	R.L. (m) -16.63	9N 1NG	RQD ()%		MATCRIAL		ပြု	INTACT STRENGTH	DEFECT SPACING	ဗ္ဗ	ADDITIONAL DATA
DEРТН (m)		BORIE PRIE		щ	MATERIAL	790	ERIN	STRENGTH	(mm)	GRAPHIC LOG	AND 83
DEF		ASSIN PASSIN ORR	CORE	SAMPLE	DESCRIPTION	LITHOLOGY	S 5 4	ᇎᇎᅩᆇ거ᇰᇶ	1 22888	SAPH	TEST RESULTS TEST RESULTS TEST RESULTS
20	-16.63	₹ 0≶0	REC %	\Q	SILTY SAND/SAND	- -	≥	اللاللال	1111	Ö	8 H
ŧ l					(As above).				+		
-								_]		
		e e							‡ .		
-21						ļ		_	‡		-
[]									 		1,5,5 N=10 SPT
-	ļ							_] - ,		
									‡		
50/8								· -	+		-
1 31/									<u> </u>		1
4.GD		39							‡ .		RW,6,6
8- 2					•			:	<u> </u> 		N=12 SPT
23 -23								·-	‡		
186						ļ			 		
Se l									Ţ ·		
- 24									<u>†</u>		
NG L									‡ :		5,5,6 N=11 SPT
g -									<u>†</u>		N=11
FE.									‡		
윘-25							SM- SP	-	‡ .		1 1
		88] 5,	-	‡ . l		[]
MEN									‡		ļ_ i
ABUT.									-		RW,1,0 N=1 SPT
QV - 26							İ	-	<u> </u>		
ERS									‡		1 1
影							i	-	Ŧ		\ -
Age							ļ		<u> </u>	,	
A −27								-	‡		5 10 13
ᇎ									Ī		5,10,13 N=23 SPT
188 - I			:					· - 	+		1
500 - 28							l		‡		
2 2 20									Ī		
7 24			ļ						+		
								•	-		RW, N<1 SPT
오 트 - 29									1		N<1 501
E]	‡		
- JE		196							Ī		
BOREHOLE WITH LITHOLOGY 24.5 2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLES.GPJ. ENGINEERING BOREHOLE 09.04.GDT 31/8/05		The same							İ .		
	-26.63				Winnerson			-	+		
RE	MARKS	Defe	ct angles	have	been a sured with respect to a horizontal pla	n <u>e.</u>					LOGGED BY A. DISSANAYAKE (DISS)
				_							_ A. DIOUANAANE (DIOS)



ENGINEERING BOREHOLE

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

BOREHOLE No	BH22
SHEET	_4_ of _5_
REFERENCE No	<u>H9571</u>

PROJECT									
	PIER 10 - DOWN STREAM END							OORDINATES 10082.0 E; 168216.8 N	
PROJECT No FG5388 JOB No						ATE STARTE			
JOB NO			DATUM AHD		ÐAT	E COMPLETE	ED <u>3/6/0</u> 5	5	DRILLER R&D DRILLING PTY LT
R.L. (m) HL430 30 -26.63	AUGER CASING WASH BORING CORE DRILLING	SAMPLE SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	TACT PATAN HTBNBATA 品でとるする 品でいる。 これによる によっている。 にといる。 にと。 にと。 にと。 にと。 にと。 にと。 にと。 にと。 にと。 にと	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS AND TEST RESULTS
30) -20.03		7.0	SILTY SAND/SAND		SM-	+	1111	0	7 10 11
-27.08 -27.08			(As above). SAND AND GRAVEL Grey to grey brown, wet, mainly dense to very dense with depth. Sub-angular to sub-rounded quartzitic and lithic fragments sizing up to 200mm, minor clay fraction; gravel size increases with depth; frequent scattered high to very high strength pebble to cobble sized particles; some silty sand interbeds. (Gravel fraction > Sand fraction)		SP				SPT's were unable to be carried out due to the presence of large pebble to cobble sized particles; difficult to drive casing through the material.
S BOREHOLE 09 04.GI							-		13,30/70 N>50
BOREHOLE WITH LITHOLOGY 24-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLES.GPJ ENGINEERING BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLES.GPJ ENGINEERING BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-5-2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLE 09-04-6DT 31/8/05 BOREHOLE WITH LITHOLOGY 24-5-5-2005 BOREHOLE WITH LITHOLOGY 24-5-2005 BOREH			PROBABLE MUDSTONE XW - HW Rock		GP- GM				SPTs were unable to be carried out due to the presence of large pebble to cobble sized particles; difficult to drive casing through the material.
REMARKS	Defect ar	ngles hav	been measured with respect to a horizontal plane.				~		LOGGED BY
									A. DISSANAYAKE (DISS)



- NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLES GPJ ENGINEERING BOREHOLE 09 04:GDT 31/8/05

ENGINEERING BOREHOLE

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

BOREHOLE No	BH22
SHEET	5 of5
REFERENCE No	H9571

GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT **PROJECT** PIER 10 - DOWN STREAM END LOCATION COORDINATES 10082.0 E; 168216.8 N PROJECT No _FG5388 _ _ _ _ SURFACE R.L. __3.37____ DATE STARTED 31/5/05 DATUM SETP _ _ _ JOB No DATUM _AHD _. DATE COMPLETED 3/6/05 DRILLER R&D DRILLING PTY LTD R.L RQD INTACT DEFECT IG BORING DRILLING (m) ()% STRENGTH SPACING ADDITIONAL DATA (m) 8 MATERIAL DEPTH (ANO SAMPLES DESCRIPTION SAMPL TESTS WEAT CELL CORE TEST RESULTS REC % 40 -36.6310 PROBABLE MUDSTONE As above. -36.83 (10) MUDSTONE Dark grey to black, thinly laminated, fine grained, very low to low strength. НΜ -37.93 (59) MW : Dark grey to black, thinly laminated, fine grained, low to mainly medium strenath. MW Defects: Joints @ 70°-80° 5/m). -38.83 SW: Dark grey to black, fine grained, thinly ls(50)=0.11 MPa ls(50)=1.36 MPa laminated, medium to high strength with 0 some low strength bands. ls(50)=0.32 MPa (59)ls(50)=0.74 MPa (s(50)=1.19 MPa SW 0 ls(50)=0.19 MPa -41.21 n Is(50)=0.30 MPa LOW GRADE COAL Dark grey to black, fine grained, thinly laminated, mainly dull to slightly vitreous, (46) mainly very low to low strength Highly fractured, broken and altered through out. -42.18 ls(50)=0.07 MPa INTERBEDDED MUDSTONE AND Is(50)=0.16 MPa ô SANDSTONE SW: Grey to dark grey, thinly laminated and bedded, fine to medium grained, mainly medium to high strength with some low strength bands. **Defects** SW - Drilling induced lamination partings <10° (3-5/m) & joints @ 70° (1/m). Slight alteration along joint planes. Is(50)=1.24 MPa ls(50)=0.59 MPa o -44.18 Borehole terminated at 47,55m BOREHOLE WITH LITHOLOGY 24 5, 2005 REMARKS Defect angles have been minisured with respect to a horizontal plane. LOGGED BY A. DISSANAYAKE (DISS)

Gateway Upgrade Project - Gateway Bridge Project:

Borehole No: BH 22 Start Depth: 40.10m 47.55m Finish Depth: Project No: FG 5388

H No: 9571

