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

BOREHOLE No	BH21
SHEET	1 of5
REFERENCE No.	H9570

GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT PROJECT PIER 9 - DOWN STREAM END LOCATION COORDINATES 10114.0 E; 168150.7 N PROJECT No _FG5388 _ _ _ _ SURFACE R.L. _ 2.70____ DATE STARTED 4/6/05 DATUM SETP JOB No DATUM <u>AHD</u>. DATE COMPLETED _7/6/05 ___ DRILLER R&D DRILLING PTY LTD R.L. INTACT DEFECT (m) ()% STRENGTH SPACING ADDITIONAL DATA $\widehat{\mathbf{E}}$ MATERIAL (mm) DEPTH (AND SAMPLES DESCRIPTION **LESTS** CORE TEST RESULTS REC % n SAND (FILL ?) Orange to brown, moist, loose, fine to medium grained. SP 2.4.2 SPT ENGINEERING BOREHOLE 09_04.GOT 31/8/05 0.10 ESTUARINE SILTY CLAY Dark grey to dark grey brown, moist, very HW,-,-N<1 High plasticity; minor fissuring throughout; ОН slightly sandy with depth. -1.50SILTY SAND - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLES. GPJ Pale grey brown to brown, wet, mainly medium dense. 6,9,8 SPT SM Fine to medium grained sand. -2.80 ESTUARINE SANDY SILTY CLAY Dark grey to dark grey brown, moist, firm. Minor fraction of fine grained sand; high plasticity; occasional shell fragments. HW,2,7 SPT OH -4.90 SILTY SAND/SAND 1,3,8 SPT Dark grey brown to dark brown, moist to 2005 mainly wet, very loose to mainly loose with 24.5 occasional coarse shelly sandy beds. Fine to medium grained sand; some BOREHOLE WITH LITHOLOGY infrequent very soft to soft silty clay interbeds. SP SM 1,1,1 SPT REMARKS Defect angles have been a sured with respect to a horizontal plane. LOGGED BY A. DISSANAYAKE (DISS)



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

BOREHOLE No	BH21
SHEET	_2_ of _5_
REFERENCE No	H9 <u>570</u>

PROJECT			<u>DGE DUPLICATION FOUNDATION INVEST</u>	<u>IGA</u> T	<u> 10N</u>	- GATEWAY L	J <u>PGRA</u>	DE PI	ROJECT
	PIER 9 - DOWN STREAM END COORDINATES 10114.0 E; 168150.7 N								
	o_F <u>G5388</u> _					DATE STARTED			
JOB No			DATUM AHD		DAT	E COMPLETED	7/6/0	5	DRILLER R&D DRILLING PTY LTI
R.L. (m) 10 -7.30	AUGER VASH BORNG WOOD SEC ON SECON SEC ON SE		MATERIAL DESCRIPTION	LITHOLOGY	USC		PACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS SUBJECT: SUBJECT:
BOREHOLE WITH LITHOLOGY 24.5, 2006 - NORTHERN APPROACH PIERS AND ABITMENT BOREHOLES. GPJ. ENGINEERING BOREHOLE 09 04.GDT 318/05 2	₹5\$C REC%	A O	SILTY SAND/SAND (As above).	th I	SO S		- 25 	80	RW,-1 SPT
ERS AND ABUTMENT BOREHOLES.GFJ ENC					SP- SM				1,-,2 N=2
NOKTHERN APPROACH PI							:		RW,1,3 N=4 SPI
MTH LTHOLOGY 24 5 2006									1,3,6 N=9 SPT
20 -17.30							:.		2,3,5 N=8 SPT
REMARK		s have	been minimum asured with respect to a horizontal plane	·					LOGGED BY A. DISSANAYAKE (DISS)



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

BOREHOLE №	BH21
SHEET	_3_ of _5_
REFERENCE No	H9570

PROJECT LOCATION				GE DUPLICATION FOUNDATION INVESTI STREAM END				J <u>PGRA</u>		ROJECT
PROJECT N	o <u>FG53</u> 8	<u> 88</u>					ATE STARTED	4/6/05		
JOB No				DATUM <u>AHD</u>		DAT	E COMPLETED	<u> 7/6/05</u>		
R.L. (m) HL 630 20 -17.30	JGER ASING ASH BORIN DRE DRILL	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	INTACT D STRENGTH St 証子エミュラ前 8:	PACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS SUBJECT: SERVING: SERVING:
20 -17.30 -21 -22 -23 -23 -24 -25 -25 -26 -30 -27.30	₹0≥8	REC %		SILTY SAND Dark grey brown to dark brown, moist to mainly wet, loose to mainly medium dense.	ווז	SM SM)	AB .	3,9,10 N=19 SPT 3 2,6,10 N=16
-26										7,10,8 N=18
-28						i		:		2,8,10 N=18
-26.30 -29 -26.30				ESTUARINE SILTY CLAY Dark grey brown to dark brown, moist, firm.		ОН				1,6,8 N=14 SPT
REMARKS	<u>Defect</u>	angles in	iave.	been measured with respect to a horizontal plane.						LOGGED BY
			/							A. DISSANAYAKE (DISS)



31/8/05

GDT.

9

ENGINEERING BOREHOLE 09

PIERS AND ABUTMENT BOREHOLES.GPJ

- NORTHERN

ENGINEERING BOREHOLE

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

BOREHOLE №	BH21
SHEET	4 of5
REFERENCE No	H9570

GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT PROJECT LOCATION PIER 9 - DOWN STREAM END COORDINATES 10114.0 E; 168150.7 N PROJECT No _FG5388 _ _ _ _ SURFACE R.L. __2.70_ ___ DATE STARTED 4/6/05 DATUM SETP JOB No DATUM AHD __. DATE COMPLETED 7/6/05 DRILLER R&D DRILLING PTY LTD INTACT DEFECT NG 1 BORING DRILLING (m) ()% STRENGTH SPACING ADDITIONAL DATA Ξ 8 MATERIAL DEPTH (AND DESCRIPTION AUGER CASING WASH CORE I SAMPL TESTS CORE TEST RESULTS REC % -27.30 30 **ESTUARINE SILTY CLAY** 1.2.5 (As above). SPT ОН -28.60 SAND AND GRAVEL Grey to grey brown, wet, dense to mainly very dense with depth. 12 16 26 SPT N=42 Sub-angular to sub-rounded quartzitic and lithic fragments sizing up to 300mm, minor clay fraction; Particle size increases with depth. (Gravel fraction > Sand fraction) 30/100 No recovery SPT No recovery. SPT sampler tip 30/100 SPI N>50 GP. GM Casing could not penetrate large sized pebble to cobble sized -36 particles. SPT sampler and casing shoe was damaged. The borehole was unable to be advanced and therefore abondoned. (0) APPROACH 8 A new borehole was drilled 600mm downstream Tried to core through boulders in the second borehole, but was not successful. Only a few core pices was recovered between 37.95m and 38.20m. 24_5_2005 Medium to very high strength quartzitic cobbles and boulders (53) coated with sand and clayey matrix. BOREHOLE WITH LITHOLOGY -39 -36.90 MW INTERBEDDED MUDSTONE AND SANDSTONE MW: mainly low strength Is(50)=0.13 MPa х 0 SW Is(50)=0.62 MPa SW: (As below) REMARKS Defect angles have been assured with respect to a horizontal plane. LOGGED BY A. DISSANAYAKE (DISS)



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

BOREHOLE No	BH21
SHEET	<u>5</u> of <u>5</u>
REFERENCE No	H9570

GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT PROJECT LOCATION PIER 9 - DOWN STREAM END COORDINATES 10114.0 E; 168150.7 N PROJECT No _FG5388 _____ SURFACE R.L. _ 2.70 ___ DATE STARTED 4/6/05 DATUM SETP ____ JOB No DATUM _AHD __. DATE COMPLETED _7/6/05 ___ DRILLER R&D DRILLING PTY LTD R.L RQD INTACT DEFECT ()% (m) STRENGTH SPACING ADDITIONAL DATA 3 8 MATERIAL DEPTH LITHOLOGY AND DESCRIPTION AUGER CASINC WASH CORE SAMPL CORE WEAT CELL TEST RESULTS REC % -37.30 40 ~37.48 SW: Grey to dark grey, thinly laminated SW ls(50)=1.15 MPa and bedded, low to mainly medium Is(50)=0.25 MPa Х Is(50)=0.45 MPa 0 Defects - Generally rare. Is(50)=0.16 MPa х - Occasional drilling induced lamination partings <10° (1-2/m) MUDSTONE Is(50)=0.25 MPa FINE GRAINED, THINLY LAMINATED (75)Is(50)=0.88 MPa SEDIMENTARY ROCK 0 SW: Dark grey to black, thinly laminated, medium to high strength. Defects - Generally rare SW - Frequent drilling induced lamination Is(50)=0.68 MPa partings 10° (2-3/m) Is(50)=1.49 MPa 0 Is(50)=0.36 MPa Is(50)=2.39 MPa Is(50)=2.00 MPa 04.GDT 0 Is(50)=0.77 MPa х ENGINEERING BOREHOLE 09_ Is(50)=1.39 MPa 0 -40.52 Is(50)=0.68 MPa LOW GRADE COAL HW: Dark grey to black, fine grained, thinly minated, mainly dull to slightly vitreous, 100 HW very low to low strength. (50) Highly fractured, broken and altered through out. -41.50 SILTSTONE 2005 - NORTHERN APPROACH PIERS AND ABUTMENT BOREHOLES.GPJ FINE GRAINED, THINLY LAMINATED Is(50)=0.13 MPa SEDIMENTARY ROCK Is(50)=0.83 MPa SW 0 SW: Pale grey to pale green grey, fine grained, thinly laminated, low to mainly -42.40 medium strength. MUDSTONE ls(50)=1.25 MPa SW: Dark grey to black, thinly laminated, Is(50)=3.53 MPa Is(50)≃2.15 MPa medium to high strength. Defects - Generally rare SW - Lamination partings 30° (2-3/m) - Joints @ 80° (1/m) Is(50)=0.73 MPa Is(50)≃1.53 MPa 46 0 -43.42 XW rock/clay band Is(50)=0.73 MPa Borehole terminated at 46.12m Is(50)=1.53 MPa BOREHOLE WITH LITHOLOGY 24 -49 REMARKS Defect angles have been measured with respect to a horizontal plane. LOGGED BY A. DISSANAYAKE (DISS)

Project: Gateway Upgrade Project - Gateway Bridge

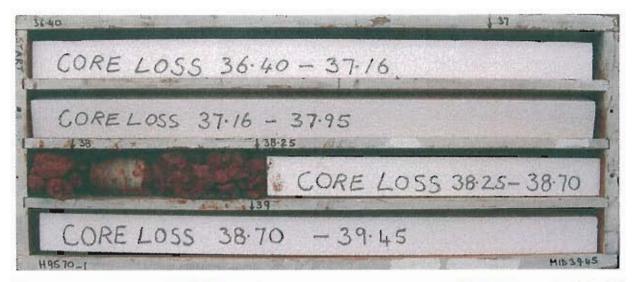
Borehole No: BH 21

Start Depth:
Finish Depth:

36.40m 46.12m FG 5388

Project No: H No:

9570







Project: Gateway Upgrade Project - Gateway Bridge

Borehole No: BH 21
Start Depth: 36.40m

Finish Depth: Project No: 46.12m FG 5388

H No:

9570

