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ENGINEERING BORFHOLF

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

BOREHOLE No	BH27
SHEET	_1_ of _4_
REFERENCE No	<u>H9576</u>

GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT PROJECT PIER 15 - DOWN STREAM END LOCATION COORDINATES 9920.9 E; 168533.1 N PROJECT No _FG5388 _____ SURFACE R.L. _ 3.85 DATE STARTED 11/02/05 DATUM SETP ____ JOB No DATUM _AHD __ DATE COMPLETED 14/02/05 DRILLER R&D DRILLING PTY LTD INTAÇT BORING (m) ()% STRENGTH ADDITIONAL DATA SPACING DEPTH (m) MATERIAL (mm) AND DESCRIPTION SAMPL CORE TEST RESULTS REC % 0 3.85 SAND Drilling records only Black, moist, fine grained. SP 2.95 ESTUARINE WEATHERED OC CRUST Dark grey to mottled grey, slightly moist, 1,1,2 SPT N=3 Some partly decomposed plant fragments. OL High organic content SPT - 3 0.35 ESTUARINE SILTY CLAY Dark grey to black, moist, very soft. -4 High plasticity, slightly organic. SPT N<1 ENGINEERING BOREHOLE 09 04.GDT ОН RW,-,-SPI BOREHOLE WITH LITHOLOGY GATEWAY UPGRADE PROJECT.GPJ RW.-SPI -3.60 SILTY SAND 10% water loss Grey brown to brown, wet, very loose to loose. SM silty clay interbeds RW,1,3 SPT silty clay interbeds ESTUARINE SILTY CLAY OH See below. REMARKS SPT N values in clayey gravel can overestimate density due to influence of coarser size gravel particles. Defect angles LOGGED BY have been measured with respect to a horizontal plane. A. DISSANAYAKE (DISS)



BOREHOLE WITH LITHOLOGY GATEWAY UPGRADE PROJECT GPJ ENGINEERING BOREHOLE 09_04.GDT 31/08/05

ENGINEERING BOREHOLE

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

BOREHOLE No	BH27
SHEET	_2_ of _4_
REFERENCE No	H9576

A. DISSANAYAKE (DISS)

PROJECT	<u>GATEWAY B</u>	<u>RIC</u>	OGE DUPLICATION FOUNDATION INVESTIG	<u>GAT</u>	<u>ION</u>	GATEWAY	<u>UPGRA</u>	DE F	PROJECT
OCATION			N STREAM END						OORDINATES 9920.9 E; 168533.1 N
PROJECT N	lo <u>FG5388</u>		SURFACE R.L3.85		D	ATE STARTE	D <u>11/02</u>		
JOB No		_	DATIGA			E COMPLETE			
R.L. (m) £L. (m) 10 -6.15	AUGER AND ACK AND A	SAMPLE	MATERIAL DESCRIPTION	гтногосу	USC	파우 프로그램 (DEFECT SPACING (mm)	GRAPHIC LOG	ATAD LANOITIODAL AND GAMBIES TEST RESULTS TEST RESULTS
-11 -7.15			ESTUARINE SILTY CLAY Dark grey to black, moist, very soft. SILTY SAND		ОН				RW, SPT
- 12			Grey brown to brown, wet, very loose, becoming medium dense with depth. Some shell fragments and calcareously cemented gravels sizing up to 20mm.		SM		. :		1,2,- SPT
-13 - -10.05	5		ESTUARINE SILTY CLAY						1,7,6 N=13 SPT
-15			Dark grey to black, moist, very soft. High plasticity, slightly organic throughout.						RW,HW,- N<1
- 16					ОН				RW,-,- N<1
-18							-		RW.5. SPT
-19									RW,-,- SPT
20 -16.15 RFMARK	-	n old	avev gravel can overestimate density due to influence	0.05	2000	T	navitala :	Def	t angles LOCCED BY

have been measured with respect to a horizontal plane.



ENGINEERING BOREHOLE

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

BOREHOLE No	BH27
SHEET	_3_ of _4_
REFERENCE No	H9576

GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT **PROJECT** LOCATION PIER 15 - DOWN STREAM END COORDINATES 9920.9 E; 168533.1 N PROJECT No FG5388 SURFACE R.L. 3.85 ___ DATE STARTED 11/02/05 DATUM SETP JOB No DATUM _AHD __. DRILLER R&D DRILLING PTY LTD DATE COMPLETED 14/02/05 RQD DEFECT INTACT ADDITIONAL DATA ()% (m) STRENGTH SPACING 9 DEPTH (m) MATERIAL (mm) GRAPHIC I AND SAMPLES DESCRIPTION -16.15 | NEA | NE TESTS CORE TEST RESULTS REC % 20 **ESTUARINE SILTY CLAY** As above. RW,-,-SPT 21 22 RW,-,-N<1 SPT - 23 ОН RW,-,-N<1 SPT - 24 ENGINEERING BOREHOLE 09_04.GDT 31/08/05 RW,-,-N<1 SPT GATEWAY UPGRADE PROJECT.GPJ 1,7,12 N=19 -22.95 SPT SAND AND GRAVEL Pale grey to grey, wet, mainly medium dense. Sub-angular to sub-rounded quartz and lithic fragments sizing up to 50mm, minor fine fraction. 10.11.8 SPT GP-GM BOREHOLE WITH LITHOLOGY Losing water @ 29.5m 17,8,12 SPT N = 20REMARKS COT N values in clayey gravel can overestimate density due to influence of coarser size gravel particles. Defect angles LOGGED BY have been measured with respect to a horizontal plane. A. DISSANAYAKE (DISS)



31/08/05

WITH LITHOLOGY

ENGINEERING BOREHOLE

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

BOREHOLE No	<u>BH27</u>
SHEET	4 of4
REFERENCE No	<u>H9576</u>

A. DISSANAYAKE (DISS)

GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION - GATEWAY UPGRADE PROJECT **PROJECT** LOCATION PIER 15 - DOWN STREAM END COORDINATES 9920.9 E; 168533.1 N PROJECT No FG5388 SURFACE R.L. 3.85 DATE STARTED _11/02/05 DATUM SETP _____ JOB No DATUM _AHD _. DATE COMPLETED 14/02/05 DRILLER R&D DRILLING PTY LTD ROD INTACT DEFECT (m) ()% STRENGTH ADDITIONAL DATA SPACING $\widehat{\boldsymbol{\epsilon}}$ MATERIAL (mm) DEPTH (AND DESCRIPTION AUGER CASIN(WASH CORE I SAMPI CORE TESTS SAMPL TEST RESULTS REC % 30 -26.15 11111 1.1.1.1 SAND AND GRAVEL As above. 13,11,14 SPI N=25 GP GM 6,8,6 SPT - 33 - 34 17,11,18 SPT N=29 Becoming more larger gravel towards 04.GDT -31,15 ENGINEERING BOREHOLE 09 INTERBEDDED MUDSTONE AND Drilling records only SANDSTONE HW 30/60.-No recovery N>50 -31.95 (80)MUDSTONE Is(50)=0.47 MPa Is(50)=1.85 MPa -36 FINE GRAINED, THINLY LAMINATED, 0 WEAK SEDIMENTARY ROCK. Is(50)=0.45 MPa х SW: Dark grey to black, thinly laminated, SW Is(50)=2.22 MPa o mainly medium to high strength rock. PROJECT.GPJ Defects - Generally rare. -33.00 Occasional drilling induced lamination partings <20°.
SANDSTONE ls(50)=1.22 MPa 0 ls(50)=1.41 MPa MEDIUM TO COARSE GRAINED, SW UPGRADE LAMINATED, CEMENTED ls(50)=2.36 MPa 100 -33.75 SEDIMENTARY ROCK. ls(50)=1.95 MPa o (65)SW: Pale grey to white, laminated, high strength. Is(50)=0.28 MPa GATEWAY Defects: Drilling induced lamination ls(50)=0.66 MPa 0 partings <10° (2-3/m)
INTERBEDDED SANDSTONE AND SW ls(50)=0.46 MPa х MUDSTONE (SANDSTONE DOMINANT) Is(50)=1.21 MPa SW: Pale grey to white grey, laminated, -34.95 100 medium to high strength Defects - Fragment lamination partings 39 (5-10/m)Borehole terminated at 38.8m BOREHOLE REMARKS SPT N values in clayey gravel can overestimate density due to influence of coarser size gravel particles. Defect angles LOGGED BY have been measured with respect to a horizontal plane.

Project: Gateway Bridge Duplication Investigation

Borehole No: BH 27
Start Depth: 35.80m
Finish Depth: 38.80m

Project No: H No: FG5388 9460

