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

BOREHOLE No \_\_\_\_\_\_BH10 \_\_\_\_\_

SHEET \_\_\_\_1\_\_ of \_\_\_7\_\_

REFERENCE No H9559

A. DISSANAYAKE (DISS)

**PROJECT** GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PIER 6 - SOUTHERN FACE OF THE PILE CAP LOCATION 10342.3 E; 167709.0 N COORDINATES PROJECT No <u>FG5388</u> \_ \_ \_ SURFACE R.L. \_\_-3.11 \_\_\_ DATE STARTED \_12/3/05\_ DATUM SETP JOB No DRILLER CAIRNS DRILLING DATUM \_AHD \_\_ DATE COMPLETED \_15/3/05\_ R.L ROD INTACT DEFECT ADDITIONAL DATA (m) ()% STRENGTH SPACING DEPTH (m) 500 MATERIAL (mm) LITHOLOGY AND GRAPHIC SAMPLES DESCRIPTION SAMPL TESTS CORE 2888 PF-ZT-FR TEST RESULTS REC % 0 -3.11 Is(50)=0.00 MPa SAND AND GRAVEL-ALLUVIUM 00 Dark grey to grey, wet, very loose to loose. 0 Fine gravel and coarse sand becoming high plastic estuarine clay with depth. BOREHOLE WITH LITHOLOGY MEERA PIER 6 BOREHOLES GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT GPJ ENGINEERING BOREHOLE 09\_04.GDT GM RW.-.-No recovery -5.11SANDSTONE MEDIUM TO COARSE GRAINED MAINLY MASSIVE TO SLIGHTLY LAMINATED SEDIMENTARY ROCK HW HW: Pale grey to white, moist, very dense silty sand rapidly grading into low strength 10/10,HB, rock. Hammer bouncing N>50 -5.71(100) MW: Pale orange brown to pale grey, massive, mainly medium with occasionally high strength bands. Defects: Generally rare. - Occasional drilling induced lamination partings (< 30°) (1-2/m). Is(50)=0.37 MPa Becoming more red brown and cemented 0 Is(50)=0.62 MPa X with depth. UCS=17.1MPa MC=4 4% Is(50)=0.58 MPa 0 WD=2276N/m2 Is(50)=0.49 MPa MW (33)ls(50)=0.61 MPa Is(50)=0.61 MPa 0 -7.91 Is(50)=0.05 MPa INTERBEDDED SANDSTONE AND MC=6.4% HW Is(50)=0.07 MPa SILTSTONE. See next page REMARKS This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles have been LOGGED BY

measured with respect to a horizontal plane.



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

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PROJECT PIER 6 - SOUTHERN FACE OF THE PILE CAP LOCATION COORDINATES 10342.3 E; 167709.0 N PROJECT No \_FG5388 \_ \_ \_ \_ SURFACE R.L. \_\_-3.11 \_\_ DATE STARTED \_12/3/05\_ DATUM SETP \_\_\_\_\_\_ JOB No DATUM \_\_AHD DATE COMPLETED \_15/3/05\_\_ DRILLER CAIRNS DRILLING R.L ROD INTACT DEFECT BORING DRILLING (m) ()% STRENGTH SPACING ADDITIONAL DATA DEPTH (m) MATERIAL. (mm) GNA GRAPHIC SAMPLES DESCRIPTION CORE TEST RESULTS REC % 5 -8.11 11111 INTERBEDDED SANDSTONE AND SILTSTONE. SANDSTONE DOMINANT **FINE TO MEDIUM GRAINED** LAMINATED SEDIMENTARY ROCK MC=15.4% Is(50)=0.05 MPa HW : Pale orange grey to banded black discontinously interbedded, very low to low Some irregular, contorted & sheared discontinuous bedding structures. ENGINEERING BOREHOLE 09\_04.GDT 31/8/05 HW Coreloss (0) MEERA PIER 6 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT.GPJ -10.51 LOW GRADE COAL FINE GRAINED MAINLY DULL TO VITREOUS THINLY LAMINATED FRAGILE CARBONACEOUS SEDIMENTARY ROCK Siltstone interbed HW: Dark grey to black, fine grained, very low to low strength. HW Highly broken and fragmented in most areas and is filled with high plastic silty clay; frequent weathered seams and broken zones MC=4.2% Is(50)=0.21 MPa 0 -11.63 (25)MW : Black mainly dull to occasionally Siltstone interbed vitreous, thinly laminated, mainly low to medium strength. Frequent weathered siltstone interbeds Siltstone interbed /seams and broken zones. MC=8.6% ls(50)=0.22 MPa ls(50)=0.17 MPa Defects Siltstone interbed 0 Numerous lamination/bedding partings Siltstone interbed - Weathered and broken seams <200mm Siltstone interbed BOREHOLE WITH LITHOLOGY MW Siltstone interbed Is(50)=0.05 MPa MC=10% ls(50)=0.03 MPa 0 Siltstone interhed Siltstone interbed MC=7.8% Is(50)=0.30 MPa 0 Is(50)=0.12 MPa

REMARKS This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles have been measured with respect to a horizontal plane.

LOGGED BY A. DISSANAYAKE (DISS)

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

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PROJECT PIER 6 - SOUTHERN FACE OF THE PILE CAP LOCATION COORDINATES 10342.3 E; 167709.0 N PROJECT No \_FG5388 \_ \_ \_ \_ SURFACE R.L. \_\_-3.11 \_\_\_ DATE STARTED \_12/3/05\_\_ DATUM SETP \_\_\_\_\_ JOB No DATUM \_AHD \_\_ DATE COMPLETED \_15/3/05\_\_ DRILLER CAIRNS DRILLING R.L. ROD INTACT DEFECT (m) ()% ADDITIONAL DATA STRENGTH SPACING DEPTH (m) MATERIAL WEATHERIN (www.) (mm) AND **3RAPHIC** SAMPLES SAMPLE DESCRIPTION -13.11 O SO TESTS CORE TEST RESULTS REC % 10 LOW GRADE COAL MW: (As above). (14) Coreloss MW BOREHOLE WITH LITHOLOGY MEERA PIER 6 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT.GPJ ENGINEERING BOREHOLE 09\_04.GDT 31/8/05 Sittstone interhed ls(50)=0.03 MPa ls(50)=0.20 MPa MC=3.6% o Siltstone interbed Is(50)=0.14 MPa 0 ls(50)≃0.81 MPa ls(50)=0.24 MPa MC=3.6% 0 (0)Coreloss HW MC=4.4% ls(50)=0.35 MPa (0) 100 ls(50)=0.34 MPa MC=5.0% (31)ls(50)=0.47 MPa 0 Is(50)=0.16 MPa x ls(50)=0.31 MPa ls(50)=0.18 MPa 0 ls(50)=0.38 MPa Is(50)=0.16 MPa 0 Coreloss REMARKS This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles have been LOGGED BY measured with respect to a horizontal plane. A. DISSANAYAKE (DISS)



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

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION **PROJECT** PIER 6 - SOUTHERN FACE OF THE PILE CAP LOCATION COORDINATES 10342.3 E; 167709.0 N PROJECT No \_FG5388 \_ \_ \_ \_ SURFACE R.L. \_\_-3,11 \_\_\_ DATE STARTED 12/3/05 DATUM SETP \_ \_ \_ \_ \_ JOB No DATE COMPLETED \_15/3/05\_\_ DATUM \_\_AHD \_\_ DRILLER CAIRNS DRILLING R.L. RQD INTACT DEFECT (m) ()% STRENGTH SPACING ADDITIONAL DATA DEPTH (m) MATERIAL (mm) AND GRAPHIC SAMPLES DESCRIPTION CORE TEST RESULTS REC % 15 -18.11 LOW GRADE COAL MW: (As above). SW Coreloss -18.51 SILTSTONE FINE GRAINED THINLY LAMINATED SEDIMENTARY ROCK SW: Pale grey to grey, laminated, mainly medium strength. SW (22)Defects: Drilling induced I amination MC=7.8% ls(50)=0.19 MPa ls(50)=0.07 MPa partings <15 deg (1-3/m) 16 GDT -19.21 LOW GRADE COAL ENGINEERING BOREHOLE 09\_04. SW: Black, mainly dull to vitreous, fractured, mainly low to medium strength. Numerous lamination partings <15°</li> (5-10/m). - Broken and weathered seams MEERA PIER 6 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT GPJ Pressuremeter Test 2 @ 17.65m (57) Is(50)=0.07 MPa Is(50)=0.29 MPa 0 MC=2.2% Is(50)=0.04 MPa WITH LITHOLOGY 0 Is(50)=0.49 MPa Is(50)=0.04 MPa -22.51 0 UCS=22.3MPa SW: Grey to dark grey, fine grained, thinly MC=4.2% ls(50)=0.37 MPa ls(50)=0.35 MPa WD=2580N/m2 laminated, mainly medium strength. 0 MC=7.8% Heavily carbonaceous in some areas. SW BOREHOLE ls(50)=0.55 MPa ls(50)=0.40 MPa 0 х -23.11 REMARKS This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles have been LOGGED BY measured with respect to a horizontal plane. A. DISSANAYAKE (DISS)



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

BOREHOLE No	BH10
SHEET	5 of7
REFERENCE No	H9559

PROJECT GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PIER 6 - SOUTHERN FACE OF THE PILE CAP LOCATION COORDINATES 10342.3 E; 167709.0 N PROJECT No \_FG5388 \_ \_ \_ \_ SURFACE R.L. \_ -3.11 \_\_ DATE STARTED \_12/3/05\_\_ DATUM SETP JOB No DATUM \_AHD \_\_ DATE COMPLETED \_15/3/05\_\_ DRILLER CAIRNS DRILLING R.L ROD INTACT DEFECT BORING ()% (m) STRENGTH ADDITIONAL DATA SPACING  $\hat{\mathbf{E}}$ ő MATERIAL (mm) DEPTH ( LITHOLOGY AND DESCRIPTION SAMPL TESTS SOO SOO ELL STATE SAMPL CORE TEST RESULTS 20 -23.11 REC % SILTSTONE \*\*\*\*\*\*\*\*\*\*\*\*\* SW: (As above). Some thin coat and carbonaceous seams 100 between 20.45m to 20.85m. (100) - Lamination partings <15° (1-2/m) Coal seam Gradually grading into sandstone with coal seam UCS=19MPa MC=3.09% BOREHOLE WITH LITHOLOGY MEERA PIER 6 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT. GPJ. ENGINEERING BOREHOLE 09\_04.GDT 31/8/05 WD=2480N/m2 Carbonaceous taminations Is(50)=0.37 MPa Is(50)=0.42 MPa O UCS=16.8MPa MC=4.6% WD=2477N/m2 Pressuremeter Is(50)=0.35 MPa Test 1 @ 21.45m х Is(50)=0.65 MPa O UCS=17.3MPa MC=5.4% Is(50)=0.81 MPa WD=2505N/m<sup>2</sup> 0 Is(50)=0.52 MPa -25.36 INTERBEDDED SANDSTONE AND SILTSTONE. SILTSTONE DOMINANT SW: Pale grey to dark grey, fine grained, laminated, mainly medium to high strength. Defects: Generally rare. Drilling induced lamination/bedding partings < 15° (1/m). 100 Is(50)=0.53 MPa (99) Is(50)=1.19 MPa 0 Is(50)=0.38 MPa Is(50)=0.74 MPa MC=4.0% O Is(50)=0.93 MPa Is(50)=0.47 MPa 0 SW -27.99 Is(50)=0.60 MPa SANDSTONE See next page sw ls(50)=0.83 MPa

REMARKS This boretog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles have been measured with respect to a horizontal plane.

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A. DISSANAYAKE (DISS)



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

BOREHOLE No	BH10
SHEET	6 of7
REFERENCE No	H9559

PR	DJECT	<u>GATEWA</u>	<u>UPC</u>	<u>GRADE PROJECT - GATEWAY</u>	<u>Y BRIDGE DUPLIC</u>	<u>ATI</u> C	N FOUND!	ATION IN	/ES]	IGATION		
	CATION			HERN FACE OF THE PILE CA	P				C	OORDINATES 1034	2.3 E; 167709.0 I	<u> </u>
PR	DJECT No	FG5388		SURFACE R.L.	-3.11	C	ATE START	ED _12/3/	<u>0</u> 5	DATUM	A SETP	
JOE	3 No			DATUM	AHD	DAT	E COMPLET	ED _15/3/9	<u>)</u> 5		R <u>CAIRNS DRII</u>	
DEPTH (m)	<u> </u>	COASING WASH BORING CORE DRILLING SC ( )	*** **********************************	MATERIAL DESCRIPTIO	18	USC	五子エヌコミュ STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL AND TEST RES		SAMPLES
BORFHOLE WITH LITHOLOGY MEERA PIEK & BONEHOLES GATEWAY UPGNALDE PROJECT GATEWING BONEHOLE UP 04 GD1 318005  8		100 (67)		SANDSTONE MEDIUM GRAINED SLIGHTL TO MAINLY LAMINATED SEDIMENTARY ROCK SW: Pale grey to white, lami medium to high strength.  Occasional mudstone interbe Defects: Drifling induced lamination/bedding partings	Y MASSIVE nated, mainly eds.	sw				UCS=19.5MPa MC=3.4% WD=2600N/m²	s(50)=1.56 MPa s(50)=1.82 MPa s(50)=0.62 MPa s(50)=0.53 MPa s.	x
LES-GALEWAY BRIDGE - GALEWAY UPGRADE PRU	-30.61	100 (56		MUDSTONE FINE GRAINED THINLY LAM SEDIMENTARY ROCK MW-SW: Grey to dark grey, mainly medium to high streng Highly broken and altered bathroughout.  Defects: Lamination parting - Occasional joints (4/3) - Broken and weath	laminated, gth. inds gs <25° (4/m) @ 80-90°	MW- SW				HW Seam.	s(50)=0.70 MPa s(50)=0.07 MPa	x
WITH LITHOLOGY MEERA PIEK 6 BOKEHO				MUDSTONE (FRACTURED & SHEARED) MW: Dark grey grey, fine grained, very low to Healed faulted, contorted, shaltered in most places. When wet, rockmass exhibits properties of firm to stiff high gravelly silty clay in most plact Defects: - Lamination parting - Occasional joints INTERBEDDED SANDSTONE MUDSTONE SW: (As below)	to white c low strength. leared and s engineering plastic ces. gs <20° (5/m) s < 90°(1/m) E AND	MW				LL=36%; PI=16.6%; L MC=14.6%	s(50)=0.06 MPa s(50)=0.02 MPa .S=12% s(50)=4.30 MPa s(50)=2.25 MPa	X -
BOREHOLE W	-33.11											-

REMARKS This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles have been measured with respect to a horizontal plane.

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A. DISSANAYAKE (DISS)



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

BOREHOLE No	BH10
SHEET	_7_ of _7_
REFERENCE No	H9559

A. DISSANAYAKE (DISS)

PROJECT GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PIER 6 - SOUTHERN FACE OF THE PILE CAP LOCATION COORDINATES 10342.3 E; 167709.0 N PROJECT No\_FG5388 \_ \_ \_ \_ SURFACE R.L. \_\_-3.11 \_\_ DATE STARTED \_12/3/05\_\_ DATUM SETP \_ \_ \_ \_ JOB No DATUM \_AHD \_\_. DATE COMPLETED \_15/3/05\_\_. DRILLER CAIRNS DRILLING R.L. ROD INTACT DEFECT BORING (m) ()% STRENGTH SPACING ADDITIONAL DATA Ê MATERIAL (mm) DEPTH ( LITHOLOGY AND SAMPLE SAMPLES DESCRIPTION CORE SUN TITITION SESSES TEST RESULTS REC % 30 -33.11 INTERBEDDED SANDSTONE AND MUDSTONE. SANDSTONE DOMINANT SW: Pale grey to dark grey, fine to medium grained, faminated, medium to mainly high ls(50)=1.33 MPa ls(50)=0.89 MPa SW UCS≃32.1MPa Drilling induced lamination/bedding MC=3.6% ls(50)=0.86 MPa ls(50)=1.44 MPa WD=2606N/m2 partings <15° (2-3/m). 0 -33.98 100 BOREHOLE WITH LITHOLOGY MEERA PIER 6 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT GPJ. ENGINEERING BOREHOLE 09\_04,GDT 31/8/05 Borehole terminated at 30.87m - 31 REMARKS This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles have been LOGGED BY

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measured with respect to a horizontal plane.

Borehole No: BH 10
Start Depth: 2.60m

Finish Depth: Project No: 2.60m 30.87m FG 5388

Project N H No:

9559



Borehole No: BH 10
Start Depth: 2.60m
Finish Depth: 30.87m

Finish Depth: Project No:

FG 5388



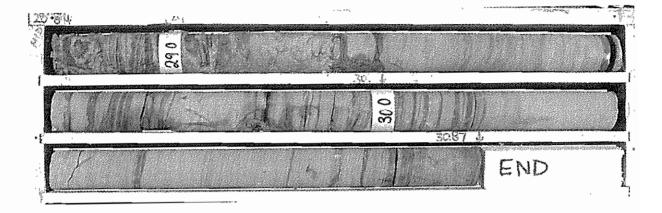
Borehole No: BH 10
Start Depth: 2.60m
Finish Depth: 30.87m

Finish Depth: 3
Project No: For H No: 9

FG 5388 9559



Borehole No: BH 10
Start Depth: 2.60m
Finish Depth: 30.87m
Project No: FG 5388
H No: 9559



Geotechnical Branch

35 Butterfield Street HERSTON Q 4006 Phone: (07) 38343035 Fax: (07) 38343011



# DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH

BOREHOLE NO : BH10

SHEET : 1 of 5

REFERENCE NO: H9559

**PROJECT** 

ISRM SUGGESTED METHODS (1981)]

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

FG5388

LOCATION

PIER 6 – SOUTHERN FACE OF THE PILE CAP

SURFACE R.L: -3.11

DRILLER : CAIRNS DRILLING PTY LTD

PROJECT NO: JOB NO

DATUM

AHD

DATE DRILLED : 12-15/3/05

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
2.65	LP	<10°	Ir	R	0	Cn	21
3.52	LP	15°	Un		C	Cn	CL
3.60	LP	40°	Un/P	R	Т	FeSt	CL
4.39	LP	40°	Un	R	0	FeSt	-
4.78	LP	15°	P	S	Т	Cn	CL
5.08	LP	20°	P	-	T	Cn	-
5.25	LP	60°	P	-	Т	Cn	-
5.38	LP	50°	P	-	Т	Cn	-
5.53-5.60	BZ/WS	-	-	-	-	W	-
5.6-7.4		,	1	-	-	-	Coreloss
7.74-8.15	BZ/WS	-	-	-	-	-	CI
8.37-8.45	LP	10-	~	-	-	Cn	CS
8.37	J	50°	P	S	С	Cn	
8.65	J	85°	P	S	С	Cn	U#
8.70-8.73	FZ			1 40	С	Cn	761
9.12-9.13	WS	10°	-	-	0	W	
9.22-9.26	ws		-	-	С	W	-
9.45	J	60°	P	S	С	-	High plastic Cl
9.51	LP	15°	P	R	С	Cn	-
9.52	J/LP	30°	P	S	T		CI
9.79	10.0	BZ		-	T	Cn	DI
10.10	J	80°	P			Cn	_

Abbreviations

			2100161	THE POST OF		1 111		
	ROUGHNESS		WALL ALTERATIONS		TYPE	OTHER		
R	Rough	FeSt	Iron Stained	J	Joint	DI	Drilling Induced	
S	Smooth	w	Weathered	В	Bedding	CL	Carbonaceous lamination	
SL	Slickensided	SM	Secondary Mineralisation	BP	Bedding Parting	Co	Coal seam	
				FP	Foliation Parting	Įn	Incipient	
PLANARITY			APERTURE		Lamination Parting	SI	Sand Infill	
P	Planar	С	Closed	SZ	Sheared Zone	Н	Horizontal	
St	Stepped	0	Open	CZ	Crushed Zone	V	Vertical	
Un	Undulating	F	Filled	WS	Weathered Seam	CI	Clay Infill	
Cu	Curved	T	Tight	BZ	Broken Zone	Cn	Clean	
Ir	Irregular			HFZ	Highly Fractured Zone	CS	Clay Seam	
				Fr	Fracture			

NOTE: This sheet should be read in conjunction with appropriate Engineering Borelog. Defect angles were measured with respect to horizontal plane.

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# DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)]

BOREHOLE NO : BH10

: 2 of 5 SHEET

REFERENCE NO: H9559

**PROJECT** 

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

LOCATION

PIER 6 - SOUTHERN FACE OF THE PILE CAP

PROJECT NO:

FG5388

SURFACE R.L: -3.11

DRILLER : CAIRNS DRILLING PTY LTD

JOB NO DATUM AHD DATE DRILLED : 12-15/3/05

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
10.22-10.3	WS	194			0	W	-
10.3-10.73	-	-		- (	-	12 12 1	Coreloss
10.73-10.89	WS	-	-		-	W	
10.93-11.05	WS	_	-	-	_	W	Sandy clay
11.09	LP	<10°	P		T	Cn	-
11.12	LP	<10°	P	S	0	Cn	
11.13	LP	<10°	P	S	0	Cn	-
11.17	LP	15°	P	S	С	Cn	-
11.20	LP	15°	P	S	T	Cn	-
11.22-11.26	WS	~	-	-	О	W	_
11.29-11.33	WS	141	-	- 1	С	- W	-11
11.40	LP	<10°	Ir	R	0	Cn	
11.44	BZ/WS	-	-	-	0	W	Sandy clay
11.49-11.66	BZ/WS	-	-	-	-	W	Parallel to BP
11.74-11.82	BZ/WS				-	W	-
11.90-11.95	BZ/WS	-	-	-	-	w	-
12.01-12.06	BZ/WS	-	-	-	-	W	-
12.05-12.3	BZ/WS	181			1.2.2	W	-
12.3-12.7	~			-	-	-	Coreloss
12.70-12.88	BZ/WS	-	-	2	0	W	( <del>-</del> 1)
13.0-13.16	BZ/WS	-	120		0	W	-

### Abbreviations

			ALUUICI	imitons			
ROUGHNESS			WALL ALTERATIONS		TYPE		OTHER
R	Rough	FeSt	Iron Stained	J	Joint	DI	Drilling Induced
S	Smooth	W	Weathered	В	Bedding	CL	Carbonaceous lamination
SL	Slickensided	SM	Secondary Mineralisation	BP	Bedding Parting	Co	Coal seam
				FP	Foliation Parting	In	Incipient
PLANARITY APE		APERTURE	LP	Lamination Parting	SI	Sand Infill	
P	Planar	С	Closed	SZ	Sheared Zone	Н	Horizontal
St	Stepped	0	Open	CZ	Crushed Zone	V	Vertical
Un	Undulating	F	Filled	ws	Weathered Seam	CI	Clay Infill
Cu	Curved	T	Tight	BZ	Broken Zone	Cn	Clean
Ir.	Irregular			HFZ	Highly Fractured Zone	CS	Clay Seam
				Fr	Fracture		

NOTE: This sheet should be read in conjunction with appropriate Engineering Borelog. Defect angles were measured with respect to horizontal plane.

Geotechnical Branch

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# DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)]

BOREHOLE NO : BH10

SHEET : 3 of 5

REFERENCE NO: H9559

PROJECT

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

LOCATION

PIER 6 - SOUTHERN FACE OF THE PILE CAP

PROJECT NO:

FG5388

SURFACE R.L: -3.11

: CAIRNS DRILLING PTY LTD

JOB NO

DATUM

: AHD

DATE DRILLED : 12-15/3/05

DRILLER

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
13.22-13.25	WS	-	- 1	-	0	W	-
13.33-13.75	BZ/WS	U.	120	-		W	Parallel to LP
13.85-13.88	ws	-		-	0	w	-
13.95-14.05	BZ/WS	-	-	-	19	W	-
14.28-14.33	WS	.50	-		0	W	Sandy clay
14.42	LP	<15°	P	S	С	Cn	-
14.49	LP	<10°	Р	S	С	Cn	-
14.59-14.61	WS	-	-	-	0	W	Sandy clay
14.61	ws	<10°	Ĭr	R	0	W	-
14.73-15.40				_	-		Coreloss
14.87	LP	<15°	P	-	Т	Cn	~
14.95	LP	<15°	Р	S	С	Cn	_
15.28	LP	<10°	Ir/St		С	Cn	CS
20.46	LP	5°	P	S	C	Cn	<u>-</u>
20.52	LP	5°	P/St	S	С	Cn	-
20.70	LP	10°	Un	S	C	Cn	
20.76	LP	5°	P	S	T	7	_
21.25	LP	0°	Un	S	Т	I II	DI
21.53	LP	10°	Р	S	С	Cn	DI
21.90	LP	15°	Ir	R	0	-	CI
22.21	LP	30°	St	R	T	Cn	DI
22.68	J	50°	Р	S	0	Cn	

#### Abbreviations

			Audres	umono				
	ROUGHNESS		WALL ALTERATIONS		TYPE	OTHER		
R	Rough	FeSt	Iron Stained	J	Joint	Ιď	Drilling Induced	
S	Smooth	W	Weathered	В	Bedding	CL	Carbonaceous lamination	
SL	Slickensided	SM	Secondary Mineralisation	BP	Bedding Parting	Co	Coal seam	
				FP	Foliation Parting	In	Incipient	
	PLANARITY		APERTURE		Lamination Parting	SI	Sand Infill	
Р	Planar	С	Closed	SZ	Sheared Zone	H	Horizontal	
St	Stepped	0	Open	CZ	Crushed Zone	V	Vertical	
Un	Undulating	F	Filled	ws	Weathered Seam	CI	Clay Infill	
Cu	Curved	T	Tight	BZ	Broken Zone	Cn	Clean	
īr	Irregular			HFŻ	Highly Fractured Zone	CS	Clay Seam	
				Fr	Fracture			

NOTE: This sheet should be read in conjunction with appropriate Engineering Borelog. Defect angles were measured with respect to horizontal plane.

Geotechnical Branch 35 Butterfield Street HERSTON Q 4006 Phone: (07) 38343035 Fax: (07) 38343011



# DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)]

BOREHOLE NO : BH10

SHEET : 4 of 5

REFERENCE NO: H9559

**PROJECT** 

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

LOCATION PIER 6 - SOUTHERN FACE OF THE PILE CAP

PROJECT NO: FG5388 SURFACE R.L: -3.11 DRILLER

: CAIRNS DRILLING PTY LTD

JOB NO

**DATUM** 

AHD

DATE DRILLED : 12-15/3/05

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
23.10	LP	10°	Un	S	С	Cn	7.
23.28	LP	10°	St	S	С	Cn	
23.65	J	50°	P	2 - (	Т	Cn	-
23.90	LP	25°	St	S	С	Cn	DI
24.25	LP	30°	P	S	C	Cn	DI
24.30	J	60-70°	P/St	S	С	+))	Gravelly clay
24.66	LP	5°	P	S	С	Cn	-
24.73	LP	10°	P	S	С	Cn	
24.97	LP	15°	P	R	0	Cn	170
25.25	J	60°	Ir	R	С	Cn	-
25.33	LP	15°	P	R	С	Cn	Ct.
25.45	LP	23°	P	R	C	Cn	t)[
25.58	LP	30°	P	R	0	Cn	CL
26.08	J	40°	St	R	С	Cn	DI
26.10	J	70°	St	R	C	Cn	
26.15	ĹP	10°	P	R	0	Cn	CL
26.36	LP	10°	P	R	С	Cn	DI
26.50	J	80°	P	-	T	Cn	
26.60	J	70°	P	_	T	T Cn	
26.70	LP	30°	P	R	С	Cn	н.
26.75	LP	30°	P	R	С	Cn	2
26.80	LP	15°	P	R	С	Cn	Co

At Landing

			Abbrev	lations	<u> </u>			
	ROUGHNESS		WALL ALTERATIONS		TYPL	OTHER		
R	Rough	ough FeSt Iron Stained		J	Joint	DI	Drilling Induced	
S	Smooth	W	Weathered	В	Bedding	CL	Carbonaceous lamination	
SL	Slickensided	SM	Secondary Mineralisation	BP	Bedding Parting	Со	Coal seam	
				FP	Foliation Parting	In	Incipient	
	PLANARITY APERTURE		LP	Lamination Parting	SI	Sand Infill		
Р	Planar	С	Closed	SZ	Sheared Zone	Н	Horizontal	
St	Stepped	0	Open	CZ	Crushed Zone	V	∀ertical	
Un	Undulating	F	Filled	WS	Weathered Seam	CI	Clay Infill	
Cu	Curved	T	Tight	BZ	Broken Zone	Cn	Clean	
Ιr	Irregular			HFZ	Highly Fractured Zone	CS	Clay Seam	
				Fr	Fracture			

NOTE: This sheet should be read in conjunction with appropriate Engineering Borelog. Defect angles were measured with respect to horizontal plane.

F:GEOT533/4

Geotechnical Branch

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SHEET

## DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)]

: BH10 BOREHOLE NO 5 of 5

REFERENCE NO: H9559

PROJECT

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

PIER 6 - SOUTHERN FACE OF THE PILE CAP LOCATION

PROJECT NO FG5388 SURFACE R.L : -3.11 DRILLER : CAIRNS DRILLING PTY LTD

JOB NO DATUM AHD DATE DRILLED : 12-15/3/05

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
27.0	J	45°	P	R	С	Cn	-
27.40	J	45°	St	R	С	Cn	
27.44	LP	15°	P	S	C	Cn	CL
27.50	LP	15°	P	S	С	Cn	CL
27.55-27.58	WS	_	-	_	-	W	
27.65	J	80°	P	S	С	Cn	_
27.67	J	80°	P	S	С	Cn	
27.72	J	80°	P	S	С	Cn	i <del>-</del>
27.95	J	70°	St	R	С	Cn	-
28.18-28.32	ws	-	-	-	-	W	Gravelly clay
28.35	LP	25°	P	S	С	Cn	18
28.40	LP	25°	P	S	С	Cn	<del> </del>
28.45	LP	25°	P	S	С	Cn	-
28.48	LP	25°	P	S	С	-	CI
28.59-28.60	WS	-	-	= -	U=1	W	Parallel to LP
28.60-29.22	SZ/HFZ	-	-	Tay (		W	
29.28	J	90°	-	1-	-	-	CI
29.70	LP	20°	P	R	С	Cn	DI
29.85	LP	15°	P	S	C Cn Cn		DI
29.90	J	85°	P	R			-
30.13	LP	LP 15° P S		S	C Cn		DI
30.70	J	35°	St	R	С	Cn	<u>-</u>
30.77	LP	10°	P	S	С	Cn	DI

### Abbreviations

			ADDIE	tuttons	10			
ROUGHNESS			WALL ALTERATIONS		TYPE		OTHER	
R	Rough	FeSt	Iron Stained	J	Joint	DI	Drilling Induced	
S	Smooth	W	Weathered	В	Bedding	CL	Carbonaceous lamination	
SL	Slickensided	SM	Secondary Mineralisation	BP	Bedding Parting	Со	Coal seam	
		10000		FP	Foliation Parting	ln	Incipient	
PLANARITY APERTURE		LP	Lamination Parting	SI	Sand Infill			
P	Planar	С	Closed	SZ	Sheared Zone	Н	Horizontal	
St	Stepped	0	Open	CZ	Crushed Zone	V	Vertical	
Un	Undulating	F	Filled	ws	Weathered Seam	CI	Clay Infill	
Cu	Curved	Т	Tight	BZ	Broken Zone	Cn	Clean	
Ĭr	Irregular			HFZ	Highly Fractured Zone	CS	Clay Seam	
				Fr	Fracture			

NOTE: This sheet should be read in conjunction with appropriate Engineering Borelog. Defect angles were measured with respect to horizontal plane.

F:GEOT533/4