Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/5-2009

BOREHOLE No BH023
SHEET 1 of 2
REFERENCE No H10574

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 11 COORDINATES 486108.2 E; 7080840.4 N
PROJECT No FG5825 SURFACE R.L. 168.77m PLUNGE DATE STARTED 14/7/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING DATE COMPLETED 14/7/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( )% CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
0	168.77				**Clayey SILT** Mottled grey, dry, soft.		(ML)							
	168.17			A	**Clayey SILT (RESIDUAL)** Mottled orange-grey, moist, stiff.		(ML)					Excavated to 0.6m for drill pad		SPT 2,3,6 N=9
1	167.67				XW phyllite fragments throughout.									
				B	**PHYLLITE (HW):** Generally exhibits the engineering properties of light brown-grey, dry, hard, clayey silt.		HW					26,30,30/50 N>50		SPT
2	166.77		(13)		Rock fabric visible throughout.									
					PHYLLITE (MW - SW): Pale grey with minor dark grey mottling, fine grained, foliated. Foliations distinct and dipping anywhere between 30-50°. Defects are generally medium spaced.							XW sandy clay seam Is(50) = 0.62MPa Is(50) = 0.26MPa		o x
3			100 (57)		Prominent defect set parallel to foliation with other sets at 30 and 60°. Defect surfaces are typically iron stained or minor clay infilled.									
4												Is(50) = 0.95MPa Is(50) = 0.46MPa		o x
5														
6			100 (64)		**Detailed defect descriptions are shown on Form GEOT533/8 attached.**		MW-SW					Is(50) = 0.46MPa Is(50) = 0.77MPa		x o
7														
8												Is(50) = 0.30MPa Is(50) = 0.74MPa		x o
9			100 (14)											
10														

REMARKS **Detailed defect descriptions are shown on Form GEOT533/8 attached;** Standpipe peizometer installed up to 18.4m

LOGGED BY JA

QLD_DMR_LIB_01.GLB Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY FG5825 BRUCE HWY COOROY-CURRA SECTION A BHS.GPJ DWG995012.GDW Datgel CPT Tool gINt Add-In 12/05/2010 10:29

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ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/5-2009

BOREHOLE No BH023
SHEET 2 of 2
REFERENCE No H10574

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION

LOCATION Cut 11 COORDINATES 486108.2 E; 7080840.4 N

PROJECT No FG5825 SURFACE R.L. 168.77m PLUNGE DATE STARTED 14/7/09 GRID DATUM MGA94

JOB No 128/10A/901 HEIGHT DATUM AHD BEARING DATE COMPLETED 14/7/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (mm) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
10	158.77				**PHYLLITE (MW - SW):** (Cont'd)							Is(50) = 0.33MPa Is(50) = 1.25MPa		x o
11														
12			100 (7)									Is(50) = 0.26MPa Is(50) = 0.69MPa		x o
13												▽ 7/10/09		
14			100 (29)		**Detailed defect descriptions are shown on Form GEOT533/8 attached.**		MW-SW							
15												Is(50) = 0.85MPa Is(50) = 0.37MPa		o x
16												Is(50) = 0.24MPa Is(50) = 0.51MPa Is(50) = 0.21MPa Is(50) = 1.47MPa		x o x o
17			100 (73)											
18	150.37		100		Borehole terminated at 18.4m							Is(50) = 0.18MPa Is(50) = 0.33MPa		x o
19														
20														

QLD_DMR_LIB_01.GLB Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY FG5825 BRUCE HWY COOROY-CURRA SECTION A BHS.GPJ DWG95012.GDW Datgel CPT Tool gINt Add-In 12/05/2010 10:29

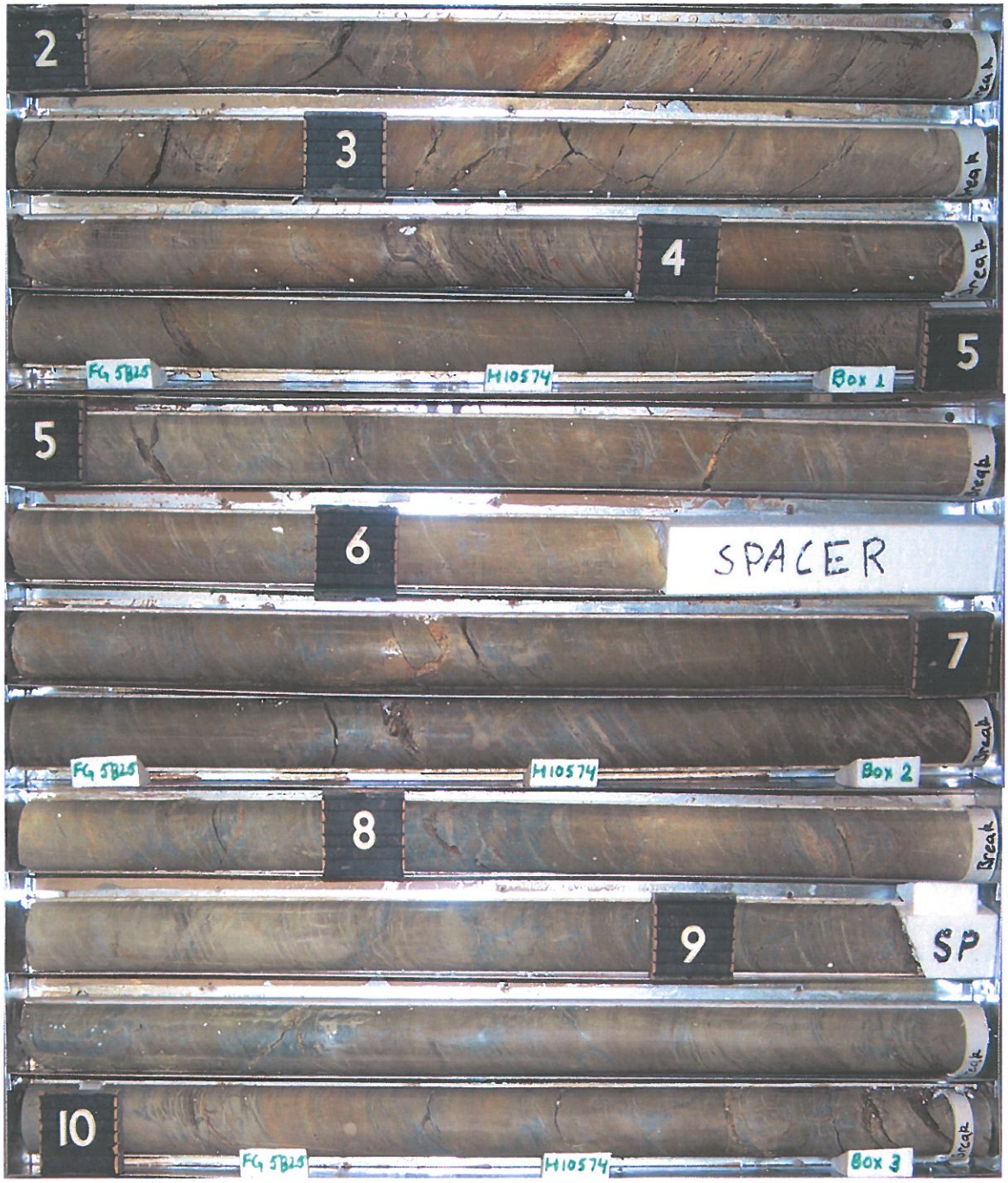
REMARKS **Detailed defect descriptions are shown on Form GEOT533/8 attached;** Standpipe peizometer installed up to 18.4m

LOGGED BY JA

Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**

Borehole No: **BH23**

Start Depth: 2.00m
Finish Depth: 18.40m
Project No: FG5825
H No: 10574



0 100 200 300 400 500 600mm

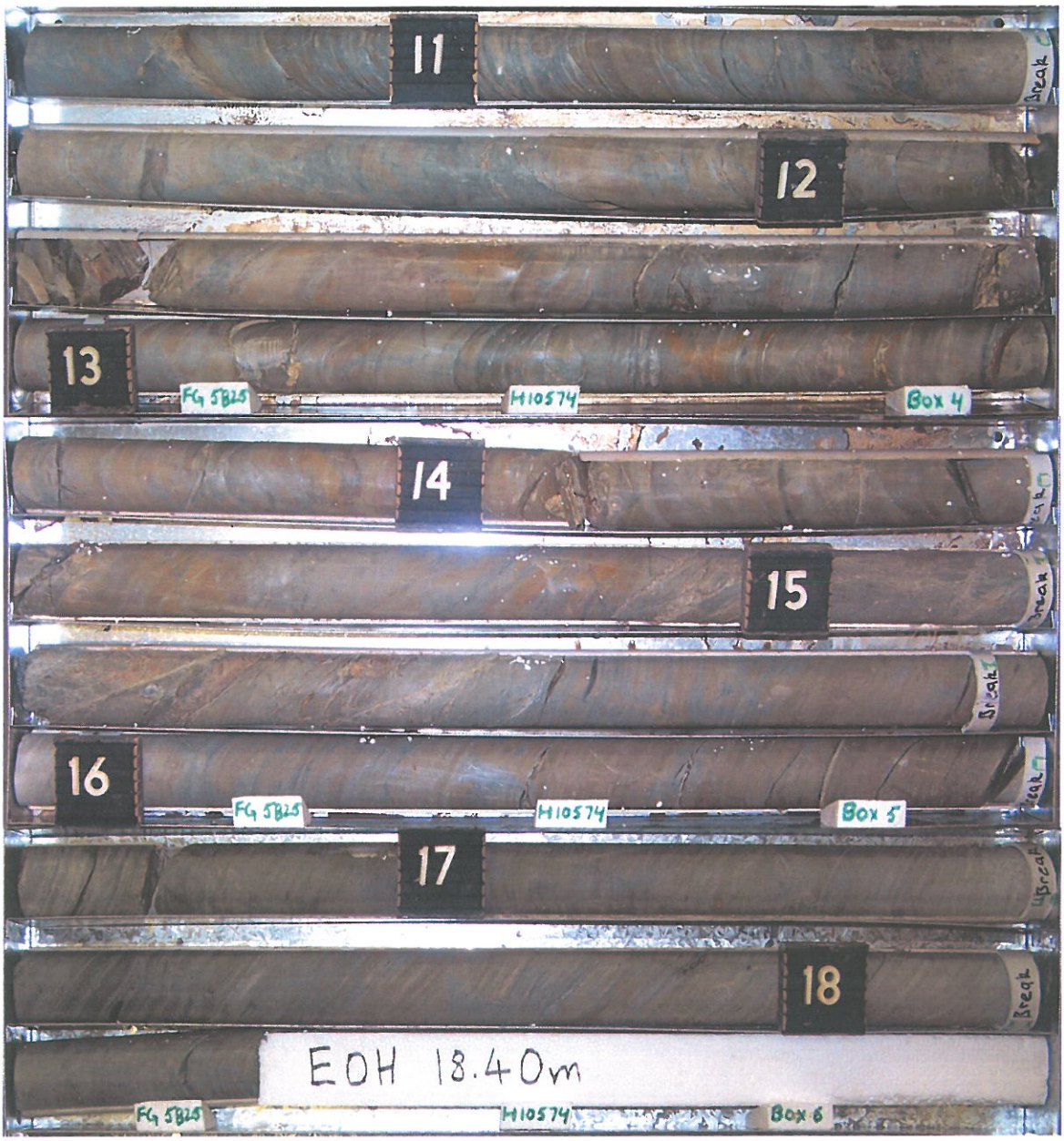
SCALE 1:5

F:GEOT043/1

Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**

Borehole No: **BH23**

Start Depth: 2.00m
Finish Depth: 18.40m
Project No: FG5825
H No: 10574



0 100 200 300 400 500 600mm

SCALE 1:5

F:GEOT043/1

GEOTECHNICAL BRANCH LABORATORY
Materials Services - Brisbane
35 Butterfield Street, HERSTON Q 4006
Phone: (07) 3115 3035 Fax: (07) 3115 3011

Queensland Government
Department of Main Roads

DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH GEOTECHNIICAL TERMS AND SYMBOLS – FORM : GEOT 017/5 – 2009

BOREHOLE NO.:	BH23
SHEET:	1 of 4
REFERENCE NO.:	H10574

PROJECT: Bruce Highway (Cooroy – Curra) Section A Geotechnical Investigation

LOCATION: Cut 11

PROJECT NO.:	FG5825	**SURFACE R.L.:**	168.77	**DRILLER:**	R & D Drilling
JOB NO.:	128/10A/901	**DATUM:**	MGA94	**DATE DRILLED:**	14/07/09

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
2.05	FP	45	Pl	S	C		
2.22	FP	50	Pl	S	C	MnSt, FeSt	Cl
2.29	J	0	St	SR	C		Cl, 2mm
2.39 – 2.43	Clay Seam	40	Pl		C		
2.54	J	35	Un	S	C	FeSt, MnSt	
2.62	J	50	Un	S	C	MnSt	
2.77	J	30	St	S	C	MnSt	
2.87	J	20	Un	S	C	MnSt	
2.92	J	30	Pl	S	C	MnSt	Cl, 1mm
3.00	J	30	Un	S	C		
3.07	J	30	Un-St	S	C	MnSt	
3.11	FP	35	Un	S	C	FeSt, MnSt	
3.16	FP	40	Un	S	C	FeSt, MnSt	
3.20	J	65	St	S	C	FeSt, MnSt	
3.21	FP	40	Un	S	C	FeSt, MnSt	
3.25	FP	35	Un	S	C	MnSt	
3.29	J	35	Un	S	C	MnSt	
3.38	J	40	Un	PO	C	FeSt, MnSt	

Abbreviations *(as per F: GEOT 017/5 – 2009)*

ROUGHNESS		WALL ALTERATIONS		TYPE		OTHER	
R	Rough	FeSt	Iron Stained	J, Js	Joint, Joints	Cl	Clay Infill
Sr	Slightly Rough	W	Weathered	B	Bedding	CLy	Clayey
S	Smooth	Smn	Secondary Mineralisation	BP	Bedding Parting	Co	Coal Seam
SL	Slickensided	Cn	Clean	FP	Foliation Parting	Carb	Carbonaceous
PO	Polished	MnSt	Manganese Stained	LP	Lamination Parting	Sl	Sand Infill
PLANARITY		**APERTURE**		CLV	Cleavage	QZ	Quartz
Pl	Planar	C	Closed	Fr	Fracture	CA	Calcite
St	Stepped	O	Open	SZ	Sheared Zone	Chl	Chlorite
Un	Undulating	F	Filled	CZ	Crushed Zone	In	Incipient
Cu	Curved	T	Tight	BZ	Broken Zone	Int	Intersecting
Ir	Irregular			HFZ	Highly Fractured Zone	Lam (s)	Lamination (s)
				WS	Weathered Seam	Di	Drilling Induced
				Vn	Vein	H	Horizontal
						V	Vertical

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

BOREHOLE NO.:	BH23
SHEET:	2 of 4
REFERENCE NO.:	H10574

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
3.53	J	65	Un	SR	C	FeSt	In
3.55	J	30	Un	S-PO	C		
3.68	J	45	Pl	S-PO	C	MnSt	
3.82	J	0	St-Un	SR	C	FeSt, MnSt	
3.84	J	35	Pl		C		Cl, 2mm
3.88	J	40	Pl	S	C	MnSt	
3,95	J	30	Pl	S	C	FeSt	
4.37	J	35	Un	S	C	MnSt	
4.65	J	35	Un	SR	C	FeSt, MnSt	
4.80	J	35	Un	S	C	FeSt, MnSt	Cl, 1mm
5.11	J	35	St-Un	PO	C		
5.23	FP	35	Un	PO	C	FeSt	
5.27	FP	35	Un	S-PO	C	FeSt	
5.36	Vn	20	Pl		C		Imm rehealed
5.53	Qz	30	Pl	SR	C		
5.62	J	30	Pl-Un	S	C	FeSt	3mm
5.82	Vn	30	Un-St		C		Rehealed, 2-3mm aperture
5.92	Vn	35	Un		C		Rehealed, 2mm aperture
5.98	J	30	St	R	C		
6.25	FP	30	Un	S	C		Cl, 15mm, coarse sand in clay
6.28	FP	45	Un	PO	C		
6.5	J	30	Un	PO	C		
6.52	J	40	Pl	PO	C	FeSt	
6.55	J	60	Pl	SR	C	FeSt, MnSt	Cl, 1mm
7.24	FP	10	Un	S	C		
7.20-7.81	Cz	35	Pl		C		Cl, 1mm
7.43	J	40	Pl-St				
7.72	FP	40	Un	S	C		Cl, 1mm
7.80	FP	30	Un	S	C		
7.89	FP	30	Un	S	C		
7.91	FP	30	Un	S	C		
7.92	Vn	25	Un	SR	C	FeSt	rehealed
8.08	J	25	St-Un	S	C		
8.12	J	65	Un	SR	C		
8.18	FP	45	Un-St	S	C		
8.38	J	25	Un	S	C	FeSt	
8.59	J	30	Un	S-PO	C	FeSt, MnSt	
8.75	J	45	St-Un		C		
8.84-9.10	FP	25	Pl		C		10mm spacing
9.12	J	70	Pl-St	SR	C	FeSt	
9.15	FP	30	Pl	S	C	FeSt	
9.33	J	45	Un	S	C		
9.37	FP	45	Pl		C		In
9.52	J	50	Un		C		In
9.67	J	45	Pl	S-PO	C	FeSt	
9.77	J	50	Pl	S-PO	C	FeSt	
9.94	J	35	St	SR	C		
10.05	J	45	Pl-Un	S	C		
10.22	J	35	St	SR	C		
10.31	J	40	Un	S	C		
10.32	J	40	Un	SR	C		Cl, 1mm
10.45	J	35	Pl	SR	C	W	Cl, 2mm
10.46	J	35	Un		C		Cl, Sl, 3mm
10.56	J	35	Un	5	C		Cl, 2mm
10.57	J	35	Un	S	C		

BOREHOLE NO.:	BH23
SHEET:	3 of 4
REFERENCE NO.:	H10574

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
10.59	J	35	Un	S	C	W	Cl, 2mm
10.69	FP	50	Un	SR	C	W, FeSt	
10.74	J	55	PL-Un	S	C	FeSt	
10.78	J	45	Pl		C		Cl, 3mm
10.85	J	40	Pl	S	C	W	
10.90	J	40	Pl	S	C	FeSt	
10.96	J	40	Un-St	S	C		
10.08	J	50	Un-St	S	C		
11.07	J	45	Un-St	S	C	W	
11.14	J	50	Un-St	S	C		
11.20	J	25	St	R	C		
11.19	J	55	Pl				Cl, 3mm
11.31	J	35	Un	S	C		
11.47	J	45			C		
11.62	J	50	St	S	C		
11.66	J	50	St	S	C		
11.83	J	50	Un	S	C	W	
12.05	J	55	St	S	C	W	
12.10	FP	50	Pl	S	C	W	
12.20-12.31	Bz	40	Pl	S			
12.35	J	35	Un	SR	C	W, FeSt	
12.56	J	40	Un	S	C	W, FeSt	
12.60	J	50	Un	S	C	W, FeSt	
12.65	J	45	Pl		C	W, FeSt	Cl, 2mm
12.67	J	5	St	S	C	W, FeSt	Cl, 2mm
12.79	J	25	Un	S	C	FeSt	Cl, 1mm
12.88	J	50	Pl	S	C		
12.90	J	45	Un	S	C		Cl, 2mm
13.12	J	40	Un-St	S	C		Cl, 1mm
13.16	J	0	Pl	S	C		Cl, 3mm
13.28	FP	40	Pl	S	C		Cl, 1mm
13.31	FP	40	Pl	S	C	W,FeSt	
13.35	J	45	Pl	S	C		
13.42-13.59	FPX5	45	Pl	S	C	FeSt, W	
13.67	FP	35	Pl	S	C	W	
13.74	J	P	PL	R	C	W	
13.84	J	65	Pl	S-PO	C	FeSt	
13.87	J	20	Pl	SR	C		
13.91	FP	35	Pl	S	C		
13.93	J	30	St	S	C		
13.97	J	45	Pl	S	C		
14.02	FP	35	Pl	S	C	W	
14.03	FP	35	Pl	S	C	W	In
14.09	J	35	Pl	S	C		
14.18	FP	35	St	S	C		
14.23	J	40	St	S	C		
14.39	J	40	St	S	C		
14.47-14.48	Cz	35	Pl		C		
14.49	J	35	Pl	S	C		
14.58	FP	50	Un	S	C	FeSt	
14.64	FP	45	Pl	S	C		
14.73-14.91	FPX6	45	Un-Pl		C		
14.90-15.56		50	Altered / Brecciated zone?				
15.28	J	65	Pl		C		
15.31	J	50	Un		C		
15.34	Qz	45	Pl		C		5-15mm

BOREHOLE NO.:	BH23
SHEET:	4 of 4
REFERENCE NO.:	H10574

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
15.42	J	40			C		
15.48	Vn	65	Pl		C		10mm, Cl
15.58	FP	10	Un	S	C		
15.66	FP	10	Un	S	C		
15.73	FP	10	Un	S	C		
16.09	J	30	Pl	PO/SL	C		
16.14	J	30	Un	PO/SL	C		
16.18	J	40	Un	PO/SL	C		
16.22	FP	40	Pl	PO/SL	C		Clay veneer
16.32	Cz	30	Pl	PO	C		Cz, 2mm
16.43	Cz	25	Pl	PO	C		Cz, 2mm
16.51	J	40	Pl-Un	PO	C		
16.54	FP	25	Pl	PO	C		
16.58	J	35	Pl	PO/SL	C		
16.63	J	30	St-Pl	PO	C		
16.66	J	30	St-Pl	PO	C		
16.75	FP	30	Pl	PO	C		Clay veneer
16.80	J	35	Un	S	C		
17.02	J	20	Un	S	C		
17.17	J	25	Pl	SR	C	W	1mm crushed material
17.58	J	60	Un	SR	C	W	
17.61	FPX	25	Un	PO	C	Cn	
17.64	FP	25	Un	PO	C	Cn	
17.66	J	50	Un	PO	C	Cn	
17.68	FP	30	Pl	PO	C	FeSt, W	
17.86	FP	40	Un	SR	C	W	
17.92	J	35	Pl	PO	C		
18.07	J	40	Pl	S	C	Cn	
18.33	J	30	Un	PO	C	FeSt	
18.38	FP	35	Pl	PO	C	Cn	