

COPYRIGHT NOTICE

This geotechnical log and its associated data (the Document) is licensed by the Queensland Department of Transport and Main Roads under the [Creative Commons Attribution 4.0 Licence](#) (CC BY 4.0). When reusing the Document, in whole or in part, please attribute the Department as follows: "(c) State of Queensland (Department of Transport and Main Roads) 2020, licensed under the CC BY 4.0 Licence". This licence does not apply to the Queensland Government logo or trademarks.

LIMITATION OF LIABILITY

The CC BY 4.0 Licence contains a comprehensive Disclaimer of Warranties and Limitation of Liability. In addition, please note that this Document was prepared for Departmental use only. Reuse of the Document by anyone for any other purpose could result in error and/or loss. You should obtain professional advice before making decisions based on the contents of the Document.

When reproducing any part of this Document, you must also reproduce this limitation of liability notice in addition to the italicised attribution statement above.

Retrieved from the Queensland Geotechnical Database <http://ggd.org.au/>



**Queensland
Government**

Department of
Main Roads

ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH039

SHEET 1 of 3

REFERENCE No H10590

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

LOCATION Cut 14 COORDINATES 484502.9 E; 7081271.1 N

PROJECT No FG5825 SURFACE R.L. 158.45m PLUNGE _____ DATE STARTED 27/7/09 GRID DATUM MGA94

JOB No 128/10A/901 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 28/7/09 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					DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
									EH	VH	IN	ML	VL				
0	158.45					Clayey SILT (COLLUVIUM) Pale grey, moist, stiff, low plasticity.								20			
1					A	Traces of organics throughout. Low strength rock particles throughout.	(ML)							60			3,4,6 N=10 SPT
2					B									200			6,6,7 N=13 SPT
3	155.95				C	PHYLLITE (HW): Generally exhibits the engineering properties of brown, moist, hard, clayey Silt.	HW							600			30,30/110 N>50 SPT
4	155.45			(0)		PHYLLITE (MW): Brown to pale brown with minor distinct dark grey mottling, fine grained, foliated.								2000		Clayey broken zone Broken zone	Is(50) = 0.23MPa Is(50) = 0.07MPa o x
5				100 (0)		Foliation dip varies between 20 and 70°.										Clayey weathered zone	
6				100 (20)		Defects are generally close to medium spaced. Prominent defect set dipping parallel to foliation with other sets at 30° and subvertical. Defect surfaces are typically clay infilled.										Clay seam (70°)	
7				100 (0)		Repeating brecciated quartzose veins and steeply dipping clay seams up to 10mm thick.										Broken quartz seam	Is(50) = 0.10MPa Is(50) = 0.27MPa x o
8				100 (83)		6.7 - 7.3m: Brecciated zone with clay lined joints and quartz veining.	MW									Multiple quartz veins	
9				100 (49)		8.0 - 9.8m: Zone with quartzose veining.										Sheared zone?	Is(50) = 0.23MPa Is(50) = 0.05MPa o x
10				100 (45)		Detailed defect descriptions are shown on Form GEOT533/8 attached.										Sheared zone?	

REMARKS Detailed defect descriptions are shown on Form GEOT533/8 attached.

LOGGED BY
AN / JA



ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH039

SHEET 2 of 3

REFERENCE No H10590

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

LOCATION Cut 14

COORDINATES 484502.9 E; 7081271.1 N

PROJECT No FG5825 SURFACE R.L. 158.45m PLUNGE _____ DATE STARTED 27/7/09 GRID DATUM MGA94

JOB No 128/10A/901 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 28/7/09 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	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
10	148.45					PHYLLITE (MW): (Cont'd)							
								MW					
	147.65					10.35 - 10.80m: Clayey weathered zone.							
						PHYLLITE (MW - SW): Pale grey with distinctive dark grey mottling, fine grained, foliated.						Is(50) = 0.12MPa Is(50) = 0.13MPa	x o
						Foliations dip at ~40°.							
						Defects are generally medium to widely spaced.							
						Prominent defect set parallel to foliation with other sets dipping at 30° and subvertically.							
						Defect surfaces are typically clay infilled or iron stained.							
						Detailed defect descriptions are shown on Form GEOT533/8 attached.						Is(50) = 0.60MPa Is(50) = 0.24MPa	x o
								MW-SW					
						15.95 - 16.0m: Weathered clay seam dipping at ~50°.						Is(50) = 1.06MPa Is(50) = 1.40MPa	x o
												Is(50) = 1.00MPa Is(50) = 0.34MPa	o x
												Is(50) = 0.88MPa Is(50) = 0.57MPa	x o

REMARKS Detailed defect descriptions are shown on Form GEOT533/8 attached.

LOGGED BY
AN / JA



**Queensland
Government**
Department of
Main Roads

ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH039
SHEET 3 of 3
REFERENCE No H10590

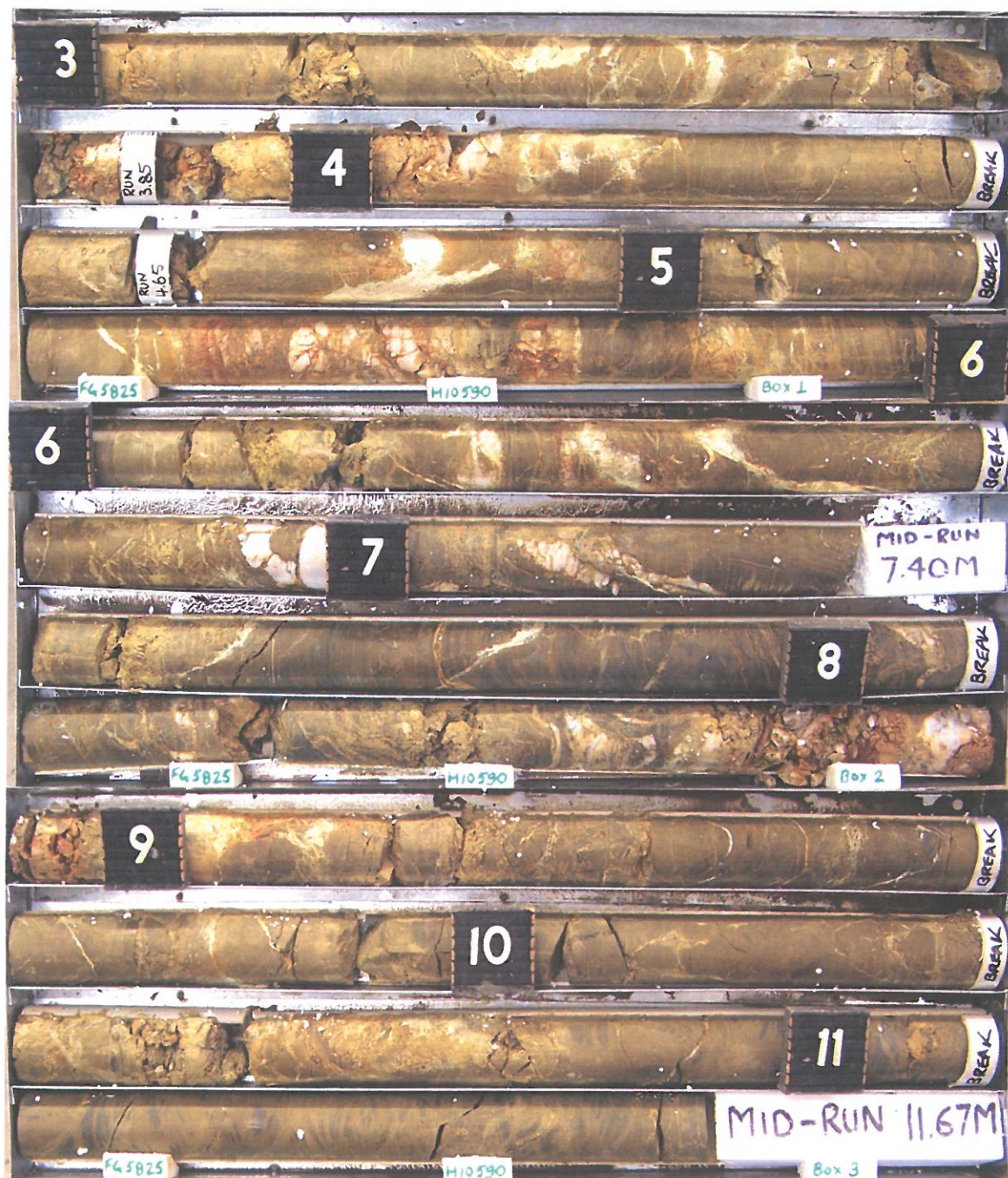
PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 14 COORDINATES 484502.9 E; 7081271.1 N
PROJECT No FG5825 SURFACE R.L. 158.45m PLUNGE _____ DATE STARTED 27/7/09 GRID DATUM MGA84
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 28/7/09 DRILLER R & D Drilling

DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD () %	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	WEATHERING	INTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
20	138.45					PHYLLITE (MW - SW): (Cont'd)									
21			100 (53)										Is(50) = 0.97MPa Is(50) = 0.97MPa	o x	
22						Detailed defect descriptions are shown on Form GEOT533/8 attached.									
23			100 (61)												
24															
25			100 (19)										Is(50) = 0.91MPa Is(50) = 0.43MPa	o x	
25.45	133.00		100			Borehole terminated at 25.45m									
26															
27															
28															
29															
30															

REMARKS Detailed defect descriptions are shown on Form GEOT533/8 attached.

LOGGED BY
AN / JA

Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**
 Borehole No: **BH39 Cut 14**
 Start Depth: 3.00m
 Finish Depth: 25.45m
 Project No: FG5825
 H No: 10590



SCALE 1:5

F:GEOT043/1

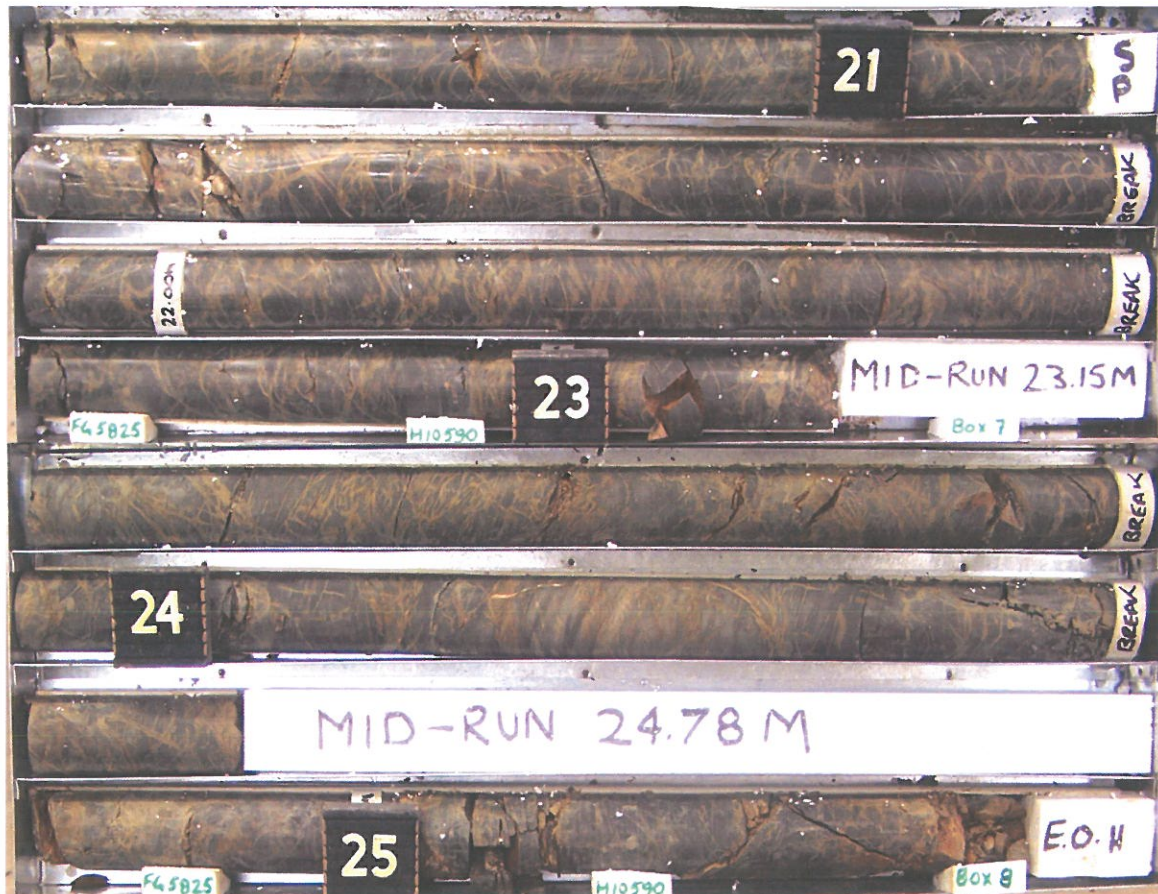
Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**
Borehole No: **BH39 Cut 14**
Start Depth: 3.00m
Finish Depth: 25.45m
Project No: FG5825
H No: 10590



SCALE 1:5

F:GEOT043/1

Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**
Borehole No: **BH39 Cut 14**
Start Depth: 3.00m
Finish Depth: 25.45m
Project No: FG5825
H No: 10590



SCALE 1:5

F:GEOT043/1

DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

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

BOREHOLE NO.:	BH39
SHEET:	1 of 4
REFERENCE NO.:	H10590

PROJECT:	Bruce Highway (Cooroy – Curra) Section A Geotechnical Investigation					
LOCATION:	Cut 14					
PROJECT NO.:	FG5825	SURFACE R.L.:	158.4	DRILLER:	R & D Drilling	
JOB NO.:	128/10A/901	DATUM:	MGA94	DATE DRILLED:	27/07/09	

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
3.08	J	25	Un	S	O	FeSt	Cl
3.12	J	50	Un	S	O	FeSt	
3.18	J	30	Pl	SR	O	FeSt	Cl, 1mm
3.21-3.26	BZ						
3.34	J	55	Un	S	C	FeSt	
3.38	J	35	Un	S	C	FeSt	
3.44	Rehealed, J	30	Pl		C		
3.48	Clay Seam	65	Un		C		
3.50-3.66	BZ						
3.98-4.12	QZ				C		
4.21	J	50	Ir		C		Cl, 2mm
4.32	J	20	Un	SR	C	FeSt	
4.34	J	90	Ir	SR	C	FeSt	
4.37	J	40	Pl	S	C		Cl, 1mm
4.44	J	35	Pl		C		
4.64	J	40	Pl	S	C		Cn
4.77	Clay Seam	70					20mm Wide
5.06	J	25	St	SR	C		Cl, 2mm

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	SI	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.:	BH39
SHEET:	2 of 4
REFERENCE NO.:	H10590

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
5.16	J	25	PI	R	C	FeSt	
5.22	J	30	PI	R	C	FeSt	
5.31	WS	45	PI		C		
5.36-5.66	Brecciated Quartz Zone						
6.06	J	20	PI	S	C	FeSt	
6.10	J	40	Un	SR	C		Cn
6.13	J	30	PI	SR	C	FeSt	
6.26	J	0	Un	S	O		Cl, 4mm
6.34-6.36	QZ						
6.40-6.41	QZ	10	PI			FeSt	
6.43-6.48	QZ	45	PI		C		Clayey Matrix
6.60	Clay seam	55					10-20mm Wide
6.65-6.91	Closely Spaced Fractures						
6.96-7.02	QZ						
7.10	J	35	PI		C		
7.12-7.27	QZ	60	PI		C		Clayey Matrix
7.52	J	70	PI		C		Cl, 2mm
7.65	J	55	Un	SR	C	FeSt	
7.69	J	25	Un	S-Pol	C	FeSt	
7.71	J	30	Un	SR	C	FeSt	
7.74	J	60	Un		C		Cl, 2-10mm
7.78	J	15	PI	Pol	C	FeSt	
7.82	J	25	PI	Pol	C	FeSt	
7.89	J	25	PI		C		Cl, 2mm
7.94	J	15	PI	S	C	FeSt	
8.00-8.34	Highly Fractured/Altered Quartz Veins and Clayey						
8.42	Fr	55	Un		C		
8.47-8.50	WS						
8.54-9.06	WS						
9.19	J	15	PI		O		Cl
9.24	J	15	PI		O		Cl
9.26-9.82	Zone of Very Closely Spaced Micro Fractures						
10.08	J	15	PI	S	C	FeSt,MnSt	Clay Veneer
10.10	J	20	PI	S	C	FeSt,MnSt	Clay Veneer
10.25	J	75	PI		C		Cl, 2mm
10.32-10.76	Zone of Very Closely Spaced Micro fractures						
10.45	J	55	PI		C		Cl, 15mm
10.75	J	40	PI	SR	O		Clay Veneer
10.79	J	15	PI	S	C		
10.92	J	30	PI	S	C		Clay Veneer
10.96	J	15	PI		C		
11.01	J	10	PI	S	C	FeSt	
11.08	J	30	PI	R	C	FeSt,MnSt	
11.24	J	30	PI	SR	C	FeSt,MnSt	
11.50	J	40	Un	R	C	FeSt,MnSt	
11.65	J	15	PI	S	C	FeSt,MnSt	
11.79	J	40	Un	S	C		Cn
11.85	J, Rehealed	60	PI		C	MnSt	
12.09	J	55	PI		C		
12.22	J	65	PI	SR	C	FeSt	
12.37	J	50	PI	R	C	MnSt	
12.60	J	50	PI		C		
12.66	J	35	PI	S	C	FeSt	
12.76	J	35	PI	S	C	FeSt,MnSt	
12.83	J	65-75	Un	R	C	FeSt,MnSt	
12.86	J	45	PI	R	C	FeSt	
12.89-13.07	Zone of Very Closely Spaced Micro fracturing						

BOREHOLE NO.:	BH39
SHEET:	3 of 4
REFERENCE NO.:	H10590

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
13.22	J	70	Pl	S	C	FeSt	Clay veneer
13.28	J	60	Pl	S	C	FeSt	
13.32	J	30	Pl	S	C	FeSt	
13.45	J	25	Pl	R		FeSt,MnSt	Cl, 2mm
13.54	J	15	Pl	R	C	FeSt,MnSt	Cl, 2mm
13.72	J	40	Pl	S	C	FeSt	
13.77	J	75	Pl	S	C	FeSt,MnSt	
13.95-13.97	QZ	30	Pl		C		
14.37	J	70	Un	R	C	FeSt,MnSt	
14.55	J	80	Pl	SR	C	FeSt,MnSt	
14.86	J	20	Un	SR	C		Cn
15.24	J	55	Un	R	C		
15.47	J	30	Un	R	C	FeSt,MnSt	
15.92-16.00	WS						
16.22	J	30	Ir	R	O	FeSt,MnSt	
16.55	J	30	Pl		C		
16.59	J	25	Pl		C		
16.72	J	35	Pl	SR	C	FeSt,MnSt	
16.85	J	30	Pl	S	C	FeSt,MnSt	Clay Veneer
16.98	J	15	Pl		C		
17.12	J	20	Pl		C		
17.31	J	20	Pl	S	C	FeSt,MnSt	
17.35	J	25	Pl	S	C	FeSt,MnSt	
17.55	J	40	Un	S	C	FeSt,MnSt	
17.81	J	25	Pl		C		
17.99	J	35	Pl	SR	C	FeSt	
18.30	J	25	Pl	SR	C	FeSt,MnSt	
18.41	J	10	Pl		C		
18.48	J	5	Pl	S	C	FeSt	
18.54-18.56	Zone of Closely Spaced Micro Fracturing						
18.86	J	75	Pl	R	C	FeSt,MnSt	
19.13	J	30	Un	R	C	FeSt,MnSt	
19.26	J	15-20	Ir	S	O	FeSt	Cl, 3mm
19.43	J	35	Pl	S	C	FeSt	
19.71	J	25	Ir	R	C	FeSt	
19.90	J	30	Pl	S	O	FeSt	
20.10	J	25	Pl	SR	C		
20.17	J	30	Un	R	C	FeSt	
20.26	J	20	Pl	R	C	FeSt,MnSt	Cl, 1mm
20.45	J	45	Pl	R	O	FeSt	Clay veneer
20.57	J	20	Pl	R	C	FeSt,MnSt	
20.71	J	35	Pl	R		FeSt	Clay Veneer
20.83	J	20	Pl		C		
20.97	J	25	Pl	SR	C	FeSt	
21.20	J	40	Pl	SR		FeSt	
21.43	J	20	Pl	S	C	FeSt,MnSt	
21.50	J	20	Pl	S	C	FeSt,MnSt	
21.62	J	40	Pl		C		
21.73	J	20	Pl	S	C	FeSt,MnSt	
21.94	J	25	Pl		C		
22.05	J	15	Pl	S	C	FeSt	
22.11	J	30	Un	S	C	FeSt	
22.16	J	15	Pl	S	C	FeSt	
22.27	J	25	Pl	S	C	FeSt	
22.38	J	30	St-Un	S	C	FeSt	
22.47	J	20	Pl	S	C	FeSt	
22.80	J	60	Un	R	O	W,FeSt	

BOREHOLE NO.:	BH39
SHEET:	4 of 4
REFERENCE NO.:	H10590

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
22.93	J	35	Pl	S	C	FeSt	
23.02	J	55	Un	R	C	FeSt,W	
23.07	J	45	Pl	R	C	FeSt,MnSt	
23.28	J	25	Pl	S	C		
23.39	J	15	Pl	S	C	FeSt	
23.49	J	50	Pl	S	C	FeSt,MnSt	
23.59	J	60	Pl	R	C	FeSt,MnSt	
23.69	J	70	Un	R	C	FeSt	
23.78	J	35	Pl	SR	C	FeSt,MnSt	
23.85	J	50	Pl	SR	C	FeSt,MnSt	
24.00	J	40	Pl	SR	C	FeSt	
24.04	J	20	Pl	S	C	FeSt	
24.15	J	25	Pl	S	C	FeSt	
24.41	J	20	Pl	S	C	FeSt	
24.52	J	70	Pl	R	C	FeSt,MnSt	
24.79	J	25	Pl	S	C	FeSt	
24.88	J	10	Pl		C		
25.01-25.02	BZ						
25.06-25.13	J	45	Pl	SR	C	FeSt,MnSt	
25.30	J	60	Pl	S	C	FeSt	
25.36	J	60	Pl		C		Crushed Rock in Defect