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**Queensland  
Government**

Department of  
Main Roads

# ENGINEERING BOREHOLE LOG

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

BOREHOLE No   BH060  

SHEET   1   of   2  

REFERENCE No   H10610  

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

LOCATION   Cut 24   COORDINATES   481528.1 E; 7080760.5 N  

PROJECT No   FG5825   SURFACE R.L.   108.58m   PLUNGE        DATE STARTED   27/8/09   GRID DATUM   MGA94  

JOB No   128/10A/901   HEIGHT DATUM   AHD   BEARING        DATE COMPLETED   27/8/09   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
0	108.58					<b>SILT (Residual)</b> Mottled grey, dry.							
1	107.78				A	<b>PHYLLITE (XW/HW)</b> Generally exhibits engineering properties of brown, dry, hard clayey SILT.	XW-HW					6,6	SPT
2	107.08				B	<b>PHYLLITE (HW)</b> Generally exhibits engineering properties of brown, dry, hard clayey SILT.	HW					22,30/100 N>50	SPT
3	105.58				C	Becoming moist to wet and more clayey.						30/80 N>50	SPT
4			(73)			<b>PHYLLITE (MW/SW)</b> Pale brown with dark grey mottling, fine grained.  Foliations typically dip at 40° - 60°.						MC = 2.2%; UCS=6.94MPa Is(50) = 1.71MPa	UCS x
5			100 (46)			Defects generally medium spacing Prominent defect sets generally dip parallel to foliation and at 30°. Defect surfaces are typically iron stained or clay infilled.  Occasional clay seams up to 80mm thick.						Is(50) = 1.20MPa Is(50) = 1.12MPa Is(50) = 0.95MPa	x x x
6			100 (68)									Is(50) = 0.65MPa	x
7			100 (54)			<b>Detailed defect descriptions show on Form GEOT533/8 attached.</b>	MW-SW					MC = 3.2%; UCS=5.22MPa Is(50) = 0.73MPa Is(50) = 2.08MPa Is(50) = 2.33MPa	UCS x x x
8			100 (58)									Is(50) = 1.36MPa	x
9												MC = 2%; UCS=6.83MPa Is(50) = 2.73MPa Is(50) = 2.61MPa	UCS x x
10						(See over)						Is(50) = 1.71MPa Is(50) = 1.63MPa	x x

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

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**ENGINEERING BOREHOLE LOG**

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

BOREHOLE No BH060

SHEET 2 of 2

REFERENCE No H10610

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

LOCATION Cut 24 COORDINATES 481528.1 E; 7080760.5 N

PROJECT No FG5825 SURFACE R.L. 108.58m PLUNGE \_\_\_\_\_ DATE STARTED 27/8/09 GRID DATUM MGA94

JOB No 128/10A/901 HEIGHT DATUM AHD BEARING \_\_\_\_\_ DATE COMPLETED 27/8/09 DRILLER R & D Drilling

QLD\_DMR\_LIB\_01.GLB Log A\_ENGINEERING BOREHOLE LOG LITHOLOGY FG5825 BRUCE HWY COOROY CURRA SECTION A.BHS.GPJ DWG58012.GDW Datepl CPT Tool glnr Addn 12/05/2010 10:32

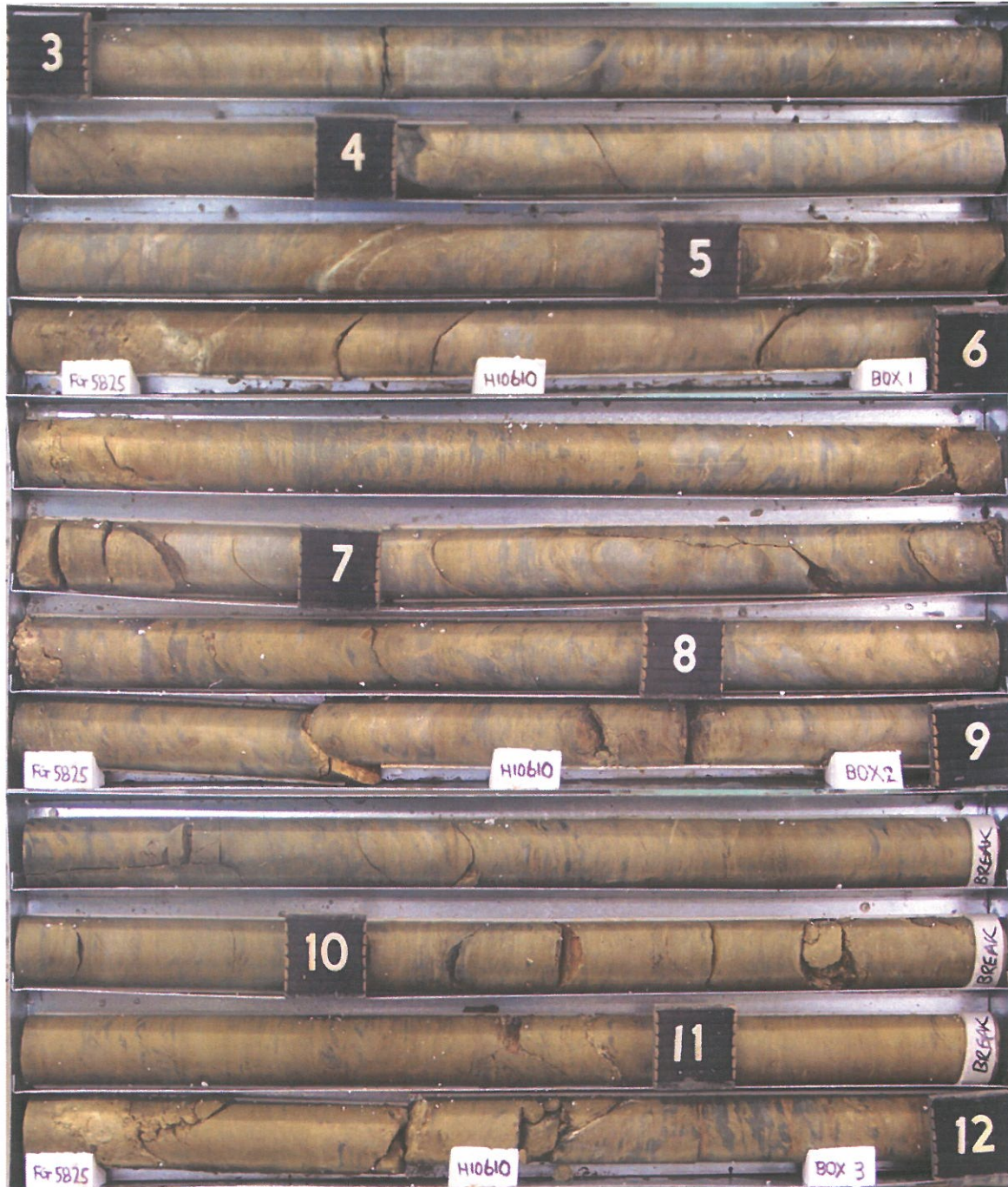
DEPTH (m)	R.L. (m)	AUGER CASING WASH BORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	INTACT STRENGTH						DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS					
								WEATHERING										20	60	200	600	2000
								EH	VH	H	M	J	VL									
10	98.58		(57)			PHYLLITE (MW/SW) (Cont'd)																
11																						
12			100 (63)																			
13			100 (39)																			
14	94.18		100																			
15						Borehole terminated at 14.4m																
16																						
17																						
18																						
19																						
20																						

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

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Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**  
Borehole No: **BH60**  
Start Depth: 3.00m  
Finish Depth: 14.40m  
Project No: FG5825  
H No: 10610



SCALE 1:5

F:GEOT043/1

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

Borehole No: **BH60**

Start Depth: 3.00m

Finish Depth: 14.40m

Project No: FG5825

H No: 10610



SCALE 1:5

F:GEOT043/1



## DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

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

<b>BOREHOLE NO.:</b> BH60
<b>SHEET:</b> 1 of 2
<b>REFERENCE NO.:</b> H10610

<b>PROJECT:</b>	Bruce Highway (Cooroy – Curra) Section A Geotechnical Investigation		
<b>LOCATION:</b>	Cut 24		
<b>PROJECT NO.:</b>	FG5825	<b>SURFACE R.L.:</b>	108.6
<b>JOB NO.:</b>	128/10A/901	<b>DATUM:</b>	AHD
		<b>DRILLER:</b>	R&D Drilling
		<b>DATE DRILLED:</b>	27/8/09

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
3.02	J	75°	Un	R	O	FeSt, MnSt	
3.30	DI						
3.58	Jt	55°	Un	S	O	FeSt, MnSt	
3.82	Jt	35°	Un	R	O	FeSt, MnSt	
3.92	Jt	60-75°	Un		C	MnSt	Rehealed
4.06	Jt	30°	Un	R	O		Cl, 3mm
4.20	Jt	25°	Un	SR	O	FeSt	CV
4.75	Jt	55°	PI		C		Cl, 2mm
4.82	Jt	60°	Un	R	C	FeSt	Cl, 1mm
5.04	Jt	30°	Ir	R	C	FeSt, MnSt	Cl, 2mm
5.11	Jt	35°	PI	SR	C	FeSt	Cl, 1mm
5.34	Clay Seam	0°	PI				30mm thick
5.51	Jt	35°	Un	S	C	FeSt	
6.03	Jt	30°	Un	S	C	FeSt	
6.08	Jt	70°	St	R	O		Cl, 2mm
6.46	Jt	50°	PI	S	C	FeSt	
6.77	Jt	20°	Un	S	O	FeSt	
6.82	Jt	60°	PI	R	C	FeSt	

### 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
PI	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.

<b>BOREHOLE NO.:</b>	BH60
<b>SHEET:</b>	2 of 2
<b>REFERENCE NO.:</b>	H10610

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
6.86	Jt	55°	Pl	SR	C	FeSt, MnSt	
6.92	Jt	50°	Un	SR	C	FeSt, MnSt	
7.09	Jt	50°	Un	S	C		
7.23	Jt	80°	Un	R	C	MnSt	
7.50 - 7.52	WS						
7.66	FP	40°	Pl	S	C	FeSt	
7.80	Jt	30°	Un	SR	C		Cn
8.49	Jt	45°	Un	R	C	FeSt	
8.69	Jt	45°	Un	R		FeSt	Cl, 2mm
8.94	Jt	25°	Un	R	C	FeSt	Cl
9.27	Jt	45°	Pl	SR	C	MnSt	
9.32	Jt	60°	Pl	SR	C	FeSt	
9.61	Jt	30°	Pl	SR	C	FeSt	
9.79	Jt	60°	Pl	SR	C	MnSt	
9.92	Jt	50°	Pl	S	C	FeSt	
10.02	Jt	45°	Un	S	C	FeSt	
10.09	Jt	80°	Un	SR		MnSt	
10.15	Jt	60°	Un	S	C	FeSt	
10.36	Jt	30°	Pl	SR	C	FeSt, MnSt	
10.62	FP	60°	Pl		C		
10.90	Jt	40°	Un	R	C	FeSt	
10.95	Jt	35°	Un		C		Cl, 3mm
11.28-11.34	CS						
11.54	Jt	35°	Un	S	C	FeSt	
12.11	Jt	40°	Un	S			
12.55-12.60	CS						
12.68	Jt	40°	St	S	C		
12.86	Jt	55°	Pl		C		Rhealed
13.41	Jt	50°	Un	S	C	FeSt	
13.66	Jt	55°	Pl	S	C	FeSt	
13.72	Jt	15°	Pl	R	C	FeSt	CV
13.79	Jt	20°	Pl	SR	C	FeSt	
13.86-13.91	CZ						
13.95	Jt	30°	Pl	SR	C	FeSt, MnSt	
14.01	Jt	10°	lr	R	C	FeSt, MnSt	
14.11	Jt	15°	lr	R	C	FeSt	
14.32	Jt	85°	Un	S	C	FeSt	