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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH013

SHEET 1 of 2

REFERENCE No H10621

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

LOCATION Cut 9B (Right Side Offramp) COORDINATES 487671.2 E; 7080615.7 N

PROJECT No FG5825 SURFACE R.L. 130.65m PLUNGE _____ DATE STARTED 26/8/09 GRID DATUM MGA94

JOB No 128/10A/901 HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 26/8/09 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
									EH	VH	H	M	J				
0	130.65					SILT Mottled pale grey, dry.	(ML)								Driller's logs only		
130.10					A	Clayey SILT (RESIDUAL) Brown, moist, stiff.	(CI-ML)								5,6,8 N=14	SPT	
129.15					B	Low plasticity, occasional coarse grained quartz sand particles, traces of plant material. Silty CLAY (RESIDUAL) Pale grey with minor red iron staining, moist, very stiff. Intermediate plasticity.	(CI-ML)								5,7,13 N=20	SPT	
128.15					C	MUDSTONE (XW): Generally exhibits engineering properties of pale grey to mottled brown, moist, hard, silty Clay of intermediate plasticity. Relict rock fabric throughout.	XW								10,20,25 N=45	SPT	
126.65			(75)		D	MUDSTONE (MW): Mottled red to pale grey, fine grained. Defects typically dip at 10°, 60° and are subvertical. Defect surfaces are generally planar, smooth and clean.	MW								11,22,30 N>50	SPT	
124.50			100 (35)			Detailed defect descriptions are shown on Form GEOT533/8									Is(50) = 0.05MPa Is(50) = 0.17MPa Is(50) = 0.12MPa	x x o	
123.04			100 (80)			SANDSTONE (MW): Pale grey to light brown, fine grained, thinly bedded. Defects typically dip at 20° and are open or closed. Surfaces are typically planar, smooth, clean or iron stained.	MW								Broken Zone Is(50) = 0.07MPa Is(50) = 0.10MPa	o x	
121.47			86 (74)			SANDSTONE (HW): Generally exhibits engineering properties of pale brown sand, moist, very dense, fine grained becoming coarse grained with depth. Becoming generally coarse grained.	HW								MC = 17.4%; UCS=548kPa	UCS	
10			100			SANDSTONE (MW): Generally exhibits engineering properties of pale grey, fine grained, moist, very dense silty Sand. (See over)	MW										

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 BH013
SHEET 2 of 2
REFERENCE No H10621

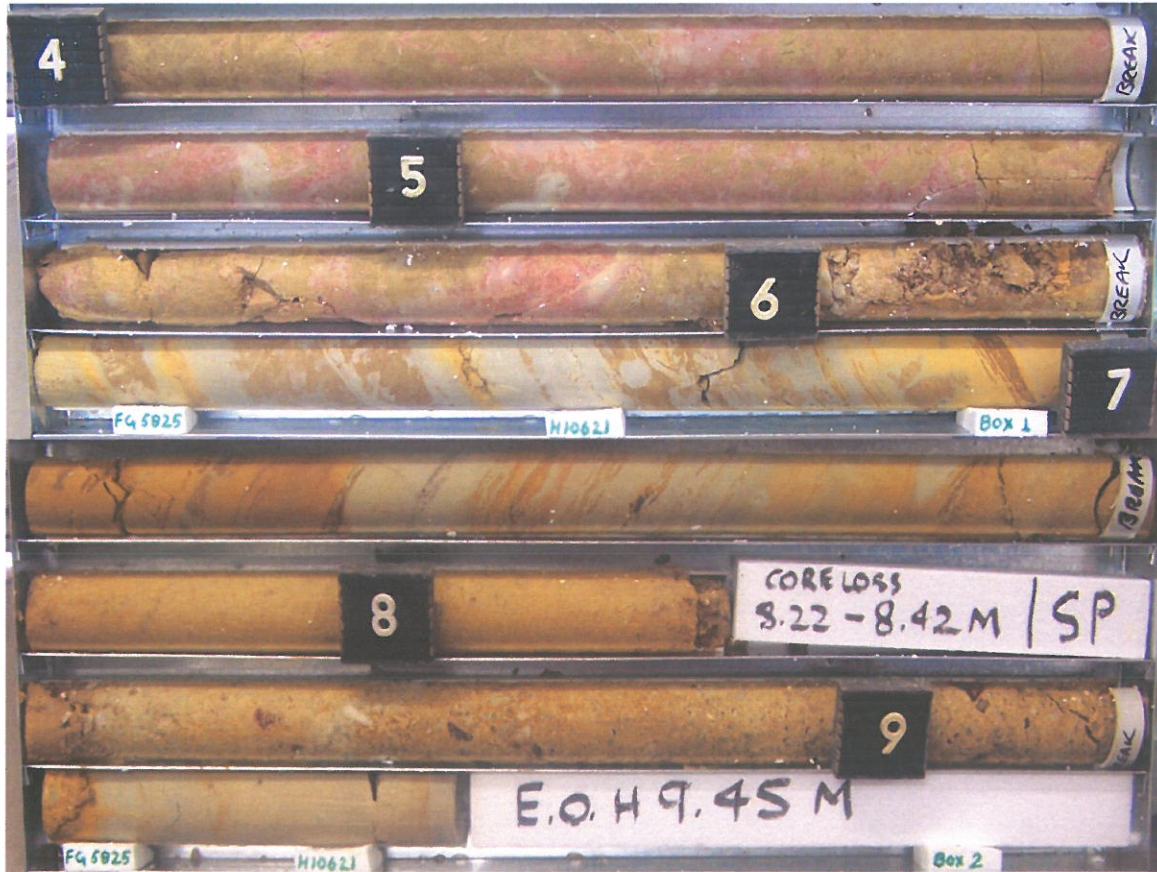
PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 9B (Right Side Offramp) COORDINATES 487671.2 E; 7080615.7 N
PROJECT No FG5825 SURFACE R.L. 130.65m PLUNGE DATE STARTED 26/8/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING DATE COMPLETED 26/8/09 DRILLER 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
									EH	VH	I	M	J	VL	EL	20			
10	120.65			E	SANDSTONE (MW): (Cont'd)													15,26,30 N>50	SPT
11	119.25			F			MW											20,26,30/100 N>50	SPT
12					Borehole terminated at 11.4m														
13																			
14																			
15																			
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: **BH 13**
Start Depth: 4.00m
Finish Depth: 9.45m
Project No: FG5825
H No: 10621



SCALE 1:5

F:GEO043/1

DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

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

BOREHOLE NO.: BH 13
SHEET: 1 of 1
REFERENCE NO.: H10621

PROJECT:	Bruce Highway (Cooroy – Curra) Section A Geotechnical Investigation		
LOCATION:	Cut 9B (Right side offramp)		
PROJECT NO.:	FG5825	SURFACE R.L.:	130.64
		DRILLER:	R & D Drilling
JOB NO.:	120/10A/901	DATUM:	MGA94
		DATE DRILLED:	26/08/09

DEPTH	DEFECT TYPE	DIP°	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
4.06	J	20	Un	SR	O		Cn
4.28	J	85	Un	SR	O		Cn
4.43	J	25	Un	S	C	W	
4.54	J	40	Un	S	C		
4.92	DI						
5.41	DI						
5.65	J	70	Un	S	C		
5.71	J	30	Un	S	C		
5.85	J	65	Un	S	C		
6.05	J	80	Un	S	C	FeSt	
6.35	J	70	PI	S	C		
6.47	J	25	Un	SR	C		
6.57	J	75	Un	S	C		In
7.05	J	75	Un	S	C		
7.96	J	60					Relict 70 Int
8.23	J	90					Relict 70 Int
9.26	J	55	St	S	C		

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

ROUGHNESS		WALL ALTERATIONS		TYPE		OTHER	
R	Rough	FeSt	Iron Stained	J, Js	Joint, Joints	CIn	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.