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**Queensland  
Government**

**GEOTECHNICAL  
BOREHOLE LOG**

FOR GEOTECHNICAL TERMS AND  
SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **CRR726**

Sheet 1 of 2

REFERENCE No **H12952**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation		
LOCATION	QR Land / Portal (Northern)	COORDINATES 501966.0 E; 6962883.9 N	
PROJECT No	FG6470	SURFACE RL 25.23m	PLUNGE 90°
			DATE STARTED 05/09/2017
			GRID DATUM MGA94
JOB No		HEIGHT DATUM AHD	BEARING °
			DATE COMPLETED 06/09/2017
			DRILLER Geodrill

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH	DEFECT SPACING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS	
													EH
0.00m-1.30m:						COBBLES with Gravel and Sandy Clay (Fill)					Non destructive drilling		
1	23.83				A	Gravelly CLAY (Fill) Brown, pale brown with red brown, moist, firm. Low to medium plasticity. Fine grained, sub-angular to round gravel. With fine grained sand.	(CL)					2, 2, 2 N=4 SPT	
2	22.73				B	Gravelly CLAY (Alluvium) Brown, red brown, moist, firm. Low to medium plasticity. Fine grained, sub-angular to round gravel. With fine grained sand.	(CL)					2, 1, 3 N=4 SPT	
3													
4	21.23				C	Silty CLAY (Residual) (DCf) pale yellow, brown, with pale grey and pale red brown, moist. very stiff. Medium plasticity. With fine grained, angular to sub-angular gravel. With fine to medium grained sand.	(CL)					3, 5, 10 N=15 LL=47% Pl= 29% MC=16.2% LS= 11% <75µm= 52% SPT	
5													
6					D	From 5.5m: Becomes Sandy GRAVEL with Clay.	(CL)					4, 11, 13 N=24 LL=39% Pl= 24% MC=14.2% LS= 10% <75µm= 42% SPT	
7	18.23				E	ARGILLITE (DCf) XW: Recovered as Silty Sandy GRAVEL. Grey with orange brown, moist, dense to very dense. Fine grained, sub-angular to angular. Low plasticity fines.	XW					6, 16, 20 N=36 LL=34% Pl= 16% MC=8.3% LS= 7% <75µm= 41% SPT	
8													
9	16.33				F	ARGILLITE (DCf) HW: Grey, dark grey, with minor orange, fine grained, foliated, low to medium strength. With frequent quartz veins up to 20mm.	HW					3, 5, 2/0mm hb SPT	
	15.23		(20)									D (9.35m) A (9.36m)	

Continued on next sheet

REMARKS: CAI = Average Cerchar abrasivity index (HRC=55). DCf - Neranleigh Fernvale Beds

LOGGED BY	REVIEWED BY
GP	S. Foley



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BOREHOLE No **CRR726**

Sheet 2 of 2

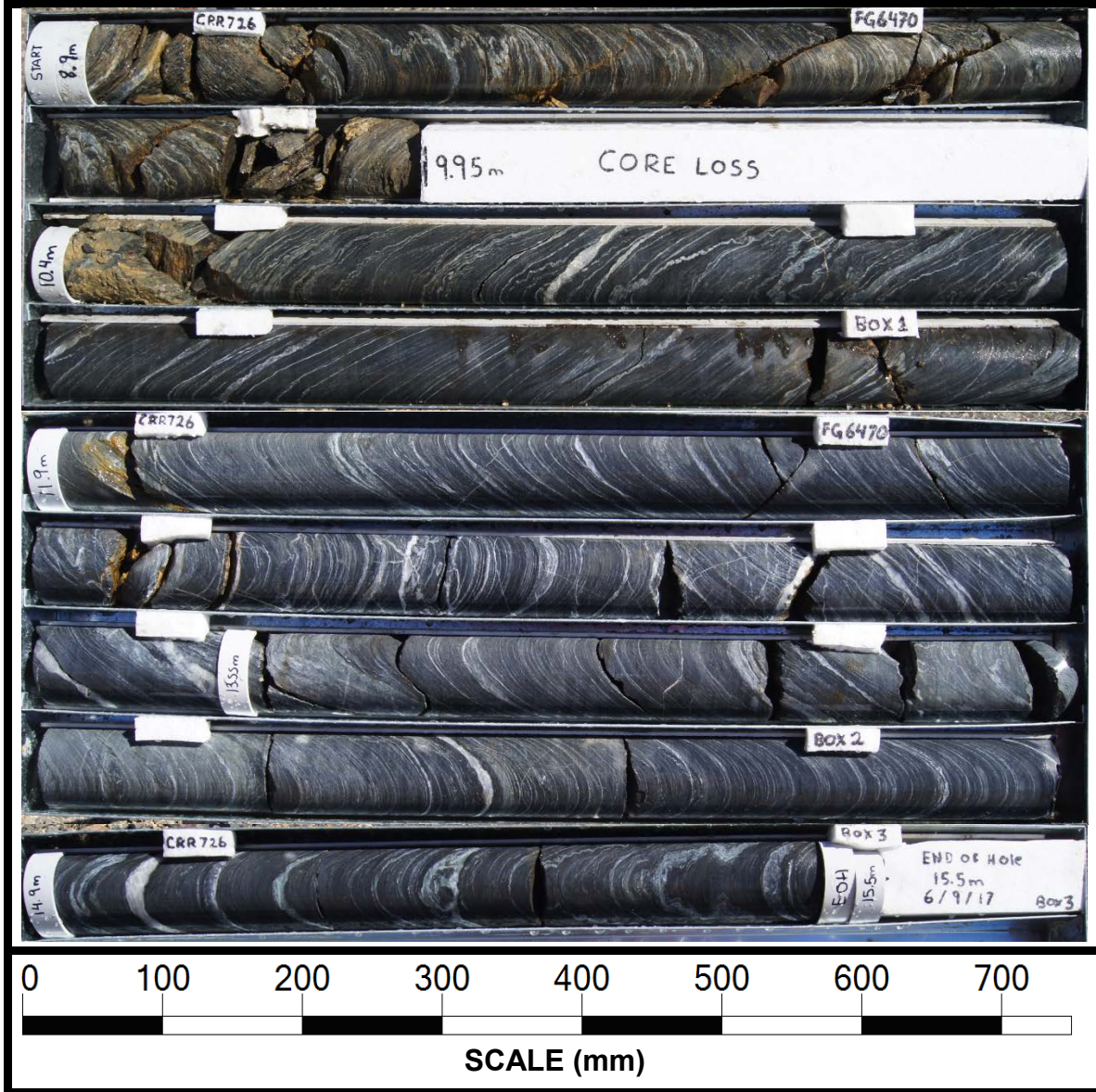
REFERENCE No **H12952**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation		
LOCATION	QR Land / Portal (Northern)	COORDINATES 501966.0 E; 6962883.9 N	
PROJECT No	FG6470	SURFACE RL 25.23m	PLUNGE 90°
			DATE STARTED 05/09/2017
			GRID DATUM MGA94
JOB No		HEIGHT DATUM AHD	BEARING °
			DATE COMPLETED 06/09/2017
			DRILLER Geodrill

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CORE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH	DEFECT SPACING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS	
													EH
10.65	14.68		70	(77)	CORE LOSS	ARGILLITE (DCf) HW: (Cont'd) -FP: 35°-45° (2-3/m), PI-Un/Ro, OP-TI, Cn with minor FeSt Js: 40°-60° (1/m), Pl/Ro, OP, Cn	MW			M	10.65m: CAI=2.06		
11.05						ARGILLITE (DCf) SW: Dark grey, fine grained, foliated, medium to high strength. Frequent quartz bands parallel to foliation <15mm thick, some crenulated. Occasional crosscutting quartz veinlets <3mm, 40°-70°.	SW			M		Is(50)=0.21 MPa Is(50)=0.31 MPa UCS=8.36 MPa E=8.05 GPa v= 0.02	
11.37										C		Is(50)=0.75 MPa Is(50)=0.72 MPa Is(50)=0.28 MPa Is(50)=0.25 MPa	
12.14			100	(76)		-FP: 35°-45° (2-3/m), PI-Un/Ro, OP-TI, Cn with minor FeSt -Js: 40°-60° (1/m), Pl/Ro, OP, Cn	MW			M		Is(50)=0.30 MPa Is(50)=0.27 MPa	
13.02												Is(50)=0.03 MPa Is(50)=0.17 MPa	
13.73			100	(68)			SW			MH		Is(50)=0.53 MPa Is(50)=1.30 MPa	
14.28												Is(50)=1.20 MPa Is(50)=0.58 MPa UCS=7.17 MPa E=8.2 GPa v= 0.109	
14.67			100	(100)						M		Is(50)=0.90 MPa Is(50)=0.49 MPa	
15.32	9.73		100							C		Is(50)=0.63 MPa Is(50)=0.54 MPa	
15.35						Borehole completed at 15.50m				M			

REMARKS: CAI = Average Cerchar abrasivity index (HRC=55). DCf - Neranleigh Fernvale Beds	<b>LOGGED BY</b>	<b>REVIEWED BY</b>
	GP	S. Foley

<b>Project Name</b>	<b>Cross River Rail CRR2017 – Geotechnical Investigation</b>		
<b>Project No.</b>	FG6470	<b>Date</b>	06/09/2017
<b>Borehole No.</b>	CRR726	<b>Reference No.</b>	H12952
<b>Location</b>	QR land / Portal	<b>Start Depth (m)</b>	8.90
<b>Submitted By</b>	M. de Gee	<b>Finish Depth (m)</b>	15.50



# Detailed Discontinuity Description Log



This form is intended for the detailed description of discontinuities and defects as measured in outcrop by line mapping, or as they occur downhole in drilled rock core. The descriptions and abbreviations used shall be in accordance with Australian Standard AS1726-1993 Geotechnical site investigations and TMR Geotechnical Terms and Symbols Form F:GEOT017/8.

Project Name		Cross River Rail				Project No. FG6470			
Site ID / Borehole No.		CRR726				Surface RL 25.23			
Geologist		G.P.				Date		5/09/2017	
						Page	1	of	2
Traverse Chainage; or Down hole depth (rock core)	Type LP / BP / FP / J etc.	Dip ° / Dip Direction °; or Angle ° from horizontal (rock core)	Planarity Stp / Un / Pl	Roughness Ro / Sm / Sl	Roughness Class I to IX	Aperture CD / OP / FL / TI	Infilling Cn / St / Vr / Ct <sup>1</sup>	Zones <sup>1</sup> SZ / CZ / HFZ / AZ	Other
8.94	FP	40	Pl	Ro	VII	OP	St		Fe
8.97-9.01								HFZ	
9.06	FP	40	Pl	Ro	VII	OP	St		Fe
9.09	J	10	Stp	Ro	I	OP	St		Fe
9.23	FP	30	Pl	Ro	VII	OP	St		Fe
9.30	J	65	Un	Ro	IV	TI	St		Fe
9.46	J	70	Pl	Ro	VII	OP	St		Fe
9.53	J	10	Pl	Ro	VII	OP	St		Fe
9.55	FP	25	Pl	Ro	VII	OP	St		Fe
9.57	J	60	Pl	Ro	VII	OP	St		Fe
9.75	J	45	Pl	Ro	VII	OP	Cn		
9.82-9.95								HFZ	
10.77	FP	45	Pl	Ro	VII	OP-TI	Cn		
11.56	FP	50	Un	Ro	IV	TI	Vr		
11.77	J	30	Pl	Ro	VII	OP	St		Fe
11.84	FP	50	Pl	Ro	VII	OP	St		Fe
11.97	FP	55	Pl	Ro	VII	OP	St		Fe
12.45	J	45	Pl	Ro	VII	OP	Cn		
12.56	FP	20	Un	Ro	IV	OP	St		Fe
12.72-12.77								HFZ	
12.80	FP	40	Pl	Ro	VII	OP	St		Fe
12.95	J	10	Pl	Ro	VII	OP	Cn		
13.43	FP	40	Stp	Ro	I	TI	Cn		
13.62	FP	65	Pl	Ro	VII	OP	Ct		Cly
13.68	FP	20-40	Un	Ro	IV	OP	Cn		
13.84	FP	25	Pl	Sm	VIII	OP	Cn		
13.94	J	10	Stp	Ro	I	OP	Cn		
14.03	J	5	Pl	Ro	VII	OP	St		Fe
14.34	J	5	Pl	Ro	VII	OP	Cn		
14.59	J	5	Pl	Ro	VII	OP	Vr		
15.11	J	5	Pl	Ro	VII	OP	Cn		

Note: 1. Describe zones and coatings in terms of composition and thickness (mm)

F:GEOT 533/9 – 2014

# Detailed Discontinuity Description Log



*This form is intended for the detailed description of discontinuities and defects as measured in outcrop by line mapping, or as they occur downhole in drilled rock core. The descriptions and abbreviations used shall be in accordance with Australian Standard AS1726-1993 Geotechnical site investigations and TMR Geotechnical Terms and Symbols Form F:GEOT017/8.*

<b>Project Name</b>		<b>Cross River Rail</b>				<b>Project No.</b>		<b>FG6470</b>		
<b>Site ID / Borehole No.</b>		<b>CRR726</b>				<b>Surface RL</b>		<b>25.23</b>		
<b>Geologist</b>		<b>G.P.</b>				<b>Date</b>		<b>5/09/2017</b>		
						<b>Page</b>		<b>2 of 2</b>		
Traverse Chainage; or Down hole depth (rock core)	Type LP / BP / FP / J etc.	Dip ° / Dip Direction °; or Angle ° from horizontal (rock core)	Planarity Stp / Un / Pl	Roughness Ro / Sm / Sl	Roughness Class I to IX	Aperture CD / OP / FL / TI	Infilling Cn / St / Vr / Ct <sup>1</sup>	Zones <sup>1</sup>		Other
								SZ /	CZ /	
15.27	J	5	Pl	Ro	VII	OP	Ct			

Note: 1. Describe zones and coatings in terms of composition and thickness (mm)

F:GEOT 533/9 – 2014