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**Queensland  
Government**

**GEOTECHNICAL  
BOREHOLE LOG**

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

BOREHOLE No **CRR723**

Sheet 1 of 3

REFERENCE No **H12949**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation		
LOCATION	QR Land	COORDINATES 501662.1 E; 6962852.8 N	
PROJECT No	FG6470	SURFACE RL 27.29m	PLUNGE 90°
			DATE STARTED 14/09/2017
			GRID DATUM MGA94
JOB No		HEIGHT DATUM AHD	BEARING °
			DATE COMPLETED 18/09/2017
			DRILLER Geodrill

DEPTH (m)	R.L. (m)	AUGER CASING WASHBORING CONE DRILLING	RQD (%)	CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH	DEFECT SPACING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS	
													EH
0.00						COBBLES with Gravel and Sandy Clay (Fill)					0.00m-1.10m: Non destructive drilling		
1.10	25.84				A	CLAY (Alluvium) Orange, brown, moist, soft to firm. Medium plasticity. With medium grained sand. With fine, angular gravel.						1, 2, 2 N=4 SPT	
2.50					B	From 2.5m: Becoming soft.	(Cl)					1, 2, 1 N=3 SPT	
4.00	23.29				C	ARGILLITE (DCf) XW: Recovered as Clayey Gravelly SAND, orange brown, grey, moist, hard. Fine to coarse, angular gravel.						28, 2/0mm hb LL=30% PI= 11% MC=13.7% LS= 6% <75µm= 33% SPT	
6.00					D		XW					30/90mm hb SPT	
7.10	20.19		(70)			ARGILLITE (DCf) HW: Pale orange brown, fine grained, foliated, with iron staining. Medium strength. Frequent quartz bands parallel to foliation <10mm thick. -Js: 30°-50° (4/m), Un-Pl/Ro, OP, St-Cn -FP: 40°-50° (4/m), Pl-Un/Ro-Sm, OP, Cn					7.10m-7.15m: HFZ	Is(50)=0.45 MPa Is(50)=0.45 MPa D (7.70m) A (7.83m)	
8.67			100 (57)				HW				8.67m-8.70m: HFZ	Is(50)=0.19 MPa Is(50)=0.89 MPa D (8.90m) A (9.00m)	
9.52	17.29		100				MW				9.52m-9.54m: CZ		

Continued on next sheet

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

LOGGED BY	REVIEWED BY
GP	S. Foley





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**GEOTECHNICAL  
BOREHOLE LOG**

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

BOREHOLE No **CRR723**

Sheet 3 of 3

REFERENCE No **H12949**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation				
LOCATION	QR Land	COORDINATES 501662.1 E; 6962852.8 N			
PROJECT No	FG6470	SURFACE RL	27.29m	PLUNGE	90°
		DATE STARTED	14/09/2017	GRID DATUM	MGA94
JOB No		HEIGHT DATUM	AHD	BEARING	°
		DATE COMPLETED	18/09/2017	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		EC	
												VH	H	VC	C
21			100 (86)		ARGILLITE (DCf) FR: Cont'd.					Is(50)=0.80 MPa Is(50)=0.55 MPa	A (20.50m) A (20.58m)				
22			100 (64)							Is(50)=1.60 MPa Is(50)=0.73 MPa UCS=8.47 MPa E=5.32 GPa v= 0.014	D (20.95m) A (21.00m) (21.18m) D (21.40m) A (21.45m)				
23			100 (89)							Is(50)=0.96 MPa Is(50)=0.92 MPa	A (21.28m) A (22.31m)				
24			100 (51)							Is(50)=1.20 MPa Is(50)=0.11 MPa	D (23.35m) A (23.49m)				
25	2.09		100							Is(50)=0.96 MPa Is(50)=2.60 MPa	A (24.69m) D (24.77m)				
Borehole completed at 25.20m															
26															
27															
28															
29															

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



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# STANDPIPE INSTALLATION LOG

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

BOREHOLE No **CRR723**

Sheet 1 of 3

PIEZOMETER No **CRR723**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation		
LOCATION	QR Land	COORDINATES 501662.1 E; 6962852.8 N	
PROJECT No	FG6470	SURFACE RL 27.29m	PLUNGE 90°
			DATE STARTED 14/09/2017
			GRID DATUM MGA94
JOB No		HEIGHT DATUM AHD	BEARING °
			DATE COMPLETED 18/09/2017
			DRILLER Geodrill

DEPTH (m)	R.L. (m)	LITHOLOGY	MATERIAL DESCRIPTION	Standpipe Construction Details		
				Depth (m) / RL (AHD)	50mm PVC Class No. 18 Stick Up = 0.00m	Backfill Details
1			COBBLES with Gravel and Sandy Clay(Fill)			
	25.84		CLAY(Alluvium) Orange, brown, moist, soft to firm. Medium plasticity. With medium grained sand. With fine, angular gravel.  From 2.5m: Becoming soft.			
2						
3						
4	23.29		ARGILLITE Recovered as Clayey Gravelly SAND, orange brown, grey, moist, hard. Fine to coarse, angular gravel.			
5						Grout: Cement / Bentonite mix
6						
7	20.19		ARGILLITE Pale orange brown, fine grained, foliated, with iron staining. Medium strength. Frequent quartz bands parallel to foliation <10mm thick. -Js: 30°-50° (4/m), Un-Pl/Ro, OP, St-Cn -FP: 40°-50° (4/m), Pl-Un/Ro-Sm, OP, Cn			
8						
9						
	17.29					

Continued on next sheet

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



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# STANDPIPE INSTALLATION LOG

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

BOREHOLE No **CRR723**

Sheet 2 of 3

PIEZOMETER No **CRR723**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation		
LOCATION	QR Land	COORDINATES 501662.1 E; 6962852.8 N	
PROJECT No	FG6470	SURFACE RL 27.29m	PLUNGE 90°
			DATE STARTED 14/09/2017
			GRID DATUM MGA94
JOB No		HEIGHT DATUM AHD	BEARING °
			DATE COMPLETED 18/09/2017
			DRILLER Geodrill

DEPTH (m)	R.L. (m)	LITHOLOGY	MATERIAL DESCRIPTION	Standpipe Construction Details		
				Depth (m) /RL (AHD)	50mm PVC Class No. 18 Stick Up = 0.00m	Backfill Details
11		ARGILLITE Grey and dark grey, fine grained, foliated, generally medium to high strength. Frequent quartz bands parallel to foliation <10mm thick. -Js: 30°-50° (3-4/m), Pl/Ro-Sm, TI-OP, Cn -FP: 40°-50° (2-3/m), Pl/Ro-Sm, TI-OP, Cn.				
12						
13						
14	13.04					
15		ARGILLITE Grey, fine grained, foliated, generally medium to high strength. Occasional quartz veins/veinlets <10mm thick, 50°-70°. -Js: 10°-30° (4/m), Un-Pl/Ro-Sm, OP, Cn or FeSt -Js: 40°-60° (<1/m), Pl/Ro-Sm, OP-TI, Cn or FeSt -FP: 40°-50° (4/m), Un-Pl/Ro-Sm, OP, Cn				
16						
17						
18			18.20m / 9.09 AHD			
19			19.20m / 8.09 AHD		Bentonite Seal Top of Slotted Pipe	
7.29						

Continued on next sheet

REMARKS: CAI = Average Cerchar abrasivity index (HRC=55). DCF - Neranleigh Fernvale Beds. Standpipe piezometer installed.

LOGGED BY	REVIEWED BY
GP	S. Foley



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**STANDPIPE  
INSTALLATION LOG**

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

BOREHOLE No **CRR723**

Sheet 3 of 3

PIEZOMETER No **CRR723**

PROJECT	Cross River Rail CRR2017 - Additional Geotechnical Investigation					
LOCATION	QR Land					COORDINATES 501662.1 E; 6962852.8 N
PROJECT No	FG6470	SURFACE RL 27.29m	PLUNGE 90°	DATE STARTED 14/09/2017	GRID DATUM MGA94	
JOB No		HEIGHT DATUM AHD	BEARING °	DATE COMPLETED 18/09/2017	DRILLER Geodrill	

DEPTH (m)	R.L. (m)	LITHOLOGY	MATERIAL DESCRIPTION	Standpipe Construction Details		
				Depth (m) / RL (AHD)	50mm PVC Class No. 18 Stick Up = 0.00m	Backfill Details
21			ARGILLITE Cont'd.			
22						
23						
24						
25	2.09			25.20m / 2.09 AHD		Filter: Washed / Graded Sand
			Borehole completed at 25.20m			
26						
27						
28						
29						

REMARKS: CAI = Average Cerchar abrasivity index (HRC=55). DCF - Neranleigh Fernvale Beds. Standpipe piezometer installed.	<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>	18/09/2017
<b>Borehole No.</b>	CRR723	<b>Reference No.</b>	H12949
<b>Location</b>	QR land	<b>Start Depth (m)</b>	7.10
<b>Submitted By</b>	M. de Gee	<b>Finish Depth (m)</b>	25.20





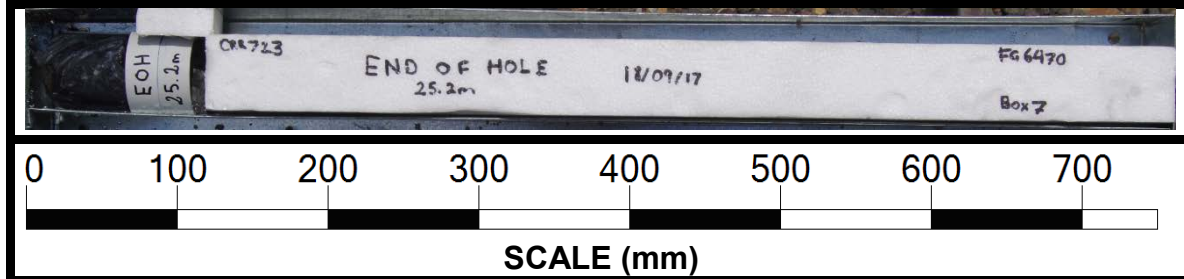
<b>Project Name</b>	<b>Cross River Rail CRR2017 – Geotechnical Investigation</b>		
<b>Project No.</b>	FG6470	<b>Date</b>	18/09/2017
<b>Borehole No.</b>	CRR723	<b>Reference No.</b>	H12949
<b>Location</b>	QR land	<b>Start Depth (m)</b>	7.10
<b>Submitted By</b>	M. de Gee	<b>Finish Depth (m)</b>	25.20



**CORE PHOTO LOG**  
 DEPARTMENT OF TRANSPORT AND MAIN ROADS  
 GEOTECHNICAL SECTION



<b>Project Name</b>	<b>Cross River Rail CRR2017 – Geotechnical Investigation</b>		
Project No.	FG6470	Date	18/09/2017
Borehole No.	CRR723	Reference No.	H12949
Location	QR land	Start Depth (m)	7.10
Submitted By	M. de Gee	Finish Depth (m)	25.20



# 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.		CRR723				Surface RL		27.29	
Geologist		G.P.				Date		14/09/2017	
						Page		1 of 3	
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
7.10-7.15	J	70	Stp	Ro	I	OP	Cn	HFZ	
7.25	FP	55	Pl	Sm	VIII	OP	St		
7.35	J	85	Stp	Ro	I	OP	Cn		
7.40	J	65	Stp	Ro	I	OP	Cn		
7.57	FP	40	Pl	Sm	VIII	OP	Cn		
8.04	J	80	Stp	Ro	I	OP	Cn		
8.12	FP	30	Un	Ro	IV	OP	Cn		
8.28	FP	60	Un	Ro	IV	CD	Cn		
8.46	FP	40	Un	Ro	IV	OP	St		
8.50	FP	50	Un	Ro	IV	OP	St		
8.67-8.70	J	80	Stp	Ro	I	OP	St	HFZ	
8.76	J	30	Un	Ro	IV	OP	St		
8.83	J	35	Un	Ro	IV	OP	St		
9.16	J	40	Un	Ro	IV	OP	St		
9.25	J	40	Pl	Sm	VIII	OP	St		
9.25	FP	40	Pl	Sm	VIII	OP	St		
9.45	J	40	Pl	Sm	VIII	OP	St		
9.52	J	40	Pl	Sm	VIII	FL	Ct	CZ	Cly
9.57	FP	40	Pl	Ro	VII	OP	St		
9.64	J	35	Un	Sm	V	OP	St		
10.33	FP	30	Pl	Ro	VII	OP	St		
10.61	FP	50	Pl	Ro	VII	OP	St		
10.72	J	35	Un	Ro	IV	OP	St		
10.76	FP	50	Pl	Ro	VII	OP	St		
11.00	J	35	Un	Ro	IV	OP	St		
11.31	J	20	Un	Ro	IV	OP	St		
11.79	J	40	Un	Ro	IV	OPP	Cn		
12.16	J	20	Pl	Ro	VII	OP	St		
12.60								Handling Break	
12.90	J	30	Pl	Sm	VIII	OP	St		
13.04	J	25	Stp	Sm	II	OP	Cn		

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

F:GEOT 533/9 – 2014

# Detailed Discontinuity Description Log



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<b>Project Name</b>		<b>Cross River Rail</b>				<b>Project No.</b> FG6470			
<b>Site ID / Borehole No.</b>		CRR723				<b>Surface RL</b> 27.29			
<b>Geologist</b>		G.P.				<b>Date</b>		14/09/2017	
						<b>Page</b>		2 of 3	
13.13	J	80	Stp	Ro	I	FL	Ct	CZ	90mm
13.33	J	5	Pl	Ro	VII	OP	Cn		
13.38	J	80	Pl	Sm	VIII	OP	Cn		
13.43	FP	15	Un	Ro	IV	OP	Cn		
13.58	J	60	Un	Ro	IV	OP	St		
13.81	J	0	Pl	Sm	VIII	OP	St		
13.90	J	15	Stp	Sm	II	OP	Cn		
14.10	J	35	Pl	Sm	VIII	OP	St		
14.21	J	75	Stp	Ro	I	OP	Cn		
14.52	J	20	Un	Ro	IV	OP	St		
14.83	FP	45	Pl	Ro	VII	OP	Cn		
14.94	J	15	Un	Ro	IV	OP	Cn		
15.16	J	20	Stp	Ro	I	OP	Cn		
16.03	J	70	Pl	Sm	VIII	OP	Cn		
16.45	J	45	Pl	Ro	VII	OP	Cn		
16.80	J	30	Un	Ro	IV	OP	Cn		
17.07	J	5	Un	Ro	IV	OP	Cn		
12.22	J	5	Un	Ro	IV	OP	Cn		
12.28	J	0	Stp	Ro	I	OP	Cn		
17.85	FP	20	Un	Ro	IV	OP	Cn		
18.09	J	65	Un	Ro	IV	OP	Cn		
18.43	J	70	Stp	Ro	I	OP	Cn		
18.51	FP	65	Pl	Ro	VII	OP	Cn		
18.72	J	10	Un	Ro	IV	OP	Cn		
18.85	J	70	Un	Ro	IV	OP	Cn		
19.18	J	80	Un	Ro	IV	OP	Cn		
19.33	J	80	Pl	Sm	VIII	OP	Cn		
19.53	J	80	Pl	Sm	VIII	OP	Cn		
19.92	J	70	Pl	Sm	VIII	OP	Cn		
20.05	J	60	Un	Ro	IV	OP	Cn		
20.13	J	30	Un	Ro	IV	OP	Cn		
20.23	J	70	Un	Ro	IV	OP	Cn		
20.33	FP	30	Un	Ro	IV	OP	Cn		
20.35	J	85	Pl	Ro	VII	OP	Cn		
20.44	FP	5	Un	Ro	IV	OP	Cn		
20.66	J	80	Un	Ro	IV	OP	Cn		
20.83	FP	5	Un	Ro	IV	FL	Vr		Cly

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

F:GEOT 533/9 – 2014

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<b>Project Name</b>		<b>Cross River Rail</b>				<b>Project No.</b>		<b>FG6470</b>	
<b>Site ID / Borehole No.</b>		<b>CRR723</b>				<b>Surface RL</b>		<b>27.29</b>	
<b>Geologist</b>		<b>G.P.</b>				<b>Date</b>		<b>14/09/2017</b>	
						<b>Page</b>		<b>3 of 3</b>	
20.86	FP	10	Un	Ro	IV	OP	Cn		
20.88	FP	20	Un	Ro	IV	OP	Cn		
21.47	FP	45	Un	Ro	IV	OP	Cn		
21.54	J	85	Pl	Sm	VIII	OP	Cn		
21.62	FP	40	Un	Ro	IV	OP	Cn		
21.89	FP	50	Pl	Ro	VII	OP	Cn		
21.92	FP	50	Pl	Ro	VII	OP	Cn		
22.10	FP	50	Pl	Ro	VII	OP	Cn		
22.10-22.13	FP	50	Stp	Ro	I	OP	Cn	HFZ	
22.16	FP	60	Pl	Ro	VII	OP	Cn		
22.19	FP	40	Pl	Ro	VII	OP	Cn		
22.40	FP	30	Pl	Ro	VII	OP	Cn		
22.41	FP	30	Pl	Ro	VII	OP	Cn		
22.43	J	40	Pl	Ro	VII	OP	Cn		
22.46	J	40	Pl	Ro	VII	OP	Cn		
22.53	J	0	Stp	Ro	I	OP	Cn		
22.89	J	0	Stp	Ro	I	OP	Cn		
22.97	FP	70	Stp	Ro	I	OP	Cn		
23.12	J	50	Pl	Ro	VII	OP	Cn		
23.27	J	50	Un	Ro	IV	OP	Cn		
23.44	FP	30	Un	Rp	IV	OP	Cn		
23.56	FP	50	Pl	Ro	VII	OP	Cn		
23.66	FP	50	Pl	Ro	VII	OP	Cn		
24.00	J	75	Un	Sm	III	OP	Cn		
24.08	J	75	Un	Sm	III	OP	Cn		
24.58	J	60	Stp	Ro	I	OP	Cn		
24.64	J	60	Un	Ro	IV	OP	Cn		
24.90	J	0	Un	Ro	IV	OP	Cn		
24.99	J	70	Un	Ro	IV	OP	Cn		
25.10	FP	40	Un	Ro	IV	OP	Cn		

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

F:GEOT 533/9 – 2014