FINAL 27/09/2018

Queensland Government

GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR925**

Sheet 1 of 3

REFERENCE No **H13048**

PROJECT Cross River Rail (CRR) Project - Additional Geotechnical Investigation

LOCATION QR Mayne Yard

COORDINATES 503837.1 E; 6964955.0 N

PROJECT No FG6470 | SURFACE RL 3.80m | PLUNGE 90° | DATE STARTED 22/05/2018 | GRID DATUM MGA94

JOB No | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 23/05/2018 | DRILLER Geodrill

DEPTH (m)	R.L. (m)	AUGER / CASING / WASH BORING / CORE DRILLING	RQD ( ) % CORE REC %	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USCS WEATHERING	INTACT STRENGTH (EH VH H M L VL EL)	DEFECT SPACING (EC VC C M W VW EW)	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	3.80				Gravelly SAND with Silt (Fill) Dark grey, moist, medium dense, fine to coarse grained. Fine to coarse, angular to sub-angular gravel. Some cobbles.		(SP-SM)				
2	1.80				Sandy GRAVEL with Clay (Fill) Grey, moist, medium dense, medium to coarse grained, subangular. Fine to coarse, angular to sub-angular gravel. Some medium plasticity clay. Trace cobbles.		(GP-GC)				
3				A						8, 20, 7 N=27	SPT
4	-0.30			B	CLAY (Alluvium) Dark grey mottled pale brown, moist, firm, high plasticity, trace rootlets. at 5.0m: very soft to soft.		(CH)			1, 2, 3 N=5 LL=101% PI= 73% MC=35.8% LS= 37% <75µm= 74%	SPT
5											
6				C						5.50m-5.95m: CU Triaxial Test MC=62.6% DD= 1 t/m3 WD= 1.62 t/m3	U50
	-2.80				Sandy CLAY (Alluvium) Dark grey, moist, very soft, high plasticity clay. Fine grained, subrounded sand.						
7				D						hw, hw, hw N<1	SPT
8							(CH)				
9				E						MC=55.5% Oedometer DD= 1.03 t/m3 WD= 1.66 t/m3	U50
	-6.20										

Continued on next sheet

REMARKS: Rif - Brisbane Tuff

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ND	S.Foley

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GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR925**

Sheet 2 of 3

REFERENCE No **H13048**

PROJECT Cross River Rail (CRR) Project - Additional Geotechnical Investigation

LOCATION QR Mayne Yard — COORDINATES 503837.1 E; 6964955.0 N

PROJECT No FG6470 — SURFACE RL 3.80m — PLUNGE 90° — DATE STARTED 22/05/2018 — GRID DATUM MGA94

JOB No — HEIGHT DATUM AHD — BEARING ° — DATE COMPLETED 23/05/2018 — DRILLER Geodrill

DEPTH (m)	R.L. (m)	SAMPLE	MATERIAL DESCRIPTION	USCS WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
11		F	Sandy CLAY (Alluvium) Cont'd at 10.0m: becoming grey mottled brown		hw, hw, hw N<1	SPT
12		G			LL=78% PI= 53% MC=56.2% LS= 18% DD= 1.02 t/m3 WD= 1.59 t/m3	U50
13		H	at 13.0m: some wood fragments		hw, hw, hw N<1	SPT
14						
15		I		(CH)	MC=76.7% DD= 0.77 t/m3 WD= 1.37 t/m3	U50
16		J			hw, hw, hw N<1	SPT
17						
18		K	at 17.5m some wood fragments		MC=32.8% DD= 0.79 t/m3 WD= 1.05 t/m3	U50
19			at 18.5m: becoming pale grey, moist, firm.			
	-15.40	L	TUFF (Rif) XW: Recovered as Sandy CLAY with Gravel. Pale grey green, moist, hard, medium to high plasticity.	XW	hw, 20, 32 N=52	SPT
	-16.20					

Continued on next sheet

REMARKS: Rif - Brisbane Tuff

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FINAL 27/09/2018

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GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR925**

Sheet 3 of 3

REFERENCE No **H13048**

PROJECT Cross River Rail (CRR) Project - Additional Geotechnical Investigation

LOCATION QR Mayne Yard

COORDINATES 503837.1 E; 6964955.0 N

PROJECT No FG6470 | SURFACE RL 3.80m | PLUNGE 90° | DATE STARTED 22/05/2018 | GRID DATUM MGA94

JOB No | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 23/05/2018 | DRILLER Geodrill

DEPTH (m)	R.L. (m)	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	USCS WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
				TUFF (Rif) XW: Cont'd. Fine to coarse grained sand. Some fine to coarse, sub-angular gravel.	XW		
	-16.75	(0) 100	CORE LOSS	TUFF (Rif) XW: Recovered as Clayey GRAVEL. Pale grey and pale orange, fine to coarse, sub-angular to angular gravel. Medium plasticity clay. Some HW and MW Tuff layers.	HW	20.55m-21.15m: BZ	
21		(0) 85	CORE LOSS		XW		
		(0) 60	CORE LOSS				
		(0) 0	CORE LOSS				
		(0)	CORE LOSS		MW		
			CORE LOSS		XW		
22		75					
		(0) 0	CORE LOSS				
		(14)	CORE LOSS		MW	22.34m-22.41m: XW, Cly	
			CORE LOSS		XW	Is(50)=1.70 MPa Is(50)=1.80 MPa	D (22.46m) A (22.47m)
23		41					
		(0)	CORE LOSS		HW		
		70			XW		
		(0)	CORE LOSS				
		43			MW	23.73m-23.90m: BZ	
24		(15)	CORE LOSS		XW	24.00m-24.41m: BZ	
	-20.50			TUFF (Rif) HW: Grey, pale grey, fine grained, massive, fine to medium sub-angular to subrounded clasts up to 15mm within clayey matrix, medium strength. Js 80°-90°, (1-2/m), Pl-Un/Ro, Tl-OP, FeSt, some Cly Ct Js 15°-25° (6-8/m), Pl-Un/Ro, Tl-OP, FeSt, some Cly Vn	MW		
		84			HW	UCS=7.99 MPa E=5.65 GPa	(24.62m)
25		(0)	CORE LOSS		XW		
		67				25.12m-25.75m: BZ	
		(0)			HW		
		100					
26		(0)	CORE LOSS		XW		
		74			MW	26.23m-26.40m: BZ	
		(53)			XW		
27		100			HW		
		(0)					
	-23.70				MW		
		100		TUFF (Rif) XW: Recovered as Clayey Sand with Gravel. Grey, pale grey, pale green, moist, dense to very dense, fine to coarse grained. Medium to high plasticity clay. Fine to medium, sub-angular to sub-rounded gravel. Some HW to MW Tuff layers up to 200mm. Js 15°-25° (5/m) Pl/Ro, Tl-OP, Cn, some Cly Ct	XW		
28		(31)			MW		
					HW		
		100					
		(0)	CORE LOSS		HW		
		78					
29		(0)	CORE LOSS		XW		
	-25.70	80			MW		
				Borehole completed at 29.50m			

REMARKS: Rif - Brisbane Tuff

LOGGED BY	REVIEWED BY
ND	S.Foley

TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

Detailed Discontinuity Description Log

Queensland Government

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 - Stage 2	Project No.	FG6470		
Site ID / Borehole No.	CRR925	Surface RL	3.8		
Geologist	Nick Dewar	Date	23/05/2018		
		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 / Tl	Infilling Cn / St / Vr / Ct [1]	Zones [1] SZ / CZ / HFZ / AZ	Other
20.55								FZ/BZ	20.55-20.8m
20.85									20.85-21.09m
21.52	J	60	Un	Sm	V	OP	Ct		Cly
21.55	J	30	Un	Sm	V	OP	St		Fe
21.61								FZ	21.61-21.64m
21.64	J	20	Un	Sm	V	OP	Cn		
21.64	J	70	Un	Sm	V	OP	Cn		21.64-21.67m
21.67								FZ	21.67-21.75m
22.33								FZ	22.33-22.38m
22.38	J	40	Un	Sm	V	OP	St		Fe/Cly
22.53	J	20	Un	Sm	V	OP	St		Fe
22.53								FZ	22.53-22.6m
23.25									23.25-23.43m
23.73								FZ	23.73-23.86
23.86	J	30	Un	Sm	V	OP	Cn		
24.30	J	70	Un	Sm	V	OP	St		Fe
24.33	J	90	Un	Sm	V	OP	St		Fe, 24.33-24.48
24.37	J	40	Un	Sm	V	OP	St		Fe
24.43	J	0	Un	Sm	V	OP	St		Fe
24.57	J	20	Un	Sm	V	Tl			
24.46	J	80	Un			CD			24.46-24.57
24.57	J	90	Un			CD			24.57-24.68
24.80	J	70	Un	Sm	V	Tl			Fe, J: 24.8-24.9
25.05	J	60	Un	Sm	V	OP	St		Fe
25.13	J	5	Un	Sm	V	OP	Cn		
25.19	J	30	Un	Sm	V	OP	St		Fe
25.24	J	90	Un	Sm	V	OP	St		Fe, J:25.24-25.3
25.27								FZ	25.27-25.35m
25.42	J	20	Un	Sm	V	OP	St		Fe
25.50	J	0	Un	Sm	V	OP	St		Fe
25.50								FZ	25.5-25.58m

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

Detailed Discontinuity Description Log

Queensland Government

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Project Name	Cross River Rail - Stage 2	Project No.	FG6470		
Site ID / Borehole No.	CRR925	Surface RL	3.8		
Geologist	Nick Dewar	Date	23/05/2018		
		Page	2	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 / Tl	Infilling Cn / St / Vr / Ct [1]	Zones [1] SZ / CZ / HFZ / AZ	Other
25.62	J	0	Un	Sm	V	OP	St		Fe
25.68	J	0	Un	Sm	V	OP	St		Fe
25.70	J	0	Un	Sm	V	OP	St		Fe
25.77	J	50	Un	Sm	V	OP	St		
25.77								FZ	25.77-25.8m
25.80	J	90	Un	Sm	V	OP	Cn		25.8-25.92m
25.88	J	70	Un	Sm	V	OP	Cn		25.88-25.92m
25.92								FZ	25.92-25.97
26.08	J	20	Un	Sm	V	OP	Cn		
26.17	J	10	Un	Sm	V	OP	Cn		
26.20	J	5	Un	Sm	V	CD	Cn		
26.22	J	10	Un	Sm	V	OP	Cn		
26.22								FZ	26.22-26.35m
26.35	J	5	Un	Sm	V	OP	Cn		
26.40								CZ	26.4-26.55m
26.55								FZ	26.55-26.69m
26.69	J	0	Pl	Sm	VIII	OP	Cn		
26.71	J	20	Un	Sm	V	OP	Cn		
26.73	J	5	Un	Sm	V	OP	Cn		
27.20								FZ	27.2-27.4m
27.40	J	10	Un	Sm	V	OP	Cn		
27.43	J	20	Un	Sm	V	TI/CD	Cn		
27.45								FZ	27.45-27.85m
27.85	J	70	Un	Sm	V	OP	Ct		Cly, J: 27.85-27.9
27.91	J	20	Un	Sm	V	OP	Cn		
27.94								FZ	27.94-28.05m
28.06	J	70	Un	Sm	V	OP	Cn		28.06-28.11m
28.09	J	50	Un	Sm	V	OP	Cn		28.09-28.21m
28.17	J	30	Un			CD/TI			
28.20	J	30	Stp	Sm	II	OP	Cn		
28.49								FZ	28.49-29.0m

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

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Project Name	**Cross River Rail - Stage 2**					**Project No.**	**FG6470**		
Site ID / Borehole No.	**CRR925**					**Surface RL**	**3.8**		
Geologist	**Nick Dewar**					**Date**	**23/05/2018**		
						Page	**3**	**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 / Tl	Infilling Cn / St / Vr / Ct [1]	Zones [1] SZ / CZ / HFZ / AZ	Other
29.34								FZ	29.34-29.5

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

CORE PHOTO LOG
DEPARTMENT OF TRANSPORT AND MAIN ROADS
GEOTECHNICAL SECTION

Queensland Government

Project Name	**Cross River Rail CRR 2018 – Geotechnical Investigation**		
Project No.	FG6470	Date	23/5/18
Borehole No.	CRR925	Reference No.	H13048
Location	QR Mayne yard	Start Depth (m)	20.55
Submitted By	J. Armstrong	Finish Depth (m)	29.50