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Queensland Government

GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR926**

Sheet 1 of 3

REFERENCE No **H13051**

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

LOCATION AQ Mayne Yard

COORDINATES 503733.9 E; 6964977.8 N

PROJECT No FG6470 | SURFACE RL 3.48m | PLUNGE 90° | DATE STARTED 18/05/2018 | GRID DATUM MGA94

JOB No | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 22/05/2018 | 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
	3.43				Asphalt					0.00m-2.20m: NDD to 2.2m	
1					Sandy GRAVEL with Silt (Fill) Brown and grey brown, dry to moist, loose to medium dense, fine, sub-angular to sub-rounded gravel. Fine to coarse grained sand. Some low plasticity fines. Trace boulders and cobbles.		(GP-GM)				
2	1.28				Silty CLAY (Alluvium) Brown and grey brown, moist, soft to firm, high plasticity.						
				A			(CH)			1, 4, 1 N=5	SPT
3				B	at 2.5m: becoming brown with some orange brown mottling. Trace of rootlets.					3, 2, 1 N=3	SPT
	-0.02										
				C	CLAY (Alluvium) (Q) Brown grey and yellow brown, moist, soft to firm, high plasticity.		(CH)			LL=60% PI= 35% MC=36.7% LS= 16% DD= 1.29 t/m3 WD= 1.77 t/m3	U50
4	-0.52			D	Trace of fine sub-rounded gravel. Silty CLAY (Alluvium) Grey, trace yellow brown mottling, moist, very soft, high plasticity.					hw, hw, hw N<1 LL=71% PI= 49% MC=53.5% LS= 23% <75µm= 92%	SPT
5											
				E							U50
6											
7					at 7.0m: becoming grey, orange, and red brown. Some wood fragments.		(CH)				
8				F						8.00m-8.45m: UU Triaxial Test MC=79.9% DD= 0.97 t/m3 WD= 1.63 t/m3	U50
				G						hw, hw, hw N<1	SPT
9											
	-6.52										

Continued on next sheet

REMARKS: Rif - Brisbane Tuff. Standpipe piezometer installed.

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MH	S.Foley

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GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR926**

Sheet 2 of 3

REFERENCE No **H13051**

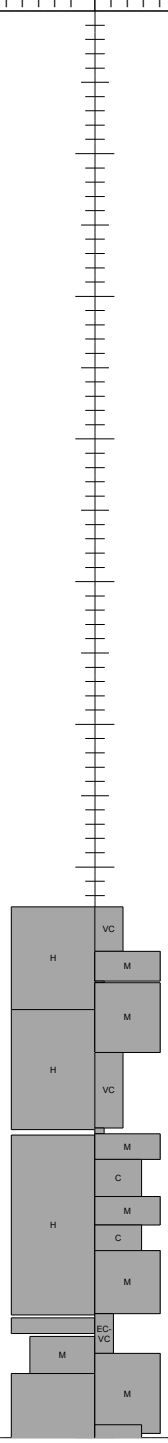
PROJECT Cross River Rail (CRR) Project - Additional Geotechnical Investigation

LOCATION AQ Mayne Yard — COORDINATES 503733.9 E; 6964977.8 N

PROJECT No FG6470 — SURFACE RL 3.48m — PLUNGE 90° — DATE STARTED 18/05/2018 — GRID DATUM MGA94

JOB No — HEIGHT DATUM AHD — BEARING ° — DATE COMPLETED 22/05/2018 — DRILLER Geodrill

DEPTH (m)	R.L. (m)	RQD ( ) % / CORE REC %	SAMPLE	MATERIAL DESCRIPTION	USCS WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
11			H	Silty CLAY (Alluvium) Cont'd		MC=70.8% Oedometer DD= 0.9 t/m3 WD= 1.55 t/m3	U50
			I			hw, hw, hw N<1	SPT
12							
13			J		(CH)	MC=90.5% DD= 0.62 t/m3 WD= 1.19 t/m3	U50
14							
			K			MC=29.4% DD= 1.51 t/m3 WD= 1.96 t/m3	U50
15				at 14.95m: becoming firm, with trace of fine gravel and fine grained sand.			
16	-12.62		L			23, 30/110mm	SPT
	-12.80	(73)		TUFF (Rif) XW: Recovered as Gravelly CLAY. Brown, pale red, mottled pale grey, moist, hard, high plasticity. Fine to coarse sub-angular gravel. Trace fine to coarse grained sand.	XW	Is(50)=3.40 MPa Is(50)=1.00 MPa UCS=30.00 MPa E=24.1 GPa	D (16.64m) A (16.65m) (16.84m)
17				TUFF (Rif) SW: Pale grey with orange-brown staining, high strength.	SW		
	-14.02			TUFF (Rif) MW: Pale grey with orange-brown staining, high strength. - Js: 40-50° (1-3/m) Pl-Un/Sm-Ro, CD-OP, Fe St, Cly Vr - Js: 0-10° (2-4/m) Pl/Sm, CD-OP, Fe St, Cly Vr - Js: 60-75° (1-3/m) Un/Sm-Ro, CD, Fe St, Cly Vr	MW	17.84m-17.88m: XW Band	
18		100 (75)				Is(50)=3.60 MPa Is(50)=3.00 MPa	D (18.46m) A (18.47m)
19						19.14m-19.16m: Joint 45° Pl, SM, FL,XW ,Cly 19.27m-19.29m: XW Band, Cly,	
	-16.52					Is(50)=0.97 MPa Is(50)=0.62 MPa	D (19.45m) A (19.46m)



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REMARKS: Rif - Brisbane Tuff. Standpipe piezometer installed.

LOGGED BY	REVIEWED BY
MH	S.Foley

Queensland Government

GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR926**

Sheet 3 of 3

REFERENCE No **H13051**

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

LOCATION AQ Mayne Yard COORDINATES 503733.9 E; 6964977.8 N

PROJECT No FG6470 SURFACE RL 3.48m PLUNGE 90° DATE STARTED 18/05/2018 GRID DATUM MGA94

JOB No HEIGHT DATUM AHD BEARING ° DATE COMPLETED 22/05/2018 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
	-16.62				TUFF (Rif) MW: Cont'd				C		
21					TUFF (Rif) SW: Pale grey with orange-brown staining, high strength. - Js: 40-50° (1-3/m) Pl-Un/Sm-Ro, CD-OP, Fe St, Cly Vr - Js: 0-10° (2-4/m) Pl/Sm, CD-OP, Fe St, Cly Vr		SW	H	M	Is(50)=3.30 MPa Is(50)=1.30 MPa	D (20.90m) A (20.91m)
	-18.12		100		- Js: 60-75° (1-3/m) Un/Sm-Ro, CD, Fe St, Cly Vr					UCS=36.90 MPa E=17.6 GPa Is(50)=2.40 MPa Is(50)=2.20 MPa	(21.25m) D (21.50m) A (21.51m)
22					Borehole completed at 21.60m						
23											
24											
25											
26											
27											
28											
29											

REMARKS: Rif - Brisbane Tuff. Standpipe piezometer installed.

LOGGED BY	REVIEWED BY
MH	S.Foley

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.	**CRR926**	**Surface RL**	**3.484**		
Geologist	**Mark Hayes**	**Date**	**21/05/2018**		
		Page	**1**	**of**	**1**

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
16.33	J	60	Pl	Sm	VIII	CD	Vr		Cly
16.35	J	30	Stp	Sm	II	OP	Cn		
16.36	J	50	Pl	Sm	VIII	OP	Vr		Cly
16.57	J	5	Un	Sm	V	OP	Vr	BZ	Cly(20mm)
16.80	J	45	Pl	Sm	VIII	CD	St		Fe
16.81	J	45	Un	Sm	V	CD	St		Fe
17.30	J	10	Pl	Sm	VIII	CD	St		Fe
17.46	J	10	Pl	Ro	VII	OP	St		Fe
17.47	J	10	Un	Ro	IV	CD	St		Fe
17.52	J	10	Pl	Sm	VIII	OP	Ct		Cly(3-5mm)
17.72	J	15	Pl	Sm	VIII	CD	St		Fe
17.83	J	35	Pl	Sm	VIII	OP	Ct	BZ	Cly, BZ(40mm
18.05	J	20	Pl	Sm	VIII	CD	St		Fe
18.15	J	65	Pl	Sm	VIII	OP	Vr		Cly
18.18	J	10	Pl	Sm	VIII	CD	St		Fe
18.31	J	45	Stp	Ro	I	CD	St		Fe
18.51	J	10	Pl	Sm	VIII	CD	St		Fe
18.68	J	70	Un	Sm	V	OP	Vr	BZ	Cly, BZ(10mm
19.13	J	10	Pl	Sm	VIII	CD	St		Fe
19.15	J	0	Pl	Sm	VIII	FL/OP	Ct	BZ	Cly(20mm)
19.24	J	0	Pl	Sm	VIII	CD	St		Fe
19.27	J	45	Un	Sm	V	FL/OP	Ct		Cly(20mm)
19.41	J	10	Pl	Sm	VIII	CD	St		Fe
19.73	J	20	Stp	Sm	II	OP	St		Fe
19.97	J	75	Un	Ro	IV	OP	St		Fe
20.07	J	45	Un	Sm	V	CD	St		Fe
20.17	J	70	Un	Ro	IV	CD	St		Fe
20.69	J	5	Un	Sm	V	CD	St		Fe
21.22	J	10	Un	Sm	V	CD	Cn		

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

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Queensland Government

STANDPIPE INSTALLATION LOG

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

BOREHOLE No **CRR926**

Sheet 1 of 3

PIEZOMETER No **CRR926**

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

LOCATION AQ Mayne Yard COORDINATES 503733.9 E; 6964977.8 N

PROJECT No FG6470 SURFACE RL 3.48m PLUNGE 90° DATE STARTED 18/05/2018 GRID DATUM MGA94

JOB No HEIGHT DATUM AHD BEARING ° DATE COMPLETED 22/05/2018 DRILLER Geodrill

DEPTH (m)	R.L. (m)	LITHOLOGY	MATERIAL DESCRIPTION
	3.43		Asphalt
1			Sandy GRAVEL with Silt(Fill) Brown and grey brown, dry to moist, loose to medium dense, fine, sub-angular to sub-rounded gravel. Fine to coarse grained sand. Some low plasticity fines. Trace boulders and cobbles.
2	1.28		Silty CLAY(Alluvium) Brown and grey brown, moist, soft to firm, high plasticity.
3			at 2.5m: becoming brown with some orange brown mottling. Trace of rootlets.
	-0.02		CLAY(Alluvium) Brown grey and yellow brown, moist, soft to firm, high plasticity. Trace of fine sub-rounded gravel.
4	-0.52		Silty CLAY(Alluvium) Grey, trace yellow brown mottling, moist, very soft, high plasticity.
5			
6			
7			at 7.0m: becoming grey, orange, and red brown. Some wood fragments.
8			
9			
	-6.52		

Standpipe Construction Details

Depth (m) /RL (AHD)	50mm PVC Class No. 18 Stick Up = 0.00m	Backfill Details
		Grout: Bentonite / Cement Mix
5.00m / -1.52 AHD		
		Bentonite Pelle Seal
7.20m / -3.72 AHD		

Continued on next sheet

REMARKS: Rif - Brisbane Tuff. Standpipe piezometer installed.

LOGGED BY	REVIEWED BY
MH	S.Foley

Queensland Government

STANDPIPE INSTALLATION LOG

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

BOREHOLE No **CRR926**

Sheet 2 of 3

PIEZOMETER No **CRR926**

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

LOCATION AQ Mayne Yard — COORDINATES 503733.9 E; 6964977.8 N

PROJECT No FG6470 — SURFACE RL 3.48m — PLUNGE 90° — DATE STARTED 18/05/2018 — GRID DATUM MGA94

JOB No — HEIGHT DATUM AHD — BEARING ° — DATE COMPLETED 22/05/2018 — DRILLER Geodrill

DEPTH (m)	R.L. (m)	LITHOLOGY	MATERIAL DESCRIPTION
			Silty CLAY(Alluvium) Cont'd
15			at 14.95m: becoming firm, with trace of fine gravel and fine grained sand.
16	-12.62		
	-12.80		TUFF Recovered as Gravelly CLAY. Brown, pale red, mottled pale grey, moist, hard, high plasticity. Fine to coarse sub-angular gravel. Trace fine to coarse grained sand.
17			TUFF Pale grey with orange-brown staining, high strength.
	-14.02		
18			TUFF Pale grey with orange-brown staining, high strength. - Js: 40-50° (1-3/m) Pl-Un/Sm-Ro, CD-OP, Fe St, Cly Vr - Js: 0-10° (2-4/m) Pl/Sm, CD-OP, Fe St, Cly Vr - Js: 60-75° (1-3/m) Un/Sm-Ro, CD, Fe St, Cly Vr
19			
	-16.52		

Standpipe Construction Details

Depth (m) /RL (AHD)	50mm PVC Class No. 18 Stick Up = 0.00m	Backfill Details
		Filter: Washed / Graded Sand
18.45m / -14.97 AHD		Top of Slotted Pipe

Continued on next sheet

REMARKS: Rif - Brisbane Tuff. Standpipe piezometer installed.

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Queensland Government

STANDPIPE INSTALLATION LOG

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

BOREHOLE No **CRR926**

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PIEZOMETER No **CRR926**

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

LOCATION AQ Mayne Yard

COORDINATES 503733.9 E; 6964977.8 N

PROJECT No FG6470 | SURFACE RL 3.48m | PLUNGE 90° | DATE STARTED 18/05/2018 | GRID DATUM MGA94

JOB No | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 22/05/2018 | DRILLER Geodrill

DEPTH (m)	R.L. (m)	LITHOLOGY	MATERIAL DESCRIPTION
21	-16.62		TUFF Cont'd
			TUFF Pale grey with orange-brown staining, high strength. - Js: 40-50° (1-3/m) Pl-Un/Sm-Ro, CD-OP, Fe St, Cly Vr - Js: 0-10° (2-4/m) Pl/Sm, CD-OP, Fe St, Cly Vr - Js: 60-75° (1-3/m) Un/Sm-Ro, CD, Fe St, Cly Vr
	-18.12		Borehole completed at 21.60m
22			
23			
24			
25			
26			
27			
28			
29			

Standpipe Construction Details

Depth (m) /RL (AHD)	50mm PVC Class No. 18 Stick Up = 0.00m	Backfill Details
21.45m / -17.97 AHD		

REMARKS: Rif - Brisbane Tuff. Standpipe piezometer installed.

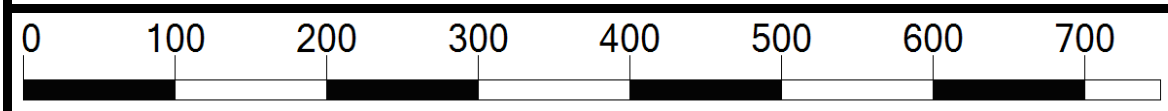
LOGGED BY	REVIEWED BY
MH	S.Foley

TMR STANDPIPE INSTALLATION LOG - CREATED WITH HOLEBASE SI

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	18/05/2018
Borehole No.	CRR926	Reference No.	H13051
Location	QR Rail Corridor	Start Depth (m)	16.28
Submitted By	J. Armstrong	Finish Depth (m)	21.60



SCALE (mm)