FINAL 27/09/2018

Queensland Government

# GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR928**

Sheet 1 of 3

REFERENCE No **H13045**

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

LOCATION QR Mayne Yard — COORDINATES 503861.4 E; 6965301.3 N

PROJECT No FG6470 — SURFACE RL 4.00m — PLUNGE 90° — DATE STARTED 14/05/2018 — GRID DATUM MGA94

JOB No — HEIGHT DATUM AHD — BEARING ° — DATE COMPLETED 15/05/2018 — 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 | | | | | FILL<br>Non destructive drilling technique used. No sample to log. | | | | | 0.00m-2.10m: Non destructive drilling | |
| 1.90 | | | | | Gravelly CLAY (Fill)<br>Dark grey, moist, stiff. High plasticity; fine to medium gravel, subrounded; trace fine to medium sand. | | (CI) | | | | |
| 1.40 | | | | A | | | | | | 2, 1, 2<br>N=3 | SPT |
| | | | | B | CLAY (Alluvium)<br>Dark grey minor mottled pale brown, moist, very soft to soft. High plasticity; trace organic material. | | | | | 3.00m-3.40m: No recovery. Cobble. | U50 |
| | | | | C | | | | | | LL=51% PI= 28%<br>MC=37.2% LS= 12%<br>DD= 1.32 t/m3<br>WD= 1.81 t/m3 | U50 |
| | | | | D | | | | | | 5.00m-5.40m: UU Triaxial Test<br>MC=52.9%<br>DD= 0.99 t/m3<br>WD= 1.51 t/m3 | U50 |
| | | | | | | | (CH) | | | | |
| | | | | E | 6.8m: Becoming CLAY with interbedded bands of CLAY with Sand. Fine grained sand. | | | | | hw, hw, 1<br>N=1 | SPT |
| | | | | F | | | | | | hw, hw, hw<br>N<1 | SPT |
| | | | | G | | | | | | MC=65.6% Oedometer<br>DD= 1.58 t/m3<br>WD= 1.93 t/m3 | U50 |
| -6.00 | | | | | | | | | | | |

Continued on next sheet

REMARKS: Rif - Brisbane Tuff

| LOGGED BY | REVIEWED BY |
|---|---|
| ND | S. Foley |

Queensland Government

# GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR928**

Sheet 2 of 3

REFERENCE No **H13045**

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

LOCATION QR Mayne Yard

COORDINATES 503861.4 E; 6965301.3 N

PROJECT No FG6470 | SURFACE RL 4.00m | PLUNGE 90° | DATE STARTED 14/05/2018 | GRID DATUM MGA94

JOB No | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 15/05/2018 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | -6.30 | | | H | CLAY (Alluvium) Cont'd. | | (CH) | | | MC=24.2% DD= 1.78 t/m3 WD= 2.21 t/m3 | U50 |
| 11 | | | | | Clayey SAND (Alluvium) Pale grey mottled pale brown and white, moist, medium dense, medium to coarse. High plasticity clay. Trace fine to medium, subrounded gravel. | | (SC) | | | | |
| | | | | I | | | | | | 10, 9, 10 N=19 LL=52% PI= 35% MC=17.1% LS= 16% | SPT |
| 12 | -8.50 | | | | | | | | | | |
| | | | | | CLAY (Residual) Pale grey mottled pale brown, moist, very stiff. Medium plasticity. | | | | | | |
| 13 | | | | J | | | | | | 5, 6, 9 N=15 | SPT |
| 14 | | | | | | | | | | | |
| | | | | K | | | | | | 6, 8, 8 N=16 | SPT |
| 15 | | | | | | | | | | | |
| 16 | | | | L | | | (CI) | | | 6, 8, 13 N=21 LL=65% PI= 44% MC=25.5% LS= 14% | SPT |
| 17 | | | | | | | | | | | |
| | | | | M | | | | | | 7, 11, 14 N=25 | SPT |
| 18 | | | | | | | | | | | |
| 19 | | | | N | 19.0m: Becoming CLAY with interbedded bands of CLAY with Gravel and Sand. Pale grey mottled pale brown and red, moist, hard. Fine to medium grained sand, fine to coarse gravel, angular. | | | | | 8, 15, 21 N=36 | SPT |
| | -16.00 | | | | | | | | | | |

Continued on next sheet

REMARKS: Rif - Brisbane Tuff

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# GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **CRR928**

Sheet 3 of 3

REFERENCE No **H13045**

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

LOCATION QR Mayne Yard

COORDINATES 503861.4 E; 6965301.3 N

PROJECT No FG6470 | SURFACE RL 4.00m | PLUNGE 90° | DATE STARTED 14/05/2018 | GRID DATUM MGA94

JOB No | HEIGHT DATUM AHD | BEARING ° | DATE COMPLETED 15/05/2018 | DRILLER Geodrill

| DEPTH (m) | R.L. (m) | RQD ( ) % / CORE REC % | SAMPLE | MATERIAL DESCRIPTION | USCS WEATHERING | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS |
|---|---|---|---|---|---|---|---|
| 21 | | | O | CLAY (Residual) Cont'd. 20.8m: Becoming CLAY with Sand. | (CI) | 13, 15, 19 N=34 | SPT |
| | -17.80 | | | | | | |
| 22 | | (40) | | TUFF (Rif) MW: Pale grey and pale brown, fine to medium gravel sized clasts in a fine grained matrix, massive, medium to high strength. - Js: 0-20° (2-4/m) Pl-Un/Sm, OP, Cn | HW | hb | |
| 23 | | | | | MW | | |
| | | 100 | | | HW | | |
| | | (87) | | | MW | | |
| 24 | -20.01 | | | TUFF (Rif) SW: Pale grey, fine to medium gravel sized clasts in a fine grained matrix, massive, medium to high strength. - Js: 0-20° (5-8/m) Pl-Un/Sm, OP, Cn | | Is(50)=0.81 MPa Is(50)=0.94 MPa | D (23.82m) A (23.83m) |
| 25 | | | | | | Is(50)=0.60 MPa Is(50)=1.30 MPa | D (24.82m) A (24.84m) |
| 26 | | | | | SW | UCS=28.60 MPa E=5.67 GPa | (25.98m) |
| | | 100 | | | | Is(50)=1.20 MPa Is(50)=1.30 MPa | D (26.27m) A (26.28m) |
| | | (67) | | | | 26.46m: HW Band | |
| 27 | | | | | | Is(50)=0.76 MPa Is(50)=2.20 MPa UCS=46.70 MPa E=7.42 GPa | D (27.21m) A (27.23m) (27.27m) |
| | -24.00 | 100 | | Borehole completed at 28.00m | | | |
| 28 | | | | | | | |
| 29 | | | | | | | |

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.** | **CRR928** | **Surface RL** | **3.998** | | |
| **Geologist** | **Nick Dewar** | **Date** | **15/05/2018** | | |
| | | **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 / Tl | Infilling Cn / St / Vr / Ct [1] | Zones [1] SZ / CZ / HFZ / AZ | Other |
|---|---|---|---|---|---|---|---|---|---|
| 22.06 | J | 10 | Un | Sm | V | OP | Cn | | |
| 22.11 | J | 5 | Un | Ro | IV | FL | Vr | | Cly/HW band |
| 22.15 | J | 5 | Un | Ro | IV | CD | Vr | | Cly/HW band |
| 22.29 | J | 0 | Pl | Sm | VIII | Tl | | | |
| 22.49 | J | 5 | Un | Sm | V | OP | Cn | | |
| 22.53 | J | 5 | Un | Ro | IV | FL | Vr | | Cly/HW band |
| 22.63 | J | 0 | Pl | Sm | VIII | OP | Cn | | |
| 22.70 | J | 0 | Un | Sm | V | OP | Cn | | |
| 23.07 | J | 5 | Un | Sm | V | OP | St | | Fe |
| 23.16 | J | 15 | Un | Sm | V | OP | St | | Fe |
| 23.20 | J | 0 | Pl | Sm | VIII | OP | St | | Fe |
| 23.28 | J | 50 | Un | Sm | V | CD | Vr | | Fe |
| 23.41 | J | 5 | Un | Sm | V | OP | St | | Fe |
| 23.43 | J | 0 | Un | Sm | V | OP | St | | Fe |
| 23.47 | J | 5 | Un | Ro | IV | FL | Vr | | Cly/HW band |
| 23.53 | J | 5 | Un | Sm | V | OP | Cn | | |
| 23.57 | J | 0 | Stp | Sm | II | CD | Vr | | Fe |
| 23.87 | J | 0 | Pl | Sm | VIII | OP | Cn | | |
| 23.90 | J | 55 | Stp | Ro | I | CD | Vr | | Fe,J: 23.9-23.99 |
| 24.01 | J | 50 | Stp | Ro | I | CD | Vr | | Fe |
| 24.08 | J | 10 | Pl | Sm | VIII | OP | Cn | | |
| 24.10 | J | 10 | Pl | Sm | VIII | OP | Cn | | |
| 24.63 | J | 0 | Pl | Sm | VIII | OP | Cn | | |
| 25.65 | J | 15 | Un | Sm | V | OP | Cn | | |
| 25.68 | J | 10 | Un | Sm | V | OP | Cn | | |
| 25.82 | J | 15 | Un | Sm | V | OP | Cn | | |
| 25.93 | J | 20 | Pl | Sm | VIII | OP | Cn | | |
| 26.30 | J | 0 | Pl | Sm | VIII | OP | Cn | | |
| 26.30 | J | 70 | Un | Sm | V | OP | Cn | | 26.3-26.4 |
| 26.42 | J | 0 | Un | Ro | IV | OP | Cn | | |
| 26.50 | J | 5 | Pl | Sm | VIII | OP | Cn | | |

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

# Detailed Discontinuity Description Log

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| Project Name | Cross River Rail - Stage 2 | Project No. | FG6470 | | |
|---|---|---|---|---|---|
| Site ID / Borehole No. | CRR928 | Surface RL | 3.998 | | |
| Geologist | Nick Dewar | Date | 15/05/2018 | | |
| | | Page | 2 | of | 2 |

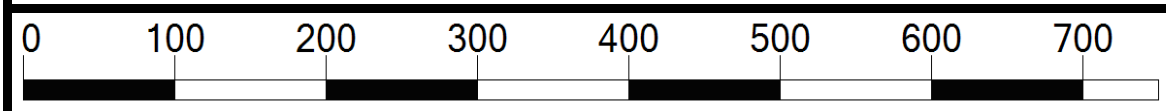
| Traverse Chainage; or Down hole depth (rock core) | Type LP / BP / FP / J etc. | Dip ° / Dip Direction °; or Angle ° from horizontal (rock core) | Planarity Stp / Un / Pl | Roughness Ro / Sm / Sl | Roughness Class I to IX | Aperture CD / OP / FL / Tl | Infilling Cn / St / Vr / Ct [1] | Zones [1] SZ / CZ / HFZ / AZ | Other |
|---|---|---|---|---|---|---|---|---|---|
| 26.76 | J | 10 | Pl | Sm | VIII | OP | Cn | | |
| 26.78 | J | 15 | Pl | Sm | VIII | OP | Cn | | |
| 26.86 | J | 60 | Stp | Sm | II | OP | Cn | | 26.86-26.93 |
| 26.98 | J | 0 | Pl | Sm | VIII | OP | Cn | | |
| 27.02 | J | 20 | Pl | Sm | VIII | OP | Cn | | |
| 27.09 | J | 0 | Pl | Sm | VIII | OP | Cn | | |
| 27.52 | J | 0 | Pl | Sm | VIII | OP | Cn | | |

*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 | 15/5/18 |
| Borehole No. | CRR928 | Reference No. | H13045 |
| Location | QR Mayne yard | Start Depth (m) | 22.00 |
| Submitted By | J. Armstrong | Finish Depth (m) | 28.00 |


**SCALE (mm)**