Queensland Government
Department of Main Roads

# ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/5-2009

BOREHOLE No BH058
SHEET 1 of 2
REFERENCE No H10617

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 22 COORDINATES 481975.5 E; 7080648.1 N
PROJECT No FG5825 SURFACE R.L. 112.61m PLUNGE DATE STARTED 26/8/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING DATE COMPLETED 26/8/09 DRILLER R & D Drilling

| DEPTH (m) | R.L. (m) | AUGER / CASING / WASH BORING / CORE DRILLING | RQD ( )% CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC | WEATHERING | INTACT STRENGTH (EH VH H M L VL EL) | DEFECT SPACING (mm) (20 60 200 600 2000) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES | TESTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 112.61 | | | | **Gravelly SILT (Fill)** | | (MLG) | | | | | Driller's log only | | |
| | 112.11 | | | A | **Gravelly SILT** Brown to mottled red, moist, stiff. Low plasticity, quartz gravels throughout up to 10mm. | | (MLS) | | | | | 4,5,5 N=10 | | SPT |
| 1 | 111.41 | | | | **Sandy SILT (Residual)** Pale brown, moist, stiff. Low to intermediate plasticity. Sand is typically coarse grained and comprised of quartz. | | | | | | | | | |
| | | | | B | | | | | | | | 3,4,7 N=11 | | SPT |
| 2 | 110.11 | | | C | **ANDESITE (XW/HW)** Generally exhibits the engineering properties of light brown to pale grey, moist, sandy SILT of intermediate plasticity. Occasional fine grained sand, rock fabric visible in parts. | | XW-HW | | | | | 10,30,30/100 N>50 | | SPT |
| 3 | | | | D | | | | | | | | 24,30/100 N>50 | | SPT |
| 4 | 108.61 | | (31) | | **ANDESITE (MW)** Orange-brown, fine grained, trace medium grained lithic clasts. Distinct pale yellow alteration zones along some low angle defect planes. Defects medium spacing. Prominent defect sets dipping at 10°, 45°, 60°. Defect surfaces generally clay infilled and iron stained. | | | | | | | | | |
| 5 | | | 100 (11) | | | | | | | | | Is(50) = 0.24MPa | | o |
| 6 | | | 100 (52) | | | | MW | | | | | Is(50) = 0.55MPa | | x |
| 7 | | | | | | | | | | | | Sheared zone with clay and quartz gravels | | |
| 8 | | | 100 (77) | | **Detailed defect descriptions are shown on Form GEOT533/8 attached** | | | | | | | Is(50) = 0.26MPa | | o |
| 9 | 103.41 | | 100 (19) | | | | | | | | | Is(50) = 0.55MPa | | x |
| | | | | | **PHYLLITE (HW)** Orange-brown, fine grained. Clay throughout, sheared. (See over) | | HW | | | | | Sheared zone with gravelly clay | | |
| 10 | | | | | | | | | | | | | | |

REMARKS **Detailed defect descriptions are shown on Form GEOT533/8 attached.**

LOGGED BY JA

QLD_DMR_LIB_01.GLB Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY FG5825 BRUCE HWY COOROY-CURRA SECTION A BHS.GPJ DWG95012.GDW Datgel CPT Tool gINt Add-In 12/05/2010 10:31

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# ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/5-2009

BOREHOLE No BH058
SHEET 2 of 2
REFERENCE No H10617

PROJECT BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION
LOCATION Cut 22 COORDINATES 481975.5 E; 7080648.1 N
PROJECT No FG5825 SURFACE R.L. 112.61m PLUNGE ____ DATE STARTED 26/8/09 GRID DATUM MGA94
JOB No 128/10A/901 HEIGHT DATUM AHD BEARING ____ DATE COMPLETED 26/8/09 DRILLER R & D Drilling

| DEPTH (m) | R.L. (m) | AUGER / CASING / WASH BORING / CORE DRILLING | RQD ( )% CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC | WEATHERING | INTACT STRENGTH (EH VH H M L VL EL) | DEFECT SPACING (mm) (20 60 200 600 2000) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES | TESTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 102.61 | | 93 | | **PHYLLITE (HW)** (Cont'd) | | | | | | | | | |
| | | | (0) | | | | | | | | | | | |
| 11 | | | 100 | | | | HW | | | | | Is(50) = 0.07MPa<br>Sheared zone with gravelly clay | | x |
| | | | (0) | | | | | | | | | | | |
| | 100.72 | | 100 | | | | | | | | | | | |
| 12 | | | | | Borehole terminated at 11.89m | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |

QLD_DMR_LIB_01.GLB Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY FG5825 BRUCE HWY COOROY-CURRA SECTION A BHS.GPJ DWG95012.GDW Datgel CPT Tool gINt Add-in 12/05/2010 10:31

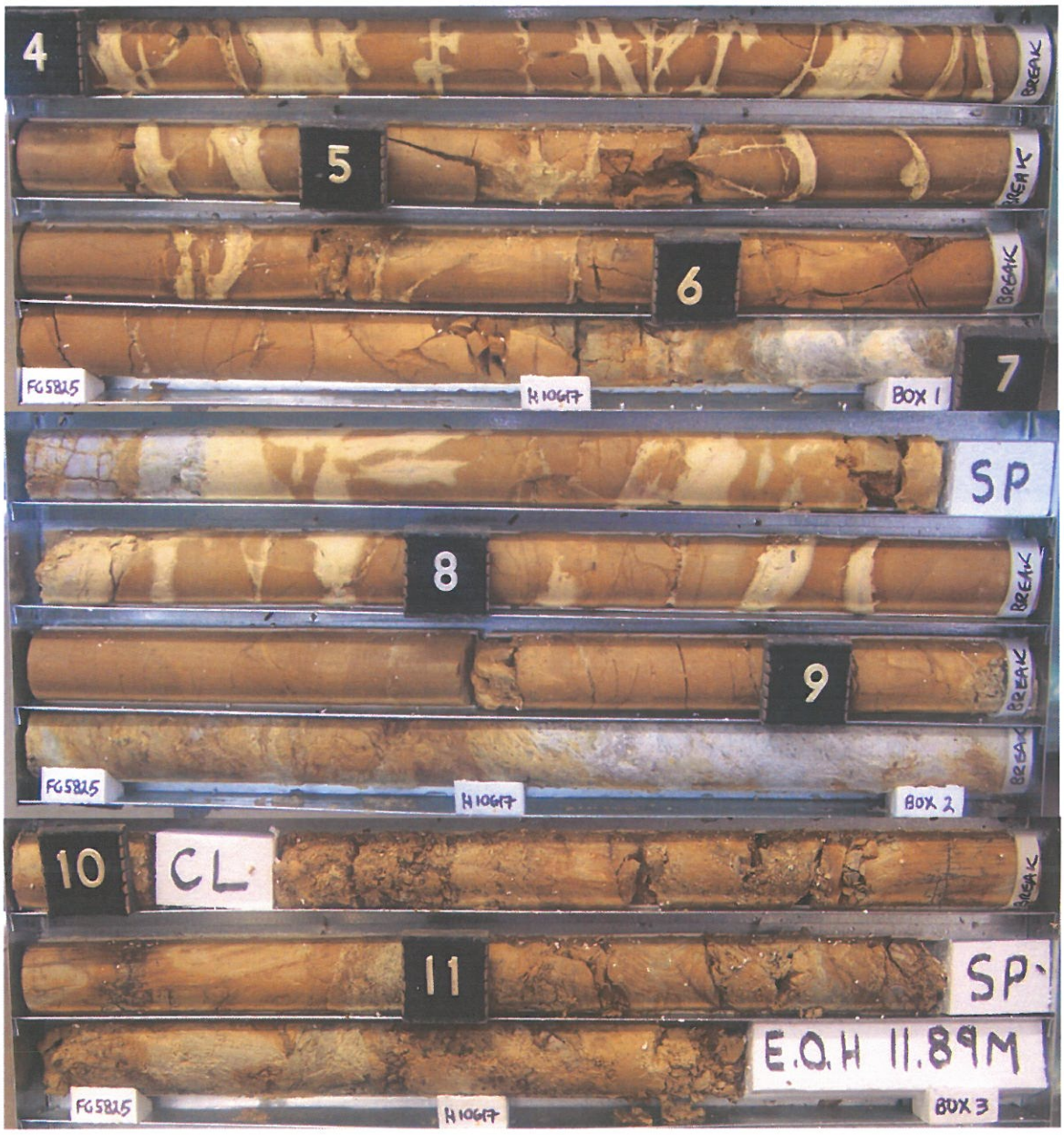
REMARKS **Detailed defect descriptions are shown on Form GEOT533/8 attached.**

LOGGED BY JA

Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**

Borehole No: **BH 58**

Start Depth: 4.00m
Finish Depth: 11.89m
Project No: FG5825
H No: 10617





SCALE 1:5

F:GEOT043/1

**GEOTECHNICAL BRANCH LABORATORY**
Materials Services - Brisbane
35 Butterfield Street, HERSTON Q 4006
Phone: (07) 3115 3035 Fax: (07) 3115 3011

Queensland Government
Department of Main Roads

# DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)]

| | |
|---|---|
| **BOREHOLE NO.:** | BH58 |
| **SHEET:** | 1 of 3 |
| **REFERENCE NO.:** | H10617 |

**PROJECT:** Bruce Highway (Cooroy – Curra) Section A Geotechnical Investigation

**LOCATION:** Cut 22

**PROJECT NO.:** FG5825 **SURFACE R.L.:** 112.6 **DRILLER:** R & D Drilling

**JOB NO.:** 128/10A/901 **DATUM:** AHD **DATE DRILLED:** 26/08/09

| DEPTH | DEFECT TYPE | DIP° | PLANARITY | ROUGHNESS | APERTURE | WALL ALTERATION | OTHER |
|---|---|---|---|---|---|---|---|
| 4.11 | J | 10 | Pl | S | O | Ci | |
| 4.04 | J | 10 | Pl | S | O | Ci | |
| 4.06-4.08 | Ws | 30 | Pl | | | | Clay Seam |
| 4.1 | J | 60 | Pl | | C | Ci | |
| 4.16 | J | 10 | Pl | S | O | Ci | 11mm Thick |
| 4.18-4.25 | Ws | 30 | Pl | | | | Clay Seam |
| 4.31-4.32 | J | 10 | Pl | | | Ci | 10mm Thick |
| 4.26 | J | 90 | Pl | | C | MnSt | 200mm Long |
| 4.38 | J | 10 | Pl | | C | Ci | |
| 4.42 | J | 10 | Pl | | C | Ci | 10mm Thick |
| 4.43 | J | 20 | Pl | | C | Ci | 10mm Thick |
| 4.46 | J | 10 | Pl | | C | Ci | 5mm thick |
| 4.48 | J | 40 | Pl | | C | Ci | 10mm Thick |
| 4.52 | J | 20 | Pl | | C | Ci | 5mm Thick |
| 4.59 | J | 20 | Pl | | C | Ci | 5mm Thick |
| 4.6-4.65 | Ws | 20 | Pl | | | | Clay Seam |
| 4.68 | J | 20 | Pl | | C | Ci | 5mm Thick |
| 4.7-4.71 | J | 20 | Pl | | C | Ci | 10mm Thick |

***Abbreviations*** *(as per F: GEOT 017/5 – 2009)*

| ROUGHNESS | | WALL ALTERATIONS | | TYPE | | OTHER | |
|---|---|---|---|---|---|---|---|
| R | Rough | FeSt | Iron Stained | J, Js | Joint, Joints | Ci | Clay Infill |
| Sr | Slightly Rough | W | Weathered | B | Bedding | CLy | Clayey |
| S | Smooth | Smn | Secondary Mineralisation | BP | Bedding Parting | Co | Coal Seam |
| SL | Slickensided | Cn | Clean | FP | Foliation Parting | Carb | Carbonaceous |
| PO | Polished | MnSt | Manganese Stained | LP | Lamination Parting | Sl | Sand Infill |
| **PLANARITY** | | **APERTURE** | | CLV | Cleavage | QZ | Quartz |
| Pl | Planar | C | Closed | Fr | Fracture | CA | Calcite |
| St | Stepped | O | Open | SZ | Sheared Zone | Chl | Chlorite |
| Un | Undulating | F | Filled | CZ | Crushed Zone | In | Incipient |
| Cu | Curved | T | Tight | BZ | Broken Zone | Int | Intersecting |
| Ir | Irregular | | | HFZ | Highly Fractured Zone | Lam (s) | Lamination (s) |
| | | | | WS | Weathered Seam | Di | Drilling Induced |
| | | | | Vn | Vein | H | Horizontal |
| | | | | | | V | Vertical |

*NOTE: This sheet should be read in conjunction with appropriate Engineering Borelog. Defect angles were measured with respect to horizontal plane.*

| BOREHOLE NO.: | BH58 |
|---|---|
| SHEET: | 2 of 3 |
| REFERENCE NO.: | H10617 |

| DEPTH | DEFECT TYPE | DIP° | PIANARITY | ROUGHNESS | APERTURE | WALL ALTERATION | OTHER |
|---|---|---|---|---|---|---|---|
| 4.56 | J | 60 | Pl | | C | Ci | 5mm Thick |
| 4.71 | J | 90 | Pl | S | C | MnSt | 120mm long |
| 4.83 | J | 10 | Pl | S | O | Cn | |
| 4.84-4.86 | Ws | 10 | Pl | | | | Clay Seam |
| 4.91-4.94 | Ws | 20 | Pl | | | | Clay Seam |
| 4.99 | J | 40 | Pl | S | O | MnSt | |
| 5.01 | J | 75 | Pl | S | O | MnSt | 150mm long |
| 5.01 | J | 90 | Pl | | C | Ci | 250mm long |
| 5.13-5.24 | Ws | | | | | | Clay Seam |
| 5.24 | J | 60 | Pl | | C | Ci | 2mm Thick |
| 5.24 | J | 80 | Pl | | C | Ci/FeSt | 500mm Long |
| 5.33 | J | 20 | Pl | | C | Ci | 10mm Long |
| 5.41 | J | 20 | Pl | | C | Ci | 5mm Thick |
| 5.62-5.66 | Ws | 30 | Pl | | | | Clay seam |
| 5.72-5.75 | Ws | 20 | Pl | | | | Clayey Gravels |
| 5.77 | J | 20 | Pl | | C | Ci | 5mm Thick |
| 5.79 | J | 60 | Pl | | C | Ci | 2mm Thick |
| 5.92 | J | 10 | Pl | S | O | Ci | 5mm Thick |
| 6.0 | J | 20 | Pl | | C | Ci | 10mm Thick |
| 6.06 | J | 50 | Pl | S | O | FeSt | |
| 6.06 | J | 90 | Pl | S | C/O | FeSt | 500mm Long |
| 6.17 | J | 30 | Pl | S | O | MnSt | |
| 6.29 | J | 20 | Pl | S | O | FeSt | |
| 6.34 | J | 30 | Pl | S | O | Ci | 2mm Thick |
| 6.44 | J | 40 | Pl | S | O | MnSt/Ci | |
| 6.48 | J | 10 | Pl | | C | MnSt | |
| 6.51 | J | 45 | Pl | | C | MnSt | |
| 6.60 | J | 20 | Pl | S | O | MnSt | |
| 6.64 | J | 10 | Pl | | C | MnSt | |
| 6.72-6.77 | QZ | 20 | | | | | |
| 6.80-7.25 | Ws | | | | | | Clay seam |
| 7.38 | J | 20 | Pl | | C | FeSt | |
| 7.45-7.61 | Ws | | | | | | Clay seam |
| 7.68-7.75 | Ws | | | | | | Clay seam |
| 7.75 | J | 45 | Pl | | C | Ci | |
| 7.76 | J | 80 | Pl | | C | FeSt | 150mm Long |
| 7.76-7.70 | Ws | | | | | | Clay seam |
| 7.84 | J | 20 | Pl | | C | Ci | 20mm thick |
| 7.88-7.92 | Ws | | | | | | Clay seam |
| 7.97 | J | 20 | Pl | | C | Ci | 5mm thick |
| 8.14 | J | 30 | Pl | | C | Ci | |
| 8.2-8.24 | Ws | | | | | | Clay seam |
| 8.27 | J | 10 | Pl | | C | Ci | 20mm thick |
| 8.53 | J | 50 | Pl | S | O | FeSt | |
| 8.56 | J | 10 | Ir | S | O | FeSt | |
| 8.63 | J | 20 | Pl | S | O | Ci/ FeSt | |
| 8.63 | J | 60 | Pl | | C | FeSt | |
| 8.71 | J | 10 | Pl | S | O | Ci/FeSt | |
| 8.76 | J | 20 | Pl | S | O | FeSt | |
| 8.8 | J | 10 | Ir | Sr | O | Ci | |
| 8.8 | J | 90 | Pl | | C | FeSt | 170mm long |
| 8.85 | J | 20 | Pl | | C | FeSt | |
| 8.9 | J | 10 | Pl | | C | FeSt | |
| 8.92 | J | 10 | Pl | | C | FeSt | |
| 8.95 | J | 15 | Pl | | C | FeSt | |
| 8.97 | J | 10 | Pl | | C | FeSt | |

| BOREHOLE NO.: | BH58 |
|---|---|
| SHEET: | 3 of 3 |
| REFERENCE NO.: | H10617 |

| DEPTH | DEFECT TYPE | DIP° | PIANARITY | ROUGHNESS | APERTURE | WALL ALTERATION | OTHER |
|---|---|---|---|---|---|---|---|
| 9.0 | J | 30 | Pl | S | O | FeSt | |
| 9.04 | J | 10 | Pl | S | O | FeSt | |
| 9.11 | J | 30 | Pl | | C | FeSt | |
| 9.13-9.53 | Bz | | | | | | Breciated zone /clay seams |
| 9.53-10.54 | Ws | | | | | | Gravelly clay |
| 10.77 | J | 10 | Pl | | C | FeSt | |
| 10.9-11.1 | Ws | | | | | | Gravelly clay |
| 11.18 | J | 10 | Ir | | C | FeSt | |
| 11.22-11.26 | Ws | | | | | | Clay seam |
| 11.3-11.35 | Qz | | | | | | |
| 11.35-11.89 | Ws | | | | | | Gravelly clay |