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ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH180
SHEET 1 of 3
REFERENCE No 12121

PROJECT Mackay Ring Road Geotechnical Investigation - Stage 1
LOCATION Fursden Creek Overflow Bridge Abutment B; CH: 8790m; COORDINATES 721430.7 E; 7661111.6 N
PROJECT No FG6184 SURFACE R.L. 7.90m PLUNGE _____ DATE STARTED 14/10/14 GRID DATUM GDA 94 /MGA Zone 55
JOB No _____ HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 16/10/14 DRILLER Saxon Drilling

| DEPTH (m) | R.L. (m) | AUGER CASING WASH BORING CORE DRILLING | RQD () % | CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC WEATHERING | INTACT STRENGTH | DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS |
|-----------|----------|--|-----------|------------|--------|---|-----------|----------------|-----------------|---------------------|-------------|----------------------------------|---------------|
| 0 | 7.90 | | | | | | | | | | | | |
| 0.50 | 7.40 | | | | | Clayey SILT (TOPSOIL) Dark brown, dry to moist, soft. Low plasticity. | (ML) | | | | | | |
| 1 | | | | | A | SAND (ALLUVIUM) Pale brown, moist, loose. Fine grained sand. Trace silt and clay. | | | | | | 2,2,4 N=6 | SPT |
| 2 | | | | | B | | (SP) | | | | | 2,2,4 N=6 | SPT |
| 3 | | | | | C | | | | | | | 2,3,4 N=7 | SPT |
| 3.70 | 4.20 | | | | | Gravelly SAND (ALLUVIUM) Pale brown, moist, medium dense to dense. Fine to medium grained sand. Medium, subrounded to subangular gravel. | | | | | | 4,6,5 N=11 | SPT |
| 4 | | | | | D | | | | | | | 10,21,15 N=36 | SPT |
| 5 | | | | | E | | (SW) | | | | | 9,10,9 N=19 | SPT |
| 6 | | | | | F | | | | | | | 8,7,13 N=20 | SPT |
| 7 | | | | | G | | | | | | | 9,8,10 N=18 | SPT |
| 7.80 | 0.10 | | | | | SAND (ALLUVIUM) Pale brown, moist, medium dense. Fine to medium grained sand. Trace medium gravel. | | | | | | 8,8,9 N=17 | SPT |
| 8 | | | | | H | | (SP) | | | | | | |
| 9 | | | | | J | | | | | | | | |
| 10 | | | | | | | | | | | | | |

REMARKS Kgwu - Wundaru Granodiorite;
Sample failed along existing defect surface.
Rock Roller bit used 21.56m to 23.54m.

LOGGED BY
ME

ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH180
SHEET 2 of 3
REFERENCE No 12121

PROJECT Mackay Ring Road Geotechnical Investigation - Stage 1
LOCATION Fursden Creek Overflow Bridge Abutment B; CH: 8790m; COORDINATES 721430.7 E; 7661111.6 N
PROJECT No FG6184 SURFACE R.L. 7.90m PLUNGE _____ DATE STARTED 14/10/14 GRID DATUM GDA 94 /MGA Zone 55
JOB No _____ HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 16/10/14 DRILLER Saxon Drilling

| DEPTH (m) | R.L. (m) | AUGER CASING WASH BORING CORE DRILLING | RQD () % | CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC WEATHERING | INTACT STRENGTH | DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS |
|-----------|----------|--|-----------|------------|--------|---|-----------|----------------|-----------------|---------------------|-------------|----------------------------------|---------------|
| 10 | -2.10 | | | | | | | | | | | | |
| 10.60 | -2.70 | | | | K | SAND (ALLUVIUM) (Cont'd) | | (SP) | | | | 9,9,8 N=17 | SPT |
| 11 | | | | | L | Silty CLAY (RESIDUAL) Pale grey and brown, moist, very stiff. High plasticity. Trace sand and gravel. | | | | | | 5,7,10 N=17 | SPT |
| 12 | | | | | M | | | (CH) | | | | 7,13,14 N=27 | SPT |
| 13 | | | | | N | | | | | | | 8,10,13 N=23 | SPT |
| 13.80 | -5.90 | | | | | | | | | | | | |
| 14 | | | | | P | GRANODIORITE (Kgwu) XW: Recovered as brown, grey and black, dry to moist, very stiff to hard Clayey SILT. | | | | | | 10,12,15 N=27 | SPT |
| 15 | | | | | Q | | | XW | | | | 8,17,28 N=45 | SPT |
| 15.90 | -8.00 | | | | | | | | | | | | |
| 16 | | | | | R | MICRODIORITE (Kgwu) HW: Pale grey, fine grained, very low strength. | | XW | | | | 8,14,20 N=34 | SPT |
| 17 | | | | | S | | | | | | | 28,30/100 | SPT |
| 18 | | | | | T | | | HW | | | | 17,30/135 | SPT |
| 19 | | | | | U | | | | | | | 29,30/45 | SPT |
| 20 | | | | | | | | | | | | | |

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ENGINEERING BOREHOLE LOG

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SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No BH180
SHEET 3 of 3
REFERENCE No 12121

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| DEPTH (m) | R.L. (m) | AUGER CASING WASH BORING CORE DRILLING | RQD () % | CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC | WEATHERING | INTACT STRENGTH | DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS |
|-----------|----------|--|-----------|------------|--------|--|-----------|-----|------------|-----------------|---------------------|-------------|-------------------------------------|---------------|
| 20 | -12.10 | | | | V | MICRODIORITE (Kgwu) HW: (Cont'd) | | | | | | | 23,30/80 hb | SPT |
| 21 | | | | | W | | | | HW | | | | 30/100 | SPT |
| | | | (0) | | | | | | | | | | | |
| | | | 50 | | | | | | | | | | | |
| | | | 100 | | | | | | | | | | | |
| | | | (0) | | | | | | | | | | | |
| 22 | -14.10 | | | | X | GRANODIORITE (Kgwu) HW: Grey and pink, medium to coarse grained, very low strength. | | | HW | | | | 21.30m-21.50m: Core Loss | |
| 23 | | | | | | | | | | | | | 21.56m-23.54m: Rock Roller bit used | 15,30/90 SPT |
| 24 | -15.64 | | | | Y | GRANODIORITE (Kgwu) MW: Grey and pink, medium to coarse grained, massive, low to medium strength. Defects; - Js; 0°-30° (2/m); Pl/Ro, TI; - Js; 30°-60° (2/m); Pl/Ro, TI; | | | MW | | | | | |
| 25 | | | (51) | | | | | | HW | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | -18.60 | | | | | MICRODIORITE (Kgwu) SW: Grey, fine grained, massive, high strength. Defects; - Js; 0°-30° (5/m); Pl/Sm, TI-OP; - Js; 60°-90° (1/m); Pl/Sm, TI-OP; | | | SW | | | | | |
| 28 | -20.28 | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

REMARKS Kgwu - Wundaru Granodiorite;
Sample failed along existing defect surface.
Rock Roller bit used 21.56m to 23.54m.

LOGGED BY
ME

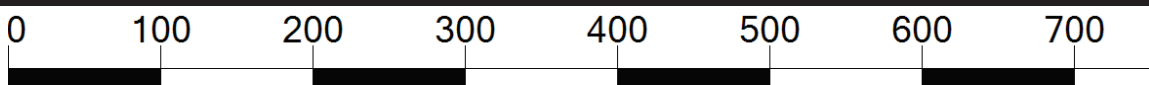
CORE PHOTO LOG

DEPARTMENT OF TRANSPORT & MAIN ROADS
Geotechnical Branch
35 Butterfield Street, HERSTON Qld 4006
Phone 07 3066 3336



Department of
Transport and Main Roads

| | | | |
|--------------|-------------------------------|------------------|----------|
| Project Name | Mackay – Ring Road | | |
| Project No | FG6184 | Date | 16/10/14 |
| Borehole No | BH180 | TMR H No | 12121 |
| Location | Fursden Creek Overflow Bridge | Start Depth (m) | 21.1 |
| Detail | Abutment B | Finish Depth (m) | 28.18 |
| Chainage | 8790m | Submitted By | M.Ensor |
| Remarks | | | |



SCALE 1:5