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Mackay Ring Road Geotechnical Investigation - Stage 1

PROJECT

-3.02

AWL 10100

# ENGINEERING **BOREHOLE LOG**

| BOREHOLE No  | BH179                |
|--------------|----------------------|
| SHEET        | <u>1</u> of <u>3</u> |
| REFERENCE No | 12120                |

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

| LOCATION   | <u>Fursden Creek Ov</u>  | erflow Bridge Pier 4; CH: 8770m;   |                                  | ES <u>721441.9 E; 7661089.9 N</u>               |
|--|--|--|----------------------------------|---|
| PROJECT N  | lo_FG6184  | SURFACE R.L6.98mPLUNGE   | DATE STARTED <u>_16/10/14</u> GF | RID DATUM <u>GDA 94 /MGA Zone 5</u> 5           |
| JOB No   |  | _ HEIGHT DATUM _ <u>AHD</u> BEARING  | DATE COMPLETED <u>17/10/14</u>   | DRILLER Saxon Drilling                          |
| (m)<br>(m)<br>HLLd<br>JO<br>0 6.98   | AUGER<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CASING<br>CAS | MATERIAL<br>DESCRIPTION  | OLOGY (mm) OLOGY                 | DDITIONAL DATA<br>AND SINCE<br>TEST RESULTS WAS |
| -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-  |  | Clayey SILT (TOPSOIL)<br>Dark brown, moist, soft.<br>Low plasticity. Some roots.<br>Silty CLAY (ALLUVIUM)                              |                                  |   |
| -<br>-<br>   | A  | Dark brown, moist, stiff.<br>Low plasticity.   | (CL)                             | 4,6,6<br>N=12                                   |
| -2<br>2  | B  | Silty SAND (ALLUVIUM)<br>Brown, moist, loose to medium dense.<br>Fine grained sand.  |                                  | 3,3,4<br>N=7                                    |
| 03/2015 10:52<br>  | с  |  | (SM)                             | 5,5,8<br>N=13                                   |
| 981 C.PT Tool gINL Add-In 04   | D  |  |                                  | 3,5,4<br>N=9                                    |
| and - 5<br>And - 5<br>An  | E  |  |                                  | 4,7,7<br>N=14 SPT                               |
| 6<br>6<br>6.50<br>0.48   | F  | Gravelly SAND (ALLUVIUM)<br>Brown, moist, loose to medium dense.<br>Fine to medium grained sand. Fine,<br>subrounded gravel.           | (SP)                             | 7,7,3<br>N=10 SPT                               |
| W LTHOLOGY FG6184 - E  | G  | Sandy GRAVEL (ALLUVIUM)<br>Brown and black, moist, medium dense.<br>Fine to medium, subrounded gravel. Fine to<br>coarse grained sand. |                                  | 16,15,14<br>N=29 SPT                            |
| 1.702<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1.102<br>1. | н  |  |                                  | 14,16,12<br>N=28 SPT                            |
|  | J  | Gravelly SAND (ALLUVIUM)<br>Brown, moist, medium dense.<br>Fine to coarse grained sand. Fine,<br>subrounded gravel.                    | u ⊂ (sw)                         | 11,9,10<br>N=19                                 |

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LOGGED BY

MS

# Sample failed along existing defect surface.

REMARKS Kgwu - Wundaru Granodiorite;



# ENGINEERING BOREHOLE LOG

| BOREHOLE No  | <u>_BH179_</u> _     |
|--------------|----------------------|
| SHEET        | <u>2</u> of <u>3</u> |
| REFERENCE No | 12120                |

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

 PROJECT
 Mackay Ring Road Geotechnical Investigation - Stage 1

 LOCATION
 Fursden Creek Overflow Bridge Pier 4; CH: 8770m;
 COORDINATES
 721441.9 E; 7661089.9 N

 PROJECT No
 FG6184
 SURFACE R.L.
 6.98m
 PLUNGE
 DATE STARTED
 16/10/14
 GRID DATUM
 GDA 94 /MGA Zone 55

 JOB No
 HEIGHT DATUM
 AHD
 BEARING
 DATE COMPLETED
 17/10/14
 DRILLER
 Saxon Drilling

 E
 (m)
 GZ
 ()%
 MATERIAL
 SPACING
 G
 ADDITIONAL DATA

| (E         | (m)   | R<br>IG<br>BORING | LLING  | ()%       |              | MATERIAL  | ≻             | UN<br>N    | STRENGTH                   | SPACING<br>(mm) | LOG         | ADDITIONAL DATA  |                  |
|------------|-------|-------------------|--------|-----------|--------------|---|---------------|------------|----------------------------|-----------------|-------------|------------------|------------------|
| DEPTH (m)  |       | SH BOI            | RE DRI | CORE      | SAMPLE       | DESCRIPTION   | ГІТНОГОGY     | ATHER      | STRENGTH                   | ~~ >>           | GRAPHIC LOG |                  | SAMPLES<br>TESTS |
| 10         | -3.02 |                   | ő      | REC %     |              |   | 1<br>1<br>777 | USO<br>WF/ | ╡┥┥┥┥┥                     | ₩>0≥≥≥≥₩        | GR∕         | TEST RESULTS     | SAMPLI<br>TESTS  |
|            |       |                   |        |           | к            | Clayey SAND (ALLUVIUM)<br>Brown and yellow, moist, medium dense.<br>Fine to medium grained sand. Trace fine |               |            |                            |                 |             | 8,13,14<br>N=27  | SPT              |
|            |       |                   |        |           |              | gravel.   |               | (0.0)      |                            |                 |             |                  | -                |
| - 11       |       |                   |        |           |              |   |               | (SC        | ]                          |                 |             |                  | -                |
|            |       |                   |        |           | L            |   |               |            |                            |                 |             | 6,11,11<br>N=22  | SPT              |
| 11.50      | -4.52 |                   |        |           |              | Silty CLAY (RESIDUAL)   |               |            |                            | -               |             |                  | -                |
| - 12       |       |                   |        |           |              | Brown-yellow and grey, moist, mainly very stiff to hard.  |               |            |                            |                 |             |                  | -                |
|            |       |                   |        |           | М            | High plasticity.  |               |            |                            |                 |             | 8,11,13<br>N=24  | SPT              |
| E          |       |                   |        |           |              |   |               |            |                            |                 |             |                  | -                |
|            |       |                   |        |           |              |   |               |            |                            |                 |             |                  | -                |
| - 13       |       |                   |        |           | N            |   |               | (CH        |                            |                 |             | 6,9,12<br>N=21   | SPT              |
|            |       |                   |        |           |              |   |               |            |                            |                 |             |                  | -                |
|            |       |                   |        |           |              |   |               |            |                            |                 |             |                  | -                |
|            |       |                   |        |           | Р            | 14.00m: Becoming Sandy CLAY. Low plasticity.  |               |            |                            |                 |             | 15,15,17<br>N=32 | -<br>SPT -       |
|            |       |                   |        |           |              | providely.  |               |            |                            |                 |             | N=32             | -                |
| 5<br>14.90 | -7.92 |                   |        |           |              |   |               |            |                            |                 |             |                  | -                |
| 15         |       |                   |        |           | Q            | GRANODIORITE (Kgwu)<br>XW: Recovered as grey-black and brown,   | +             |            |                            |                 |             | 15,22,30/130     | SPT -            |
|            |       |                   |        |           |              | moist to dry, very dense Clayey SAND. Fine to medium grained sand.  | +             |            |                            |                 |             | -, ,             |                  |
|            |       |                   |        |           |              |   | +             |            |                            |                 |             |                  |                  |
| 16         |       |                   |        |           | R            |   | +             |            |                            |                 |             | 23,30/70         | SPT -            |
|            |       |                   |        |           |              |   | +             |            | · · · · · · · · - <u>-</u> |                 |             |                  | -                |
|            |       |                   |        |           |              |   | +             |            |                            |                 |             |                  | -                |
| - 17       |       |                   |        |           | S            |   | +             |            |                            |                 |             | 30/120           | SPT _            |
|            |       |                   |        |           |              |   | +             | xw         |                            |                 |             |                  | -                |
|            |       |                   |        |           |              |   | +             |            |                            |                 |             |                  | -                |
| 18         |       |                   |        |           | Т            |   | <br>+         |            |                            |                 |             | 30/110           | SPT _            |
|            |       |                   |        |           |              |   |               |            |                            |                 |             |                  | -                |
|            |       |                   |        |           |              |   |               |            |                            |                 |             |                  |                  |
|            |       |                   |        |           | -U-          |   | +             |            |                            |                 |             | 30/70            | SPT              |
|            |       |                   |        |           |              |   | +             |            |                            |                 |             |                  |                  |
|            |       |                   |        |           |              |   | +             |            |                            |                 |             |                  | -                |
|            |       |                   |        |           |              |   | +             |            |                            |                 |             |                  | -                |
| R          | EMARK |                   |        |           |              | ranodiorite;  |               |            |                            |                 |             | LOGGED BY        |                  |
|            |       | <u># S</u>        | am     | pie ralie | <u>u alo</u> | ng existing defect surface.   |               |            |                            |                 |             |                  |                  |

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# ENGINEERING BOREHOLE LOG

| BOREHOLE No  | BH179                |
|--------------|----------------------|
| SHEET        | <u>3</u> of <u>3</u> |
| REFERENCE No | 12120                |

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

 PROJECT
 Mackay Ring Road Geotechnical Investigation - Stage 1

 LOCATION
 Fursden Creek Overflow Bridge Pier 4; CH: 8770m;
 COORDINATES
 721441.9 E; 7661089.9 N

 PROJECT No
 FG6184
 SURFACE R.L.
 6.98m
 PLUNGE
 DATE STARTED
 16/10/14
 GRID DATUM
 GDA 94 /MGA Zone 55

 JOB No
 HEIGHT DATUM
 AHD
 BEARING
 DATE COMPLETED
 17/10/14
 DRILLER
 Saxon Drilling

|  | R.L.<br>(m) | 0<br>U<br>U                  | RQD<br>()%    |        |  |            |         | INTACT<br>STRENGTH      | DEFECT<br>SPACING                              |             | ADDITIONAL DATA                                      |                            |
|--|-------------|------------------------------|---------------|--------|--|------------|---------|-------------------------|--|-------------|--|----------------------------|
| DEPTH (m)  |             | R<br>IG<br>DRING<br>DRILLING | ( ) /0        |        | MATERIAL   | G≺         | THERING | GINENOIT                | (mm)   | GRAPHIC LOG | AND  | 6                          |
| EPTI   |             | RNG<br>PBG                   | 0005          | SAMPLE | DESCRIPTION  | ГІТНОГОСУ  | LIE .   |                         | >>   | PHIC        |  | SAMPLES<br>TESTS           |
| 20   | -13.02      | AUG<br>CAS<br>COR<br>COR     | CORE<br>REC % | SAM    |  | E E        | USC     |                         | ບບ<br>ພ>ບ≥≥≥>⊔                                 | GRA         | TEST RESULTS   | SAMPLI<br>TESTS            |
| -  |             |                              |               | V      | GRANODIORITE (Kgwu)<br>XW: (Cont'd)<br>Clay content increasing from 20.00m.      | +<br><br>+ |         |                         |  |             | 30/120   | SPT _<br>-<br>-            |
| Ē  |             |                              |               |        |  |            | -       |                         |  |             |  | -                          |
| F  |             |                              |               |        |  | [+<br>_    |         |                         |  |             |  | -                          |
| -21  |             |                              |               |        |  | +          | xw      |                         |  |             | 30/30  | SPT [                      |
| F  |             |                              |               |        |  | <br>  +    |         |                         |  |             |  | -                          |
| E  |             |                              |               |        |  |            |         |                         |  |             |  | -                          |
| -  |             |                              |               |        |  | +          |         |                         |  |             | 00/50  | -                          |
| - 22   | -15.22      |                              | (0)           | ×      |  |            |         |                         |  | L_          | 30/50<br>ls(50)_= Z_16MPa_                           | SPT<br>D (22.13m)          |
| F  |             |                              | (0)           |        | GRANODIORITE (Kgwu)<br>MW: Brown, orange and grey, fine to                       | +<br>      |         |                         |  |             |  | -                          |
| F  |             |                              |               |        | medium grained, massive, highly fractured, high strength.                        | +          |         |                         |  |             |  | -                          |
| -23  |             |                              |               |        | Defects:   | <br>  +    | 1       |                         |  |             | ls(50) = 1.01MPa                                     |                            |
| E  |             |                              |               |        | - Js; 10°-20° (2/m); Pl/Ro, OP, Fe St;<br>- Js; 30° (5/m); Pl/Ro, OP, Fe St;     | - ' -      |         |                         |  |             | 15(50) = 1.0 IMFa                                    | D (23.00m)                 |
| 5 10:52  |             |                              |               |        | - Js; 50°-60° (2/m); Pl/Ro, OP, Fe St;<br>- Js; 60°-70° (1/m); Pl/Ro, OP, Fe St; | +          |         |                         |  |             |  | -                          |
| 3/201  |             |                              | 100           |        | - 38, 00 -70 (1/11), FI/K0, OF, T e 31,  |            | MW      |                         |  |             |  | -                          |
| - 04/0   |             |                              | (0)           |        |  |            |         |                         |  |             |  | -                          |
| t Add-   |             |                              |               |        |  | +<br>      |         |                         |  |             |  |                            |
| ool gIN  |             |                              |               |        |  | +          |         |                         |  |             |  | -                          |
| DT TO  |             |                              |               |        |  | <br>  +    |         |                         |  |             |  | -                          |
| atgel (  | -18.02      |                              | 100           |        |  |            |         |                         |  | L_          |  |                            |
|  |             |                              | (35)          |        | GRANODIORITE (Kgwu)<br>SW: Grey-pink and orange, fine to                         | +          |         |                         |  |             | ls(50) = 4.34MPa                                     |                            |
| wingFi   |             |                              |               |        | medium grained, massive, high to very high                                       | +          |         |                         |  |             |  | (25.25m)-                  |
|  |             |                              |               |        | strength.<br>Defects:  | F          |         |                         |  |             | 25.60m-25.70m: MW zone, M-H                          | -                          |
| Rep. 26  |             |                              |               |        | - Js; 10°-20° (1/m); Pl/Ro, OP, Fe St, some CA;                                  | +<br>      |         |                         |  |             |  |                            |
|  |             |                              | 100           |        | - Js; 30° (3/m); Pl/Ro, OP, Fe St, some CA;                                      | +          |         |                         |  |             | ls(50) = 0.60MPa; #<br>ls(50) = 0.85MPa; #           | D (26.05m)-<br>A (26.10m)- |
| BORE   |             |                              | (47)          |        | - Js; 60° (1/m); Pl/Ro, OP, Fe St, some CA;                                      |            | sw      |                         |  |             |  | -                          |
| 3184 - 1   |             |                              | . ,           |        |  |            |         |                         |  |             |  | -                          |
| 27   |             |                              |               |        |  | +<br>      |         |                         |  |             |  | -                          |
| OLOG   |             |                              |               |        |  | +          |         |                         |  |             | ls(50) = 4.12MPa; #<br>□_27.30m-27.50m: MW zone, M-H | A (27.25m)                 |
|  |             |                              |               |        |  | <br>  +    | 1       |                         |  |             | Strength.  | -                          |
| 100  | 00.00       |                              | 100           |        |  | - ' -      |         |                         |  |             |  | -                          |
| 비 <u>27.90</u><br>오 - 28   | -20.92      |                              | 100           |        | Borehole terminated at 27.9m   |            |         |                         |  |             | ls(50) = 9.00MPa                                     | D <sub>(27.85m)</sub>      |
| BORE   |             |                              |               |        |  |            |         |                         |  |             |  | -                          |
| RING   |             |                              |               |        |  |            |         |                         |  |             |  |                            |
| GINEE  |             |                              |               |        |  |            |         |                         |  |             |  |                            |
| ₩<br>4 - 29  |             |                              |               |        |  |            |         |                         |  |             |  | -                          |
| B Log  |             |                              |               |        |  |            |         |                         |  |             |  |                            |
| 15.GLI   |             |                              |               |        |  |            |         | · · · · · · · · · · · · |  |             |  |                            |
| TMR. JAN 15.GLB. Log. A. ENGINEERING BOREHOLE LOG W. LITHOLOGY FG8184 - BOREHOLE S. GPJ. < |             |                              |               |        |  |            |         |                         |  |             |  |                            |
|  |             |                              |               |        |  |            |         |                         | <u>+ · · · · · · · · · · · · · · · · · · ·</u> |             |  |                            |
|  | REMARK      |                              |               |        |  |            |         |                         |  |             | LOGGED BY  |                            |
|  |             | <u># San</u>                 | nple faile    | ed ald | ng existing defect surface.  |            |         |                         |  |             |  |                            |

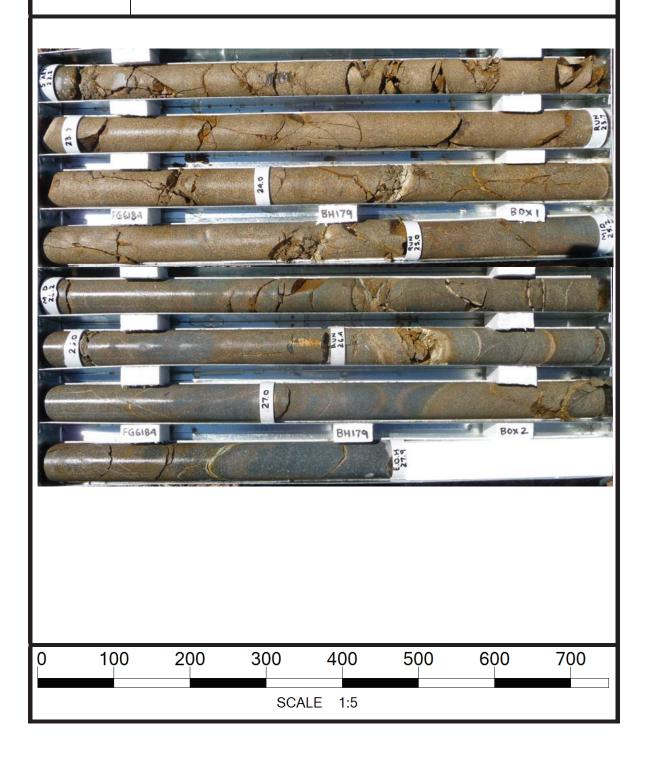
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#### CORE PHOTO LOG

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



| Project Name | Mackay – Ring Road            |                  |          |
|--------------|-------------------------------|------------------|----------|
| Project No   | FG6184                        | Date             | 17/10/14 |
| Borehole No  | BH179                         | TMR H No         | 12120    |
| Location     | Fursden Creek Overflow Bridge | Start Depth (m)  | 22.2     |
| Detail       | Pier 4                        | Finish Depth (m) | 27.9     |
| Chainage     | 8770m                         | Submitted By     | J. Lopez |
| Remarks      |                               |                  |          |



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