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# ENGINEERING BOREHOLE LOG

| BOREHOLE No  | <u>_BH305</u>        |
|--------------|----------------------|
| SHEET        | <u>1</u> of <u>4</u> |
| REFERENCE No | <u>11483</u>         |

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

| PRO  | DJECT       | Townsville Ring Road Section 4                  |                            |        |  |           |     |                    |                           |   |  |                  |
|--|-------------|---|----------------------------|--------|--|-----------|-----|--------------------|---------------------------|---|--|------------------|
| LOC  | CATION      |   |                            |        |  |           |     |                    |                           | OORDINATES <u>464709.1 E; 7871543.1</u> | <u>N</u>                               |                  |
| PRO  | DJECT No    | _FG60   | 020                        |        | SURFACE R.L. <u>12.11m</u> PLUNGE  |           |     | DATE S             | STARTED                   | 30/4/                                   | 13 GRID DATUM                          |                  |
| JOE  | 8 No        | 268/1   | 1 <u>0M/5</u>              |        | HEIGHT DATUM _ <u>AHD</u> BEARING  |           |     | DATE CON           |                           | <u>1/5/</u> 1                           | 3 DRILLER <u>Saxon Drilling</u>        |                  |
| o DEPTH (m)  | R.L.<br>(m) | AUGER<br>CASING<br>WASH BORING<br>CORE DRILLING | RQD<br>()%<br>CORE<br>REC% | SAMPLE | MATERIAL<br>DESCRIPTION  | ГІТНОГОСУ | USC | INTACT<br>STRENGTH | DEFECT<br>SPACING<br>(mm) | GRAPHIC LOG                             | ADDITIONAL DATA<br>AND<br>TEST RESULTS | SAMPLES<br>TESTS |
| -  | 12.11       |   | RLC //                     |        | Silty SAND(TOPSOIL)  | <u></u>   |     |                    |                           |   |  |                  |
| -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-   | 11.81       |   |                            | A      | Brown, moist, loose.<br>Fine grained.Some tree roots.<br>Silty SAND<br>Brown, moist, loose.<br>Fine grained.   |           |     |                    |                           |   | 3,2,3<br>N=5                           | SPT              |
| 311:55   |             |   |                            | в      | Becoming medium dense.   |           | (SM | )                  |                           |   | 3,3,9<br>№=12                          | SPT -            |
| [ool gINt Add-In 17/10/2013<br>  |             |   |                            | С      | Becoming medium to coarse grained sand,<br>loose.<br>Colour change to grey brown.<br>Becoming dense to very dense.   |           |     |                    |                           |   | 3,8,29<br>N=37                         | SPT              |
| CPTT   | 8.51        |   |                            | D      |  |           |     |                    |                           |   |  | SPT 1            |
| :K.GPJ < <drawingfile>&gt; Datgel</drawingfile>  |             |   |                            | E      | Sandy SILT<br>Brown, moist, hard.<br>Low plasticity. Fine grained sand.  |           |     |                    |                           |   | N>50<br>21,30/120MM<br>N>50            | SPT -            |
| OWNSVILLE RING ROAD 4 STONY CREE   |             |   |                            | F      | Sand content increasing, becoming silty<br>sand in parts.<br>Becoming fine to medium grained sand.<br>Occasional coarse gravel particles. Trace<br>of fine gravel. |           | (ML |                    |                           |   | 15,27,30/140mm<br>N>50                 | SPT -            |
| aud. DMR_LIB_01A.GLB_Log_A_ENGINEERING.BOREHOLE.LOG.WLITHOLOGY_TOWNSVILLE RING.ROAD.4.STONY CREEK.GPJ_<br>Cutation of the state of th |             |   |                            | G      | Grading into silty sand with depth.  |           |     |                    |                           |   | 19,27,30/130mm<br>N>50                 | SPT              |
| DDMR_LIB_01A.GLB_L0g_A_ENGINE  | 3.61        |   |                            | н      | Silty SAND<br>Brown to grey, moist, mainly dense to very<br>dense.<br>Medium to coarse grained sand.<br>(See over)   |           | (SM | )                  |                           |   | 16,18,24<br>N=42                       | SPT              |
|  |             |   |                            |        |  |           | 1   |                    |                           | I                                       | LOGGED BY                              | 1                |
| l  | REMARKS     | ن ف<br>·  |                            |        |  |           | ·   | · — — — —          |                           |   | JA                                     |                  |



## **ENGINEERING BOREHOLE LOG**

| BOREHOLE No  | <u>_BH305_</u> _     |
|--------------|----------------------|
| SHEET        | <u>2</u> of <u>4</u> |
| REFERENCE No | <u>11483</u>         |

JA

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

| PROJECT Townsville Ring Road Section 4  |  |  |              |                   |                    |                           |                |  |                  |
|---|--|--|--------------|-------------------|--------------------|---------------------------|----------------|--|------------------|
| LOCATION  | <u>Stony Creek B</u>   | ridge  |              |                   |                    |                           | COC            | ORDINATES 464709.1 E; 7871543.         | . <u>1 N</u>     |
| PROJECT N   | lo <u>FG6020</u>   | SURFACE R.L <u>12.11m</u> P  | LUNGE        |                   | DATE S             | TARTED -                  | <u>30/4/13</u> | 3 GRID DATUM GDA 94                    |                  |
| JOB No  | _268/10M/5   | HEIGHT DATUM <u></u> BI  | EARING       |                   | DATE COM           | IPLETED _                 | <u>1/5/13</u>  | DRILLER Saxon Drilling                 | g                |
| (E) HLABO   | ADD<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT<br>SUBJECT |  | ГІТНОГОGY    | ISC<br>VEATHERING | INTACT<br>STRENGTH | DEFECT<br>SPACING<br>(mm) | GRAPHIC LOG    | ADDITIONAL DATA<br>AND<br>TEST RESULTS | SAMPLES<br>TESTS |
| 10 2.1  | 1ຊຽ≳ວ kec% ວັ  | Silty SAND   |              |                   |                    |                           |                | 10 17 02                               |                  |
| -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>11<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-  |  | (Cont'd):  |              |                   |                    |                           |                | 12,17,23<br>N=40                       |                  |
|   |  | ×  |              |                   |                    |                           |                | 14,20,28<br>N=48                       |                  |
|   |  | Silt content increasing, becoming<br>in parts.<br>Sand becoming fine grained.  | ; sandy silt | (SM               |                    |                           |                | 11,23,27<br>N=50                       | SPT              |
|   |  | И  |              |                   |                    |                           |                | 11,15,24<br>N=39                       | SPT              |
|   |  | Medium to coarse grained sand.   |              |                   |                    |                           |                | 12,17,25<br>N=42                       | SPT              |
|   |  | Pale brown, moist, hard.   |              | (ML)              |                    |                           |                | 10,14,21<br>N=35                       |                  |
| 91-     16       91-     16       91-     16       91-     16       91-     17       91-     17       91-     17       91-     17       91-     18       91-     18       91-     19       91-     19       91-     19       91-     19       91-     20       91-     20 |  | VOLCANIC BRECCIA<br>Pyroclastic rock consisting of au<br>fragments embedded in a finer g<br>matrix.<br>XW: Exhibits the engineering pro<br>of red, grey, pink, very dense, mo<br>sand. | prained [+]  | xw                |                    |                           |                | 30/100mm<br>N>50                       |                  |
| REMAR   |  |  |              |                   |                    |                           |                | LOGGED BY                              |                  |



# ENGINEERING BOREHOLE LOG

| BOREHOLE No  | <u>BH305</u>         |
|--------------|----------------------|
| SHEET        | <u>3</u> of <u>4</u> |
| REFERENCE No | <u>11483</u>         |

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

| PROJECT  | Townsville Ring Road Section 4  |        |   |                       |              |                    |  |             |                   |                   |                  |
|--|---|--------|---|-----------------------|--------------|--------------------|--|-------------|-------------------|-------------------|------------------|
| LOCATION   |   |        |   |                       |              |                    |  |             |                   | 09.1 E; 7871543.  |                  |
|  |   |        | SURFACE R.L. <u>12.11m</u> PLUNGE   |                       |              |                    |  |             | GRID DATUM        |                   |                  |
| JOB No   |   |        |   |                       |              |                    |  | 1/5/1       |                   | Saxon Drilling    | <u> </u>         |
| R.L.<br>(m)  | ADA<br>AUGER<br>CASSING<br>CASSING<br>CASSING<br>CORE DRILLING<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Second<br>Sec |        |   |                       | 0            | INTACT<br>STRENGTH | DEFECT<br>SPACING                      | g           | ADDITIONAL        | DATA              |                  |
| DEPTH (m)  | G<br>BORI<br>DRILL  | щ      | MATERIAL  | -OGY                  | TERIN        |                    | (mm)                                   | IIC LC      | AND               |                   | ES               |
| DE   | CORE<br>CORE<br>CORE<br>REC %   | SAMPLE | DESCRIPTION   | ГІТНОГОСУ             | USC<br>WEATI | STRENGTH           | 00000000000000000000000000000000000000 | GRAPHIC LOG | TEST RES          | ULTS              | SAMPLES<br>TESTS |
| 20 -7.89   | 40×0 REC %  |        | VOLCANIC BRECCIA  | +-                    | 1            |                    |  |             |                   |                   | -                |
|  |   |        | XW (Cont'd):  | +<br> +<br> +         |              |                    |  |             |                   | 30/40mm           | -                |
| -  |   | Q      |   | [+]                   | HW           |                    |  |             |                   | N>50              | SPT -            |
| -8.89  |   |        |   | +                     |              |                    |  | ļ           |                   |                   |                  |
|  | (0)   |        | <b>HW:</b> Red brown with pink, medium to coarse grained, massive, low to medium        | +<br> +               |              |                    |  |             | ls                | s(50) = 0.11MPa   | 0                |
|  |   |        | strength.   | [+]                   |              |                    |  |             |                   |                   |                  |
| E  | 88  | _      | Defects:<br>- Joint @ 20°-30° (6/m)   | +<br> +<br> +         | -            | • • •              |  |             | le                | s(50) = 0.28MPa   | 0                |
| - 22<br>10   |   |        | - Broken throughout   | [+]                   | нw           |                    |  |             |                   | s(50) – 0.2014F a | -                |
| 113 11:8   |   |        | Defect surfaces are generally irregular, rough, open or tight, clay infilled.           | +<br> +<br> +         |              |                    |  |             |                   |                   |                  |
| 7/10/20  | (0)   | —      |   | [+]                   |              |                    |  |             | ls                | s(50) = 0.62MPa   | 0                |
| 두<br>왕 -10.89  | 100   |        |   | +                     |              |                    |  | <u> </u>    | Broken Zone — — — |                   |                  |
|  | (0)<br>100  |        | <b>MW:</b> Brown red and pink, medium to coarse grained, massive, mainly medium to      | ] +<br>  +            |              |                    |  |             |                   | s(50) = 0.72MPa   | 0                |
|  | (0)   |        | high strength.  | [+]                   |              |                    |  |             |                   |                   | -                |
| Datgel (   | 100   |        | Defects:<br>- Broken zones throughout <300mm  | +<br> +<br> +         | 1            |                    |  |             |                   |                   |                  |
| <u>^</u> 24  | (16)  |        | - Joint @ 10°-30° (5-6/m)<br>- Joint @ 50°-60° (3-4/m)                                  | [+]                   |              |                    |  |             | ls                | s(50) = 0.39MPa   | 0 _<br>-         |
| Trawing  | 100   |        | - Joint @ 80°-90° (2/m)   | +<br> +<br> +         |              |                    |  |             |                   | s(50) = 0.34MPa   | 0                |
| 2-   | (0)   |        | Defect surfaces are generally planar or irregular, rough, open or tight, clay infilled. | [+]                   |              |                    |  |             |                   | ,(cc) c.c d       |                  |
| 9 -<br>  |   |        |   | [+<br> +<br> +        |              |                    |  |             |                   |                   |                  |
|  | 100 (40)  | —      |   | -<br> +               |              | · · · · ·          |  |             | Broken Zone       |                   |                  |
| D 4 STC  |   |        |   | +                     |              | · · ·              |  |             | ls                | s(50) = 0.43MPa   |                  |
| G R OA   |   |        |   | <del>-</del> -<br>  + |              |                    |  |             | l                 | s(50) = 1.51MPa   | 0                |
|  |   |        |   | [+]                   |              |                    |  |             |                   | (                 |                  |
|  |   |        |   | +<br> +<br> +         | мw           |                    |  |             | ls                | s(50) = 1.06MPa   | 0                |
| 24 TO  | 100   |        |   | [+]                   |              |                    |  |             |                   |                   |                  |
| 00<br>10<br>10<br>10<br>27   | (43)  | $\geq$ |   | +<br> +<br> +         | -            |                    |  |             |                   |                   | -                |
|  |   |        |   | [+]                   |              |                    |  |             | ls                | s(50) = 1.22MPa   | 0                |
|  |   |        |   | +<br> +<br> +         |              | · · ·              |  |             |                   |                   |                  |
|  |   |        |   | [+]                   |              |                    |  |             | ls                | s(50) = 0.67MPa   | 0                |
|  |   |        |   | +                     |              | · · ·              | · · · ·                                |             |                   |                   |                  |
| GINEE  |   |        |   | +<br> +<br> +         | 1            |                    |  |             |                   | (50) 5 5 5 5 5    |                  |
|  | 95  |        |   | [+]                   | 1            |                    |  |             |                   | s(50) = 0.58MPa   | 0                |
| о́<br>в29  | (18)  |        |   | +<br> +<br> +         | 4            |                    |  |             | Broken Zone       |                   |                  |
| 01A.G  |   |        |   | [+]                   |              |                    |  |             | l Is              | s(50) = 0.26MPa   | 0                |
|  |   |        |   | +<br> +<br> +         | -            |                    |  |             |                   |                   |                  |
| 010_DMR_LUB_011AGIB       LUB_011AGIB       LUB_01AGIB       LUB_01AGIB       LUB_01AGIB       LUB_01AGIB       LUB_01AGIB <td>100</td> <td></td> <td>(See over)</td> <td>[+<br/>[+]</td> <td></td> <td></td> <td></td> <td></td> <td>Broken Zone</td> <td></td> <td></td> | 100   |        | (See over)  | [+<br>[+]             |              |                    |  |             | Broken Zone       |                   |                  |
| REMARK   |   |        |   |                       | ·            |                    |  | '           | _                 | LOGGED BY         |                  |
|  |   |        |   |                       |              |                    |  |             | _                 | JA                |                  |



## ENGINEERING BOREHOLE LOG

| BOREHOLE No  | <u>_BH305_</u> _     |
|--------------|----------------------|
| SHEET        | <u>4</u> of <u>4</u> |
| REFERENCE No | <u>11483</u>         |

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/6-2010

| PROJECT          |                                 |                |        | Road Section 4                    |           |   |      |  |                   |  |        |
|------------------|---------------------------------|----------------|--------|-----------------------------------|-----------|---|------|--|-------------------|--|--------|
| LOCATION         |                                 | <u>y Creek</u> |        |                                   |           |   |      |  |                   | COORDINATES <u>464709.1 E; 7871543.1 N</u> |        |
|                  |                                 |                |        | SURFACE R.L. <u>12.11m</u> PLUNGE |           |   |      |  |                   |  |        |
| JOB No           | 268/                            | 10 <u>M/5</u>  |        | HEIGHT DATUM <u>AHD</u> BEARING   |           |   |      | DATE COMPLETED   | <u>    1/5/</u> ′ | DRILLER   Saxon Drilling                   |        |
| R.L.             | <u>"</u> 0                      | RQD            |        |                                   |           |   |      | INTACT DEFECT<br>STRENGTH SPACING  |                   | ADDITIONAL DATA                            |        |
| Ê <sup>(m)</sup> | R<br>JG<br>I BORING<br>DRILLING | ()%            |        | MATERIAL                          | 5         |   | RING | (mm)   | rog '             |  |        |
| DEPTH (m)        | ER<br>NG<br>BBO<br>R            |                | ЪГЕ    | DESCRIPTION                       | OLOC      |   | E    |  | - ZUUU U          | AND SI AND TEST RESULTS                    | s<br>S |
| □<br>30 -17.89   |                                 | CORE<br>REC %  | SAMPLE |                                   | ГІТНОГОСУ |   | WEA  | STRENGTH SPACIN<br>(mm)  | GRA               | TEST RESULTS                               | TESTS  |
|                  |                                 |                |        | VOLCANIC BRECCIA<br>MW (Cont'd):  | +         | - |      |  |                   | ls(50) = 1.09MPa                           | 0      |
| -                |                                 |                |        |                                   |           | - |      |  |                   |  |        |
| -  <br>r         |                                 |                |        |                                   | [+        |   | ЛW   |  | -                 |  |        |
| - 31             |                                 |                |        |                                   | [+        | - |      |  |                   | ls(50) = 0.92MPa<br>UCS=21.8MPa            | 0      |
| - 19.04          |                                 | 100            | _      | Borehole terminated at 31.15m     | +         | - |      |  |                   | +  |        |
| -                |                                 |                |        | Borenole terminated at 31.15m     |           |   |      |  |                   |  |        |
| -<br>r           |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| - 32             |                                 |                |        |                                   |           |   |      | <u> </u>   |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      | $\frac{1}{2}$  |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| - 33             |                                 |                |        |                                   |           |   |      |  |                   |  |        |
|                  |                                 |                |        |                                   |           |   |      |  |                   |  |        |
|                  |                                 |                |        |                                   |           |   |      | <u> </u>   |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| - 34             |                                 |                |        |                                   |           |   |      |  |                   |  | -      |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      | <u> </u>   |                   |  | -      |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| - 35             |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| <u> </u>         |                                 |                |        |                                   |           |   |      | $\vdots$                            |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  | -      |
|                  |                                 |                |        |                                   |           |   |      | <u>1</u>   |                   |  |        |
| - 36             |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| -<br>-           |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  | -      |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| - 37             |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      | $\frac{1}{2}$  |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      | +  |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      | · · · · · · · <del>]</del> · · · · ·   |                   |  |        |
| - 38             |                                 |                |        |                                   |           |   |      | <u>+</u>   |                   |  | -      |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  |        |
| -                |                                 |                |        |                                   |           |   |      |  |                   |  | -      |
| -                |                                 |                |        |                                   |           |   |      | $\begin{array}{c} \vdots \\ \vdots $ |                   |  |        |
| - 39             |                                 |                |        |                                   |           |   |      | <u>+</u> +++++++++++++++++++++++++++++++++++   |                   |  | -      |
| -                |                                 |                |        |                                   |           |   |      | <del>.</del>   |                   |  |        |
| -  <br>-         |                                 |                |        |                                   |           |   |      |  |                   |  | -      |
| -                |                                 |                |        |                                   |           |   |      | · · · · · · · · · · · · · · · · · · ·  |                   |  |        |
| 40               |                                 |                |        |                                   |           |   |      | · · · · · · † · · · ·  |                   |  |        |
| REMARK           | s                               |                |        |                                   |           |   |      |  |                   | LOGGED BY                                  |        |

#### 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   | Townsville Ring Road Section 4   |   |  |
|--|--|---|--|
| Project No   | FG 6020  | Date                                      | 01/05/13   |
| Borehole No  | BH 305   | TMR H No                                  | 11483  |
| Location   | Stony Creek Bridge   | Start Depth (m)                           | 21.00  |
| Detail   | Pier 2 (Right)   | Finish Depth (m)                          | 31.15  |
| Chainage   |  | Submitted By                              | MS   |
| Remarks  |  |   |  |
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#### 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 | Townsville Ring Road Section 4 |                  |          |
|--------------|--------------------------------|------------------|----------|
| Project No   | FG 6020                        | Date             | 01/05/13 |
| Borehole No  | BH 305                         | TMR H No         | 11483    |
| Location     | Stony Creek Bridge             | Start Depth (m)  | 21.00    |
| Detail       | Pier 2 (Right)                 | Finish Depth (m) | 31.15    |
| Chainage     | - (34)                         | Submitted By     | MS       |
| Remarks      |                                | ,                |          |
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