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# ENGINEERING BOREHOLE LOG

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

BOREHOLE No BH C51  
SHEET 1 of 3  
REFERENCE No H11052

PROJECT Bruce Highway Upgrade (Cooroy to Curra) Section C  
LOCATION Cut 13 COORDINATES 470891.3 E; 7096433.6 N  
PROJECT No FG5799 SURFACE R.L. 81.10m PLUNGE \_\_\_\_\_ DATE STARTED 27/06/11 GRID DATUM MGA94  
JOB No 232/10A/2 HEIGHT DATUM AHD BEARING \_\_\_\_\_ DATE COMPLETED 27/06/11 DRILLER Drillsure Pty Ltd

| DEPTH (m) | R.L. (m) | AUGER CASING WASH BORING CORE DRILLING | RQD (%)     | CORE REC % | SAMPLE | MATERIAL DESCRIPTION   | LITHOLOGY | USC | WEATHERING |    |   |   |   | DEFECT SPACING (mm) | GRAPHIC LOG                                  | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS                        |        |
|-----------|----------|--|-------------|------------|--------|--|-----------|-----|------------|----|---|---|---|---------------------|--|----------------------------------|--------------------------------------|--------|
|           |          |  |             |            |        |  |           |     | EH         | VH | H | M | L |                     |  |                                  |                                      | VL     |
| 0         | 81.10    |  |             |            |        | <b>TOPSOIL</b>   |           |     |            |    |   |   |   |                     |  |                                  |                                      |        |
|           | 80.95    |  |             |            |        | <b>Silty CLAY (Residual):</b><br>Grey/brown, minor organic content, occasional gravel.   | (C)       |     |            |    |   |   |   |                     |  | Based on driller's logs only     |                                      |        |
| 1         | 80.10    |  |             |            | A      | <b>SILTSTONE (XW):</b><br>Generally exhibits engineering properties of a brown, moist, very stiff to hard, highly plastic silty clay.<br><br>Minor organic content present.  | XW        |     |            |    |   |   |   |                     |  | 8,9,8<br>N=17                    | SPT                                  |        |
| 2         |          |  |             |            | B      |  |           |     |            |    |   |   |   |                     |  | 30/70mm<br>N>50                  | SPT                                  |        |
| 3         | 78.10    |  | (12)        |            |        | <b>SILTSTONE (HW):</b> Brown, fine grained, subtly foliated, low strength.<br>Defects:<br>-Foliation at 35°-40° (~4/m)<br>-Joint at 5°-10° (3-4/m)<br>Defect spacing is generally close.   | HW        |     |            |    |   |   |   |                     | XW Clay Seam<br>XW Clay Seam<br>XW Clay Seam |                                  |                                      |        |
| 4         | 77.10    |  | 100<br>(44) |            |        | Defects are generally planar, open, smooth, clay infilled.<br><b>SILTSTONE (MW):</b><br>Brown/grey, fine grained, subtly foliated, medium to high strength, indurated and/or slightly metamorphosed.<br><br>Defects:<br>-Foliation parting at 35°-40° (4-5/m)<br>-Joint at 55°-60° (2-3/m)<br>-Joint at 70°-75° (~1/m) |           |     |            |    |   |   |   |                     | XW Clay Seam                                 |                                  |                                      |        |
| 5         |          |  | 100<br>(25) |            |        | Defect spacing is mainly medium. Defects are generally planar, tight or open, smooth, clay infilled, quartz infilled.  |           |     |            |    |   |   |   |                     |  |                                  | Is(50) = 0.79MPa<br>Is(50) = 2.54MPa | x<br>o |
| 6         |          |  | 100<br>(44) |            |        |  | MW        |     |            |    |   |   |   |                     |  |                                  | Is(50) = 0.48MPa                     | x      |
| 7         |          |  | 100<br>(20) |            |        |  |           |     |            |    |   |   |   |                     | Andesite dyke?<br>XW Clay Seam               |                                  | Is(50) = 6.77MPa<br>Is(50) = 7.43MPa | x<br>o |
| 8         |          |  | 100<br>(15) |            |        |  |           |     |            |    |   |   |   |                     |  |                                  | Is(50) = 0.62MPa                     | o      |

REMARKS \*Point load failed along existing defect

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# ENGINEERING BOREHOLE LOG

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

BOREHOLE No   BH C51  

SHEET   2   of   3  

REFERENCE No   H11052  

PROJECT   Bruce Highway Upgrade (Cooroy to Curra) Section C  

LOCATION   Cut 13   COORDINATES   470891.3 E; 7096433.6 N  

PROJECT No   FG5799   SURFACE R.L.   81.10m   PLUNGE        DATE STARTED   27/06/11   GRID DATUM   MGA94  

JOB No   232/10A/2   HEIGHT DATUM   AHD   BEARING        DATE COMPLETED   27/06/11   DRILLER   Drillsure Pty Ltd  

OLD\_DWR\_LIB\_01A\_GLB\_Log\_A\_ENGINEERING\_BOREHOLE\_LOG\_WLITHOLOGY\_FG5799 - BRUCE HWY UPGRADE SECTION.C GP J DWG46532.GDW: Date of CPT Tool IN Add-in 12/12/2011 16:30

| 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 |    |    |
|-----------|----------|--|---------|------------|--------|---|-----------|-----|------------|-----------------|----|---|---|---|----|---------------------|-------------|----------------------------------|---------|-------|----|----|
|           |          |  |         |            |        |   |           |     |            | GH              | VH | H | M | J | VL |                     |             |                                  |         |       | EL | 20 |
| 10        | 71.10    |  |         |            |        | <b>SILTSTONE (MW): Cont'd</b>   | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 11        |          |  | 100     | (0)        |        |   | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 12        |          |  | 100     | (50)       |        |   | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 13        |          |  | 100     | (45)       |        |   | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 14        |          |  | 100     | (47)       |        |   | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 15        |          |  | 100     | (86)       |        |   | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 16        |          |  | 100     | (43)       |        |   | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 17        | 64.50    |  |         |            |        | <b>ANDESITE (MW):</b><br>Grey/brown, fine to medium grained, massive, very high strength.<br>Defects:<br>-Joint at ~20° (2/m)<br>-Joint at ~60° (2/m)<br>Defect spacing is medium. Defect surfaces are planar, open, rough, clay infilled, iron stained.  | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 18        | 63.10    |  | 100     | (75)       |        |   | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 19        |          |  | 100     | (44)       |        | <b>SILTSTONE (MW):</b><br>Brown/grey, fine grained, subtly foliated, medium to high strength, indurated and/or slightly metamorphosed.<br>Defects:<br>-Foliation parting at 35°-40° (4-5/m)<br>-Joint at 55°-60° (2-3/m)<br>-Joint at 70°-75° (~1/m)<br>Defect spacing is medium.<br>Defects are generally planar, tight or open, smooth, clay infilled, quartz infilled. | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |
| 20        |          |  |         |            |        |   | X         |     |            |                 |    |   |   |   |    |                     |             |                                  |         |       |    |    |

REMARKS   \*Point load failed along existing defect.  

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# ENGINEERING BOREHOLE LOG

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

BOREHOLE No   BH C51    
 SHEET   3   of   3    
 REFERENCE No   H11052  

PROJECT   Bruce Highway Upgrade (Cooroy to Curra) Section C    
 LOCATION   Cut 13   COORDINATES   470891.3 E; 7096433.6 N    
 PROJECT No   FG5799   SURFACE R.L.   81.10m   PLUNGE        DATE STARTED   27/06/11   GRID DATUM   MGA94    
 JOB No   232/10A/2   HEIGHT DATUM   AHD   BEARING        DATE COMPLETED   27/06/11   DRILLER   Drillsure Pty Ltd  

| 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 |    |    |                  |     |
|-----------|----------|--|-----------|------------|--------|------------------------------|-----------|-----|------------|-----------------|----|----|----|----|----|---------------------|-------------|----------------------------------|---------------|----|----|------------------|-----|
|           |          |  |           |            |        |                              |           |     |            | EH              | VH | IM | JL | VL | EL |                     |             |                                  |               | 20 | 60 | 200              | 600 |
| 20        | 61.10    |  |           |            |        | SILTSTONE (MW): Cont'd       | XXXXXX    |     | MW         |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
|           | 60.40    |  | 100       |            |        | Borehole terminated at 20.7m |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    | Is(50) = 0.56MPa | x   |
| 21        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
| 22        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
| 23        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
| 24        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
| 25        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
| 26        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
| 27        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
| 28        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
| 29        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |
| 30        |          |  |           |            |        |                              |           |     |            |                 |    |    |    |    |    |                     |             |                                  |               |    |    |                  |     |

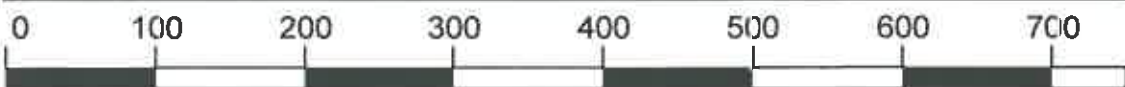
GLD\_DMR\_LIB\_01A\_GLB\_Log\_A\_ENGINEERING\_BOREHOLE\_LOG\_WLITHOLOGY\_FG5799 - BRUCE HWY UPGRADE SECTION C.GPJ DWG46352.GDW Datged CPT Tool glNI Add-In 12/12/2011 16:30

REMARKS   \*Point load failed along existing defect  

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**CORE PHOTO LOG - BH C51**

|                |                                   |                   |            |
|----------------|-----------------------------------|-------------------|------------|
| Project Name:  | BRUCE HIGHWAY UPGRADE - SECTION C |                   |            |
| Project No.:   | FG5799                            | Date:             | 08/09/2011 |
| Details:       | Cut 13                            | Start Depth (m):  | 3.00       |
| Reference No.: | H11052                            | Finish Depth (m): | 20.70      |

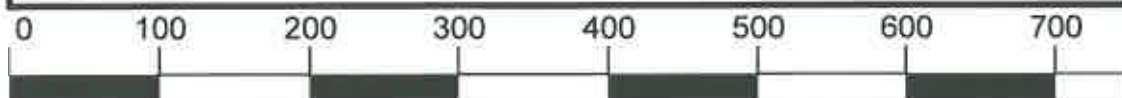
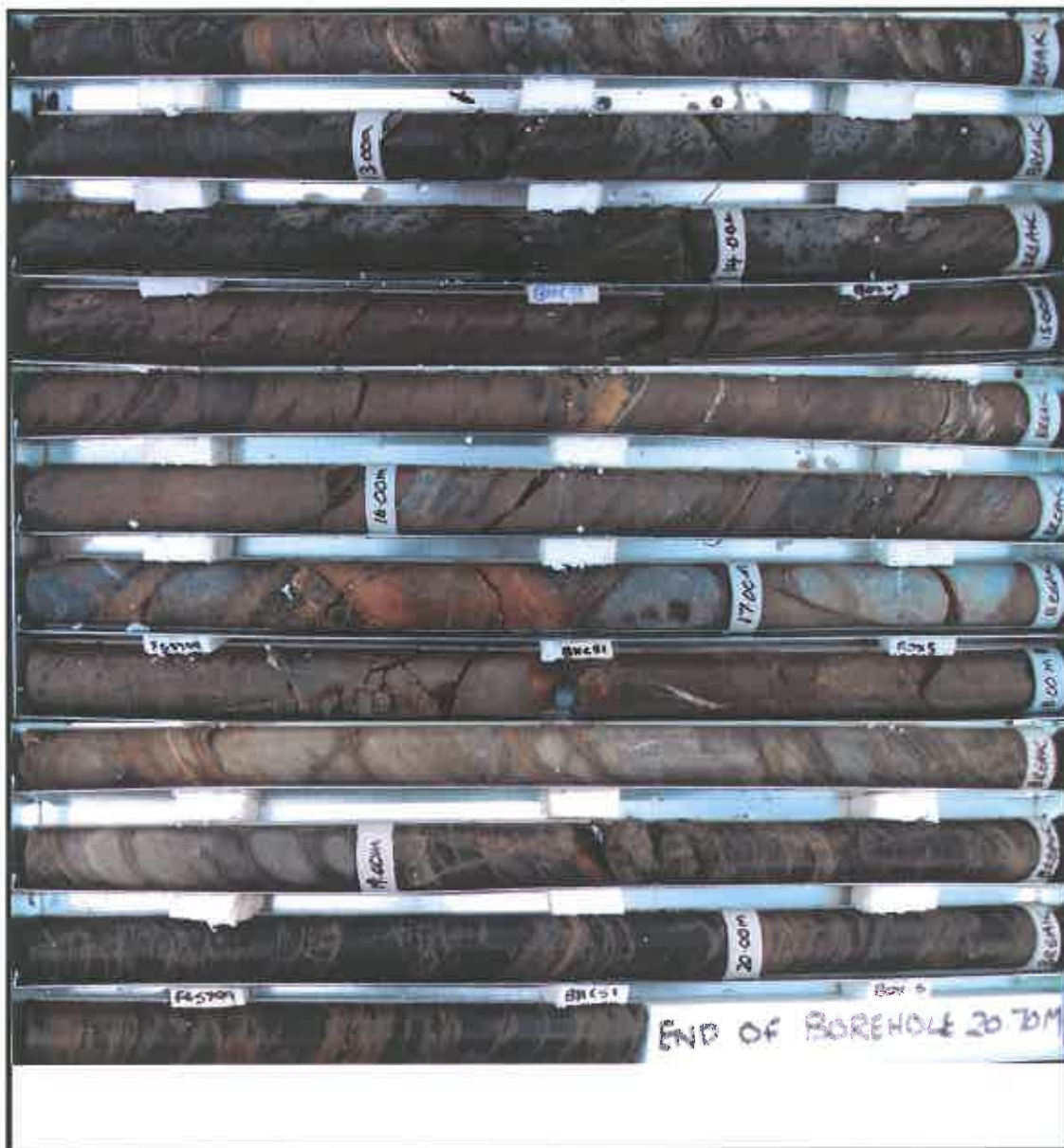


SCALE 1:5



**CORE PHOTO LOG - BH C51**

|                |                                   |                   |            |
|----------------|-----------------------------------|-------------------|------------|
| Project Name:  | BRUCE HIGHWAY UPGRADE - SECTION C |                   |            |
| Project No.:   | FG5799                            | Date:             | 08/09/2011 |
| Details:       | Cut 13                            | Start Depth (m):  | 3.00       |
| Reference No.: | H11052                            | Finish Depth (m): | 20.70      |



SCALE 1:5