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QLD_DMR_LIB_01A.GLB Log A_ENGINEERING BOREHOLE LOG WLITHOLOGY TOWNSVILLE RING ROAD 4 STONY CREEK.GPJ «ChawingFile>> Datgel CPT Tool glNt Add-In 17/10/2013 11:55

ENGINEERINGBOREHOLE LOG

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

| BOREHOLE No | BH307 |
|--------------|------------|
| SHEET | _1_ of _3_ |
| REFERENCE No | 11485 |

| PRO | IECT | <u>Tow</u> | <u>nsvill</u> | <u>e Ri</u> | ng F | Road Section 4 | | _ | | | | | | | |
|---|-------------|--------------------------------|----------------|---|--------|--|------|-----|------------|----------------------------|---|---|--|--|--|
| LOCA | TION | _Stor | ny <u>C</u> re | OORDINATES <u>464709.8 E; 7871566.4 N</u> | | | | | | | | | | | |
| PRO | IECT No | _ <u>FG</u> 6 | <u> 020</u> | | | SURFACE R.L. <u>12.32m</u> PLUNGE | | _ | - | DATE STARTED | <u>24/4/13</u> GRID DATUM <u>GDA 94</u> | | | | |
| JOB 1 | No | <u>268</u> | / <u>10M</u> / | <u>5</u> _ | | HEIGHT DATUM <u>AHD</u> BEARING | | _ | - | DATE COMPLETED | 30/4/ | DRILLER Saxon Drilling | | | |
| o DEPTH (m) | R.L. (m) | AUGER CASING WASH BORING | RG () | % | SAMPLE | MATERIAL DESCRIPTION | 1 | nsc | WEATHERING | INTACT DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS SAWMERS RESULTS | | | |
| - - - - - - - - - - - - - - - - - - - | 12.02 | | | | A | Silty CLAY (TOPSOIL) Brown, moist, soft. Medium plasticity. Some tree roots. Sandy CLAY Brown, dark grey, moist, stiff to very stiff. Medium plasticity. | | | CI) | | | 3,4,7 N=11 | | | |
| - - - -2 | 10.32 | | | | В | Some calcareous material at 1.5m. | | | | | ļ | 7,11,15 N=26 | | | |
| - 3 | | | | | | Silty SAND Pale grey, pale brown, moist, very dense. Fine grained sand. Some white calcareous material. | 111. | (S | SM) | | | 10,28,30/140mm N>50 SPT | | | |
| - - - - - -4 | 8.82 | | | | | Sandy SILT Brown, dark grey, moist, hard. | | | | | | 27,30/100mm,HB N>50 SPT | | | |
| - - - - - - 5 - | | | | | Е | | | | | | | 30,30/30mm,HB N>50 | | | |
| 6 | | | | | F | At 5.5m, minor layer of silty sand. Very dense. Fine to coarse grained. | | (/) | ИL) | | | 25,30/90mm,HB N>50 SPT - | | | |
| -7 - - - - | 4.82 | | | | G | | | | | | ļ | 15,25,30/115mm N>50 | | | |
| - 8 | | | | | | Clayey SAND Pale brown, pale yellow, pale grey, moist, dense. Fine to coarse grained sand. | | (5 | SC) | | | 10,15,17 N=32 | | | |
| 10 | 2.32 | | | | _ | | | 1 | | <u>:::::</u> ::‡:::::: | | | | | |
| | EMARK | 3 | | | | | | _ | _ | | | LOGGED BY | | | |
| | | | | | | | | _ | _ | | | JA | | | |



ENGINEERING BOREHOLE LOG

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

BOREHOLE No __BH307__
SHEET __2_ of __3__
REFERENCE No __11485___

| Second Second Superage Su | PROJECT | | | | | | o <u>n 4</u> | | | | | | | | | | 64709 8 | — — — — — 8 F: 7871566 | — — - 4 N |
|--|--|------|---|-------|----------|--|--|-----------------------------|---|-------------------|------|--------|----------------|---------|----------|-----------|-------------|-------------------------------------|--------------|
| BROW | | | | | | | | | | | | OATE S | — – STARTED | | | | | | |
| MATERIAL DESCRIPTION DES | JOB No | | | | | | | | | | | | | | | | | | L |
| 1.32 | (m) (m) (m) | 1) | | ()% | MPL | | | | ТНОГОСУ | JSC VEATHERING | STRI | ≅⊔⊰⊡ | SPACING (mm) | HIC LOG | | А | AND | | SAMPLES |
| Sandy SILT Pale yellow, brown, pale grey, moist, hard. High content of fine grained sand. Sile yellow, brown, pale grey, moist, hard. | 10 2 | 2.32 | | REC / | | Clayey SA | ND (Cont'd) | | 7/ | 1212 | | | | | | | | 8,14,23 | |
| Pale yellow, brown, pale grey, moist, hard. High content of fine grained sand. Signature of the grained sand. L Interpretate of the grained sand. L Interpretate of the grained sand. Signature of the grained sand. L Interpretate of the grained sand. Signature of the grained sand. L Interpretate of the grained sand. Signature of the grained sand. Interpretate of the grained sand. Signature of the grain | - - - - - - - -11 1 | .32 | | | J | | | | - <u> </u> | (SC) | | | | | | | | | SPT |
| L Clayey SAND Pale grey, pale brown, moist, dense. Fine to coarse grained sand. N P Becoming pale grey, white, pale brown, very dense clayey sand. P Becoming pale grey, white, pale brown, very dense clayey sand. VOLCANIC BRECCIA Pyroclastic rock consisting of angular fragments embedded in a finer grained matrix. WY. Generally exhibits the engineering properties of brown, yellow, red, moist, very dense clayey sand. HW: (See over) HW: (See over) L SI | | | | | К | Pale yellov | w, brown, pale gr | | | | | | | | | | | | SPT |
| Clayey SAND Pale grey, pale brown, moist, dense. Fine to coarse grained sand. N P Becoming pale grey, white, pale brown, very dense clayey sand. VOLCANIC BRECCIA Pyroclastic rock consisting of angular fragments embedded in a finer grained matrix. XW: Generally exhibits the engineering properties of brown, yellow, red, moist, very dense clayey sand. 18 | - 13 13 | | | | L | | | | | (SM) | | | | | | | | | SPT |
| N Becoming pale grey, white, pale brown, very dense clayey sand. VOLCANIC BRECCIA Pyroclastic rock consisting of angular fragments embedded in a finer grained material properties of brown, yellow, red, moist, very dense clayey sand. VVI Generally exhibits the engineering properties of brown, yellow, red, moist, very dense clayey sand. N SF VOLCANIC BRECCIA Pyroclastic rock consisting of angular fragments embedded in a finer grained material properties of brown, yellow, red, moist, very dense clayey sand. HW: (See over) HW: (See over) Becoming pale grey, white, pale brown, 16,20,30/130MM N>-50 SF SF N=30 SF | -14 -1 | 1.68 | | | М | Pale grey, | pale brown, mois | | | | | | | | | | | | SPT |
| Becoming pale grey, white, pale brown, very dense clayey sand. VOLCANIC BRECCIA Pyroclastic rock consisting of angular fragments embedded in a finer grained matrix. XW: Generally exhibits the engineering properties of brown, yellow, red, moist, very dense clayey sand. Fine to coarse grained. HW: (See over) Becoming pale grey, white, pale brown, 16,20,30/130MM N>50 SE 30/50MM,HB HW HW: (See over) | | | | | N | | | | | (SC) | | | | | | | | 9,15,20 N=35 | SPT |
| Pyroclastic rock consisting of angular fragments embedded in a finer grained matrix. XW: Generally exhibits the engineering properties of brown, yellow, red, moist, very dense clayey sand. Fine to coarse grained. HW: (See over) Pyroclastic rock consisting of angular fragments embedded in a finer grained watrix. HW: | -16 | 5.88 | | | Р | very dense | e clayey sand. | pale brown, | | | | | | | | | 16,2 | | SPT |
| HW: (See over) + HW Is(50) = 0.08MPa C | | 6.78 | | | Q | Pyroclasti fragments matrix. XW: Gene properties dense clay | c rock consisting embedded in a ferally exhibits the of brown, yellow yey sand. | iner grained engineering | + + + + + + + + + + + + + + + + + + + | xw | | - | | | Rroken | . — — — - | ; | 30/50MM,HB — — -N>5 0- | SP1 |
| 20 -7.68 100 | - | | H | | | | | | + | HW | | | H | |] Bloken | 0110 | | | |
| | 20 -7 | 7.68 | | 100 | | | | | + | - | | | | | | | ls(50 | 0) = 0.08MPa | 0 |
| : | | | | | _ | | | | | | | | | | _ | | LC | OGGED BY | |



ENGINEERING BOREHOLE LOG

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

BOREHOLE No ___BH307___

SHEET __3__ of __3__

REFERENCE No ___11485___

| | JECT | Townsville Ring Road Section 4 | | | | | | | | | | | | | | | |
|--|-------------|--------------------------------|-----------------|--------|---|--|--|-----------------|--------------------------------------|------------------|--------------|---|-------|---------------------|--|---|--|
| | ATION | | ny <u>Creel</u> | | | | | | · – - | | | - | | OORDINATES | | | |
| | | | | | | | DATE STARTED <u>24/4/13</u> GRID DATUM <u>GDA 94</u> DATE COMPLETED <u>30/4/13</u> DRILLER <u>Saxon Drilling</u> | | | | | | | | | | |
| JOB | NO | _208/ | 10101/5 | | HEIGHT DATUM <u>AHD</u> BEARING | | | | DAII | E CON | /IPLE | IED _ | 30/4/ | <u>13</u> Di | RILLER <u>Saxon Dr</u> il <u>lin</u> ç | L | |
| 1 (m) | R.L. (m) | R IG I BORING DRILING | RQD ()% | | MATERIAL | | ADDI [*] | ADDITIONAL DATA | | | | | | | | | |
| DEPTH (m) | | | | SAMPLE | DESCRIPTION | USC USC USC UNSC UNSC UNSC UNSC UNC UNC UNC UNC UNC UNC UNC UNC UNC UN | | | | | | AND | | | | | |
| 20 | -7.68 | CASIN | CORE REC % | SAM | | <u> </u> | nsc | | ; ; ; ; ; ; ; ; | ⊼ | 1 20 | 000 000 000 000 000 000 000 000 000 00 | GRA | TES | AND TEST RESULTS | | |
| | -7.78 | ''' | (0) | | VOLCANIC BRECCIA | Ŧ | HV | | | | П | | | | +s(50) = 0:28MPa | 0 | |
| - | | | (71) | 1 | HW: (Cont'd) Brown, pink, medium to coarse grained, | [+ | - | | | | | 1: : : | | J, 40°, PI, O, C | Inf | | |
| | | | 100 | | massive, very low to low strength. Defects: Broken throughout. MW: Brown to pink, medium to coarse | - + | -] | | | | | | | _ \au | UCS=10.2MPa Is(50) = 0.85MPa | 0 | |
| -21 | | | (40) | | grained, massive, medium to high streng | th. $\begin{vmatrix} + \\ + \end{vmatrix}$ | - | | | | L | n : : : | | □– XW clay seam | . , | | |
| | | | | | Defects: - Joints @ 10° - 30° (3/m) | + |] | | | | | | | | Is(50) = 0.85MPa | 0 | |
| E | | | | | - Joints @ 40° (3/m) - Joints @ 70° (1/m) | + | -1 | | | | Ļ |]: : : | | | | | |
| -22 | | | 100 | | - Clayey seams | [+ | .] | | | | F | | | Broken Zone | | | |
| 1:55 | | | (43) 100 | | Defect spacing is mainly medium. | [+ | - | | | | | | | | Is(50) = 2.60MPa | 0 | |
| 2013 1 | | | (25) | | Defect surfaces are generally planar, operough, clay infilled. | en, + + | - | | | | | | | | | | |
| 17/10/ | | | | | Tough, day infilled. | ++ | - | | | | | : : : | | | | | |
| 두 - - 23 | | | | | | [+ | MV | N | | | Н |]: : : | | | Is(50) = 2.29MPa | 0 | |
| ğ - | | | | | | + | 4 | | | | | | | | | | |
| 6 | | | | | | + | - | | | | | | | | . (50) | | |
| atgel C | | | 100 | | | | 4 | | : - - | | 1 | | | | Is(50) = 0.21MPa | 0 | |
| Ö - <u>^</u> -24 | | | (0) | | | [+ |] | | | | | | | | | - | |
| eling File | | | | | | + | - | | | | | | | | Is(50) = 0.87MPa | 0 | |
| <pre></pre> | | | 100 | | 24.30 - 24.90m : Becoming brown, fine to medium grained, high strength. |) | - | | | | | | | | | - | |
| <u> </u> | | | (27) | | Thousan graines, mgn eachgan | | - | | | | | | | | Is(50) = 0.85MPa | 0 | |
| 25 | | | | | Becoming grey brown to pink, medium to | [+ | - | | | | | | | | | | |
| o[| | | | | coarse grained, high to very high strength | າ. + + | - | | | | H |]: : : | | | Is(50) = 2.61MPa | 0 | |
| 9 4 ST(| 40.00 | | 400 | | | + | - | | | | L | 1: : : | | — J, 30°, Ir, O, CI | nt, 20mm | - | |
| - ROAL | -13.38 | | 100 | + | Borehole terminated at 25.7m | 十 | 1 | | | | - : : | | | | | | |
| 26 | | | | | | | | | | | <u> </u> | | | | | | |
| SMILLE - | | | | | | | | | | | | | | | | | |
| NOL | | | | | | | | | | - | <u> </u> | | | | | - | |
| 500 | | | | | | | | | | | ‡ : : | | | | | | |
| 로 - 27 | | | | | | | | | | : : := | +: : | | | | | - | |
| Cold Dark Lilb 014 GLB Log A ENGINEERING BORFHOLE LOG WLITHOLOGY TOWNSVILLE RING ROAD 45 TOWN CREK GPJ <- Classifier Special Additional Cold and | | | | | | | | | | | ‡ : : | | | | | | |
|) | | | | | | | | | | : : : - | ‡: : | | | | | | |
| ZET | | | | | | | | | | | I : : | | | | | | |
| 28 - 28 2 - | | | | | | | | | | - | + | | | | | - | |
| - RER | | | | | | | | | | | f : : | | | | | | |
| ENG | | | | | | | | | | | <u> </u> | | | | | - | |
|) - - - | | | | | | | | | | : : : | ‡ | | | | | | |
| 8 – 29 - | | | | | | | | | | | F: : | | | | | - | |
| - HB 04 | | | | | | | | | | | ‡ : : | | | | | | |
| JAR | | | | | | | | | | | £:: | | | | | - | |
| 30 | | | | | | | | | | | ‡ : : | | | | | | |
| | EMARK | s | | | | | | | | | | | | | LOGGED BY | | |
| JA | | | | | | | | | | | | | | | | | |

CORE PHOTO LOG

DEPARTMENT OF TRANSPORT & MAIN ROADS Geotechnical Branch



| Geotechnical Branch 35 Butterfield Street, Phone 07 3066 3336 | HERSTON Qld 4006 | | Department of Transport and Main Roads |
|---|--|------------------|---|
| Project Name | Townsville Ring Road Section 4 | | |
| Project No | FG 6020 | Date | 30/04/13 |
| Borehole No | BH 307 | TMR H No | 11485 |
| Location | Stony Creek Bridge | Start Depth (m) | 19.10 |
| Detail | Pier 3 (Right) | Finish Depth (m) | 25.70 |
| Chainage | | Submitted By | MS |
| Remarks | | L | , I |
| | 2500 2500 2500 2100 2100 2100 2100 2100 2100 2100 2100 | | Son Sign |
| P.S.O.S. | | | IK OF |