Queensland Government

# ENGINEERING BOREHOLE LOG

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

BOREHOLE No **BH105**
SHEET 1 of 5
REFERENCE No **11464**

PROJECT Townsville Ring Road Section 4
LOCATION Kalynda Parade Overpass COORDINATES 467751.3 E; 7866487.1 N
PROJECT No FG6020 SURFACE R.L. 14.21m PLUNGE DATE STARTED 27/3/13 GRID DATUM GDA 94
JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 2/4/13 DRILLER Cairns Drilling

| DEPTH (m) | R.L. (m) | AUGER / CASING / ROCK ROLLER / WASH BORING | RQD ( )% CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC | WEATHERING | INTACT STRENGTH (EH VH H M L VL EL) | DEFECT SPACING (mm) (20 60 200 600 2000) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES | TESTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 14.21 | | | | | | | | | | | | | |
| | 13.91 | | | | **Sandy SILT (TOPSOIL)**<br>Pale brown to grey, moist, soft.<br>Low plasticity, some tree roots. | | | | | | | | | | |
| | | | | A | **Sandy Silty CLAY**<br>Pale brown to grey, moist, very stiff.<br>Mainly low to medium plasticity, fine grained sand. | | | | | | | 2,9,16<br>N=25 | | SPT |
| 1 | | | | | | | (CL) | | | | | | | |
| | | | | B | | | | | | | | MC = 12.1%<br>LL=28.8%<br>PI=14%<br>LS=9.4%<br>7,10,14<br>N=24 | | SPT |
| 2 | | | | | | | | | | | | | | |
| | 11.51 | | | C | | | | | | | | 14,30/150<br>N>50 | | SPT |
| | | | | | **Silty SAND**<br>Pale brown to grey occasionally mottled with orange, moist, very dense.<br>Mainly fine to medium grained sand. | | | | | | | | | |
| 3 | | | | D | | | | | | | | 16,30/140<br>N>50 | | SPT |
| 4 | | | | E | | | | | | | | 24,30/80<br>N>50 | | SPT |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | F | | | (SM) | | | | | 24,30/90<br>N>50 | | SPT |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | G | | | | | | | | 9,21,30<br>N>50 | | SPT |
| 9 | | | | H | | | | | | | | 18,30/120<br>N>50 | | SPT |
| 10 | | | | | | | | | | | | | | |

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BOREHOLE No BH105
SHEET 2 of 5
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JOB No 268/10M/5 HEIGHT DATUM AHD BEARING DATE COMPLETED 2/4/13 DRILLER Cairns Drilling

| DEPTH (m) | R.L. (m) | AUGER / CASING / ROCK ROLLER / WASH BORING | RQD ( )% CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC | WEATHERING | INTACT STRENGTH (EH VH H M L VL EL) | DEFECT SPACING (mm) (20 60 200 600 2000) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES | TESTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 4.21 | | | | **Silty SAND Cont'd**<br>Becoming medium to coarse grained. | | | | | | | | | |
| | | | | J | | | (SM) | | | | | 30/140<br>N>50 | | SPT |
| 11 | | | | | | | | | | | | | | |
| 12 | 2.21 | | | | | | | | | | | | | |
| | | | | K | **Sandy SILT**<br>Pale brown, moist, hard.<br>Low plasticity, fine grained sand. | | | | | | | ~~MC = 27.9%~~<br>LL=41.6%<br>PI=11%<br>LS=8.2%<br>10,15,32<br>N=47 | | SPT |
| 13 | | | | | | | (ML) | | | | | | | |
| | | | | L | | | | | | | | 13,28,30/100<br>N>50 | | SPT |
| 14 | -0.09 | | | | | | | | | | | | | |
| | | | | | **Silty SAND**<br>Pale brown, moist, medium dense to mainly dense.<br>Medium to coarse grained sand. | | | | | | | | | |
| 15 | | | | M | | | | | | | | 10,13,13<br>N=26 | | SPT |
| 16 | | | | | | | | | | | | | | |
| | | | | N | 16.5m-18.0m: Dense to very dense. | | | | | | | 14,22,32<br>N>50 | | SPT |
| 17 | | | | | | | (SM) | | | | | | | |
| 18 | | | | P | | | | | | | | 11,18,28<br>N=46 | | SPT |
| 19 | | | | | | | | | | | | | | |
| | | | | Q | | | | | | | | 12,16,24<br>N=40 | | SPT |
| 20 | | | | | | | | | | | | | | |

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| DEPTH (m) | R.L. (m) | AUGER / CASING / ROCK ROLLER / WASH BORING | RQD ( )% CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC | WEATHERING | INTACT STRENGTH (EH VH H M L VL EL) | DEFECT SPACING (mm) (20 60 200 600 2000) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | -5.79 | | | | **Silty SAND Cont'd** | | | | | | | | |
| 21 | | | | R | Becoming fine grained. | | | | | | | 7,15,20<br>N=35 | SPT |
| 22 | | | | S | | | (SM) | | | | | 9,16,23<br>N=39 | SPT |
| 23 | | | | | 23.3-m - 25.3m: Very dense cemented layer with some gravel. | | | | | | | | |
| 24 | | | | T | | | | | | | | 21,30/40<br>N>50 | SPT |
| 25 | -11.09 | | | | | | | | | | | | |
| | | | | U | **Sandy Silty CLAY**<br>Pale brown occasionally mottled with orange, moist, hard.<br>Low to medium plasticity, fine grained sand. | | | | | | | MC = 17.6%<br>LL=40%<br>PI=20.2%<br>LS=13%<br>15,25,30/125<br>N>50 | SPT |
| 26 | | | | | | | | | | | | | |
| 27 | | | | V | | | (CL-CI) | | | | | 20,30/130<br>N>50 | SPT |
| 28 | | | | | | | | | | | | | |
| 29 | | | | W | | | | | | | | 23,30/80<br>N>50 | SPT |
| 30 | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | -15.79 | | | X | **Sandy Silty CLAY Cont'd** | | (CL-CI) | | | | | 20,30/145 N>50 | SPT |
| 31 | | | | Y | | | | | | | | 16,29,30/90 N>50 | SPT |
| 32 | | | | | | | | | | | | | |
| 33 | | | | Z | | | | | | | | MC = 18.8% LL=24.2% PI=6.6% LS=6.0% 9,14,24 N=38 | SPT |
| 34 | | | | | | | | | | | | | |
| | -20.29 | | | AA | **Silty SAND** Pale brown to pale grey, moist, very dense. Fine to medium grained sand. | | | | | | | 19,24,27 N>50 | SPT |
| 35 | | | | | | | | | | | | | |
| 36 | | | | AB | | | (SM) | | | | | 13,21,30/125 N>50 | SPT |
| 37 | | | | | | | | | | | | | |
| 38 | | | | AC | | | | | | | | 14,25,30/110 N>50 | SPT |
| | -24.79 | | | AD | **GRANITE** **Medium to coarse grained, intrusive igneaous rock of felsic composition** **HW:** Brown to orange, medium to coarse grained, massive, very low strength. | | HW | | | | | 30/70 N>50 | SPT |
| 39 | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | -25.79 | | | | **GRANITE HW: Cont'd** | | HW | | | | | | | |
| | -26.29 | | | AE | Borehole terminated at 40.5m | | | | | | | No sample recovery 30/20 N>50 | | SPT |
| 41 | | | | | | | | | | | | | | |
| 42 | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | |
| 46 | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | |

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