

11 August 2017

McCloy Group
Suite 1, Level 3, 426 King Street
NEWCASTLE WEST NSW 2309

Attention Harry Thomson

Dear Harry,

**RE: PROPOSED SUBDIVISION – BILLY'S LOOKOUT – STAGE 5
FISHERMANS DRIVE, TERALBA
SITE CLASSIFICATION (LOTS 501 TO 535)**

1.0 INTRODUCTION

Qualtest Laboratory NSW Pty Ltd (Qualtest) is pleased to present this site classification report on behalf of McCloy Group (McCloy), for Stage 5 of the proposed residential subdivision of Billy's Lookout, to be located at Fishermans Drive, Teralba.

Based on the brief and drawing provided by the client, Stage 5 is understood to comprise of 35 residential allotments (Lots 501 to 535).

The report provides site classification with respect to reactive soils, in accordance with the requirements of AS2870-2011 '*Residential Slabs and Footings*', for Stage 5 (Lots 501 to 535), following completion of site regrade works.

2.0 DESKTOP STUDY

The scope of work has included a review of the following reports completed by Qualtest.

- Site Classification report, 'Proposed Subdivision, Billy's Lookout – Stage 5, Fishermans Drive, Teralba, (Report Reference: NEW15P-0070A-AB, dated 16 June 2016).
- Level 1 Site Regrade Assessment report, 'Proposed Subdivision, Billy's Lookout – Stage 5, Fishermans Drive, Teralba, (Report Reference: NEW16P-0179-AA, dated 21 April 2017).

This report includes a summary of selected results from the previous Site Classification report. Reference should be made to the reports outlined above for full details of site description, subsurface conditions, field work conducted, engineering logs of test pits, laboratory testing results, site supervision and density testing carried out.

3.0 FIELD WORK

Following the completion of site regrade works, additional field work investigations were carried out on 28 July 2017 to assess the depth, composition and properties of the controlled fill material placed on lots during site regrade works, and comprised of:

- Excavation of eight test pits (TP5-1 to TP5-8) using a backhoe and 5 tonne tracked excavator with 0.3m wide toothed buckets, to depths of between 1.40m to 1.90m;

- Undisturbed samples (U50 tubes) were taken for subsequent laboratory testing;
- Test pits were backfilled with the excavation spoil and compacted using the backhoe / excavator bucket and tracks.

Investigations were carried out by a Senior Geotechnical Engineer from Qualtest who located the test pits, carried out the testing and sampling, produced field logs of the test pits, and made observations of the site surface conditions:

Approximate borehole locations are shown on the attached Figure AH1, which also includes test pit locations from the previous investigations conducted on site.

Engineering logs of the test pits are presented in Appendix A.

4.0 SITE DESCRIPTION

4.1 Site Regrade Works

Site re-grading works were conducted on Lots 502 to 504, 507, 514 to 521 and 523 to 534 (as shown on Figure AH1), between the dates of 23 November 2016 and 13 March 2017.

Prior to filling, re-grade areas were stripped of all topsoil and unsuitable material to expose suitable natural residual foundation profile. Re-grade works then consisted of filling with approved site fill to finish design levels.

Filling was performed using site material won from excavations cut from around the site. The fill material could generally be described as mixtures of Gravelly Sandy CLAY, Silty SAND and Clayey SAND, of medium plasticity, fine to coarse grained sand, and with some fine to coarse grained gravel inclusions.

As the geotechnical testing authority engaged for the project, we state that the filling performed for the regrade areas (Lots 502 to 504, 507, 514 to 521 and 523 to 534), was carried out to Level 1 criteria as defined in Clause 8.2 – Section 8, of AS3798-2007, '*Guidelines on Earthworks for Commercial and Residential Developments*'.

4.2 Surface Conditions

Selected photographs of the site taken on the day of the site investigations are shown below.



Photograph 1: Facing south from Fishermans Drive at Bowline Street towards Lots 507 to 510.



Photograph 2: Facing southwest from Fishermans Drive towards Bowline Street and Lots 502 to 504.



Photograph 3: Facing east from Lot 719, near south-western boundary of Lot 513.



Photograph 4: Facing southeast from Lot 719, near south-western boundary of Lot 513.



Photograph 5: Facing southwest from Fishermans Drive towards Lot 534.



Photograph 6: Facing west from Fishermans Drive towards Lot 522.

4.3 Subsurface Conditions

Reference should be made to the previous reports outlined in Section 2.0 for full details of site description, subsurface conditions, field work conducted, engineering logs of test pits, laboratory testing results, site supervision and density testing carried out.

Reference to the 1:100,000 Newcastle Coalfield Regional Geology Sheet indicates the site to be underlain by the Clifton Subgroup of the Narrabeen Group, and the Moon Island Beach Subgroup of the Newcastle Coal Measures, which are characterised by Conglomerate, Sandstone, Siltstone, Claystone, Tuff and Coal rock types.

Table 1 presents a summary of the typical soil types encountered on site during the field investigations, divided into representative geotechnical units. The units adopted have typically remained consistent with those previously provided, with the addition of Controlled Fill.

Table 2 contains a summary of the distribution of the above geotechnical units at the test pit locations.

No groundwater levels, water inflows were encountered in the test pits during the limited time that they remained open on the day of the field investigations. Moist to wet topsoil was encountered in TP5-1, TP5-2 and TP5-5.

It should be noted that groundwater conditions can vary due to rainfall and other influences including regional groundwater flow, temperature, permeability, recharge areas, surface condition, and subsoil drainage.

TABLE 1 – SUMMARY OF GEOTECHNICAL UNITS AND SOIL TYPES

| Unit | Soil Type | Description |
|------|-------------------------------|--|
| 1A | FILL – TOPSOIL & MULCH | Generally about 50mm of mulch, overlying Clayey SAND - fine to coarse grained, grey, fines of low to medium plasticity, with some fine to medium grained gravel and organics. |
| 1B | CONTROLLED FILL | Sandy CLAY – medium and medium to high plasticity, pale brown to orange, brown to red and pale grey, fine to coarse grained sand, with some fine to coarse grained gravel in places. Borderline Clayey SAND or Gravelly Clayey SAND in places. Small pockets of Clayey SAND in places. Typically, of very stiff consistency. In TP5-3 a layer of Silty Gravelly SAND - fine to coarse grained, pale brown with pale grey to white, fine to coarse grained gravel, fines of low plasticity, with some cobble sized rock fragments. |
| 2 | TOPSOIL | Silty SAND - fine to coarse grained, brown to grey, fines of low plasticity, root affected. Silty Clayey SAND in places. |
| 3 | SLOPEWASH / COLLUVIUM | Silty SAND, SAND - fine to medium grained, pale brown / grey. Clayey SAND - fine to coarse grained, dark brown to grey, fines of medium plasticity. |
| 4 | RESIDUAL SOIL | Sandy CLAY, medium and medium to high plasticity, variable colours such as pale brown, orange to pale brown, pale grey, grey, and brown to red, sand fine to coarse grained or fine to medium grained. Typically of very stiff to hard consistency. CLAY and Clayey SAND in places. Some tree roots in places |
| 5 | EXTREMELY WEATHERED (XW) ROCK | Extremely Weathered SILTSTONE and SANDSTONE, excavating as Clayey Sandy GRAVEL - fine to coarse grained, angular / sub-angular, grey to pale grey with pale brown, fines of low to medium plasticity. Some pockets of very stiff to hard CLAY and Highly Weathered SILTSTONE in places. Breaks down into Clayey SAND in places. |
| 6 | HIGHLY WEATHERED (HW) ROCK | SANDSTONE, fine to medium or fine to coarse grained, variable colours such as pale grey to white, grey, orange, pale brown, variable estimated strength ranging from very low to very high. Pebbly SANDSTONE and SILTSTONE in places. Fractured in places. Extremely to Highly Weathered in places. |

TABLE 2 – SUMMARY OF GEOTECHNICAL UNITS ENCOUNTERED AT TEST PIT LOCATIONS

| TEST PIT NO. | UNIT 1A | UNIT 1B | UNIT 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 |
|---|---------------------|-------------------|-------------|---------------------|---------------|-------------|-------------|
| | Fill - Topsoil | Fill - Controlled | Topsoil | Slopewash Colluvium | Residual Soil | XW Rock | HW Rock |
| | Depth in metres (m) | | | | | | |
| Current Geotechnical Assessment (Ref: NEW15P-0070A-AH, August 2017) | | | | | | | |
| Assessment of Controlled Fill material | | | | | | | |
| TP5-1 | 0.00 - 0.25 | 0.25 - 1.00 | - | - | 1.00 - 1.80 | - | - |
| TP5-2 | 0.00 - 0.30 | 0.30 - 1.50 | - | - | 1.50 - 1.60 | - | - |
| TP5-3 | 0.00 - 0.20 | 0.20 - 0.95 | - | - | 0.95 - 1.50 | - | - |
| TP5-4 | 0.00 - 0.25 | 0.25 - 0.80 | - | - | 0.80 - 1.50 | - | - |
| TP5-5 | 0.00 - 0.25 | 0.25 - 1.20 | - | - | 1.20 - 1.40 | - | - |
| TP5-6 | 0.00 - 0.20 | 0.20 - 1.10 | - | 1.10 - 1.20 | 1.20 - 1.40 | - | - |
| TP5-7 | 0.00 - 0.25 | 0.25 - 1.80 | - | - | - | - | - |
| TP5-8 | 0.00 - 0.25 | 0.25 - 1.60 | - | 1.60 - 1.75 | 1.75 - 1.90 | - | - |
| Previous Investigations (February 2016 & June 2016) | | | | | | | |
| TP103 | - | - | 0.00 - 0.25 | - | 0.25 - 0.70 | - | 0.70 - 0.90 |
| TP104 | - | - | 0.00 - 0.15 | - | 0.15 - 0.30 | - | 0.30 - 0.35 |
| TP106 | - | - | 0.00 - 0.15 | - | 0.15 - 0.40 | 0.40 - 0.65 | 0.65 - 0.70 |
| TP107 | - | - | 0.00 - 0.20 | - | 0.20 - 0.50 | - | 0.50 - 0.75 |
| TP109 | - | - | 0.00 - 0.35 | - | 0.35 - 2.60 | - | - |
| TP110 | - | - | 0.00 - 0.35 | - | 0.35 - 1.90 | - | 1.90 - 2.00 |
| TP201 | - | - | 0.00 - 0.20 | 0.20 - 0.40 | 0.40 - 0.80 | 0.80 - 1.35 | 1.35 - 1.40 |
| TP202 | - | - | 0.00 - 0.20 | 0.20 - 0.35 | 0.35 - 0.55 | - | 0.55 - 0.85 |
| TP203 | - | - | 0.00 - 0.20 | - | 0.20 - 1.00 | - | 1.00 - 1.50 |
| TP204 | - | - | 0.00 - 0.18 | 0.18 - 0.27 | 0.27 - 0.40 | - | 0.40 - 0.65 |
| TP205 | - | - | 0.00 - 0.25 | 0.25 - 0.30 | 0.30 - 1.80 | - | - |
| TP206 | - | - | 0.00 - 0.22 | 0.22 - 0.40 | 0.40 - 1.60 | - | 1.60 - 1.80 |

5.0 LABORATORY TESTING

Samples collected during the field investigations were returned to our NATA accredited Warabrook Laboratory for testing which comprised of:

- (8 no.) Shrink / Swell tests.

Results of the laboratory testing have been kept on file for reference, with a summary of the Shrink/Swell results presented in Tables 3 and 4.

The tables also include a summary of laboratory testing information (where applicable) from the previous Geotechnical Assessment works carried out by Qualtest.

TABLE 3 – SUMMARY OF SHRINK / SWELL TESTING RESULTS

| Location | Depth (m) | Material Description | I _{ss} (%) |
|---|-------------|---------------------------|---------------------|
| Current Investigations (Following Site Regrade - August 2017) | | | |
| TP5-1 | 0.40 - 0.55 | (CH) Sandy CLAY- Fill | 1.5 |
| TP5-2 | 0.60 - 0.75 | (CI) Sandy CLAY- Fill | 0.9 |
| TP5-4 | 0.40 - 0.65 | (CI) Sandy CLAY- Fill | 1.2 |
| TP5-4 | 0.80 - 1.00 | (CH) CLAY- Residual | 4.0 |
| TP5-5 | 0.40 - 0.80 | (CH) Sandy CLAY- Fill | 0.9 |
| TP5-6 | 0.40 - 0.54 | (CH) Sandy CLAY- Fill | 2.1 |
| TP5-7 | 0.50 - 0.80 | (CH) Sandy CLAY- Fill | 2.0 |
| TP5-8 | 0.40 - 0.80 | (CH) Sandy CLAY- Fill | 2.0 |
| Previous Investigations (February 2016 & June 2016) | | | |
| TP109 | 0.40 – 0.60 | (CI) Sandy CLAY- Residual | 0.4 |
| TP206 | 0.55 – 0.70 | (CI) Sandy CLAY- Residual | 2.1 |

TABLE 4 – SUMMARY OF ATTERBERG LIMITS TESTING RESULTS

| Location | Depth (m) | Material Description | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Linear Shrinkage (%) |
|-------------------------------------|-------------|----------------------|------------------|-------------------|----------------------|----------------------|
| Previous Investigations (June 2016) | | | | | | |
| TP201 | 0.40 - 0.80 | (CI) Sandy CLAY | 46 | 13 | 33 | 7.5 |
| TP202 | 0.35 - 0.55 | (CI) Sandy CLAY | 50 | 22 | 28 | 11.0 |
| TP203 | 0.30 - 0.70 | (CH) Sandy CLAY | 86 | 19 | 67 | 15.5 |
| TP204 | 0.30 - 0.40 | (CH) Sandy CLAY | 68 | 19 | 49 | 16.0 |
| TP205 | 0.35 - 0.50 | (CI) Sandy CLAY | 54 | 21 | 33 | 11.5 |

6.0 SITE CLASSIFICATION TO AS2870-2011

Based on the results of the field work, laboratory testing, and Level 1 site supervision and testing carried out, residential lots located within the proposed Stage 5 of the Billy's Lookout subdivision located off Pitt Street and Fishermans Drive, Teralba, as shown on Figure AH1, are classified in their current condition in accordance with AS2870-2011 'Residential Slabs and Footings', as shown in Table 5.

TABLE 5 – SITE CLASSIFICATION TO AS2870-2011

| Lot Numbers | Site Classification |
|--|----------------------------|
| 501 to 516, 521, 522, 526 to 529, 534, 535 | M |
| 517 to 520, 523 to 525, 530 to 533 | H1 |

A characteristic free surface movement of 20mm to 40mm is estimated for lots classified as Class 'M' in their existing condition.

A characteristic free surface movement of 40mm to 60mm is estimated for lots classified as Class 'H1' in their existing condition.

The effects of changes to the soil profile by additional cutting and filling and the effects of past and future trees should be considered in selection of the design value for differential movement.

If site re-grading works involving cutting or filling are performed after the date of this assessment, the classification may change and further advice should be sought.

Footings for the proposed development should be designed and constructed in accordance with the requirements of AS2870-2011.

The classification presented above assumes that:

- All footings are founded in controlled fill (if applicable) or in the residual clayey soils or rock below all non-controlled fill, topsoil material and root zones, and fill under slab panels meets the requirements of AS2870-2011, in particular, the root zone must be removed prior to the placement of fill materials beneath slabs;
- The performance expectations set out in Appendix B of AS2870-2011 are acceptable, and that site foundation maintenance is undertaken to avoid extremes of wetting and drying;
- Footings are to be founded outside of or below all zones of influence resulting from existing or future service trenches;
- The constructional and architectural requirements for reactive clay sites set out in AS2870-2011 are followed;
- Adherence to the detailing requirement outlined in Section 5 of AS2870-2011 'Residential Slabs and Footings' is essential, in particular Section 5.6, 'Additional requirements for Classes M, H1, H2 and E sites' including architectural restrictions, plumbing and drainage requirements;
- Site maintenance complies with the provisions of CSIRO Sheet BTF 18, "Foundation Maintenance and Footing Performance: A Homeowner's Guide", a copy of which is attached in Appendix C.

All structural elements on all lots should be supported on footings founded beneath all uncontrolled fill, layers of inadequate bearing capacity, soft/loose, wet or other potentially deleterious material.

If any areas of uncontrolled fill of depths greater than 0.4m are encountered during construction, they should be designed in accordance with engineering principles for Class 'P' sites.

7.0 LIMITATIONS

The findings presented in the report and used as the basis for recommendations presented herein were obtained using normal, industry accepted geotechnical design practices and standards. To our knowledge, they represent a reasonable interpretation of the general conditions of the site.

The extent of testing associated with this assessment is limited to discrete test locations. It should be noted that subsurface conditions between and away from the test locations may be different to those observed during the field work / site supervision works, and used as the basis of the recommendations contained in this report.

If subsurface conditions encountered during construction differ from those given in this report, further advice should be sought without delay.

Data and opinions contained within the report may not be used in other contexts or for any other purposes without prior review and agreement by Qualtest. If this report is reproduced, it must be in full.

If you have any further questions regarding this report, please do not hesitate to contact Shannon Kelly or the undersigned.

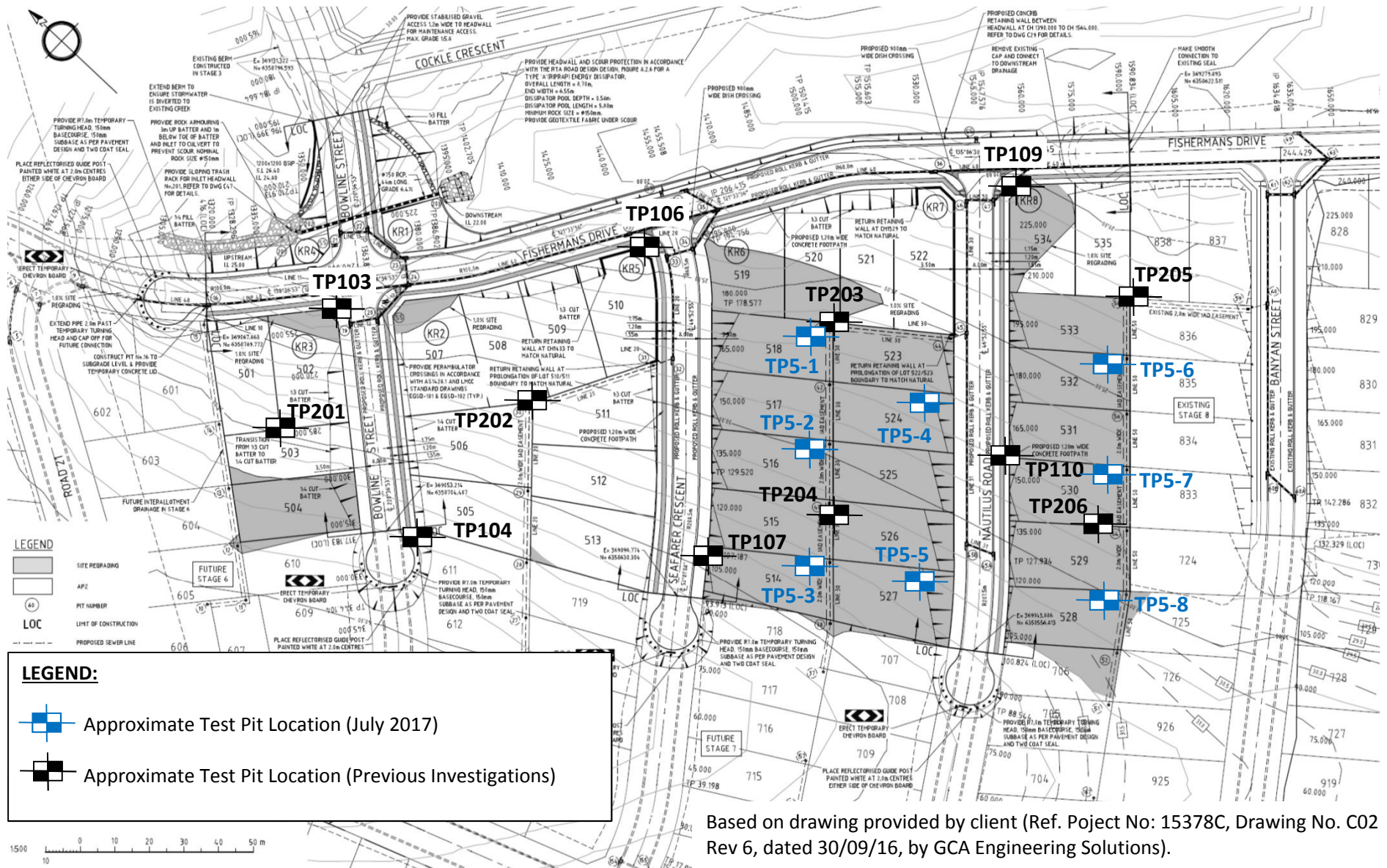
For and on behalf of Qualtest Laboratory (NSW) Pty Ltd



Jason Lee
Principal Geotechnical Engineer

Attachments:

Figure AH1 – Approximate Test Pit Location Plan
Engineering Logs of Test Pits
Results of Laboratory Testing
CSIRO Sheet BTF 18 - Foundation Maintenance and Footing Performance



Based on drawing provided by client (Ref. Project No: 15378C, Drawing No. C02 Rev 6, dated 30/09/16, by GCA Engineering Solutions).

| | | | |
|-----------|--|-------------|----------------|
| Client: | MCCLOY GROUP | Drawing No: | FIGURE AH1 |
| Project: | PROPOSED SUBDIVISION - BILLY'S LOOKOUT - STAGE 5 | Project No: | NEW15P-0070A |
| Location: | FISHERMANS DRIVE, TERALBA | Scale: | AS SHOWN |
| Title: | APPROXIMATE TEST PIT LOCATION PLAN | Date: | 10 AUGUST 2017 |

ENGINEERING LOG - TEST PIT

CLIENT: McCLOY TERALBA
PROJECT: PROPOSED SUBDIVISION - STAGE 5
LOCATION: FISHERMANS DRIVE, TERALBA

TEST PIT NO: TP5-1
PAGE: 1 OF 1
JOB NO: NEW15P - 0070A
LOGGED BY: SJK
DATE: 28/7/17

EQUIPMENT TYPE: 5 TONNE EXCAVATOR
TEST PIT LENGTH: 1.5 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

| Drilling and Sampling | | | | | Material description and profile information | | | | | Field Test | | Structure and additional observations | |
|---|-----------------|--------------|--------|-----------|--|-----------------------|---|--------------------|---------------------|--|--------|--|---|
| METHOD | WATER | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | CLASSIFICATION SYMBOL | MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components | MOISTURE CONDITION | CONSISTENCY DENSITY | Test Type | Result | | |
| E | Not Encountered | | | | | | 0.05m FILL: MULCH - grey to brown. | M | | | | FILL - MULCH | |
| | | | | | | SC | FILL-TOPSOIL: Clayey SAND - fine to coarse grained, grey, fines of low to medium plasticity, with some fine to medium grained gravel and organics. | M - W | | | | FILL - TOPSOIL | |
| | | 0.40m | | | | | 0.25m FILL: Sandy CLAY - medium to high plasticity, pale brown to orange, brown to red and pale grey, fine to coarse grained sand, with some fine to coarse grained gravel. | | | | | CONTROLLED FILL | |
| | | U50 0.55m | | 0.5 | | CH | | M > w _p | VSt | HP | 350 | | |
| | | | | | | | | | | | HP | 300 | |
| | | | | 1.0 | | | 1.00m CLAY / Sandy CLAY - high plasticity, pale brown and brown to red. | | | HP | 500 | RESIDUAL SOIL | |
| | | | | | | | | | | HP | 300 | | |
| | | | | 1.5 | | CH | | M ~ w _p | VSt - H | | | | |
| | | | | | | | | | | HP | 400 | | |
| | | | | | | 1.80m | | | | | | | |
| | | | | | | | Hole Terminated at 1.80 m | | | | | | |
| | | | | 2.0 | | | | | | | | | |
| | | | | 2.5 | | | | | | | | | |
| LEGEND: | | | | | Notes, Samples and Tests | | | | | Consistency | | UCS (kPa) | Moisture Condition |
| Water Water Level (Date and time shown) Water Inflow Water Outflow | | | | | U ₅₀ 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample (Glass jar, sealed and chilled on site) ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) B Bulk Sample | | | | | VS Very Soft S Soft F Firm St Stiff VSt Very Stiff H Hard Fb Friable | | <25 25 - 50 50 - 100 100 - 200 200 - 400 >400 | D Dry M Moist W Wet W _p Plastic Limit W _L Liquid Limit |
| Strata Changes Gradational or transitional strata Definitive or distinct strata change | | | | | Field Tests PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa) | | | | | Density V Very Loose L Loose MD Medium Dense D Dense VD Very Dense | | | Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100% |

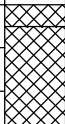
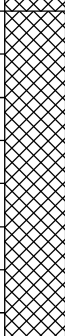

| LEGEND: | | Notes, Samples and Tests | | Consistency | | UCS (kPa) | | Moisture Condition | |
|--------------------------------------|--|--|--|-----------------|--|--------------|--|------------------------------|--|
| Water | | U ₅₀ 50mm Diameter tube sample | | VS Very Soft | | <25 | | D Dry | |
| Water Level (Date and time shown) | | CBR Bulk sample for CBR testing | | S Soft | | 25 - 50 | | M Moist | |
| Water Inflow | | E Environmental sample (Glass jar, sealed and chilled on site) | | F Firm | | 50 - 100 | | W Wet | |
| Water Outflow | | ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) | | St Stiff | | 100 - 200 | | W _p Plastic Limit | |
| Strata Changes | | B Bulk Sample | | VSt Very Stiff | | 200 - 400 | | W _L Liquid Limit | |
| Gradational or transitional strata | | Field Tests | | H Hard | | >400 | | | |
| Definitive or distinct strata change | | PID Photoionisation detector reading (ppm) | | Fb Friable | | | | | |
| | | DCP(x-y) Dynamic penetrometer test (test depth interval shown) | | Density | | V Very Loose | | Density Index <15% | |
| | | HP Hand Penetrometer test (UCS kPa) | | L Loose | | Medium Dense | | Density Index 15 - 35% | |
| | | | | MD Medium Dense | | Dense | | Density Index 35 - 65% | |
| | | | | D Dense | | Very Dense | | Density Index 65 - 85% | |
| | | | | VD Very Dense | | | | Density Index 85 - 100% | |




ENGINEERING LOG - TEST PIT

CLIENT: McCLOY TERALBA
PROJECT: PROPOSED SUBDIVISION - STAGE 5
LOCATION: FISHERMANS DRIVE, TERALBA

TEST PIT NO: TP5-2
PAGE: 1 OF 1
JOB NO: NEW15P - 0070A
LOGGED BY: SJK
DATE: 28/7/17

EQUIPMENT TYPE: 5 TONNE EXCAVATOR
TEST PIT LENGTH: 1.5 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

| Drilling and Sampling | | | | | Material description and profile information | | | | | Field Test | | Structure and additional observations | | | | | |
|-----------------------|-----------------|-----------------------|--------|-----------|---|-----------------------|--|--------------------|---------------------|------------|--------|---------------------------------------|--------|-----------------|--|--|--|
| METHOD | WATER | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | CLASSIFICATION SYMBOL | MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components | MOISTURE CONDITION | CONSISTENCY DENSITY | Test Type | Result | | | | | | |
| E | Not Encountered | 0.60m U50 0.75m | | 0.5 |  | SC | 0.05m FILL: MULCH - grey to brown. FILL-TOPSOIL: Clayey SAND - fine to coarse grained, grey, fines of low to medium plasticity, with some fine to medium grained gravel and organics. | M | M > w _p | St - VSt | HP 220 | FILL - MULCH | | | | | |
| | | | | | | | | M - W | | | | FILL - TOPSOIL | | | | | |
| | | | | | | CI | FILL: Sandy CLAY - medium plasticity, brown to orange, pale brown and pale grey, fine to coarse grained sand. | M > w _p | | | | VSt | HP 220 | CONTROLLED FILL | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | 1.0 |  | CI | 1.10m FILL: Sandy CLAY - medium plasticity, pale brown, fine to coarse grained sand, with some fine to coarse grained gravel. | M > w _p | VSt | HP 350 | 250 | CONTROLLED FILL possibly COLLUVIUM | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | 1.5 |  | CH | 1.50m Sandy CLAY - high plasticity, pale brown and brown to red. | | | HP | 250 | RESIDUAL SOIL | | | | | |
| | | | | | | | 1.60m Hole Terminated at 1.60 m | | | | | | | | | | |
| | | | | 2.0 | | | | | | | | | | | | | |
| | | | | 2.5 | | | | | | | | | | | | | |


| LEGEND: | | Notes, Samples and Tests | | Consistency | | UCS (kPa) | | Moisture Condition | |
|---|--|---|--|-----------------|--|---------------|--|------------------------------|--|
| Water | | U ₅₀ 50mm Diameter tube sample | | VS Very Soft | | <25 | | D Dry | |
|  Water Level (Date and time shown) | | CBR Bulk sample for CBR testing | | S Soft | | 25 - 50 | | M Moist | |
|  Water Inflow | | E Environmental sample (Glass jar, sealed and chilled on site) | | F Firm | | 50 - 100 | | W Wet | |
|  Water Outflow | | ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) | | St Stiff | | 100 - 200 | | W _p Plastic Limit | |
| Strata Changes | | B Bulk Sample | | VSt Very Stiff | | 200 - 400 | | W _L Liquid Limit | |
| --- Gradational or transitional strata | | Field Tests | | H Hard | | >400 | | | |
| — Definitive or distinct strata change | | PID Photoionisation detector reading (ppm) | | Fb Friable | | | | | |
| | | DCP(x-y) Dynamic penetrometer test (test depth interval shown) | | Density | | V Very Loose | | Density Index <15% | |
| | | HP Hand Penetrometer test (UCS kPa) | | L Loose | | Medium Dense | | Density Index 15 - 35% | |
| | | | | MD Medium Dense | | D Dense | | Density Index 35 - 65% | |
| | | | | D Dense | | VD Very Dense | | Density Index 65 - 85% | |
| | | | | VD Very Dense | | | | Density Index 85 - 100% | |




ENGINEERING LOG - TEST PIT

CLIENT: McCLOY TERALBA
PROJECT: PROPOSED SUBDIVISION - STAGE 5
LOCATION: FISHERMANS DRIVE, TERALBA

TEST PIT NO: TP5-3
PAGE: 1 OF 1
JOB NO: NEW15P - 0070A
LOGGED BY: SJK
DATE: 28/7/17

EQUIPMENT TYPE: 5 TONNE EXCAVATOR
TEST PIT LENGTH: 1.5 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

| Drilling and Sampling | | | | | Material description and profile information | | | | | Field Test | | Structure and additional observations | |
|-----------------------|-----------------|---------|--------|-----------|---|-----------------------|--|--------------------|---------------------|------------|--------|---------------------------------------|----|
| METHOD | WATER | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | CLASSIFICATION SYMBOL | MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components | MOISTURE CONDITION | CONSISTENCY DENSITY | Test Type | Result | | |
| E | Not Encountered | U50 | | 0.5 |  | SC | 0.05m FILL: MULCH - grey to brown. FILL-TOPSOIL: Clayey SAND - fine to coarse grained, grey, fines of low to medium plasticity, with some fine to medium grained gravel and organics. | M | VSt | HP | 300 | FILL - MULCH | |
| | | | | | | CI | FILL: Sandy CLAY / Gravelly Clayey SAND - medium plasticity, grey to brown, with brown to orange and pale grey, fine to coarse grained sand, with some fine to coarse grained gravel, trace cobble sized rock fragments. | M ~ w _p | | | | FILL - TOPSOIL | |
| | | | | | | CI | 0.65m FILL: Silty Gravelly SAND - fine to coarse grained, pale brown with pale grey to white, fine to coarse grained gravel, fines of low plasticity, with some cobble sized rock fragments. | M | D | | | RESIDUAL SOIL | |
| | | | | | | CH | 0.95m Sandy CLAY - medium to high plasticity, brown to red, pale grey and orange to brown, fine to medium grained sand. | M > w _p | VSt | | | | HP |
| | | | | | | | 1.50m Hole Terminated at 1.50 m | | | | | | |
| | | | | 2.0 | | | | | | | | | |
| | | | | 2.5 | | | | | | | | | |

| LEGEND: | | Notes, Samples and Tests | | Consistency | | UCS (kPa) | | Moisture Condition | |
|---|--|---|--|----------------|--|-----------------|--|------------------------------|--|
| Water | | U ₅₀ 50mm Diameter tube sample | | VS Very Soft | | <25 | | D Dry | |
|  Water Level (Date and time shown) | | CBR Bulk sample for CBR testing | | S Soft | | 25 - 50 | | M Moist | |
|  Water Inflow | | E Environmental sample (Glass jar, sealed and chilled on site) | | F Firm | | 50 - 100 | | W Wet | |
|  Water Outflow | | ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) | | St Stiff | | 100 - 200 | | W _p Plastic Limit | |
| Strata Changes | | B Bulk Sample | | VSt Very Stiff | | 200 - 400 | | W _L Liquid Limit | |
| --- Gradational or transitional strata | | Field Tests | | H Hard | | >400 | | | |
| — Definitive or distinct strata change | | PID Photoionisation detector reading (ppm) | | Fb Friable | | | | | |
| | | DCP(x-y) Dynamic penetrometer test (test depth interval shown) | | Density | | V Very Loose | | Density Index <15% | |
| | | HP Hand Penetrometer test (UCS kPa) | | L Loose | | MD Medium Dense | | Density Index 15 - 35% | |
| | | | | D Dense | | VD Very Dense | | Density Index 35 - 65% | |
| | | | | | | | | Density Index 65 - 85% | |
| | | | | | | | | Density Index 85 - 100% | |




ENGINEERING LOG - TEST PIT

CLIENT: McCLOY TERALBA
PROJECT: PROPOSED SUBDIVISION - STAGE 5
LOCATION: FISHERMANS DRIVE, TERALBA

TEST PIT NO: TP5-5
PAGE: 1 OF 1
JOB NO: NEW15P - 0070A
LOGGED BY: SJK
DATE: 28/7/17

EQUIPMENT TYPE: CASE BACKHOE 580ST
TEST PIT LENGTH: 1.5 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

| Drilling and Sampling | | | | | Material description and profile information | | | | | Field Test | | Structure and additional observations |
|-----------------------|-----------------|---------|--------|--|--|-----------------------|--|--------------------|---------------------|------------|--------|---------------------------------------|
| METHOD | WATER | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | CLASSIFICATION SYMBOL | MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components | MOISTURE CONDITION | CONSISTENCY DENSITY | Test Type | Result | |
| BH | Not Encountered | 0.40m | | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> | | | | | | | | |

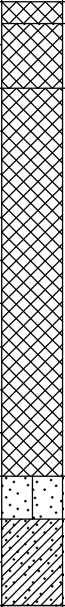
| LEGEND: | | Notes, Samples and Tests | | Consistency | | UCS (kPa) | | Moisture Condition | |
|---|--|---|--|----------------|--|-----------------|--|------------------------------|--|
| Water | | U ₅₀ 50mm Diameter tube sample | | VS Very Soft | | <25 | | D Dry | |
|  Water Level (Date and time shown) | | CBR Bulk sample for CBR testing | | S Soft | | 25 - 50 | | M Moist | |
|  Water Inflow | | E Environmental sample (Glass jar, sealed and chilled on site) | | F Firm | | 50 - 100 | | W Wet | |
|  Water Outflow | | ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) | | St Stiff | | 100 - 200 | | W _p Plastic Limit | |
| Strata Changes | | B Bulk Sample | | VSt Very Stiff | | 200 - 400 | | W _L Liquid Limit | |
| --- Gradational or transitional strata | | Field Tests | | H Hard | | >400 | | | |
| — Definitive or distinct strata change | | PID Photoionisation detector reading (ppm) | | Fb Friable | | | | | |
| | | DCP(x-y) Dynamic penetrometer test (test depth interval shown) | | Density | | V Very Loose | | Density Index <15% | |
| | | HP Hand Penetrometer test (UCS kPa) | | L Loose | | MD Medium Dense | | Density Index 15 - 35% | |
| | | | | D Dense | | VD Very Dense | | Density Index 35 - 65% | |
| | | | | | | | | Density Index 65 - 85% | |
| | | | | | | | | Density Index 85 - 100% | |






ENGINEERING LOG - TEST PIT

CLIENT: McCLOY TERALBA
PROJECT: PROPOSED SUBDIVISION - STAGE 5
LOCATION: FISHERMANS DRIVE, TERALBA

TEST PIT NO: TP5-6
PAGE: 1 OF 1
JOB NO: NEW15P - 0070A
LOGGED BY: SJK
DATE: 28/7/17

EQUIPMENT TYPE: CASE BACKHOE 580ST
TEST PIT LENGTH: 1.5 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

| Drilling and Sampling | | | | | Material description and profile information | | | | | Field Test | | Structure and additional observations |
|-----------------------|-----------------|-----------------------|--------|-----------|--|-----------------------|--|--------------------|---------------------|------------|--------|---------------------------------------|
| METHOD | WATER | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | CLASSIFICATION SYMBOL | MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components | MOISTURE CONDITION | CONSISTENCY DENSITY | Test Type | Result | |
| BH | Not Encountered | 0.40m U50 0.54m | | 0.5 |  | SC | 0.05m FILL: MULCH - grey to brown. 0.20m FILL-TOPSOIL: Clayey SAND - fine to coarse grained, grey, fines of low to medium plasticity, with some fine to medium grained gravel and organics. FILL: Sandy CLAY - medium to high plasticity, brown to red and brown to orange, fine to medium grained sand. | M | | HP | 350 | FILL - MULCH |
| | | | | | | | | | | | | FILL - TOPSOIL |
| | | | | | | CH | | M > w _p | VSt | | | CONTROLLED FILL |
| | | | | | | SM | 1.10m Silty SAND - fine to coarse grained, pale brown, fines of low plasticity. | M | MD | | | SLOPE WASH |
| | | | | | | CI | 1.20m Sandy CLAY - medium plasticity, pale brown to orange and pale grey, fine to medium grained sand. | M > w _p | VSt | | | RESIDUAL SOIL |
| | | | | 1.5 | | | Hole Terminated at 1.40 m | | | | | |
| | | | | 2.0 | | | | | | | | |
| | | | | 2.5 | | | | | | | | |

| | | | | | | | |
|--|--|---------------------------------|--|--------------------|--------------|------------------|------------------------------|
| LEGEND: | | Notes, Samples and Tests | | Consistency | | UCS (kPa) | Moisture Condition |
| Water | | U ₅₀ | 50mm Diameter tube sample | VS | Very Soft | <25 | D Dry |
|  Water Level (Date and time shown) | | CBR | Bulk sample for CBR testing | S | Soft | 25 - 50 | M Moist |
|  Water Inflow | | E | Environmental sample (Glass jar, sealed and chilled on site) | F | Firm | 50 - 100 | W Wet |
|  Water Outflow | | ASS | Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) | St | Stiff | 100 - 200 | w _p Plastic Limit |
| Strata Changes | | B | Bulk Sample | VSt | Very Stiff | 200 - 400 | w _L Liquid Limit |
|  Gradational or transitional strata | | Field Tests | | H | Hard | >400 | |
|  Definitive or distinct strata change | | PID | Photoionisation detector reading (ppm) | Fb | Friable | | |
| | | DCP(x-y) | Dynamic penetrometer test (test depth interval shown) | Density | V | Very Loose | Density Index <15% |
| | | HP | Hand Penetrometer test (UCS kPa) | L | Loose | | Density Index 15 - 35% |
| | | | | MD | Medium Dense | | Density Index 35 - 65% |
| | | | | D | Dense | | Density Index 65 - 85% |
| | | | | VD | Very Dense | | Density Index 85 - 100% |

ENGINEERING LOG - TEST PIT

CLIENT: McCLOY TERALBA
PROJECT: PROPOSED SUBDIVISION - STAGE 5
LOCATION: FISHERMANS DRIVE, TERALBA

TEST PIT NO: TP5-7
PAGE: 1 OF 1
JOB NO: NEW15P - 0070A
LOGGED BY: SJK
DATE: 28/7/17

EQUIPMENT TYPE: CASE BACKHOE 580ST
TEST PIT LENGTH: 1.5 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

| Drilling and Sampling | | | | | Material description and profile information | | | | | Field Test | | Structure and additional observations | |
|--|-----------------|---------|---|--|--|-----------------------|---|--------------------|---------------------|--------------|------------------------------|---------------------------------------|--|
| METHOD | WATER | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | CLASSIFICATION SYMBOL | MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components | MOISTURE CONDITION | CONSISTENCY DENSITY | Test Type | Result | | |
| BH | Not Encountered | | | |  | | 0.05m FILL: MULCH - grey to brown. | M | | HP | 180 | FILL - MULCH | |
| | | SC | FILL-TOPSOIL: Clayey SAND - fine to coarse grained, grey, fines of low to medium plasticity, with some fine to medium grained gravel and organics. | FILL - TOPSOIL | | | | | | | | | |
| | | | 0.25m FILL: Sandy CLAY - medium to high plasticity, pale grey and pale brown to orange with brown to red, fine to medium grained sand, with small pockets of Clayey SAND. | M > w _p | | St - VSt | HP | 230 | CONTROLLED FILL | | | | |
| | | CH | | | | | | | | | | | |
| | | 0.50m | | 0.5 | | | 1.40m FILL: Silty Gravelly SAND - fine to coarse grained, pale brown, fine to medium grained sub-rounded gravel, fines of low plasticity. | M | MD - D | | | CONTROLLED FILL possibly COLLUVIUM | |
| | | U50 | | 1.0 | | | 1.80m | | | | | | |
| | | 0.80m | | 1.5 | | | | | | | | | |
| | | | | 2.0 | | | Hole Terminated at 1.80 m | | | | | | |
| | | | | 2.5 | | | | | | | | | |
| LEGEND: | | | | Notes, Samples and Tests | | | | Consistency | | UCS (kPa) | Moisture Condition | | |
| Water | | | | U ₅₀ 50mm Diameter tube sample | | | | VS Very Soft | | <25 | D Dry | | |
|  Water Level | | | | CBR Bulk sample for CBR testing | | | | S Soft | | 25 - 50 | M Moist | | |
| (Date and time shown) | | | | E Environmental sample | | | | F Firm | | 50 - 100 | W Wet | | |
|  Water Inflow | | | | (Glass jar, sealed and chilled on site) | | | | St Stiff | | 100 - 200 | W _p Plastic Limit | | |
|  Water Outflow | | | | ASS Acid Sulfate Soil Sample | | | | VSt Very Stiff | | 200 - 400 | W _L Liquid Limit | | |
| Strata Changes | | | | (Plastic bag, air expelled, chilled) | | | | H Hard | | >400 | | | |
|  Gradational or transitional strata | | | | B Bulk Sample | | | | Fb Friable | | | | | |
|  Definitive or distinct strata change | | | | Field Tests | | | | Density | | V Very Loose | Density Index <15% | | |
| | | | | PID Photoionisation detector reading (ppm) | | | | L Loose | | | Density Index 15 - 35% | | |
| | | | | DCP(x-y) Dynamic penetrometer test (test depth interval shown) | | | | MD Medium Dense | | | Density Index 35 - 65% | | |
| | | | | HP Hand Penetrometer test (UCS kPa) | | | | D Dense | | | Density Index 65 - 85% | | |
| | | | | | | | | VD Very Dense | | | Density Index 85 - 100% | | |

| LEGEND: | | Notes, Samples and Tests | | Consistency | | UCS (kPa) | | Moisture Condition | |
|--------------------------------------|--|---|--|----------------|--|-----------------|--|------------------------------|--|
| Water | | U ₅₀ 50mm Diameter tube sample | | VS Very Soft | | <25 | | D Dry | |
| Water Level (Date and time shown) | | CBR Bulk sample for CBR testing | | S Soft | | 25 - 50 | | M Moist | |
| Water Inflow | | E Environmental sample (Glass jar, sealed and chilled on site) | | F Firm | | 50 - 100 | | W Wet | |
| Water Outflow | | ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) | | St Stiff | | 100 - 200 | | W _p Plastic Limit | |
| Strata Changes | | B Bulk Sample | | VSt Very Stiff | | 200 - 400 | | W _L Liquid Limit | |
| Gradational or transitional strata | | Field Tests | | H Hard | | >400 | | | |
| Definitive or distinct strata change | | PID Photoionisation detector reading (ppm) | | Fb Friable | | | | | |
| | | DCP(x-y) Dynamic penetrometer test (test depth interval shown) | | Density | | V Very Loose | | Density Index <15% | |
| | | HP Hand Penetrometer test (UCS kPa) | | L Loose | | MD Medium Dense | | Density Index 15 - 35% | |
| | | | | D Dense | | VD Very Dense | | Density Index 35 - 65% | |
| | | | | | | | | Density Index 65 - 85% | |
| | | | | | | | | Density Index 85 - 100% | |

ENGINEERING LOG - TEST PIT

CLIENT: McCLOY TERALBA
PROJECT: PROPOSED SUBDIVISION - STAGE 5
LOCATION: FISHERMANS DRIVE, TERALBA

TEST PIT NO: TP5-8
PAGE: 1 OF 1
JOB NO: NEW15P - 0070A
LOGGED BY: SJK
DATE: 28/7/17

EQUIPMENT TYPE: CASE BACKHOE 580ST
TEST PIT LENGTH: 1.5 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

| Drilling and Sampling | | | | | Material description and profile information | | | | | Field Test | | Structure and additional observations | | | | | | |
|--------------------------------------|-----------------|---------|--------|-----------|--|---|---|--------------------|---------------------|-----------------|---------------------------|---------------------------------------|------------------------------|-----------|--------------------|--|--|--|
| METHOD | WATER | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | CLASSIFICATION SYMBOL | MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components | MOISTURE CONDITION | CONSISTENCY DENSITY | Test Type | Result | | | | | | | |
| BH | Not Encountered | 0.40m | U50 | 0.5 | | SC | 0.05m FILL: MULCH - grey to brown FILL-TOPSOIL: Clayey SAND - fine to coarse grained, grey, fines of low to medium plasticity, with some fine to medium grained gravel and organics. | M | | HP | 250 | FILL - MULCH FILL - TOPSOIL | | | | | | |
| | | | | | | 0.25m FILL: Sandy CLAY - medium to high plasticity, pale brown to orange, brown to red, pale grey, fine to coarse grained sand, some fine to coarse grained sub-angular gravel. | CONTROLLED FILL | | | | | | | | | | | |
| | | 0.80m | | | | CH | 0.80m FILL: Sandy CLAY / Clayey SAND - medium plasticity, pale brown to orange and pale grey, fine to coarse grained sand. | M ~ w _p | VSt | | HP | 250 | SLOPE WASH RESIDUAL SOIL | | | | | |
| | | | | | | CI | 1.60m Clayey SAND - fine to coarse grained, dark brown to grey, fines of medium plasticity. | | | | | | | M | MD | | | |
| | | | | | | CH | 1.75m Sandy CLAY - medium to high plasticity, pale brown to orange and grey, fine to coarse grained sand. | M ~ w _p | H | | HP | 450 | | | | | | |
| | | | | | | 1.90m | | | | | | | | | | | | |
| | | | | | | | 2.0 | | | | Hole Terminated at 1.90 m | | | | | | | |
| | | | | | | | | 2.5 | | | | | | | | | | |
| | | LEGEND: | | | | | Notes, Samples and Tests | | | | | Consistency | | UCS (kPa) | Moisture Condition | | | |
| | | Water | | | | | U ₅₀ 50mm Diameter tube sample | | | | | VS Very Soft | | <25 | D Dry | | | |
| Water Level | | | | | CBR Bulk sample for CBR testing | | | | | S Soft | | 25 - 50 | M Moist | | | | | |
| (Date and time shown) | | | | | E Environmental sample | | | | | F Firm | | 50 - 100 | W Wet | | | | | |
| Water Inflow | | | | | (Glass jar, sealed and chilled on site) | | | | | St Stiff | | 100 - 200 | W _p Plastic Limit | | | | | |
| Water Outflow | | | | | ASS Acid Sulfate Soil Sample | | | | | VSt Very Stiff | | 200 - 400 | W _L Liquid Limit | | | | | |
| Strata Changes | | | | | (Plastic bag, air expelled, chilled) | | | | | H Hard | | >400 | | | | | | |
| Gradational or transitional strata | | | | | B Bulk Sample | | | | | Fb Friable | | | | | | | | |
| Definitive or distinct strata change | | | | | Field Tests | | | | | Density | | V Very Loose | Density Index <15% | | | | | |
| | | | | | PID Photoionisation detector reading (ppm) | | | | | L Loose | | | Density Index 15 - 35% | | | | | |
| | | | | | DCP(x-y) Dynamic penetrometer test (test depth interval shown) | | | | | MD Medium Dense | | | Density Index 35 - 65% | | | | | |
| | | | | | HP Hand Penetrometer test (UCS kPa) | | | | | D Dense | | | Density Index 65 - 85% | | | | | |
| | | | | | | | | | | VD Very Dense | | | Density Index 85 - 100% | | | | | |

| LEGEND: | | Notes, Samples and Tests | | Consistency | | UCS (kPa) | | Moisture Condition | |
|--------------------------------------|--|---|--|----------------|--|-----------------|--|------------------------------|--|
| Water | | U ₅₀ 50mm Diameter tube sample | | VS Very Soft | | <25 | | D Dry | |
| Water Level (Date and time shown) | | CBR Bulk sample for CBR testing | | S Soft | | 25 - 50 | | M Moist | |
| Water Inflow | | E Environmental sample (Glass jar, sealed and chilled on site) | | F Firm | | 50 - 100 | | W Wet | |
| Water Outflow | | ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) | | St Stiff | | 100 - 200 | | W _p Plastic Limit | |
| Strata Changes | | B Bulk Sample | | VSt Very Stiff | | 200 - 400 | | W _L Liquid Limit | |
| Gradational or transitional strata | | Field Tests | | H Hard | | >400 | | | |
| Definitive or distinct strata change | | PID Photoionisation detector reading (ppm) | | Fb Friable | | | | | |
| | | DCP(x-y) Dynamic penetrometer test (test depth interval shown) | | Density | | V Very Loose | | Density Index <15% | |
| | | HP Hand Penetrometer test (UCS kPa) | | L Loose | | MD Medium Dense | | Density Index 15 - 35% | |
| | | | | D Dense | | VD Very Dense | | Density Index 35 - 65% | |
| | | | | | | | | Density Index 65 - 85% | |
| | | | | | | | | Density Index 85 - 100% | |

Shrink Swell Index Report

Report No: SSI:NEW17W-3159--S01

Issue No: 2

This report replaces all previous issues of report no 'SSI:NEW17W-3159--S01'.

Client: McCloy Development Management Pty Ltd
Suite 1 Level 3, 426 King Street
Newcastle West NSW 2300

Principal:

Project No.: NEW15P-0070A

Project Name: Proposed Subdivision - Billy's Lookout - Stage 5



Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards



Approved Signatory: Dane Cullen
(Senior Geotechnician)
NATA Accredited Laboratory Number: 18686
Date of Issue: 11/08/2017

Sample Details

Sample ID: NEW17W-3159--S01

Test Request No.:

Material: Sandy Clay

Source: On-Site

Specification: No Specification

Project Location: Pitt Street, Teralba

Sample Location: TP5-1 - (0.4 - 0.55m)

Borehole Number: TP5-1

Borehole Depth (m): 0.4 - 0.55

Client Sample ID:

Sampling Method: AS1289.1.2.1 cl 6.5.4

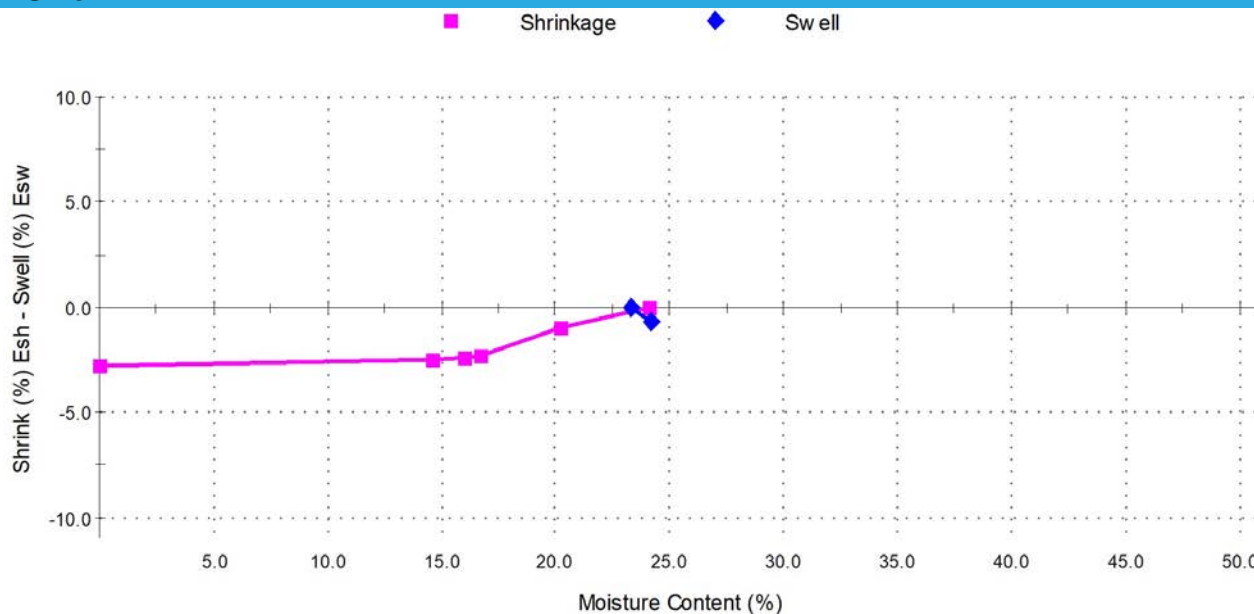
Date Sampled: 28/07/2017

Date Submitted: 31/07/2017

| Swell Test | AS 1289.7.1.1 |
|--|---------------|
| Swell on Saturation (%): | -0.6 |
| Moisture Content before (%): | 23.3 |
| Moisture Content after (%): | 24.2 |
| Est. Unc. Comp. Strength before (kPa): | 260 |
| Est. Unc. Comp. Strength after (kPa): | 190 |

| Shrink Test | AS 1289.7.1.1 |
|---------------------------------|---------------|
| Shrink on drying (%): | 2.8 |
| Shrinkage Moisture Content (%): | 24.1 |
| Est. inert material (%): | 2% |
| Crumbling during shrinkage: | Nil |
| Cracking during shrinkage: | Nil |

Shrink Swell



Shrink Swell Index - Iss (%): 1.5

Comments

Shrink Swell Index Report

Report No: SSI:NEW17W-3159--S02

Issue No: 2

This report replaces all previous issues of report no 'SSI:NEW17W-3159--S02'.

Client: McCloy Development Management Pty Ltd
Suite 1 Level 3, 426 King Street
Newcastle West NSW 2300

Principal:

Project No.: NEW15P-0070A

Project Name: Proposed Subdivision - Billy's Lookout - Stage 5



Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards



Approved Signatory: Dane Cullen
(Senior Geotechnician)
NATA Accredited Laboratory Number: 18686
Date of Issue: 11/08/2017

Sample Details

Sample ID: NEW17W-3159--S02

Test Request No.:

Material: Sandy Clay

Source: On-Site

Specification: No Specification

Project Location: Pitt Street, Teralba

Sample Location: TP5-2 - (0.6 - 0.75m)

Borehole Number: TP5-2

Borehole Depth (m): 0.6 - 0.75

Client Sample ID:

Sampling Method: AS1289.1.2.1 cl 6.5.4

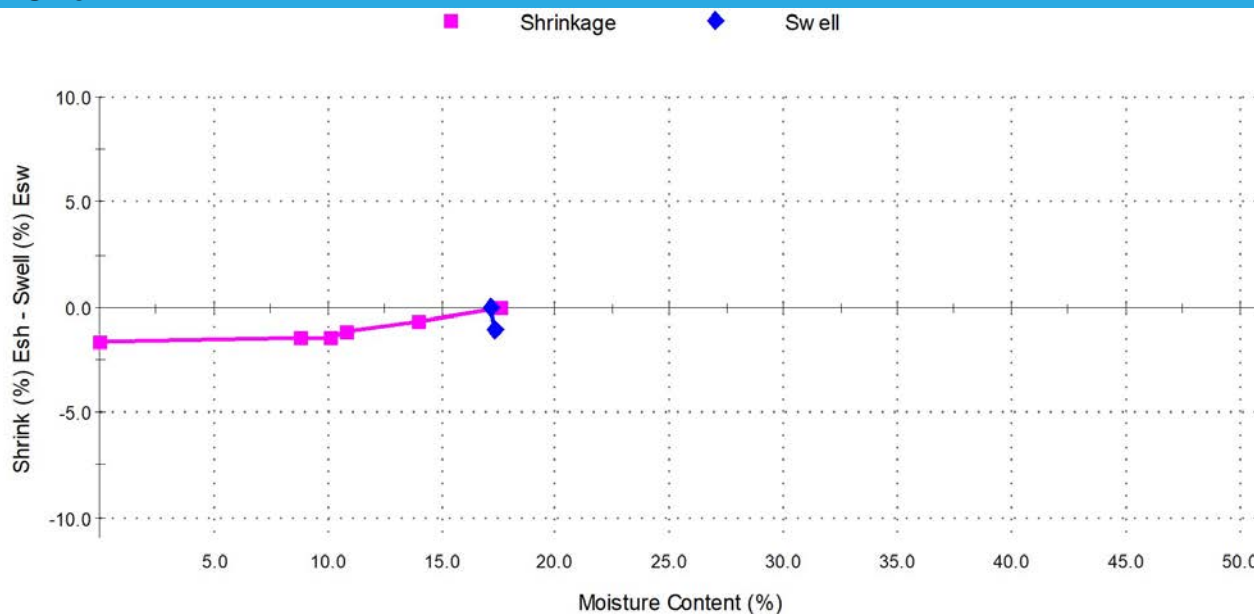
Date Sampled: 28/07/2017

Date Submitted: 31/07/2017

| Swell Test | AS 1289.7.1.1 |
|--|---------------|
| Swell on Saturation (%): | -1.0 |
| Moisture Content before (%): | 17.1 |
| Moisture Content after (%): | 17.4 |
| Est. Unc. Comp. Strength before (kPa): | 240 |
| Est. Unc. Comp. Strength after (kPa): | 390 |

| Shrink Test | AS 1289.7.1.1 |
|---------------------------------|---------------|
| Shrink on drying (%): | 1.6 |
| Shrinkage Moisture Content (%): | 17.6 |
| Est. inert material (%): | 2% |
| Crumbling during shrinkage: | Nil |
| Cracking during shrinkage: | Minor |

Shrink Swell



Shrink Swell Index - Iss (%): 0.9

Comments

Shrink Swell Index Report

Report No: SSI:NEW17W-3159--S03

Issue No: 2

This report replaces all previous issues of report no 'SSI:NEW17W-3159--S03'.

Client: McCloy Development Management Pty Ltd
Suite 1 Level 3, 426 King Street
Newcastle West NSW 2300

Principal:

Project No.: NEW15P-0070A

Project Name: Proposed Subdivision - Billy's Lookout - Stage 5



Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Dane Cullen
Approved Signatory: Dane Cullen
(Senior Geotechnician)
NATA Accredited Laboratory Number: 18686
Date of Issue: 11/08/2017

Sample Details

Sample ID: NEW17W-3159--S03

Test Request No.:

Material: Sandy Clay

Source: On-Site

Specification: No Specification

Project Location: Pitt Street, Teralba

Sample Location: TP5-4 - (0.4 - 0.65m)

Borehole Number: TP5-4

Borehole Depth (m): 0.4 - 0.65

Client Sample ID:

Sampling Method: AS1289.1.2.1 cl 6.5.4

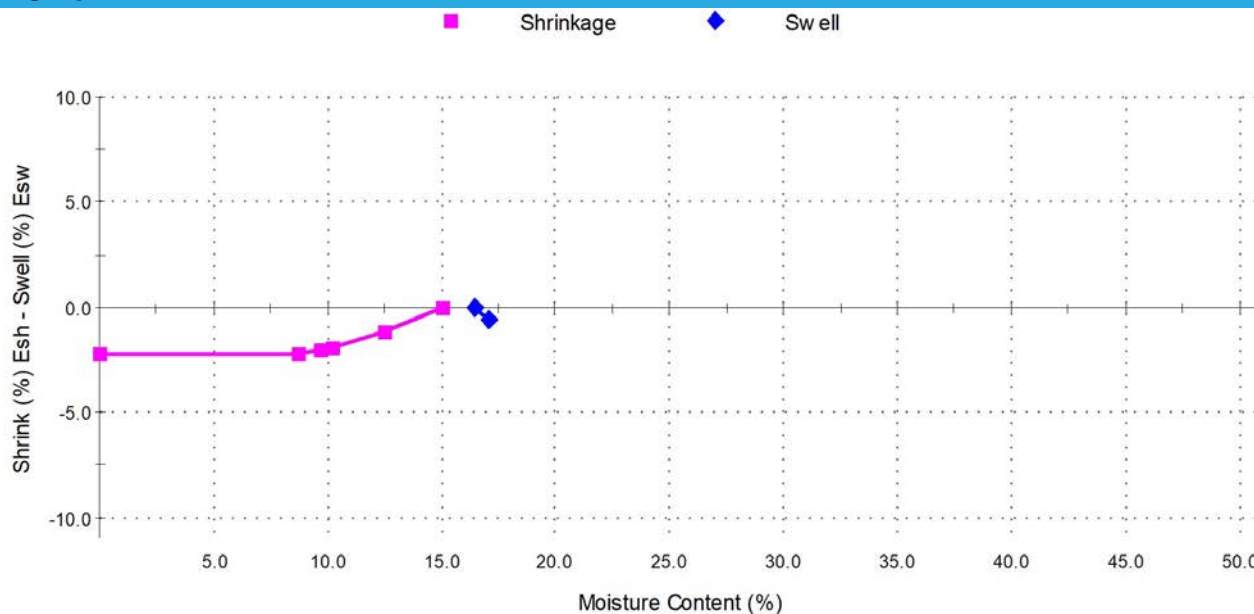
Date Sampled: 28/07/2017

Date Submitted: 31/07/2017

| Swell Test | AS 1289.7.1.1 |
|--|---------------|
| Swell on Saturation (%): | -0.6 |
| Moisture Content before (%): | 16.4 |
| Moisture Content after (%): | 17.1 |
| Est. Unc. Comp. Strength before (kPa): | 380 |
| Est. Unc. Comp. Strength after (kPa): | 340 |

| Shrink Test | AS 1289.7.1.1 |
|---------------------------------|---------------|
| Shrink on drying (%): | 2.2 |
| Shrinkage Moisture Content (%): | 15.0 |
| Est. inert material (%): | 5% |
| Crumbling during shrinkage: | Nil |
| Cracking during shrinkage: | Nil |

Shrink Swell



Shrink Swell Index - Iss (%): 1.2

Comments

Shrink Swell Index Report

Report No: SSI:NEW17W-3159--S04

Issue No: 2

This report replaces all previous issues of report no 'SSI:NEW17W-3159--S04'.

Client: McCloy Development Management Pty Ltd
Suite 1 Level 3, 426 King Street
Newcastle West NSW 2300

Principal:

Project No.: NEW15P-0070A

Project Name: Proposed Subdivision - Billy's Lookout - Stage 5



Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

[Signature]

Approved Signatory: Dane Cullen
(Senior Geotechnician)
NATA Accredited Laboratory Number: 18686
Date of Issue: 11/08/2017

Sample Details

Sample ID: NEW17W-3159--S04

Test Request No.:

Material: Clay

Source: On-Site

Specification: No Specification

Project Location: Pitt Street, Teralba

Sample Location: TP5-4 - (0.8 - 1.0m)

Borehole Number: TP5-4

Borehole Depth (m): 0.8 - 1.0

Client Sample ID:

Sampling Method: AS1289.1.2.1 cl 6.5.4

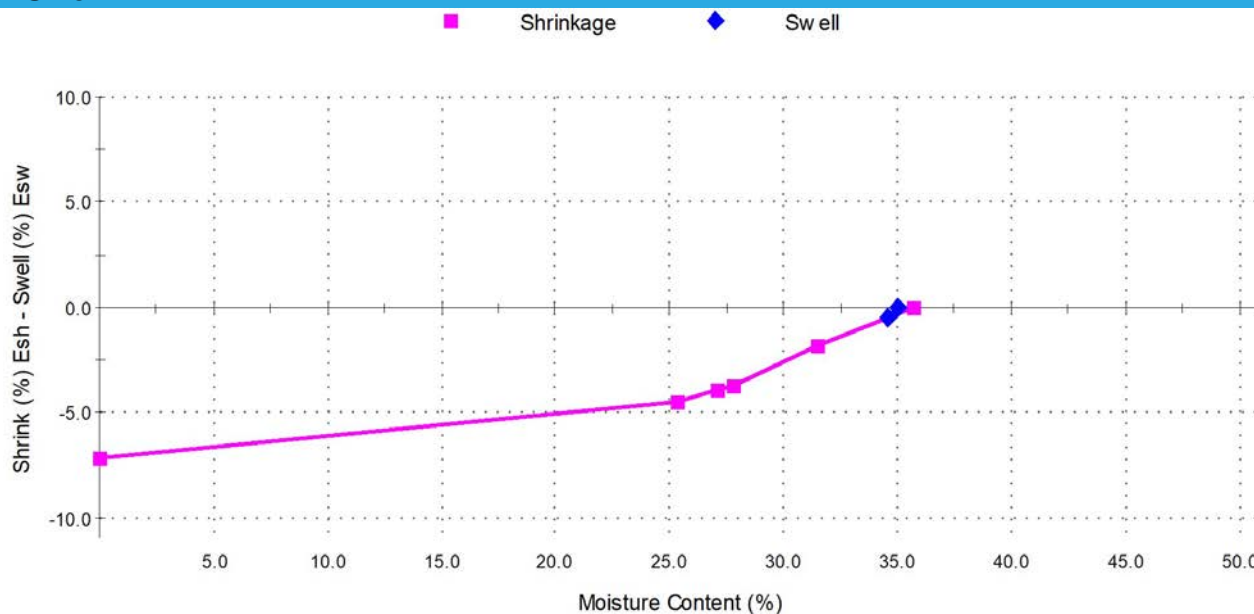
Date Sampled: 28/07/2017

Date Submitted: 31/07/2017

| Swell Test | AS 1289.7.1.1 |
|--|---------------|
| Swell on Saturation (%): | -0.5 |
| Moisture Content before (%): | 35.0 |
| Moisture Content after (%): | 34.6 |
| Est. Unc. Comp. Strength before (kPa): | 330 |
| Est. Unc. Comp. Strength after (kPa): | 340 |

| Shrink Test | AS 1289.7.1.1 |
|---------------------------------|---------------|
| Shrink on drying (%): | 7.2 |
| Shrinkage Moisture Content (%): | 35.7 |
| Est. inert material (%): | 2% |
| Crumbling during shrinkage: | Nil |
| Cracking during shrinkage: | Minor |

Shrink Swell



Shrink Swell Index - Iss (%): 4.0

Comments

Shrink Swell Index Report

Report No: SSI:NEW17W-3159--S05

Issue No: 2

This report replaces all previous issues of report no 'SSI:NEW17W-3159--S05'.

Client: McCloy Development Management Pty Ltd
Suite 1 Level 3, 426 King Street
Newcastle West NSW 2300

Principal:
Project No.: NEW15P-0070A
Project Name: Proposed Subdivision - Billy's Lookout - Stage 5



Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards



Approved Signatory: Dane Cullen
(Senior Geotechnician)
NATA Accredited Laboratory Number: 18686
Date of Issue: 11/08/2017

Sample Details

Sample ID: NEW17W-3159--S05
Test Request No.:
Material: Sandy Clay
Source: On-Site
Specification: No Specification
Project Location: Pitt Street, Teralba
Sample Location: TP5-5 - (0.4 - 0.8m)
Borehole Number: TP5-5
Borehole Depth (m): 0.4 - 0.8

Client Sample ID:
Sampling Method: AS1289.1.2.1 cl 6.5.4
Date Sampled: 28/07/2017
Date Submitted: 31/07/2017

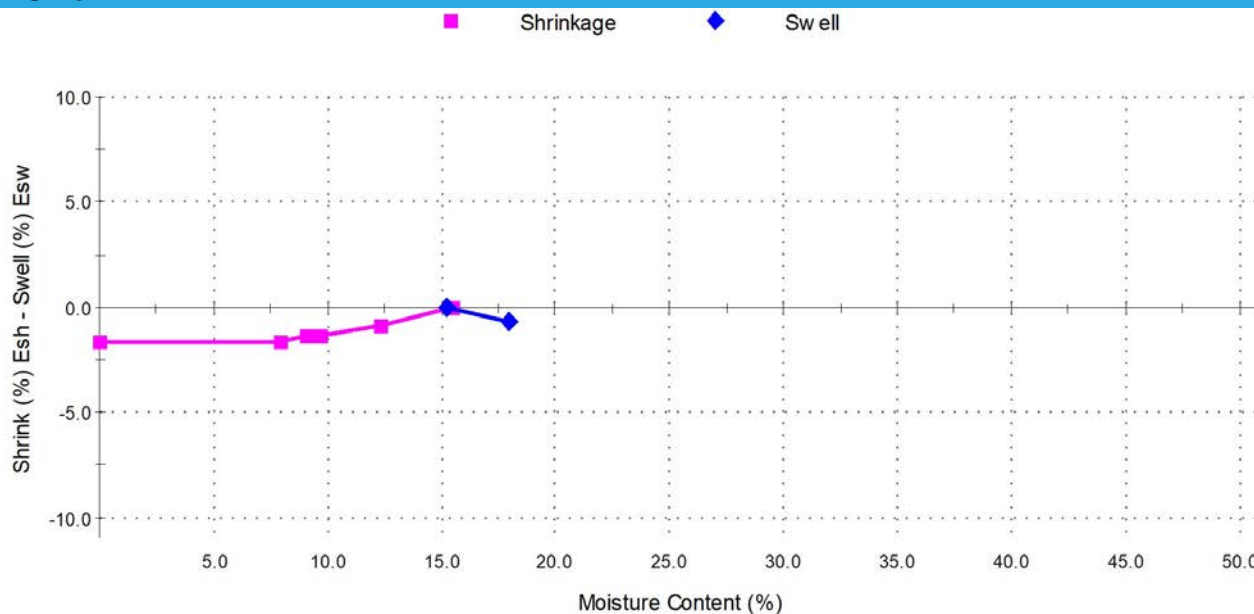
Swell Test AS 1289.7.1.1

Swell on Saturation (%): -0.7
Moisture Content before (%): 15.2
Moisture Content after (%): 17.9
Est. Unc. Comp. Strength before (kPa): >600
Est. Unc. Comp. Strength after (kPa): 550

Shrink Test AS 1289.7.1.1

Shrink on drying (%): 1.6
Shrinkage Moisture Content (%): 15.4
Est. inert material (%): 15%
Crumbling during shrinkage: Nil
Cracking during shrinkage: Minor

Shrink Swell



Shrink Swell Index - Iss (%): 0.9

Comments

Shrink Swell Index Report

Report No: SSI:NEW17W-3159--S06

Issue No: 2

This report replaces all previous issues of report no 'SSI:NEW17W-3159--S06'.

Client: McCloy Development Management Pty Ltd
Suite 1 Level 3, 426 King Street
Newcastle West NSW 2300

Principal:

Project No.: NEW15P-0070A

Project Name: Proposed Subdivision - Billy's Lookout - Stage 5



Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Dane Cullen
Approved Signatory: Dane Cullen
(Senior Geotechnician)
NATA Accredited Laboratory Number: 18686
Date of Issue: 11/08/2017

Sample Details

Sample ID: NEW17W-3159--S06

Test Request No.:

Material: Sandy Clay

Source: On-Site

Specification: No Specification

Project Location: Pitt Street, Teralba

Sample Location: TP5-6 - (0.4 - 0.54m)

Borehole Number: TP5-6

Borehole Depth (m): 0.4 - 0.54

Client Sample ID:

Sampling Method: AS1289.1.2.1 cl 6.5.4

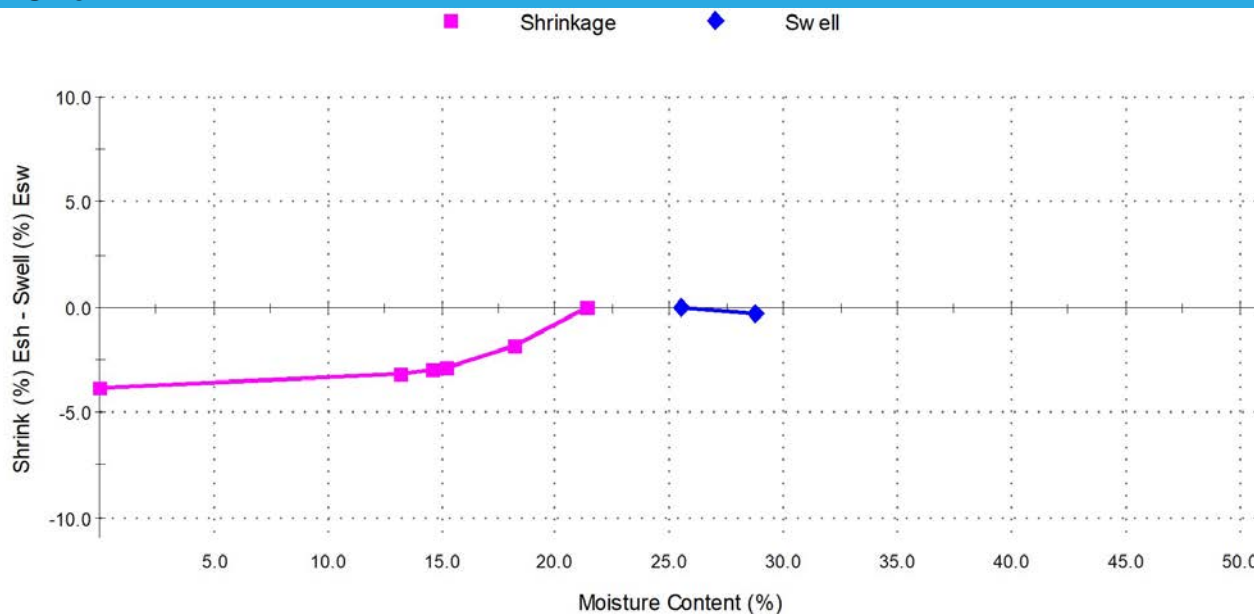
Date Sampled: 28/07/2017

Date Submitted: 31/07/2017

| Swell Test | AS 1289.7.1.1 |
|--|---------------|
| Swell on Saturation (%): | -0.3 |
| Moisture Content before (%): | 25.5 |
| Moisture Content after (%): | 28.7 |
| Est. Unc. Comp. Strength before (kPa): | 480 |
| Est. Unc. Comp. Strength after (kPa): | 430 |

| Shrink Test | AS 1289.7.1.1 |
|---------------------------------|---------------|
| Shrink on drying (%): | 3.8 |
| Shrinkage Moisture Content (%): | 21.3 |
| Est. inert material (%): | 5% |
| Crumbling during shrinkage: | Nil |
| Cracking during shrinkage: | Minor |

Shrink Swell



Shrink Swell Index - Iss (%): 2.1

Comments

Shrink Swell Index Report

Report No: SSI:NEW17W-3159--S07

Issue No: 2

This report replaces all previous issues of report no 'SSI:NEW17W-3159--S07'.

Client: McCloy Development Management Pty Ltd
Suite 1 Level 3, 426 King Street
Newcastle West NSW 2300

Principal:

Project No.: NEW15P-0070A

Project Name: Proposed Subdivision - Billy's Lookout - Stage 5



Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Dane Cullen
Approved Signatory: Dane Cullen
(Senior Geotechnician)
NATA Accredited Laboratory Number: 18686
Date of Issue: 11/08/2017

Sample Details

Sample ID: NEW17W-3159--S07

Test Request No.:

Material: Sandy Clay

Source: On-Site

Specification: No Specification

Project Location: Pitt Street, Teralba

Sample Location: TP5-7 - (0.5 - 0.8m)

Borehole Number: TP5-7

Borehole Depth (m): 0.5 - 0.8

Client Sample ID:

Sampling Method: AS1289.1.2.1 cl 6.5.4

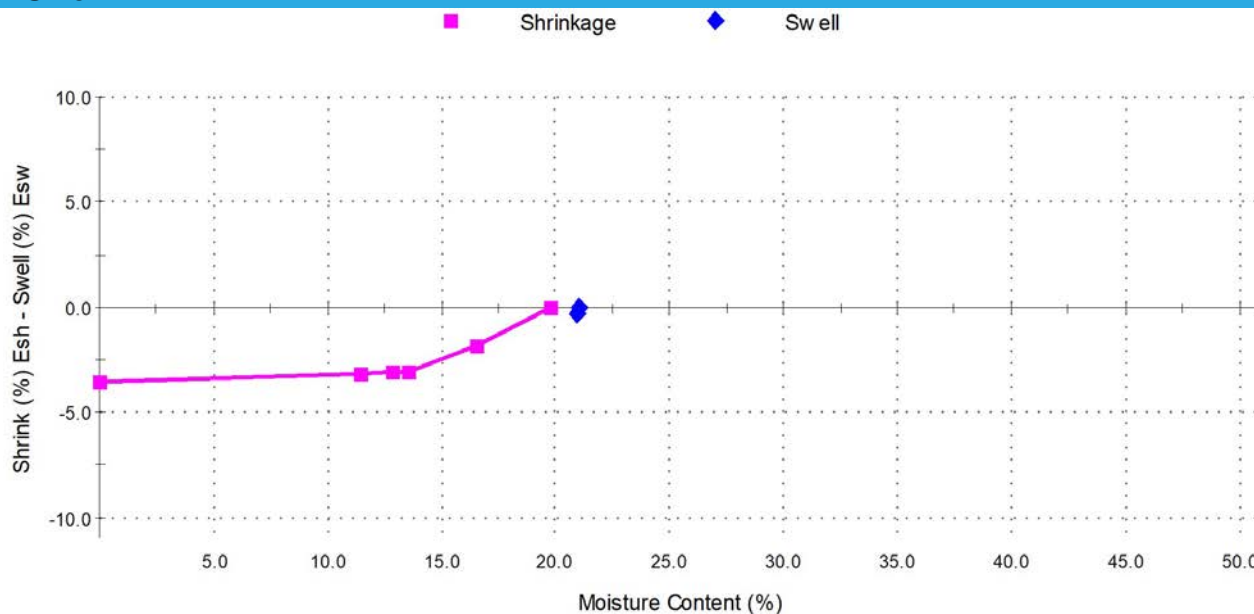
Date Sampled: 28/07/2017

Date Submitted: 31/07/2017

| Swell Test | AS 1289.7.1.1 |
|--|---------------|
| Swell on Saturation (%): | -0.3 |
| Moisture Content before (%): | 21.0 |
| Moisture Content after (%): | 20.9 |
| Est. Unc. Comp. Strength before (kPa): | 530 |
| Est. Unc. Comp. Strength after (kPa): | 530 |

| Shrink Test | AS 1289.7.1.1 |
|---------------------------------|---------------|
| Shrink on drying (%): | 3.6 |
| Shrinkage Moisture Content (%): | 19.8 |
| Est. inert material (%): | 15% |
| Crumbling during shrinkage: | Nil |
| Cracking during shrinkage: | Minor |

Shrink Swell



Shrink Swell Index - Iss (%): 2.0

Comments

Shrink Swell Index Report

Report No: SSI:NEW17W-3159--S08

Issue No: 2

This report replaces all previous issues of report no 'SSI:NEW17W-3159--S08'.

Client: McCloy Development Management Pty Ltd
Suite 1 Level 3, 426 King Street
Newcastle West NSW 2300

Principal:
Project No.: NEW15P-0070A
Project Name: Proposed Subdivision - Billy's Lookout - Stage 5



Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards



Approved Signatory: Dane Cullen
(Senior Geotechnician)
NATA Accredited Laboratory Number: 18686
Date of Issue: 11/08/2017

Sample Details

Sample ID: NEW17W-3159--S08
Test Request No.:
Material: Sandy Clay
Source: On-Site
Specification: No Specification
Project Location: Pitt Street, Teralba
Sample Location: TP5-8 - (0.4 - 0.8m)
Borehole Number: TP5-8
Borehole Depth (m): 0.4 - 0.8

Client Sample ID:
Sampling Method: AS1289.1.2.1 cl 6.5.4
Date Sampled: 28/07/2017
Date Submitted: 31/07/2017

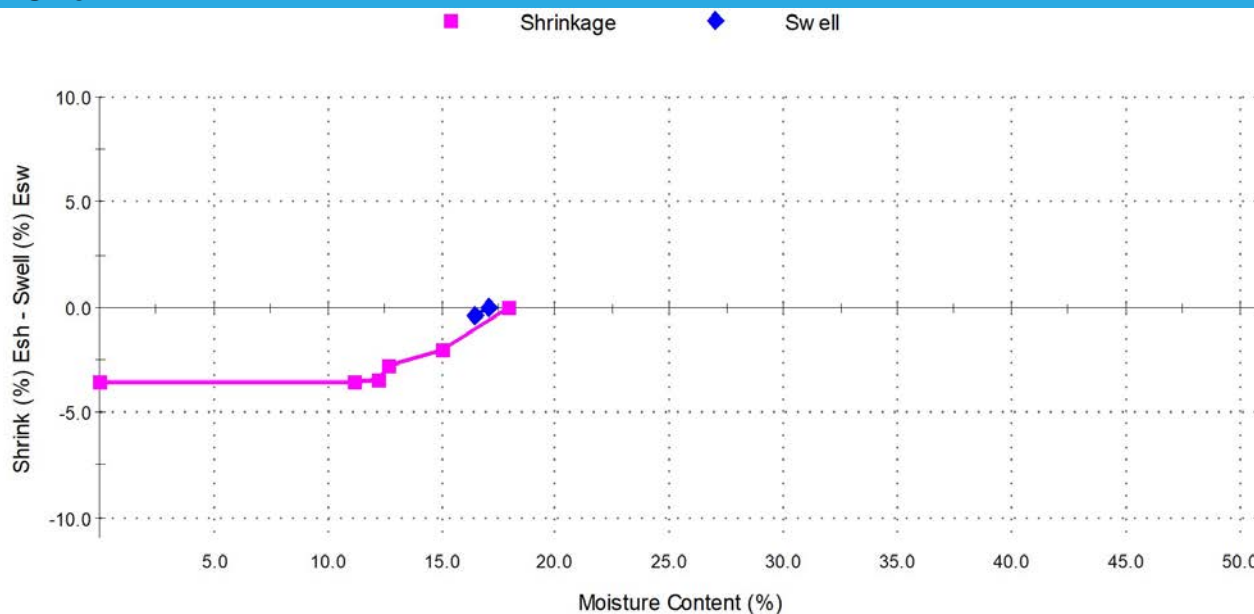
Swell Test AS 1289.7.1.1

Swell on Saturation (%): -0.4
Moisture Content before (%): 17.0
Moisture Content after (%): 16.5
Est. Unc. Comp. Strength before (kPa): 280
Est. Unc. Comp. Strength after (kPa): 500

Shrink Test AS 1289.7.1.1

Shrink on drying (%): 3.6
Shrinkage Moisture Content (%): 18.0
Est. inert material (%): 20%
Crumbling during shrinkage: Nil
Cracking during shrinkage: Minor

Shrink Swell



Shrink Swell Index - Iss (%): 2.0

Comments