# MORRISON GEOTECHNIC PTY LTD

*SOLID THINKING // GROUNDED RESULTS*

# LEVEL ONE COMPLIANCE REPORT

*Prepared for:*

Shadforths Civil Pty Ltd

***DL20/027 –** Bulk Earthworks Filling Operations*

*Eden's Crossing Estate, Stage 21*
*Mt Juillerat Drive, Redbank Plains*

*Morrison Geotechnic Pty Ltd*
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*21st April 2020*

MORRISON GEOTECHNIC

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*Brisbane Office*
*Job No: DL20/027*
*Ref No: 16058*
*Author: R. Mitchell*

21st April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen Qld 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LEVEL ONE COMPLIANCE REPORT FOR BULK EARTHWORKS FILLING OPERATIONS EDEN'S CROSSING ESTATE, STAGE 21 MT JUILLERAT DRIVE, REDBANK PLAINS**

**Table of Contents**

## 1.0 INTRODUCTION

### 1.1 General

This report presents results of Level One Earthworks Inspections and associated Compaction Compliance testing carried out on Earthworks Fill constructed to form Residential Lots and embankments below subgrade at Eden's Crossing Estate Stages 21, Mount Juillerat Drive, Redbank Plains (The Site).

The work was commissioned by Mr. Michael Pritchard representing Shadforth Civil Pty Ltd (The Client), using Purchase Order 426750.

Earthworks operations were constructed by Shadforths Civil intermittently between 21st January 2020 and 24th March 2020 and CCA Winslow between May 2017 and March 2018.

**Picture 1: Aerial View of the Site** (Image Source: Nearmap.com 5th April 2020)

### 1.2 Previous Earthworks

As far as could be determined onsite, no previous earthworks have been carried out prior to May 2017.

### 1.3 The Project

The purpose for filling at The Site is to construct a Residential Subdivision which includes new pavements, residential building platforms and associated underground services.

KN Group Pty Ltd, Bulk Earthworks Contour Plan, Drawing No. 18-221-04, Sheet No. 04 of 25 Revision A, October 2019, indicates the extents and thickness of fill to be constructed at The Site.

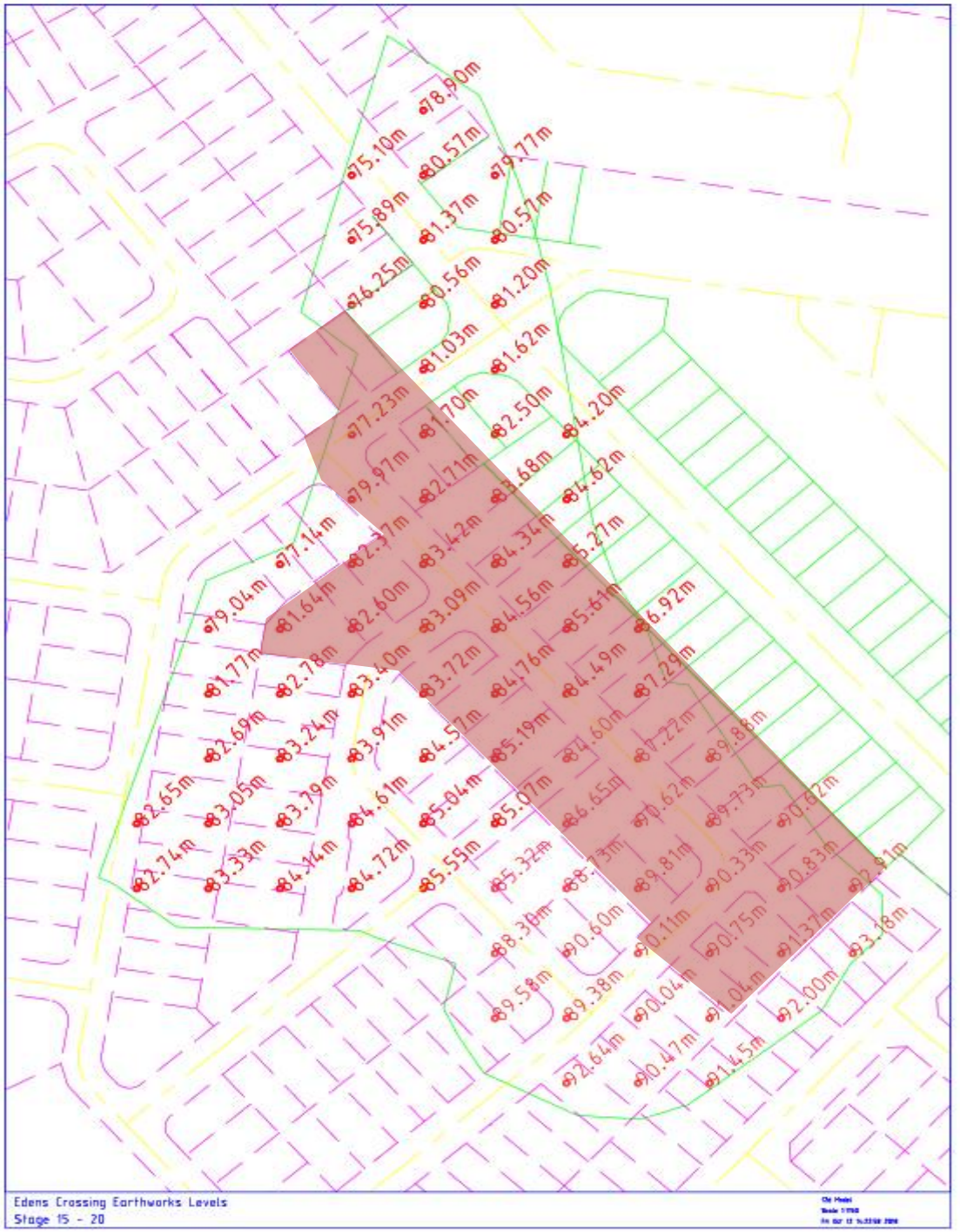
The plan is considered a reasonable representation of the fill covered by this report.

The actual thickness of fill on an individual Lot can be obtained from the Developer as a Lot Disclosure Plan.

The Site is located within the Eden's Crossing Development and is bounded by future residential stages to the South, East and West, and existing residential developments to the North.

The area of works completed by CCA Winslow between May 2017 and March 2018 is presented below.

**Figure 1: Area of Earthworks Completed by CCA Winslow (Stage 21 Shaded Orange).**



## 2.0 THE BRIEF

The Brief from the Client was limited to:

- Level One Inspection and Testing of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments",
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.1.
- Ipswich City Council Project Specifications
- Notes on KN Group Pty Ltd Earthworks Drawings.

Low reactive fill materials the was used as 1.7m thick capping over potentially reactive soils was to generally conform to the following criteria: -

- Shrink Swell Index (Iss) – 1% Max.
- California Bearing Ratio – ≥ 15%
- Particle Size Distribution:
  - Max Particle Size – 26.5mm
  - % Passing 0.075mm - ≥ 15%
- Plasticity:
  - Liquid Limit – ≤ 35%
  - Plasticity Index – > 6% <12%
- Permeability - 5 x $10^{-7}$ m/s Max.

## 3.0 METHODOLOGY

Earthworks Inspection and Testing was carried out on the stripped and exposed ground surfaces and during the placement and compaction of fill materials.

Field and laboratory testing included a walk over assessments of the existing ground conditions, observation of filling and compaction activities and field density testing using a nuclear soil moisture density gauge and Hilf compactions.

All work was carried out in accordance with AS 3798 (Guidelines on Earthworks for Commercial and Residential Developments) and AS1289 (Testing of Soils for Engineering Purposes).

Samples of the fill materials were collected and tested for conformance with the criteria presented in Section 2.

### 3.1 Stripped Surface Assessment

The fill areas at The Site were observed to be stripped and cleared of visible organic matter, deleterious, loose and unsuitable materials to depths exposing suitable natural ground.

Materials exposed after stripping and clearing the site which formed the natural foundation can be broadly summarised as:

- Natural - Silty Clay (CI - CH) – At least very stiff, medium to high and high plasticity, dark brown, traces of fine to medium grained sands, moist.

- Natural – Sandy Clay (CI) – at least very stiff, medium plasticity, pale brown mottled orange-red, fine to medium grained sand, traces of fine to medium gravel and moist.

- Natural – Basalt Rock (XW) – Extremely weathered, very low strength or better, red – brown – grey.

- Natural Siltstone – (XW) – Extremely weathered, very low strength, orange grey

Following the stripped surface assessment of the fill areas, the natural foundation was approved for filling using the following process:

- Walk over assessments confirming that the competent ground was exposed.

- Proof roll testing using large sized truck carrying out multiple passes confirming no movement of the foundation.

### 3.2 Filling Operations

Fill materials were sourced from onsite cuts, road box excavations and trench excavations. Materials used as fill can be broadly summarized as: -

- Lower Fill Materials – Below 1.2m from the finished earthworks levels

    - Silty Clay, (CI), medium to high plasticity, dark brown, traces of fine to medium sand and moist.

    - Sandy Clay (CI), medium plasticity fines, red – brown, fine to coarse sand, traces of fine to medium gravel and moist.

- Capping Materials – Upper 1.2m of the fill profile imported from Select Sources Onsite and WMI.

    - Clayey Sand (SC), fine to coarse sand, yellow – orange – brown, medium plasticity fines, traces of fine to medium gravel, and moist.

    - Ripped Sandstone – Gravelly Clayey Sand, fine to coarse sands, low plasticity, fine to coarse gravels, grey orange brown.

    - Ripped Basalt – Gravelly Sandy Clay, medium plasticity fines, fine to coarse sands, fine to coarse gravels – brown, dark brown.

Samples of the capping materials were collected and testing generally conformed with the criteria presented in Section 2 and are summarised below in Table 1. Test reports are attached.

**Table 1 – Summary of Capping Materials Test Results.**

| Lab # | Particle Size Passing % | | Plasticity Index | | | Shrink/Swell Index (ISS) | California Bearing Ratio |
|---|---|---|---|---|---|---|---|
| | 26.5mm | 0.075mm | LL | PI | LS | | |
| D20-6667A | 100 | 16 | 32 | 17 | 6.5 | 0.4 | 35 |
| D20-6667B | 100 | 20 | 25 | 7 | 0.5 | 0.2 | 18 |
| D20-7175A | 99 | 19 | 32 | 16 | 6.0 | 0.1 | 35 |
| D20-7187A | 100 | 24 | 29 | 12 | 5.5 | 0.7 | 19 |
| D20-7211A | 92 | 19 | 29 | 13 | 5.0 | 0.4 | 18 |
| D20-7186A | 100 | 21 | 32 | 16 | 6.5 | 0.1 | 11 |
| D20-7236A | 100 | 19 | 31 | 14 | 6.5 | 0.2 | 14 |
| D20-7236B | 100 | 21 | 30 | 14 | 5.5 | 0.7 | 10 |
| D20-7236C | 100 | 22 | 30 | 14 | 5.0 | 0.2 | 17 |
| D20-7236D | 100 | 21 | 32 | 16 | 5.5 | 0.3 | 8 |
| D20-7236E | 100 | 21 | 32 | 16 | 5.5 | 0.1 | 11 |

The tested materials generally conform with the specification with outliers in Plasticity Index (PI) testing above specification. However this is not considered to affect the performance of the fill as the Shrink Swell Index testing meets the Specification.

Placement and compaction of the fill materials was carried out using the following plant:

- Dozer
- Excavators
- Pad foot Roller
- Scrapers
- Water Truck
- Body Trucks
- 815 Compactor
- Grader
- Side Tippers
- 825 Compactor

The fill materials were moisture conditioned at the fill source and during placement to moisture contents suitable for compaction. Deleterious materials such as organics, sticks, roots and over size particles were sorted and removed during placement or were rejected for use.

Placement of the fill materials was carried out in layers appropriate for the above plant and compacted using the above plant carrying out multiple passes.

Our representative observed the filling process as described above and was assessed to be consistent for the entire thickness of fill.

Field density tests and laboratory compactions were carried out on the fill materials in accordance with Table 5.1 and 8.1 of AS3798 2007 (Guidelines on Earthworks for Commercial and Residential Developments) and tested to AS1289 test methods (Testing of Soils for Engineering Purposes). Testing achieved the required specification of 95% of the Hilf Density

Fill placed and compacted at measured density ratios less than 95% were tyned, moisture conditioned and re-compacted until the required specification was achieved. Retesting was carried out using Random Stratified Location methods.

The Location of the field density tests are shown on the Site Plans contained in Appendix A. These test locations and levels were not obtained by survey and therefore should only be considered as approximate.

**Picture 3: View of the Site During Construction**

**Picture 4: View of the Site During Construction**

## 4.0 STATEMENT OF COMPLIANCE

Our representatives observed the relevant earthworks operations including the stripped surface, fill placement and compaction operations and carried out field density tests and laboratory compaction tests in accordance with the required standard (AS3798, AS1289) and Specification. Testing achieved the required specification of 95% Standard at the test locations.

It is confirmed that Level One Inspection and Testing has been carried out on the earthworks fill to form the residential Lots and embankments below subgrade. Based on the observations made by our Geotechnicians and the results of the field and laboratory tests, the placed and compacted fill at the above project has, as far as we have been able to assess, been constructed in general accordance with the intent of AS3798 and the Specifications.

The fill can be deemed to be “controlled” in accordance with AS2870.

## 5.0 EXCLUSIONS

This statement does not include any topsoil, which may be placed for use as dressing, trench backfill or any other subsequent earthworks after 24th March 2020.

Assessments of material quality such as soaked CBR and site classifications are excluded from this commission.

Our on-site attendance specifically excludes assessments of fill material quality and engineering properties that are outside the requirements of AS3798 – 2007.

Footings and ground slabs for any structures constructed over natural soils or controlled fill should be designed to accommodate the characteristic ground surface movements and settlement potential.

Assessments of these design parameters are beyond the scope of this Report.

## 6.0 LIMITATIONS

This Report has been prepared by Morrison Geotechnic Pty Ltd (**Morrison Geotechnic**), and may include contributions from Morrison Geotechnic’s officers and employees, sub-contractors, sub-consultants or agents (**Contributors**).

This Report is for the sole benefit and use of Shadforth Civil Pty Ltd (**Client**), its designers, clients and relevant statutory authorities for the sole purpose of providing geotechnical advice and recommendations in respect of the Eden’s Crossing Estate, Stage 21, Mount Juillerat Drive, Redbank Plains **(Project)**. The Report is only intended to address those issues expressly described in the Brief/ Work Instructions in this Report.

This Report should not be used or relied upon for any other purpose without Morrison Geotechnic’s prior written consent. Morrison Geotechnic and the Contributors do not accept any responsibility or liability in any way whatsoever for the use or reliance of this Report by anyone other than Shadforth Civil (**Client)**, its designers, its clients and relevant statutory authorities or by anyone else for any purpose other than that for which it has been prepared.

Except with Morrison Geotechnic’s prior written consent, this Report may not be:

(a) released to any other party, whether in whole or in part (other than to the Client’s officers, employees, advisers, designers, clients and relevant statutory authorities);

(b) used or relied upon by any other party.

Morrison Geotechnic and the Contributors do not accept any liability or responsibility whatsoever for, or in respect of, any use or reliance upon this Report by any other party. Morrison Geotechnic is not obliged to enter into discussions with any third party in respect of this Report.

The information (including technical information and information obtained through discussions) on which this report is based has been provided by the Client and third parties. Morrison Geotechnic and the Contributors:

(a) have relied upon and presumed the accuracy of this information;

(b) have not verified the accuracy or reliability of this information (other than as expressly stated in this Report);

(c) have not made any independent investigations or enquiries in respect of those matters of which it has no actual knowledge at the time of giving this Report to the Client; and

(d) make no warranty or guarantee, expressed or implied, as to the accuracy or reliability of this information.

Morrison Geotechnic and the Contributors do not accept responsibility or liability for any incorrect assumptions related to this Report. For the avoidance of doubt, this Report:

(a) is not an environmental, contamination or hazardous materials assessment; may be invalid, incomplete or inaccurate (including errors in the scope of work, investigation methodology, observations, opinions and advice) where the information provided to Morrison Geotechnic was invalid, incomplete or inaccurate;

(b) is limited to observations of those parts of the site described in Section 1.0.

No warranty or guarantee, whether express or implied, is made in respect of the geotechnical data, information, advice, opinions and recommendations present in this Report.

If further information becomes available, or additional assumptions need to be made, Morrison Geotechnic reserves its right to amend this Report.

If you have any queries regarding the above, please contact our Brisbane office.

Yours faithfully

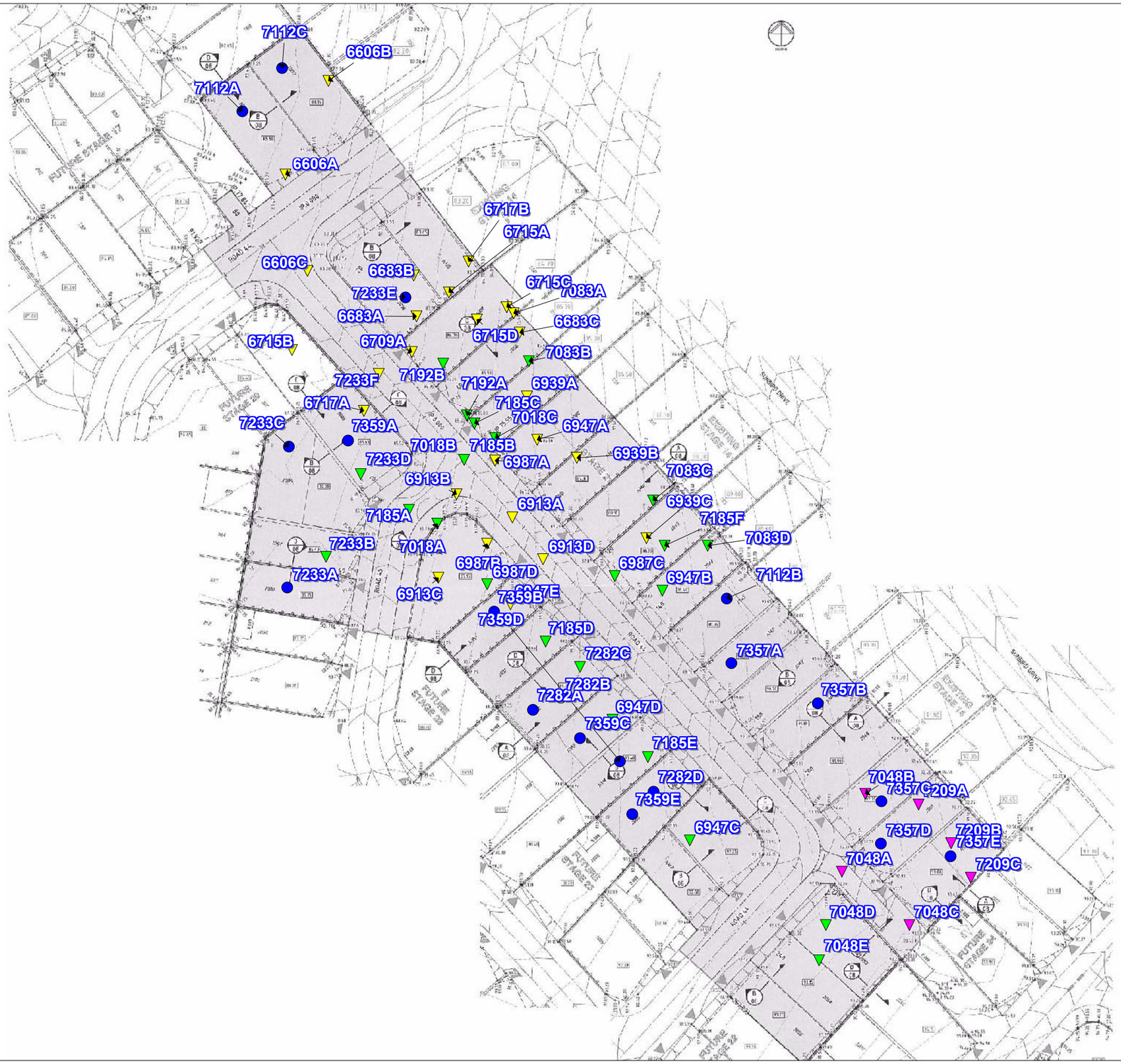
**RHYS MITCHELL**
For and on behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

**ATTACHMENTS:**
Appendix A – Site Plan Showing Test Locations
Appendix B – Laboratory Test Reports

# APPENDIX A

SITE PLAN

TEST LOCATIONS





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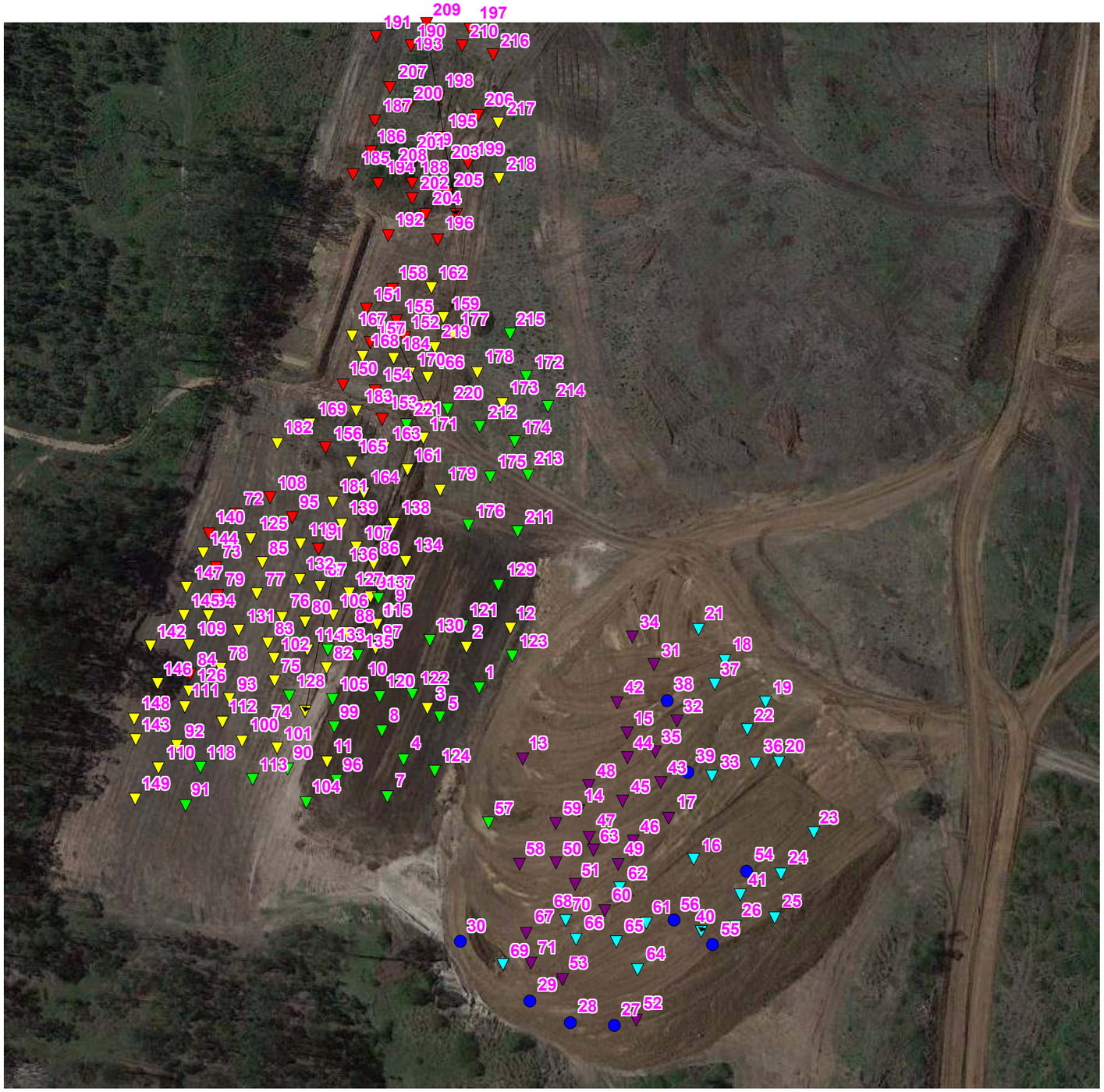
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

# APPENDIX B

Laboratory Test Results Reports

# Material Test Report


Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
Brisbane Laboratory
Unit 1, 35 Limestone Darra QLD 4076
Phone: (07) 3279 0900
Email: darralab@morrisongeo.com.au


Accredited for compliance with ISO/IEC 17025 - Testing

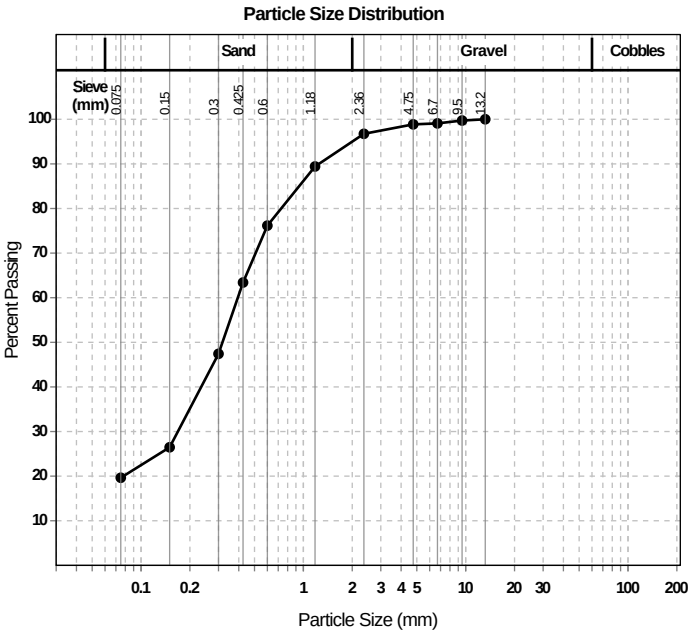
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-6D**
**Issue Number:** 1
**Date Issued:** 13/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6667
**Sample Number:** D20-6667B
**Date Sampled:** 28/01/2020
**Dates Tested:** 28/01/2020 - 12/02/2020
**Sample Location:** **E: 484322, N: 6938458**
**Material:** Capping Material
**Material Source:** White Rock Quarry / Sandstone

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 13.2 mm | **100** | | | 0 | | |
| 9.5 mm | **100** | | | 0 | | |
| 6.7 mm | **99** | | | 1 | | |
| 4.75 mm | **99** | | | 0 | | |
| 2.36 mm | **97** | | | 2 | | |
| 1.18 mm | **89** | | | 7 | | |
| 0.6 mm | **76** | | | 13 | | |
| 0.425 mm | **63** | | | 13 | | |
| 0.3 mm | **47** | | | 16 | | |
| 0.15 mm | **26** | | | 21 | | |
| 0.075 mm | **20** | | | 7 | | |

| Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 25 | | |
| Plastic Limit (%) | 18 | | |
| **Plasticity Index (%)** | **7** | | |
| Weighted Plasticity Index (%) | 444 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 0.5 | | |
| Cracking Crumbling Curling | None | | |



# Material Test Report

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
Brisbane Laboratory
Unit 1, 35 Limestone Darra QLD 4076
Phone: (07) 3279 0900
Email: greg@mgeo.com.au

**Report Number:** DL20/027-12
**Issue Number:** 1
**Date Issued:** 09/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7083
**Date Sampled:** 05/03/2020 08:00
**Dates Tested:** 05/03/2020 - 06/03/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | |
|---|---|---|---|---|
| Sample Number | D20-7083A | D20-7083B | D20-7083C | D20-7083D |
| Date Tested | 05/03/2020 | 05/03/2020 | 05/03/2020 | 05/03/2020 |
| Time Tested | 08:15 | 08:20 | 08:30 | 08:40 |
| Test Request #/Location | Stage 21 | Stage 21 | Stage 21 | Stage 21 |
| Easting | 484143.74 | 484151.84 | 484170.41 | 484184.22 |
| Northing | 6939800.05 | 6939794.66 | 6939744.134 | 6939752.62 |
| Elevation (m) | 84.56 | 85.19 | 87.18 | 87.91 |
| Soil Description | Allotment Fill | Allotment Fill | Allotment Fill | Allotment Fill |
| Test Depth (mm) | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.20 | 2.17 | 2.22 | 2.24 |
| Field Moisture Content % | 16.5 | 15.4 | 9.2 | 16.0 |
| Field Dry Density (FDD) t/m$^3$ | 1.89 | 1.88 | 2.03 | 1.93 |
| Peak Converted Wet Density t/m$^3$ | 2.15 | 2.16 | 2.16 | 2.15 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.5 | 1.5 | 0.5 | 2.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **102.0** | **100.0** | **102.5** | **104.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
Brisbane Laboratory
Unit 1, 35 Limestone Darra QLD 4076
Phone: (07) 3279 0900
Email: greg@mgeo.com.au

**Report Number:** DL20/027-12
**Issue Number:** 1
**Date Issued:** 09/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7083
**Date Sampled:** 05/03/2020 08:00
**Dates Tested:** 05/03/2020 - 06/03/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | |
|---|---|---|---|---|
| Sample Number | D20-7083E | D20-7083F | D20-7083G | D20-7083H |
| Date Tested | 05/03/2020 | 05/03/2020 | 05/03/2020 | 05/03/2020 |
| Time Tested | 08:45 | 10:20 | 10:30 | 10:40 |
| Test Request #/Location | Stage 21 | Stage 21 | Stage 21 | Stage 21 |
| Easting | 484191.57 | 484149.25 | 484143.176 | 484141.10 |
| Northing | 6939744.134 | 6939711.26 | 6939722.160 | 6939732.30 |
| Elevation (m) | 88.5 | 87.8 | 86.86 | 82.40 |
| Soil Description | Allotment Fill | Allotment Fill | Allotment Fill | Allotment Fill |
| Test Depth (mm) | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.26 | 2.12 | 2.10 | 2.08 |
| Field Moisture Content % | 14.1 | 9.4 | 9.1 | 9.4 |
| Field Dry Density (FDD) t/m$^3$ | 1.98 | 1.94 | 1.92 | 1.90 |
| Peak Converted Wet Density t/m$^3$ | 2.16 | 2.04 | 2.05 | 2.06 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 2.0 | 2.0 | 2.5 | 2.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **104.5** | **104.0** | **102.5** | **101.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

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Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
Brisbane Laboratory
Unit 1, 35 Limestone Darra QLD 4076
Phone: (07) 3279 0900
Email: greg@mgeo.com.au

**Report Number:** DL20/027-5
**Issue Number:** 1
**Date Issued:** 11/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6715
**Date Sampled:** 31/01/2020
**Dates Tested:** 31/01/2020 - 04/02/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** General Fill
**Material Source:** Import

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | |
|---|---|---|---|---|
| Sample Number | D20-6715A | D20-6715B | D20-6715C | D20-6715D |
| Date Tested | 31/01/2020 | 31/01/2020 | 31/01/2020 | 31/01/2020 |
| Time Tested | 11:15 | 11:35 | 12:45 | 13:15 |
| Test Request #/Location | Re-Test D20-6683A | Re-Test D20-6683B | Re-Test D20-6683C | Re-Test D20-6709A |
| Easting | 484125.08 | 484129.86 | 484162.02 | 48124.32 |
| Northing | 6939806.64 | 6939814.74 | 6939811.56 | 6939803.04 |
| Elevation (m) | RL: 82.78 | RL: 82.65 | RL:83.47 | RL: 83.21 |
| Soil Description | Clayey Sand. Brown | Clayey Sand. Brown | Clayey Sand. Brown | Clayey Sand. Brown |
| Test Depth (mm) | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 8.9 | 12.3 | 8.9 | 18.4 |
| Field Wet Density (FWD) t/m$^3$ | 2.17 | 2.17 | 2.26 | 2.21 |
| Field Moisture Content % | 34.9 | 14.9 | 14.2 | 16.0 |
| Field Dry Density (FDD) t/m$^3$ | 1.61 | 1.89 | 1.98 | 1.90 |
| Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Adjusted Peak Converted Wet Density t/m$^3$ | 2.21 | 2.23 | 2.18 | 2.19 |
| Moisture Variation (Wv) % | ** | ** | ** | ** |
| Adjusted Moisture Variation % | 0.5 | -1.5 | 1.0 | 0.0 |
| Hilf Density Ratio (%) | **98.5** | **97.0** | **103.5** | **100.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report


MORRISON GEOTECHNIC
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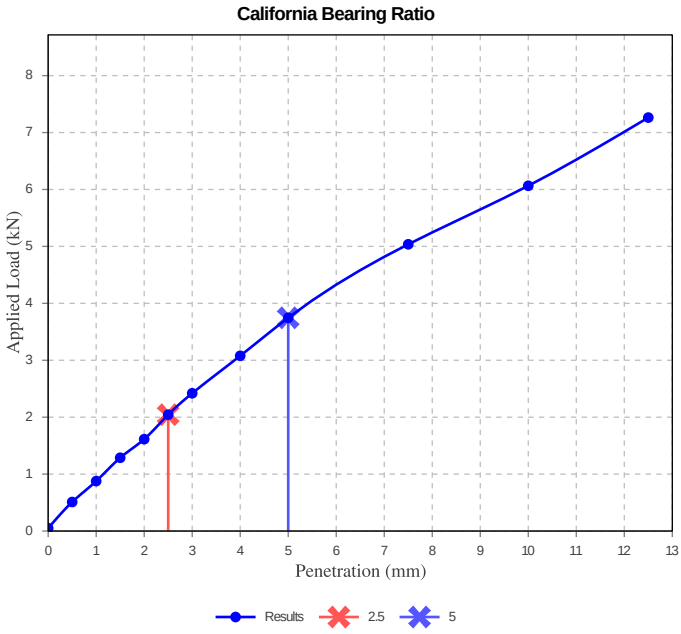
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: John Wieland
Senior Soil Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-19A**
**Issue Number:** 1
**Date Issued:** 24/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7187
**Sample Number:** D20-7187A
**Date Sampled:** 13/03/2020
**Dates Tested:** 13/03/2020 - 19/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484154, N: 6939727, Depth: RL87.1**
**Lot No:** **Capping Material**
**Material:** (SC) Clayey Sand Brown
**Material Source:** Onsite Borrow Pit

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **19** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.82 | | |
| Optimum Moisture Content (%) | 12.5 | | |
| Laboratory Density Ratio (%) | 100.0 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.82 | | |
| Field Moisture Content (%) | 10.2 | | |
| Moisture Content at Placement (%) | 12.6 | | |
| Moisture Content Top 30mm (%) | 13.1 | | |
| Moisture Content Rest of Sample (%) | 14.5 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 24 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | | | |



# Material Test Report

**Report Number:** DL20/027-1
**Issue Number:** 1
**Date Issued:** 30/01/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6606
**Date Sampled:** 22/01/2020
**Dates Tested:** 22/01/2020 - 24/01/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** onsite

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Email: jwieland@mgeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: John Wieland
Senior Soil Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|---|---|---|---|
| Sample Number | D20-6606A | D20-6606B | D20-6606C |
| Date Tested | 22/01/2020 | 22/01/2020 | 22/01/2020 |
| Time Tested | 13:30 | 13:40 | 13:50 |
| Test Request #/Location | STG 21 - Lot Fill | STG 21 - Lot Fill | STG 21 - Road 44 |
| Easting | 484124 | 484102 | 484092 |
| Northing | 6939816 | 6939860 | 6939813 |
| Layer / Reduced Level | 1.2m Below F/L | 1.2m Below F/L | 0.8m Below F/L |
| Soil Description | Sandy Gravelly C2lay. Brown | Sandy Gravelly Clay. Brown | Sandy Gravelly Clay. Brown |
| Test Depth (mm) | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 3.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.13 | 2.08 | 2.07 |
| Field Moisture Content % | ** | ** | 14.1 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | 1.82 |
| Peak Converted Wet Density t/m$^3$ | ** | 2.09 | 1.93 |
| Adjusted Peak Converted Wet Density t/m$^3$ | 2.05 | ** | ** |
| Moisture Variation (Wv) % | ** | 1.5 | 3.0 |
| Adjusted Moisture Variation % | 2.5 | ** | ** |
| Hilf Density Ratio (%) | **104.0** | **99.5** | **107.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-2
**Issue Number:** 1
**Date Issued:** 31/01/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6683
**Date Sampled:** 29/01/2020
**Dates Tested:** 29/01/2020 - 30/01/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** General Fill
**Material Source:** Import (on site stockpile)

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: John Wieland
Senior Soil Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|---|---|---|---|
| Sample Number | D20-6683A | D20-6683B | D20-6683C |
| Date Tested | 29/01/2020 | 29/01/2020 | 29/01/2020 |
| Time Tested | 12:41 | 13:07 | 13:35 |
| Test Request #/Location | General Fill Area Stage 21 | General Fill Area Stage 21 | General Fill Area Stage 21 |
| Easting | 484125.08 | 484129.86 | 484162.02 |
| Northing | 6939806.64 | 6939814.74 | 6939811.56 |
| Elevation (m) | 82.78 | 82.65 | 83.47 |
| Soil Description | (CI) Sandy Clay - Yellow Brown | (CI) Sandy Clay - Yellow Brown | (CI) Sandy Clay - Yellow Brown |
| Test Depth (mm) | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 37.5 | 37.5 | 37.5 |
| Percentage of Wet Oversize (%) | ** | ** | ** |
| Field Wet Density (FWD) t/m$^3$ | 1.96 | 1.96 | 1.94 |
| Field Moisture Content % | 9.9 | 10.4 | 12.9 |
| Field Dry Density (FDD) t/m$^3$ | 1.79 | 1.78 | 1.72 |
| Peak Converted Wet Density t/m$^3$ | 2.08 | 2.07 | 2.11 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** |
| Moisture Variation (Wv) % | 3.0 | 1.5 | 0.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | **94.5** | **94.5** | **92.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

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**Report Number:** DL20/027-3
**Issue Number:** 1
**Date Issued:** 11/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6709
**Date Sampled:** 30/01/2020
**Dates Tested:** 30/01/2020 - 03/02/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** General Fill
**Material Source:** Import (on site stockpile)

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|---|---|---|---|
| Sample Number | D20-6709A | | |
| Date Tested | 30/01/2020 | | |
| Time Tested | 14:16 | | |
| Test Request #/Location | General Fill Area Stage 21 | | |
| Easting | 48124.32 | | |
| Northing | 6939803.04 | | |
| Elevation (m) | 83.21 | | |
| Soil Description | (CH/CI) Sandy Clay - Yellow Brown | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 12.6 | | |
| Field Wet Density (FWD) t/m$^3$ | 1.94 | | |
| Field Moisture Content % | 15.1 | | |
| Field Dry Density (FDD) t/m$^3$ | 1.68 | | |
| Peak Converted Wet Density t/m$^3$ | ** | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | 2.04 | | |
| Moisture Variation (Wv) % | ** | | |
| Adjusted Moisture Variation % | 1.5 | | |
| Hilf Density Ratio (%) | **95.0** | | |
| Compaction Method | **Standard** | | |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-6E
**Issue Number:** 1
**Date Issued:** 13/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6667
**Dates Tested:** 28/01/2020 - 05/02/2020

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

| Shrink Swell Index AS 1289 7.1.1 & 2.1.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | D20-6667A | D20-6667B | | | |
| Date Sampled | 28/01/2020 | 28/01/2020 | | | |
| Date Tested | 05/02/2020 | 05/02/2020 | | | |
| Material Source | Remoulded | Remoulded | | | |
| Sample Location | E: 484309, N: 6938481 | E: 484322, N: 6938458 | | | |
| Inert Material Estimate (%) | ** | ** | | | |
| Pocket Penetrometer before (kPa) | - | - | | | |
| Pocket Penetrometer after (kPa) | 190 | 360 | | | |
| Shrinkage Moisture Content (%) | 10.7 | 13.4 | | | |
| Shrinkage (%) | **0.8** | **0.4** | | | |
| Swell Moisture Content Before (%) | 10.6 | 13.3 | | | |
| Swell Moisture Content After (%) | 18.0 | 14.7 | | | |
| Swell (%) | **0.0** | **0.0** | | | |
| Shrink Swell Index Iss (%) | **0.4** | **0.2** | | | |
| Visual Description | Sandy Clay | Sandy Clay | | | |
| Cracking | SC | SC | | | |
| Crumbling | Yes | Yes | | | |
| Remarks | ** | ** | | | |

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

# Material Test Report

MORRISON GEOTECHNIC
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**Report Number:** DL20/027-14
**Issue Number:** 1
**Date Issued:** 17/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7192
**Date Sampled:** 14/03/2020 11:30
**Dates Tested:** 14/03/2020 - 17/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Capping Layer
**Material Source:** Onsite Borrow Pit

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|---|---|---|---|
| Sample Number | D20-7192A | D20-7192B | |
| Date Tested | 14/03/2020 | 14/03/2020 | |
| Time Tested | 11:20 | 11:30 | |
| Test Request #/Location | Capping Layer | Capping Layer | |
| Easting | 484104 | 484101 | |
| Northing | 6939765 | 6939773 | |
| Elevation (m) | 85.3 | 85.4 | |
| Soil Description | Clayey Sand. Brown | Clayey Sand. Brown | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | |
| Field Wet Density (FWD) t/m$^3$ | 2.01 | 2.06 | |
| Field Moisture Content % | 7.6 | 6.7 | |
| Field Dry Density (FDD) t/m$^3$ | 1.87 | 1.93 | |
| Peak Converted Wet Density t/m$^3$ | 2.05 | 2.00 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | 4.0 | 5.5 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **98.0** | **103.0** | |
| Compaction Method | **Standard** | **Standard** | |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

MORRISON GEOTECHNIC
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Email: greg@mgeo.com.au

**Report Number:** DL20/027-4
**Issue Number:** 1
**Date Issued:** 11/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6717
**Date Sampled:** 31/01/2020
**Dates Tested:** 31/01/2020 - 03/02/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** General Fill
**Material Source:** Import (on site stockpile)

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|---|---|---|---|
| Sample Number | D20-6717A | D20-6717B | |
| Date Tested | 31/01/2020 | 31/01/2020 | |
| Time Tested | 10:00 | 10:10 | |
| Test Request #/Location | General Fill Area Stage 21 | General Fill Area Stage 21 | |
| Easting | 484135.11 | 484131.27 | |
| Northing | 6939806.27 | 6939812.72 | |
| Elevation (m) | RL: 83.32 | RL: 83.66 | |
| Soil Description | Sandy Clay. Brown | Sandy Clay. Brown | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 12.5 | 12.4 | |
| Field Wet Density (FWD) t/m$^3$ | 2.18 | 2.23 | |
| Field Moisture Content % | 16.2 | 16.2 | |
| Field Dry Density (FDD) t/m$^3$ | 1.88 | 1.92 | |
| Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Adjusted Peak Converted Wet Density t/m$^3$ | 2.22 | 2.23 | |
| Moisture Variation (Wv) % | ** | ** | |
| Adjusted Moisture Variation % | -1.0 | -1.0 | |
| Hilf Density Ratio (%) | **98.0** | **100.0** | |
| Compaction Method | **Standard** | **Standard** | |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

MORRISON GEOTECHNIC
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**Report Number:** DL20/027-26
**Issue Number:** 1
**Date Issued:** 30/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7359
**Date Sampled:** 24/03/2020 7:30
**Dates Tested:** 24/03/2020 - 30/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut

NATA WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | D20-7359A | D20-7359B | D20-7359C | D20-7359D | D20-7359E |
| Date Tested | 24/03/2020 | 24/03/2020 | 24/03/2020 | 24/03/2020 | 24/03/2020 |
| Time Tested | 07:15 | 07:20 | 07:30 | 07:40 | 07:55 |
| Test Request #/Location | Lot 1095 | Lot 1080 | Lot 1083 | Lot 1084 | Lot 1085 |
| Latitude | 10m from Rear Boundary | 15m from Rear Boundary | 7m from Rear Boundary | 10m from Rear Boundary | 8m from Rear Boundary |
| Longitude | 7m from Right Boundary | 4m from Right Boundary | 6m from Right Boundary | 5m from Right Boundary | 6m from Right Boundary |
| Layer / Reduced Level | F/L | F/L | F/L | F/L | F/L |
| Soil Description | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown |
| Test Depth (mm) | 150 | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 6.7 | 4.3 | 0.0 | 0.0 | 12.1 |
| Field Wet Density (FWD) t/m$^3$ | 1.94 | 2.21 | 2.06 | 2.08 | 2.04 |
| Field Moisture Content % | 2.9 | 7.2 | 6.1 | 12.0 | 14.5 |
| Field Dry Density (FDD) t/m$^3$ | 1.88 | 2.06 | 1.94 | 1.86 | 1.78 |
| Peak Converted Wet Density t/m$^3$ | ** | ** | 1.95 | 2.06 | ** |
| Adjusted Peak Converted Wet Density t/m$^3$ | 1.85 | 2.12 | ** | ** | 2.15 |
| Moisture Variation (Wv) % | ** | ** | 4.5 | 1.0 | ** |
| Adjusted Moisture Variation % | 4.5 | 4.5 | ** | ** | 0.5 |
| Hilf Density Ratio (%) | **105.0** | **104.0** | **105.5** | **101.0** | **95.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-26
**Issue Number:** 1
**Date Issued:** 30/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7359
**Date Sampled:** 24/03/2020 7:30
**Dates Tested:** 24/03/2020 - 30/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | D20-7359F | D20-7359G | D20-7359H | D20-7359I | D20-7359J |
| Date Tested | 24/03/2020 | 24/03/2020 | 24/03/2020 | 24/03/2020 | 24/03/2020 |
| Time Tested | 08:10 | 08:20 | 08:35 | 08:45 | 09:00 |
| Test Request #/Location | Lot 1086 | Lot 1087 | Lot 1053 | Lot 1054 | Lot 1055 |
| Latitude | 4m from Rear Boundry | 12m from Rear Boundary | 10m from Rear Boundary | 8m from Rear Boundary | 13m from Rear Boundary |
| Longitude | 4m from Right Boundary | 6m from Right Boundary | 5m from Right Boundary | 3m from Right Boundary | 6m from Right Boundary |
| Layer / Reduced Level | F/L | F/L | F/L | F/L | F/L |
| Soil Description | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown |
| Test Depth (mm) | 150 | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 13.8 | 16.2 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.24 | 2.07 | 2.12 | 2.25 | 2.14 |
| Field Moisture Content % | 12.8 | 12.8 | 11.9 | 13.5 | 14.2 |
| Field Dry Density (FDD) t/m$^3$ | 1.98 | 1.83 | 1.89 | 1.98 | 1.87 |
| Peak Converted Wet Density t/m$^3$ | ** | ** | 2.06 | 2.15 | 2.16 |
| Adjusted Peak Converted Wet Density t/m$^3$ | 2.19 | 2.06 | ** | ** | ** |
| Moisture Variation (Wv) % | ** | ** | 2.5 | 2.0 | 2.0 |
| Adjusted Moisture Variation % | 1.5 | 0.5 | ** | ** | ** |
| Hilf Density Ratio (%) | **102.0** | **100.5** | **102.5** | **104.5** | **99.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** **DL20/027-6C**
**Issue Number:** 1
**Date Issued:** 13/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6667
**Sample Number:** D20-6667A
**Date Sampled:** 28/01/2020
**Dates Tested:** 28/01/2020 - 12/02/2020
**Sample Location:** **E: 484309, N: 6938481**
**Material:** Capping Material
**Material Source:** White Rock Quarry / Sandstone


MORRISON GEOTECHNIC
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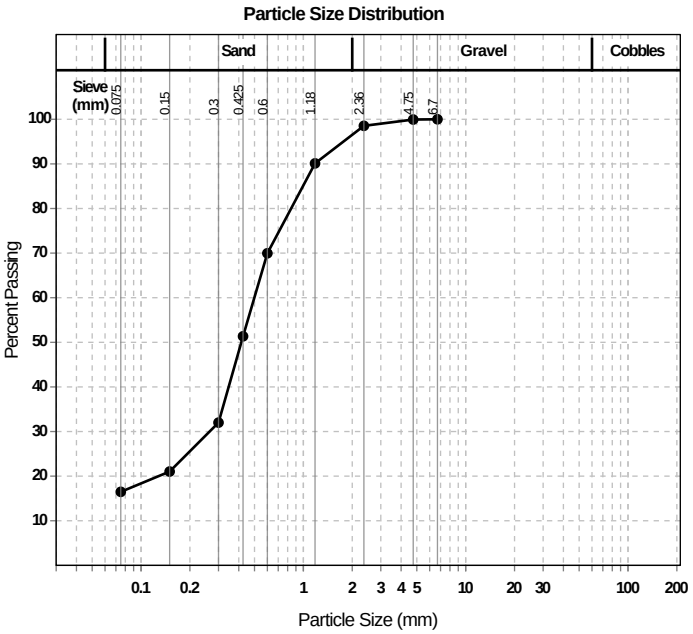
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 6.7 mm | **100** | | | 0 | | |
| 4.75 mm | **100** | | | 0 | | |
| 2.36 mm | **99** | | | 1 | | |
| 1.18 mm | **90** | | | 8 | | |
| 0.6 mm | **70** | | | 20 | | |
| 0.425 mm | **51** | | | 19 | | |
| 0.3 mm | **32** | | | 19 | | |
| 0.15 mm | **21** | | | 11 | | |
| 0.075 mm | **16** | | | 5 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 32 | | |
| Plastic Limit (%) | 15 | | |
| **Plasticity Index (%)** | **17** | | |
| Weighted Plasticity Index (%) | 873 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 6.5 | | |
| Cracking Crumbling Curling | Curling | | |



# Material Test Report

**Report Number:** DL20/027-6A
**Issue Number:** 1
**Date Issued:** 13/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6667
**Sample Number:** D20-6667A
**Date Sampled:** 28/01/2020
**Dates Tested:** 28/01/2020 - 01/02/2020
**Sample Location:** **E: 484309, N: 6938481**
**Material:** Capping Material
**Material Source:** White Rock Quarry / Sandstone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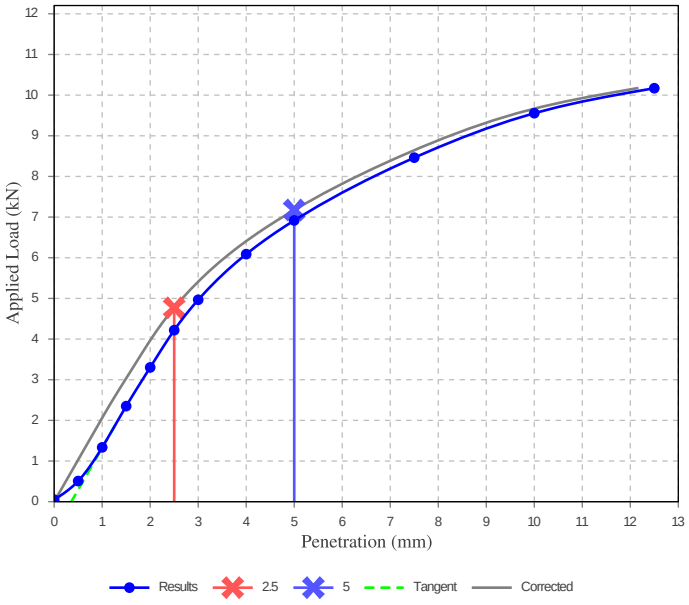
Approved Signatory: Rhys Mitchell
Senior Technician
NATA Accredited Laboratory Number: 1169

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **35** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.84 | | |
| Optimum Moisture Content (%) | 13.0 | | |
| Laboratory Density Ratio (%) | 100.0 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.84 | | |
| Field Moisture Content (%) | 8.0 | | |
| Moisture Content at Placement (%) | 13.0 | | |
| Moisture Content Top 30mm (%) | 13.2 | | |
| Moisture Content Rest of Sample (%) | 13.2 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 2 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | 0 | | |

**California Bearing Ratio**




| Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1) | |
|---|---|
| Mould Type | 1 LITRE MOULD A |
| Compaction | Standard |
| Maximum Dry Density (t/m$^3$) | 1.84 |
| Optimum Moisture Content (%) | 13.0 |
| Oversize Sieve (mm) | 19 |
| Oversize Material Wet (%) | 0 |
| Method used to Determine Plasticity | VISUAL |
| Curing Hours | 2 |

| Moisture Content (AS 1289 2.1.1) | |
|---|---|
| Moisture Content (%) | 8.2 |

# Material Test Report

**Report Number:** DL20/027-6B
**Issue Number:** 1
**Date Issued:** 13/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6667
**Sample Number:** D20-6667B
**Date Sampled:** 28/01/2020
**Dates Tested:** 28/01/2020 - 01/02/2020
**Sample Location:** **E: 484322, N: 6938458**
**Material:** Capping Material
**Material Source:** White Rock Quarry / Sandstone

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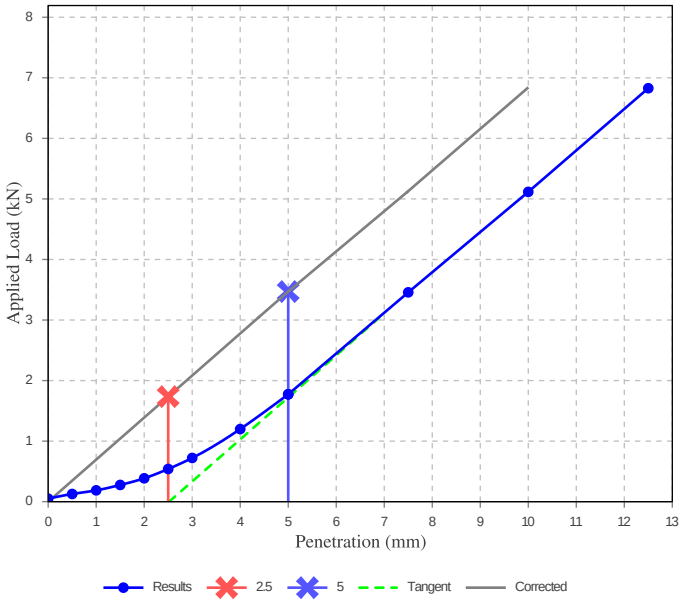
Approved Signatory: Rhys Mitchell
Senior Technician
NATA Accredited Laboratory Number: 1169

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **18** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.92 | | |
| Optimum Moisture Content (%) | 12.5 | | |
| Laboratory Density Ratio (%) | 100.0 | | |
| Laboratory Moisture Ratio (%) | 102.5 | | |
| Dry Density after Soaking (t/m$^3$) | 1.92 | | |
| Field Moisture Content (%) | 7.3 | | |
| Moisture Content at Placement (%) | 12.6 | | |
| Moisture Content Top 30mm (%) | 13.4 | | |
| Moisture Content Rest of Sample (%) | 12.8 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 2 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | 0 | | |

**California Bearing Ratio**




| Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1) | |
|---|---|
| Mould Type | 1 LITRE MOULD A |
| Compaction | Standard |
| Maximum Dry Density (t/m$^3$) | 1.92 |
| Optimum Moisture Content (%) | 12.5 |
| Oversize Sieve (mm) | 19 |
| Oversize Material Wet (%) | 0 |
| Method used to Determine Plasticity | VISUAL |
| Curing Hours | 2 |

| Moisture Content (AS 1289 2.1.1) | |
|---|---|
| Moisture Content (%) | 7.8 |

# Material Test Report

**Report Number:** **DL20/027-16**
**Issue Number:** 1
**Date Issued:** 17/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7112
**Date Sampled:** 06/03/2020
**Dates Tested:** 06/03/2020 - 10/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut

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Approved Signatory: Nathaniel O'Haire
Branch Manager
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|---|---|---|---|
| Sample Number | D20-7112A | D20-7112B | D20-7112C |
| Date Tested | 06/03/2020 | 06/03/2020 | 06/03/2020 |
| Time Tested | 10:00 | 10:10 | 10:20 |
| Test Request #/Location | Stage 21 | Stage 21 | Stage 21 |
| Location | 4.5m from Left Boundary, 10m from Rear Boundary. | 5m from Left Boundary, 8m from Rear Boundary. | 4m from Left Boundary, 10m from Rear Boundary. |
| Layer / Reduced Level | FSL | FSL | FSL |
| Soil Description | Clayey Gravel | Clayey Gravel | Clayey Gravel |
| Test Depth (mm) | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 8.7 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.08 | 2.06 | 2.08 |
| Field Moisture Content % | 10.1 | 12.8 | 8.3 |
| Field Dry Density (FDD) t/m$^3$ | 1.89 | 1.83 | 1.92 |
| Peak Converted Wet Density t/m$^3$ | 2.04 | ** | 2.04 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | 2.12 | ** |
| Moisture Variation (Wv) % | 3.5 | ** | 4.0 |
| Adjusted Moisture Variation % | ** | 2.0 | ** |
| Hilf Density Ratio (%) | **102.0** | **97.5** | **102.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-7
**Issue Number:** 1
**Date Issued:** 26/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6913
**Date Sampled:** 24/02/2020
**Dates Tested:** 24/02/2020 - 26/02/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Stage 21 - Allotment Fill
**Material Source:** Onsite

MORRISON GEOTECHNIC
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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | |
|---|---|---|---|---|
| Sample Number | D20-6913A | D20-6913B | D20-6913C | D20-6913D |
| Date Tested | 24/02/2020 | 24/02/2020 | 24/02/2020 | 24/02/2020 |
| Time Tested | 08:14 | 08:25 | 08:31 | 08:38 |
| Test Request #/Location | Stage 21 - Allotment Fill | Stage 21 - Allotment Fill | Stage 21 - Allotment Fill | Stage 21 - Allotment Fill |
| Easting | 6939745 | 6939738 | 6939739 | 6939726 |
| Northing | 0484137 | 0484099 | 0484109 | 0484114 |
| Elevation (m) | 84.041 | 83.365 | 84.149 | 84.049 |
| Soil Description | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown |
| Test Depth (mm) | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 37.5 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.05 | 2.10 | 2.16 | 2.05 |
| Field Moisture Content % | 10.0 | 11.8 | 10.4 | 10.2 |
| Field Dry Density (FDD) t/m$^3$ | 1.86 | 1.88 | 1.95 | 1.86 |
| Peak Converted Wet Density t/m$^3$ | 2.10 | 2.10 | 2.07 | 2.08 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 2.0 | 1.5 | 2.5 | 1.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **97.5** | **100.0** | **104.0** | **98.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report


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Approved Signatory: John Wieland
Senior Soil Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** DL20/027-8
**Issue Number:** 1
**Date Issued:** 27/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6939
**Date Sampled:** 25/02/2020 13:45
**Dates Tested:** 25/02/2020 - 26/02/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut (Sandy Clay)

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|---|---|---|---|
| Sample Number | D20-6939A | D20-6939B | D20-6939C |
| Date Tested | 25/02/2020 | 25/02/2020 | 25/02/2020 |
| Time Tested | 13:45 | 13:55 | 14:05 |
| Test Request #/Location | Stage 21 | Stage 21 | Stage 21 |
| Easting | 484134.700 | 484147.282 | 484165.000 |
| Northing | 6939775.20 | 6939759.840 | 6939740.500 |
| Elevation (m) | 84.1 | 84.838 | 85.740 |
| Soil Description | Sandy Clay. Brown | Sandy Clay. Brown | Sandy Clay. Brown |
| Test Depth (mm) | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.06 | 2.05 | 2.04 |
| Field Moisture Content % | 18.7 | 26.7 | 24.7 |
| Field Dry Density (FDD) t/m$^3$ | 1.74 | 1.62 | 1.63 |
| Peak Converted Wet Density t/m$^3$ | 2.03 | 2.09 | 1.94 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** |
| Moisture Variation (Wv) % | -0.5 | 0.0 | -0.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | **101.5** | **98.0** | **105.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

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**Report Number:** DL20/027-9
**Issue Number:** 1
**Date Issued:** 28/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Contact:** Cam
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6947
**Date Sampled:** 26/02/2020
**Dates Tested:** 26/02/2020 - 28/02/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill (Sandy Clay)
**Material Source:** Onsite Cut

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Approved Signatory: Liam Davidson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | D20-6947A | D20-6947B | D20-6947C | D20-6947D | D20-6947E |
| Date Tested | 26/02/2020 | 26/02/2020 | 26/02/2020 | 26/02/2020 | 26/02/2020 |
| Time Tested | 10:05 | 10:15 | 10:20 | 10:30 | 10:35 |
| Test Request #/Location | Stage 21/24 | Stage 21/24 | Stage 21/24 | Stage 21/24 | Stage 21/24 |
| Easting | 484147.62 | 484169.94 | 484166.14 | 484187.190 | 484114.86 |
| Northing | 6939762.80 | 6936738.97 | 6939689.18 | 6939714.33 | 6939729.0 |
| Elevation (m) | 84.83 | 85.95 | 86.46 | 87.26 | 84.621 |
| Soil Description | Sandy Clay. Brown | Sandy Clay. Brown | Sandy Clay. Brown | Sandy Clay. Brown | Sandy Clay. Brown |
| Test Depth (mm) | 150 | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 37.5 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | ** | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 1.95 | 1.94 | 1.96 | 1.99 | 1.95 |
| Field Moisture Content % | 25.3 | 26.7 | 17.2 | 20.0 | 25.6 |
| Field Dry Density (FDD) t/m$^3$ | 1.55 | 1.53 | 1.67 | 1.66 | 1.55 |
| Peak Converted Wet Density t/m$^3$ | 1.93 | 1.98 | 1.98 | 1.99 | 1.90 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -0.5 | 0.5 | 0.5 | 0.0 | 0.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **100.5** | **98.0** | **99.0** | **100.5** | **103.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

MORRISON GEOTECHNIC
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Phone: (07) 3279 0900
Email: darralab@morrisongeo.com.au

**Report Number:** DL20/027-9
**Issue Number:** 1
**Date Issued:** 28/02/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Contact:** Cam
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6947
**Date Sampled:** 26/02/2020
**Dates Tested:** 26/02/2020 - 28/02/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill (Sandy Clay)
**Material Source:** Onsite Cut

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | D20-6947F | D20-6947G | D20-6947H | D20-6947I | |
| Date Tested | 26/02/2020 | 26/02/2020 | 26/02/2020 | 26/02/2020 | |
| Time Tested | 10:40 | 10:50 | 14:05 | 14:18 | |
| Test Request #/Location | Stage 21/24 | Stage 21/24 | Stage 21/24 | Stage 21/24 | |
| Easting | 484118.154 | 484229.321 | 484117.720 | 484132.45 | |
| Northing | 6939749.391 | 6939708.992 | 6939749.769 | 6939723.500 | |
| Elevation (m) | 84.397 | 83.989 | 84.300 | 85.05 | |
| Soil Description | Sandy Clay. Brown | Sandy Clay. Brown | Sandy Clay. Brown | Sandy Clay. Brown | |
| Test Depth (mm) | 150 | 150 | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 | |
| Field Wet Density (FWD) t/m$^3$ | 1.92 | 1.89 | 2.12 | 1.90 | |
| Field Moisture Content % | 28.9 | 22.5 | 23.1 | 32.1 | |
| Field Dry Density (FDD) t/m$^3$ | 1.49 | 1.54 | 1.72 | 1.44 | |
| Peak Converted Wet Density t/m$^3$ | 1.89 | 1.98 | 2.07 | 1.88 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | |
| Moisture Variation (Wv) % | 0.5 | 0.5 | 2.0 | 0.0 | |
| Adjusted Moisture Variation % | ** | ** | ** | ** | |
| Hilf Density Ratio (%) | **102.0** | **95.5** | **102.0** | **101.5** | |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report


Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
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Accredited for compliance with ISO/IEC 17025 - Testing

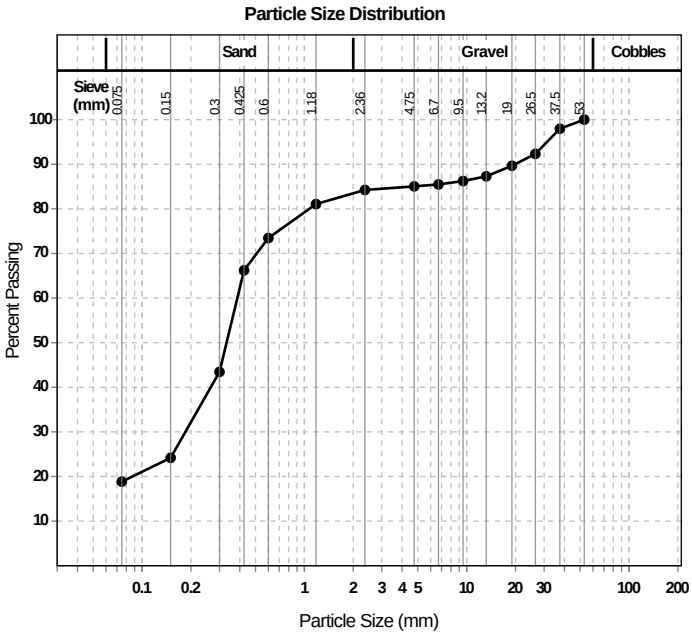
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-22A**
**Issue Number:** 1
**Date Issued:** 26/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7211
**Sample Number:** D20-7211A
**Date Sampled:** 16/03/2020
**Dates Tested:** 16/03/2020 - 25/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484242.9, N: 6939682.4, Depth: 91.6**
**Lot No:** **Capping Layer - Select Fill**
**Material:** Clayey Sand
**Material Source:** Imported

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 53 mm | **100** | | | 0 | | |
| 37.5 mm | **98** | | | 2 | | |
| 26.5 mm | **92** | | | 6 | | |
| 19 mm | **90** | | | 3 | | |
| 13.2 mm | **87** | | | 2 | | |
| 9.5 mm | **86** | | | 1 | | |
| 6.7 mm | **85** | | | 1 | | |
| 4.75 mm | **85** | | | 0 | | |
| 2.36 mm | **84** | | | 1 | | |
| 1.18 mm | **81** | | | 3 | | |
| 0.6 mm | **73** | | | 8 | | |
| 0.425 mm | **66** | | | 7 | | |
| 0.3 mm | **43** | | | 23 | | |
| 0.15 mm | **24** | | | 19 | | |
| 0.075 mm | **19** | | | 5 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 29 | | |
| Plastic Limit (%) | 16 | | |
| **Plasticity Index (%)** | **13** | | |
| Weighted Plasticity Index (%) | 861 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 5.0 | | |
| Cracking Crumbling Curling | Curling | | |



# Material Test Report

MORRISON GEOTECHNIC
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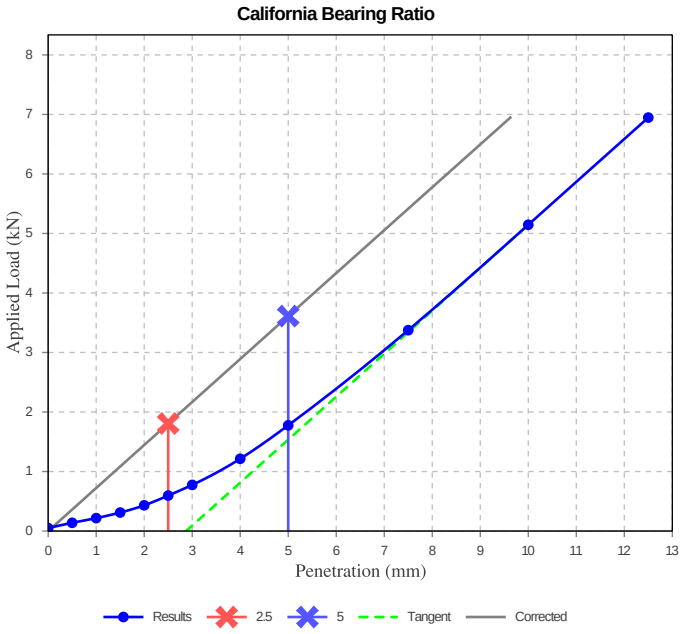
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
Senior Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-22C**
**Issue Number:** 1
**Date Issued:** 30/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7211
**Sample Number:** D20-7211A
**Date Sampled:** 16/03/2020
**Dates Tested:** 16/03/2020 - 23/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484242.9, N: 6939682.4, Depth: 91.6**
**Lot No:** **Capping Layer - Select Fill**
**Material:** Clayey Sand
**Material Source:** Imported

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **18** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | Visual | | |
| Maximum Dry Density (t/m$^3$) | 1.87 | | |
| Optimum Moisture Content (%) | 13.0 | | |
| Laboratory Density Ratio (%) | 100.5 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.88 | | |
| Field Moisture Content (%) | 9.1 | | |
| Moisture Content at Placement (%) | 12.9 | | |
| Moisture Content Top 30mm (%) | 13.3 | | |
| Moisture Content Rest of Sample (%) | 13.7 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 24 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | | | |



# Material Test Report

MORRISON GEOTECHNIC
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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-10**
**Issue Number:** 1
**Date Issued:** 04/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Contact:** Cam
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6987
**Date Sampled:** 28/02/2020 06:30
**Dates Tested:** 28/02/2020 - 03/03/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | |
|---|---|---|---|---|
| Sample Number | D20-6987A | D20-6987B | D20-6987C | D20-6987D |
| Date Tested | 28/02/2020 | 28/02/2020 | 28/02/2020 | 28/02/2020 |
| Time Tested | 07:00 | 07:05 | 07:10 | 07:15 |
| Test Request #/Location | Stage 21 | Stage 21 | Stage 21 | Stage 21 |
| Easting | 6939753.83 | 6939741.27 | 6939726.34 | 6939709.95 |
| Northing | 484109.61 | 484125.48 | 484144.19 | 484162.76 |
| Elevation (m) | 84.44 | 84.97 | 85.80 | 87.35 |
| Soil Description | Clay, Brown | Clay, Brown | Clay, Brown | Clay, Brown |
| Test Depth (mm) | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 37.5 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 1.90 | 1.86 | 1.85 | 1.90 |
| Field Moisture Content % | 30.5 | 34.7 | 31.9 | 30.6 |
| Field Dry Density (FDD) t/m$^3$ | 1.45 | 1.38 | 1.40 | 1.45 |
| Peak Converted Wet Density t/m$^3$ | 1.87 | 1.79 | 1.78 | 1.87 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.0 | 0.5 | 1.0 | 0.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **101.5** | **104.0** | **103.5** | **101.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-10
**Issue Number:** 1
**Date Issued:** 04/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Contact:** Cam
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 6987
**Date Sampled:** 28/02/2020 06:30
**Dates Tested:** 28/02/2020 - 03/03/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut

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Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | |
|---|---|---|---|---|
| Sample Number | D20-6987E | D20-6987F | D20-6987G | D20-6987H |
| Date Tested | 28/02/2020 | 28/02/2020 | 28/02/2020 | 28/02/2020 |
| Time Tested | 07:20 | 07:25 | 07:30 | 07:40 |
| Test Request #/Location | Stage 21 | Stage 21 | Stage 21 | Stage 21 |
| Easting | 6939698.18 | 6939688.36 | 6939669.27 | 6939689.18 |
| Northing | 484173.69 | 484183.13 | 484193.93 | 484209.84 |
| Elevation (m) | 87.98 | 88.65 | 89.55 | 89.25 |
| Soil Description | Clay, Brown | Clay, Brown | Clay, Brown | Sandy Clay, Brown |
| Test Depth (mm) | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 1.80 | 1.78 | 1.90 | 2.01 |
| Field Moisture Content % | 29.8 | 33.1 | 23.6 | 17.7 |
| Field Dry Density (FDD) t/m$^3$ | 1.39 | 1.34 | 1.54 | 1.70 |
| Peak Converted Wet Density t/m$^3$ | 1.88 | 1.80 | 1.89 | 1.99 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.5 | 1.0 | 0.5 | 3.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **96.0** | **99.0** | **100.5** | **101.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-11
**Issue Number:** 1
**Date Issued:** 09/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7018
**Date Sampled:** 02/03/2020
**Dates Tested:** 02/03/2020 - 04/03/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut

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Email: darralab@morrisongeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|---|---|---|---|
| Sample Number | D20-7018A | D20-7018B | D20-7018C |
| Date Tested | 02/03/2020 | 02/03/2020 | 02/03/2020 |
| Time Tested | 14:05 | 14:10 | 14:20 |
| Test Request #/Location | Stage 21 N/W Fill Area | Stage 21 N/W Fill Area | Stage 21 N/W Fill Area |
| Easting | 484091.933 | 484093.895 | 484113.930 |
| Northing | 6939737.680 | 6939752.725 | 6939760.890 |
| Elevation (m) | 85.24 | 84.87 | 83.86 |
| Soil Description | Allotment Fill | Allotment Fill | Allotment Fill |
| Test Depth (mm) | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 1.80 | 1.92 | 1.99 |
| Field Moisture Content % | 25.4 | 27.3 | 24.1 |
| Field Dry Density (FDD) t/m$^3$ | 1.44 | 1.51 | 1.61 |
| Peak Converted Wet Density t/m$^3$ | 1.88 | 1.90 | 1.93 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** |
| Moisture Variation (Wv) % | 0.5 | 0.5 | 0.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | **96.0** | **101.0** | **103.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** **DL20/027-13**
**Issue Number:** 1
**Date Issued:** 09/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7048
**Date Sampled:** 03/03/2020
**Dates Tested:** 03/03/2020 - 05/03/2020
**Sampling Method:** AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut.

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Email: greg@mgeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

NATA WORLD RECOGNISED ACCREDITATION

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | D20-7048A | D20-7048B | D20-7048C | D20-7048D | D20-7048E |
| Date Tested | 03/03/2020 | 03/03/2020 | 03/03/2020 | 03/03/2020 | 03/03/2020 |
| Time Tested | 10:30 | 10:35 | 10:45 | 10:50 | 11:00 |
| Test Request #/Location | Stage 21 | Stage 21 | Stage 21 | Stage 21 | Stage 21 |
| Easting | 484197.1 | 484208.4 | 484223.1 | 484188.3 | 484181.8 |
| Northing | 6939651.4 | 6939662.0 | 6939620.0 | 6939641.4 | 6939628.2 |
| Elevation (m) | 91.0 | 90.82 | 91.6 | 89.10 | 88.8 |
| Soil Description | Allotment Fill | Allotment Fill | Allotment Fill | Allotment Fill | Allotment Fill |
| Test Depth (mm) | 150 | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 1.92 | 1.94 | 1.74 | 1.90 | 2.01 |
| Field Moisture Content % | 22.4 | 22.1 | 36.0 | 32.3 | 16.2 |
| Field Dry Density (FDD) t/m$^3$ | 1.57 | 1.59 | 1.28 | 1.44 | 1.73 |
| Peak Converted Wet Density t/m$^3$ | 1.88 | 1.88 | 1.69 | 1.82 | 1.93 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 3.0 | 3.5 | 2.5 | 4.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **102.5** | **103.0** | **103.0** | **104.5** | **104.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-15
**Issue Number:** 1
**Date Issued:** 17/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7185
**Date Sampled:** 13/03/2020 10:50
**Dates Tested:** 13/03/2020 - 16/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Material:** Capping Layer Fill
**Material Source:** Imported

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | D20-7185A | D20-7185B | D20-7185C | D20-7185D | D20-7185E | D20-7185F |
| Date Tested | 13/03/2020 | 13/03/2020 | 13/03/2020 | 13/03/2020 | 13/03/2020 | 13/03/2020 |
| Time Tested | 10:30 | 10:40 | 10:50 | 11:20 | 11:30 | 11:40 |
| Test Request #/Location | Capping layer | Capping layer | Capping layer | Capping layer | Capping layer | Capping layer |
| Easting | 484086 | 484095 | 484106 | 484153 | 484185 | 484172 |
| Northing | 6939737 | 6939751 | 6939763 | 6939713 | 6939709 | 6939739 |
| Elevation (m) | 85.7 | 85.4 | 85.1 | 86.1 | 86.3 | 86.4 |
| Soil Description | Clayey Sand. Brown | Clayey Sand. Brown | Clayey Sand. Brown | Clayey Sand. Brown | Clayey Sand. Brown | Clayey Sand. Brown |
| Test Depth (mm) | 150 | 150 | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | ** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.07 | 2.05 | 2.06 | 1.99 | 2.06 | 2.04 |
| Field Moisture Content % | 10.9 | 7.6 | 8.3 | 8.6 | 6.7 | 9.2 |
| Field Dry Density (FDD) t/m$^3$ | 1.87 | 1.91 | 1.90 | 1.84 | 1.93 | 1.87 |
| Peak Converted Wet Density t/m$^3$ | 2.13 | 2.04 | 2.13 | 2.04 | 2.00 | 2.07 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.0 | 3.5 | 2.5 | 2.5 | 3.5 | 2.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **97.0** | **101.0** | **97.0** | **97.5** | **102.5** | **99.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-17
**Issue Number:** 1
**Date Issued:** 19/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7209
**Date Sampled:** 16/03/2020
**Dates Tested:** 16/03/2020 - 17/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Capping Layer Fill
**Material Source:** Imported

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Approved Signatory: Liam Davidson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|---|---|---|---|
| Sample Number | D20-7209A | D20-7209B | D20-7209C |
| Date Tested | 16/03/2020 | 16/03/2020 | 16/03/2020 |
| Time Tested | 10:30 | 10:40 | 10:50 |
| Test Request #/Location | Capping Layer | Capping Layer | Capping Layer |
| Easting | 484242.9 | 484252.6 | 484267.6 |
| Northing | 6939682.4 | 6939673.0 | 6939654.5 |
| Elevation (m) | 91.6 | 92.0 | 92.5 |
| Soil Description | Clayey Sand | Clayey Sand | Clayey Sand |
| Test Depth (mm) | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.05 | 2.10 | 2.09 |
| Field Moisture Content % | 10.9 | 12.1 | 10.8 |
| Field Dry Density (FDD) t/m$^3$ | 1.85 | 1.87 | 1.89 |
| Peak Converted Wet Density t/m$^3$ | 2.04 | 2.05 | 2.04 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 1.0 | 1.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | **100.5** | **102.5** | **102.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report


Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
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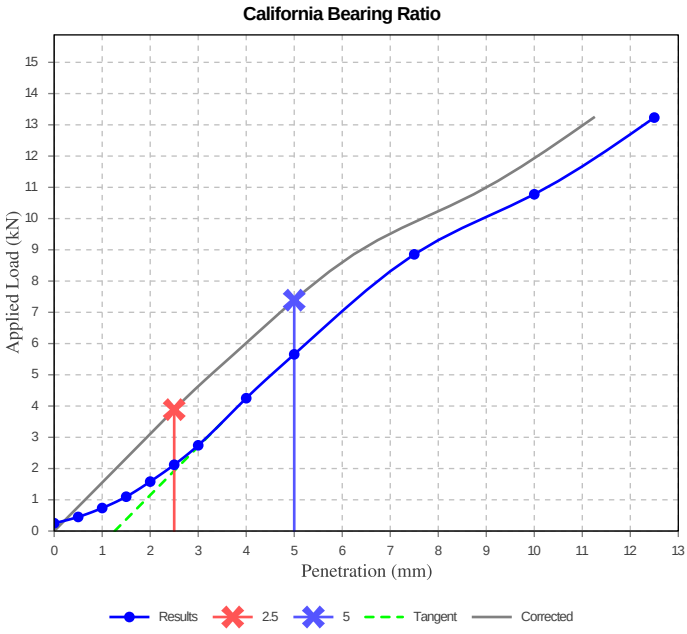
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: John Wieland
Senior Soil Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-18A**
**Issue Number:** 1
**Date Issued:** 24/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7175
**Sample Number:** D20-7175A
**Date Sampled:** 12/03/2020
**Dates Tested:** 12/03/2020 - 19/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484063, N: 6939524, Depth: 0.3m below FL**
**Lot No:** **Capping Material**
**Material:** Sandstone - Sandy Clay / Clayey Sand
**Material Source:** Onsite Burrow Area

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **35** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.88 | | |
| Optimum Moisture Content (%) | 12.5 | | |
| Laboratory Density Ratio (%) | 100.5 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.88 | | |
| Field Moisture Content (%) | 7.6 | | |
| Moisture Content at Placement (%) | 12.7 | | |
| Moisture Content Top 30mm (%) | 12.5 | | |
| Moisture Content Rest of Sample (%) | 13.2 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | | | |
| Curing Hours | 48 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | 15.3 | | |
| A correction of 1.3mm was applied to the penetration curve | | | |



# Material Test Report


MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
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Unit 1, 35 Limestone Darra QLD 4076
Phone: (07) 3279 0900
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Accredited for compliance with ISO/IEC 17025 - Testing

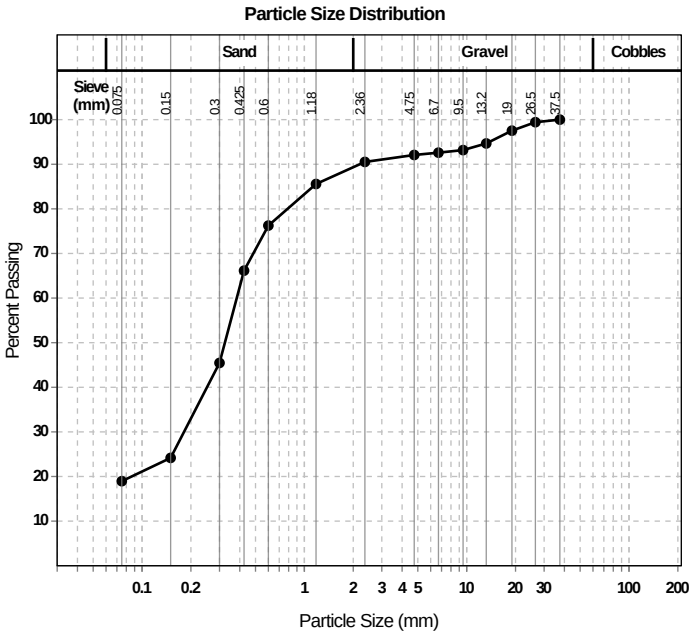
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** DL20/027-18B
**Issue Number:** 1
**Date Issued:** 25/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7175
**Sample Number:** D20-7175A
**Date Sampled:** 12/03/2020
**Dates Tested:** 12/03/2020 - 20/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484063, N: 6939524, Depth: 0.3m below FL**
**Lot No:** **Capping Material**
**Material:** Sandstone - Sandy Clay / Clayey Sand
**Material Source:** Onsite Burrow Area

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 37.5 mm | **100** | | | 0 | | |
| 26.5 mm | **99** | | | 1 | | |
| 19 mm | **98** | | | 2 | | |
| 13.2 mm | **95** | | | 3 | | |
| 9.5 mm | **93** | | | 1 | | |
| 6.7 mm | **93** | | | 1 | | |
| 4.75 mm | **92** | | | 1 | | |
| 2.36 mm | **91** | | | 2 | | |
| 1.18 mm | **86** | | | 5 | | |
| 0.6 mm | **76** | | | 9 | | |
| 0.425 mm | **66** | | | 10 | | |
| 0.3 mm | **45** | | | 21 | | |
| 0.15 mm | **24** | | | 21 | | |
| 0.075 mm | **19** | | | 5 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 32 | | |
| Plastic Limit (%) | 16 | | |
| **Plasticity Index (%)** | **16** | | |
| Weighted Plasticity Index (%) | 1058 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 6.0 | | |
| Cracking Crumbling Curling | Curling | | |



# Material Test Report

MORRISON GEOTECHNIC
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Email: darralab@morrisongeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-18C**
**Issue Number:** 1
**Date Issued:** 25/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7175
**Sample Number:** D20-7175A
**Date Sampled:** 12/03/2020
**Dates Tested:** 12/03/2020 - 18/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484063, N: 6939524, Depth: 0.3m below FL**
**Lot No:** **Capping Material**
**Material:** Sandstone - Sandy Clay / Clayey Sand
**Material Source:** Onsite Burrow Area

| Shrink Swell Index (AS 1289 7.1.1 & 2.1.1) | |
|---|---|
| **Iss (%)** | **0.1** |
| Visual Description | Clayey Sand |
| * Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction. | |

| Core Shrinkage Test | |
|---|---|
| **Shrinkage Strain - Oven Dried (%)** | **0.1** |
| Estimated % by volume of significant inert inclusions | |
| Cracking | Uncracked |
| Crumbling | Yes |
| Moisture Content (%) | 12.0 |

| Swell Test | |
|---|---|
| Initial Pocket Penetrometer (kPa) | >600 |
| Final Pocket Penetrometer (kPa) | 570 |
| Initial Moisture Content (%) | 12.5 |
| Final Moisture Content (%) | 15.6 |
| **Swell (%)** | **0.0** |
| * NATA Accreditation does not cover the performance of pocket penetrometer readings. | |

# Material Test Report

MORRISON GEOTECHNIC
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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-19B**
**Issue Number:** 1
**Date Issued:** 27/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7187
**Sample Number:** D20-7187A
**Date Sampled:** 13/03/2020
**Dates Tested:** 13/03/2020 - 20/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484154, N: 6939727, Depth: RL87.1**
**Lot No:** **Capping Material**
**Material:** (SC) Clayey Sand Brown
**Material Source:** Onsite Borrow Pit

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 26.5 mm | **100** | | | 0 | | |
| 19 mm | **100** | | | 0 | | |
| 13.2 mm | **99** | | | 1 | | |
| 9.5 mm | **98** | | | 1 | | |
| 6.7 mm | **97** | | | 1 | | |
| 4.75 mm | **97** | | | 1 | | |
| 2.36 mm | **96** | | | 1 | | |
| 1.18 mm | **92** | | | 4 | | |
| 0.6 mm | **84** | | | 8 | | |
| 0.425 mm | **74** | | | 10 | | |
| 0.3 mm | **52** | | | 22 | | |
| 0.15 mm | **29** | | | 23 | | |
| 0.075 mm | **24** | | | 6 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 29 | | |
| Plastic Limit (%) | 17 | | |
| **Plasticity Index (%)** | **12** | | |
| Weighted Plasticity Index (%) | 890 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 5.5 | | |
| Cracking Crumbling Curling | Curling | | |

# Material Test Report

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-19C**
**Issue Number:** 1
**Date Issued:** 27/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7187
**Sample Number:** D20-7187A
**Date Sampled:** 13/03/2020
**Dates Tested:** 13/03/2020 - 24/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484154, N: 6939727, Depth: RL87.1**
**Lot No:** **Capping Material**
**Material:** (SC) Clayey Sand Brown
**Material Source:** Onsite Borrow Pit

| Shrink Swell Index (AS 1289 7.1.1 & 2.1.1) | |
|---|---|
| **Iss (%)** | **0.7** |
| Visual Description | Clayey Sand |
| * Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction. | |

| Core Shrinkage Test | |
|---|---|
| **Shrinkage Strain - Oven Dried (%)** | **1.3** |
| Estimated % by volume of significant inert inclusions | |
| Cracking | Uncracked |
| Crumbling | Yes |
| Moisture Content (%) | 14.0 |

| Swell Test | |
|---|---|
| Initial Pocket Penetrometer (kPa) | >600 |
| Final Pocket Penetrometer (kPa) | 270 |
| Initial Moisture Content (%) | 13.5 |
| Final Moisture Content (%) | 17.1 |
| **Swell (%)** | **0.0** |
| * NATA Accreditation does not cover the performance of pocket penetrometer readings. | |

# Material Test Report

**Report Number:** DL20/027-20
**Issue Number:** 1
**Date Issued:** 24/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7233
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 19/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Capping Layer - Select Fill
**Material Source:** Imported

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Email: nathaniel@mgeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Nathaniel O'Haire
Branch Manager
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | D20-7233A | D20-7233B | D20-7233C | D20-7233D | D20-7233E | D20-7233F |
| Date Tested | 17/03/2020 | 17/03/2020 | 17/03/2020 | 17/03/2020 | 17/03/2020 | 17/03/2020 |
| Time Tested | 10:00 | 10:10 | 10:20 | 10:30 | 10:40 | 10:50 |
| Test Request #/Location | Capping Layer - Select Fill - Lot 1098 | Capping Layer - Select Fill - Lot 1097 | Capping Layer - Select Fill - Lot 1096 | Capping Layer - Select Fill - Lot 1095 | Capping Layer - Select Fill - Lot 1036 | Capping Layer - Select Fill - Lot 1037 |
| Easting | 4m from North Boundary | 5m from South Boundary | 5m from North Boundary | 10m from North Boundary | 10m from North Boundary | 4m from North Boundary |
| Northing | 10m from West Boundary | 6m from East Boundary | 4m from West Boundary | 5m from East Boundary | 5m from East Boundary | 4m from West Boundary |
| Layer / Reduced Level | FL | 0.5m Below FL | FL | 0.5m Below FL | FL | 0.5m Below FL |
| Soil Description | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand |
| Test Depth (mm) | 150 | 150 | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.07 | 2.08 | 2.03 | 2.06 | 2.03 | 2.07 |
| Field Moisture Content % | 8.4 | 8.0 | 5.6 | 5.2 | 6.5 | 6.0 |
| Field Dry Density (FDD) t/m$^3$ | 1.91 | 1.92 | 1.92 | 1.95 | 1.91 | 1.96 |
| Peak Converted Wet Density t/m$^3$ | 2.01 | 2.01 | 1.96 | 1.95 | 1.99 | 1.98 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 4.5 | 4.0 | 6.5 | 7.0 | 5.0 | 6.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **103.0** | **103.0** | **103.5** | **105.0** | **102.0** | **105.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-20
**Issue Number:** 1
**Date Issued:** 24/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7233
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 19/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Capping Layer - Select Fill
**Material Source:** Imported

MORRISON GEOTECHNIC
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Email: nathaniel@mgeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Nathaniel O'Haire
Branch Manager
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | D20-7233G | D20-7233H | D20-7233I | D20-7233J | D20-7233K | D20-7233L |
| Date Tested | 17/03/2020 | 17/03/2020 | 17/03/2020 | 17/03/2020 | 17/03/2020 | 17/03/2020 |
| Time Tested | 11:00 | 11:10 | 11:20 | 11:30 | 11:40 | 11:50 |
| Test Request #/Location | Capping Layer - Select Fill - Lot 1038 | Capping Layer - Select Fill - Lot 1041 | Capping Layer - Select Fill - Lot 1043 | Capping Layer - Select Fill - Lot 1045 | Capping Layer - Select Fill - Lot 1047 | Capping Layer - Select Fill - Lot 1049 |
| Easting | 4m from North Boundary | 4m from South Boundary | 5m from South Boundary | 5m from North Boundary | 5m from North Boundary | 4m from South Boundary |
| Northing | 6m from East Boundary | 8m from East Boundary | 5m from West Boundary | 8m from East Boundary | 8m from West Boundary | 7m from East Boundary |
| Layer / Reduced Level | FL | FL | 0.5m Below FL | FL | FL | FL |
| Soil Description | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand |
| Test Depth (mm) | 150 | 150 | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.04 | 2.07 | 2.03 | 2.04 | 2.06 | 2.06 |
| Field Moisture Content % | 7.2 | 7.5 | 6.2 | 7.2 | 10.4 | 10.1 |
| Field Dry Density (FDD) t/m$^3$ | 1.90 | 1.92 | 1.92 | 1.91 | 1.87 | 1.87 |
| Peak Converted Wet Density t/m$^3$ | 2.02 | 2.02 | 1.97 | 2.00 | 2.03 | 2.01 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 4.0 | 3.0 | 4.0 | 4.5 | 2.5 | 3.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **101.0** | **102.5** | **103.5** | **102.5** | **101.5** | **102.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

**Report Number:** DL20/027-20
**Issue Number:** 1
**Date Issued:** 24/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7233
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 19/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Capping Layer - Select Fill
**Material Source:** Imported

MORRISON GEOTECHNIC
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Email: nathaniel@mgeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Nathaniel O'Haire
Branch Manager
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | D20-7233M | D20-7233N | D20-7233O | | | |
| Date Tested | 17/03/2020 | 17/03/2020 | 17/03/2020 | | | |
| Time Tested | 12:00 | 12:10 | 12:20 | | | |
| Test Request #/Location | Capping Layer - Select Fill - Lot 1083 | Capping Layer - Select Fill - Lot 1081 | Capping Layer - Select Fill - Lot 1079 | | | |
| Easting | 5m from North Boundary | 4m from South Boundary | 6m from North Boundary | | | |
| Northing | 7m from West Boundary | 8m from West Boundary | 6m from East Boundary | | | |
| Layer / Reduced Level | 0.5m Below FL | FL | FL | | | |
| Soil Description | Clayey Sand | Clayey Sand | Clayey Sand | | | |
| Test Depth (mm) | 150 | 150 | 150 | | | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | | | |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | | | |
| Field Wet Density (FWD) t/m$^3$ | 2.04 | 2.06 | 2.00 | | | |
| Field Moisture Content % | 9.2 | 8.1 | 7.4 | | | |
| Field Dry Density (FDD) t/m$^3$ | 1.87 | 1.91 | 1.86 | | | |
| Peak Converted Wet Density t/m$^3$ | 2.00 | 1.99 | 1.99 | | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | | | |
| Moisture Variation (Wv) % | 3.0 | 2.5 | 3.0 | | | |
| Adjusted Moisture Variation % | ** | ** | ** | | | |
| Hilf Density Ratio (%) | **102.0** | **103.5** | **100.5** | | | |
| Compaction Method | **Standard** | **Standard** | **Standard** | | | |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
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**Report Number:** DL20/027-21
**Issue Number:** 1
**Date Issued:** 25/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7282
**Date Sampled:** 18/03/2020
**Dates Tested:** 18/03/2020 - 25/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Capping Layer - Select Fill
**Material Source:** Imported - Burrow Area

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | |
|---|---|---|---|---|
| Sample Number | D20-7282A | D20-7282B | D20-7282C | D20-7282D |
| Date Tested | 18/03/2020 | 18/03/2020 | 18/03/2020 | 18/03/2020 |
| Time Tested | 10:30 | 10:40 | 10:50 | 11:00 |
| Test Request #/Location | Capping Layer - Select Fill - Lot 1082 | Capping Layer - Select Fill - Lot 1082 | Capping Layer - Select Fill - Lot 1082 | Capping Layer - Select Fill - Lot 1085 |
| Easting | 4m from South Boundary | 4m from North Boundary | 6m from North Boundary | 4m from North Boundary |
| Northing | 5m from West Boundary | 7m from East Boundary | 6m from East Boundary | 7m from East Boundary |
| Layer / Reduced Level | FL | 0.8m Below FL | 0.5m Below FL | FL |
| Soil Description | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand |
| Test Depth (mm) | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.10 | 2.02 | 2.14 | 2.06 |
| Field Moisture Content % | 11.6 | 8.2 | 10.7 | 8.2 |
| Field Dry Density (FDD) t/m$^3$ | 1.88 | 1.87 | 1.94 | 1.90 |
| Peak Converted Wet Density t/m$^3$ | 2.07 | 2.03 | 2.08 | 2.00 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 1.5 | 3.0 | 2.5 | 2.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **101.0** | **99.5** | **103.0** | **102.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

# Material Test Report

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
Brisbane Laboratory
Unit 1, 35 Limestone Darra QLD 4076
Phone: (07) 3279 0900
Email: darralab@morrisongeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-22B**
**Issue Number:** 1
**Date Issued:** 26/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7211
**Sample Number:** D20-7211A
**Date Sampled:** 16/03/2020
**Dates Tested:** 16/03/2020 - 23/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484242.9, N: 6939682.4, Depth: 91.6**
**Lot No:** **Capping Layer - Select Fill**
**Material:** Clayey Sand
**Material Source:** Imported

| Shrink Swell Index (AS 1289 7.1.1 & 2.1.1) | |
|---|---|
| **Iss (%)** | **0.4** |
| Visual Description | Clayey Sand |
| * Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction. | |

| Core Shrinkage Test | |
|---|---|
| **Shrinkage Strain - Oven Dried (%)** | **0.8** |
| Estimated % by volume of significant inert inclusions | |
| Cracking | Uncracked |
| Crumbling | Yes |
| Moisture Content (%) | 12.6 |

| Swell Test | |
|---|---|
| Initial Pocket Penetrometer (kPa) | >600 |
| Final Pocket Penetrometer (kPa) | 170 |
| Initial Moisture Content (%) | 12.1 |
| Final Moisture Content (%) | 18.5 |
| **Swell (%)** | **0.0** |
| * NATA Accreditation does not cover the performance of pocket penetrometer readings. | |

# Material Test Report


MORRISON GEOTECHNIC
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Accredited for compliance with ISO/IEC 17025 - Testing

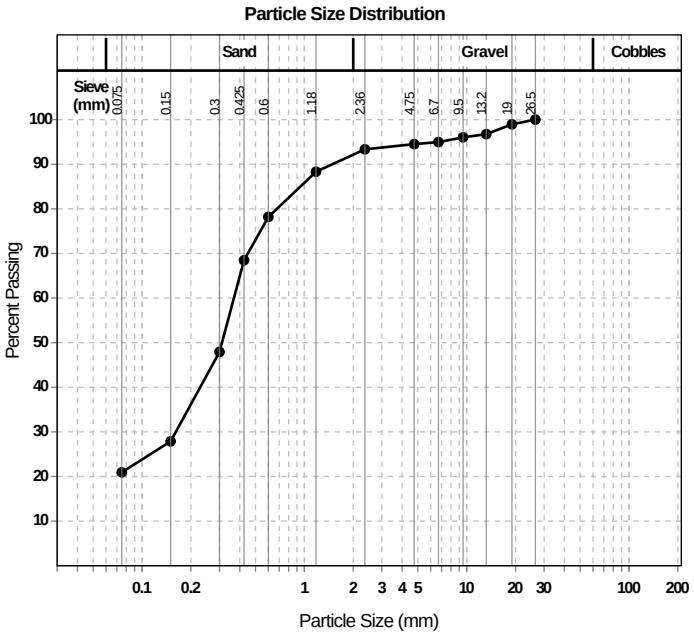
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** DL20/027-23A
**Issue Number:** 1
**Date Issued:** 27/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7186
**Sample Number:** D20-7186A
**Date Sampled:** 13/03/2020
**Dates Tested:** 13/03/2020 - 24/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484086, N: 6939737, Depth: RL 85.7**
**Lot No:** **Capping Material**
**Material:** (SC) Clayey Sand Brown
**Material Source:** Onsite Burrow Area

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 26.5 mm | **100** | | | 0 | | |
| 19 mm | **99** | | | 1 | | |
| 13.2 mm | **97** | | | 2 | | |
| 9.5 mm | **96** | | | 1 | | |
| 6.7 mm | **95** | | | 1 | | |
| 4.75 mm | **95** | | | 0 | | |
| 2.36 mm | **93** | | | 1 | | |
| 1.18 mm | **88** | | | 5 | | |
| 0.6 mm | **78** | | | 10 | | |
| 0.425 mm | **68** | | | 10 | | |
| 0.3 mm | **48** | | | 21 | | |
| 0.15 mm | **28** | | | 20 | | |
| 0.075 mm | **21** | | | 7 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 32 | | |
| Plastic Limit (%) | 16 | | |
| **Plasticity Index (%)** | **16** | | |
| Weighted Plasticity Index (%) | 1096 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 6.5 | | |
| Cracking Crumbling Curling | Curling | | |



# Material Test Report

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
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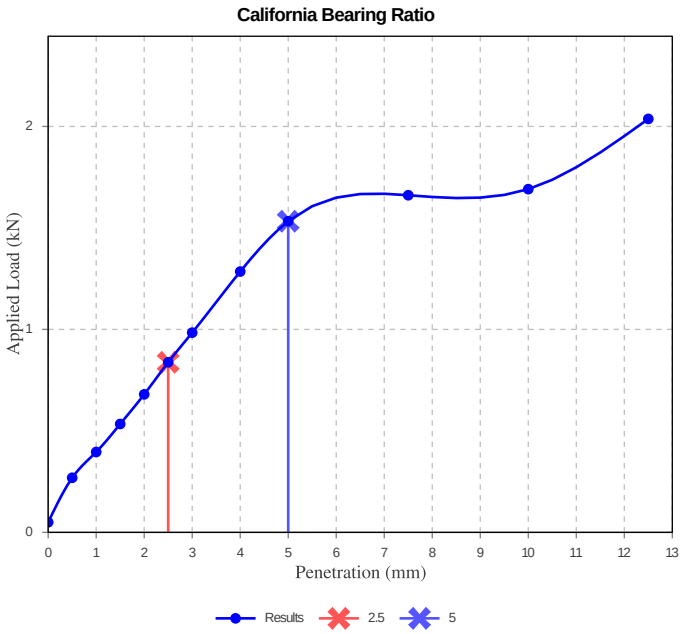
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Nathaniel O'Haire
Branch Manager
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-24K**
**Issue Number:** 1
**Date Issued:** 07/04/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236D
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 27/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1053, 7m From South Boundary, 5m from West Boundary (FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **8** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.85 | | |
| Optimum Moisture Content (%) | 12.5 | | |
| Laboratory Density Ratio (%) | 100.5 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.86 | | |
| Field Moisture Content (%) | 5.4 | | |
| Moisture Content at Placement (%) | 12.3 | | |
| Moisture Content Top 30mm (%) | 12.8 | | |
| Moisture Content Rest of Sample (%) | 14.6 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 48 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | 0 | | |



# Material Test Report

MORRISON GEOTECHNIC
Brisbane | Gold Coast | Maroochydore
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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-23B**
**Issue Number:** 1
**Date Issued:** 27/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7186
**Sample Number:** D20-7186A
**Date Sampled:** 13/03/2020
**Dates Tested:** 13/03/2020 - 25/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484086, N: 6939737, Depth: RL 85.7**
**Lot No:** **Capping Material**
**Material:** (SC) Clayey Sand Brown
**Material Source:** Onsite Burrow Area

| Shrink Swell Index (AS 1289 7.1.1 & 2.1.1) | |
|---|---|
| **Iss (%)** | **0.1** |
| Visual Description | Clayey Sand |
| * Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction. | |

| Core Shrinkage Test | |
|---|---|
| **Shrinkage Strain - Oven Dried (%)** | **0.2** |
| Estimated % by volume of significant inert inclusions | |
| Cracking | Uncracked |
| Crumbling | Yes |
| Moisture Content (%) | 13.1 |

| Swell Test | |
|---|---|
| Initial Pocket Penetrometer (kPa) | >600 |
| Final Pocket Penetrometer (kPa) | 300 |
| Initial Moisture Content (%) | 13.5 |
| Final Moisture Content (%) | 17.4 |
| **Swell (%)** | **0.0** |
| * NATA Accreditation does not cover the performance of pocket penetrometer readings. | |

# Material Test Report


MORRISON GEOTECHNIC
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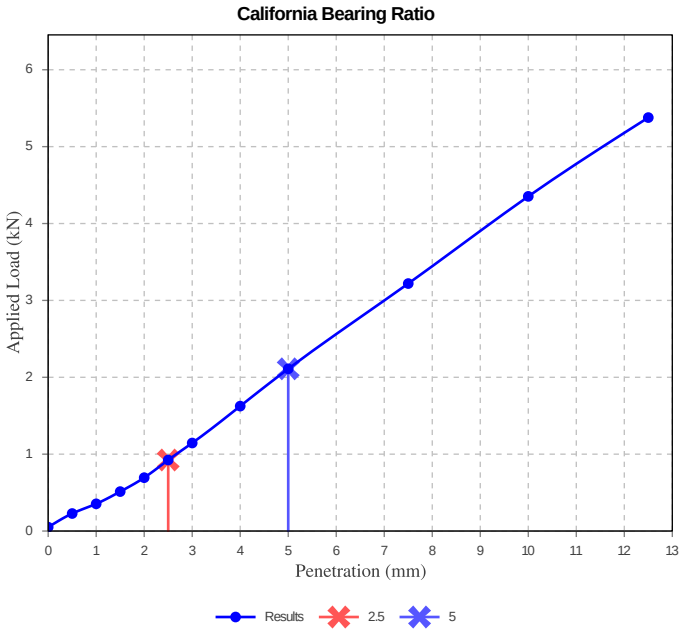
Email: jwieland@mgeo.com.au


Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: John Wieland
Senior Soil Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-23C**
**Issue Number:** 1
**Date Issued:** 27/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7186
**Sample Number:** D20-7186A
**Date Sampled:** 13/03/2020
**Dates Tested:** 13/03/2020 - 20/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **E: 484086, N: 6939737, Depth: RL 85.7**
**Lot No:** **Capping Material**
**Material:** (SC) Clayey Sand Brown
**Material Source:** Onsite Burrow Area

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **11** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.82 | | |
| Optimum Moisture Content (%) | 13.0 | | |
| Laboratory Density Ratio (%) | 100.5 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.83 | | |
| Field Moisture Content (%) | 7.1 | | |
| Moisture Content at Placement (%) | 13.2 | | |
| Moisture Content Top 30mm (%) | 13.3 | | |
| Moisture Content Rest of Sample (%) | 13.7 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 48 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | | | |



# Material Test Report


MORRISON GEOTECHNIC
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Email: darralab@morrisongeo.com.au


Accredited for compliance with ISO/IEC 17025 - Testing

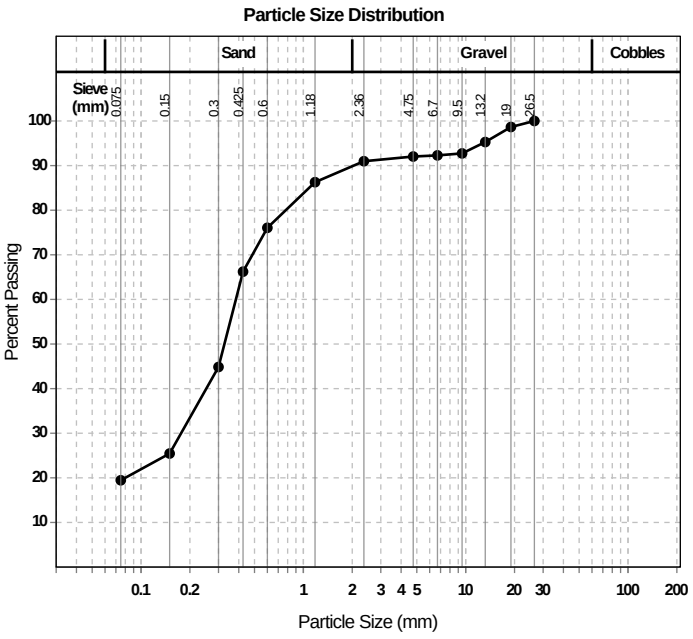
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** DL20/027-24A
**Issue Number:** 1
**Date Issued:** 31/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236A
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 24/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1084, 8m From North Boundary, 6m From West Boundary (0.8m Below FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 26.5 mm | **100** | | | 0 | | |
| 19 mm | **99** | | | 1 | | |
| 13.2 mm | **95** | | | 3 | | |
| 9.5 mm | **93** | | | 3 | | |
| 6.7 mm | **92** | | | 0 | | |
| 4.75 mm | **92** | | | 0 | | |
| 2.36 mm | **91** | | | 1 | | |
| 1.18 mm | **86** | | | 5 | | |
| 0.6 mm | **76** | | | 10 | | |
| 0.425 mm | **66** | | | 10 | | |
| 0.3 mm | **45** | | | 21 | | |
| 0.15 mm | **25** | | | 19 | | |
| 0.075 mm | **19** | | | 6 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 31 | | |
| Plastic Limit (%) | 17 | | |
| **Plasticity Index (%)** | **14** | | |
| Weighted Plasticity Index (%) | 927 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 6.5 | | |
| Cracking Crumbling Curling | Cracking & Curling | | |



# Material Test Report


MORRISON GEOTECHNIC
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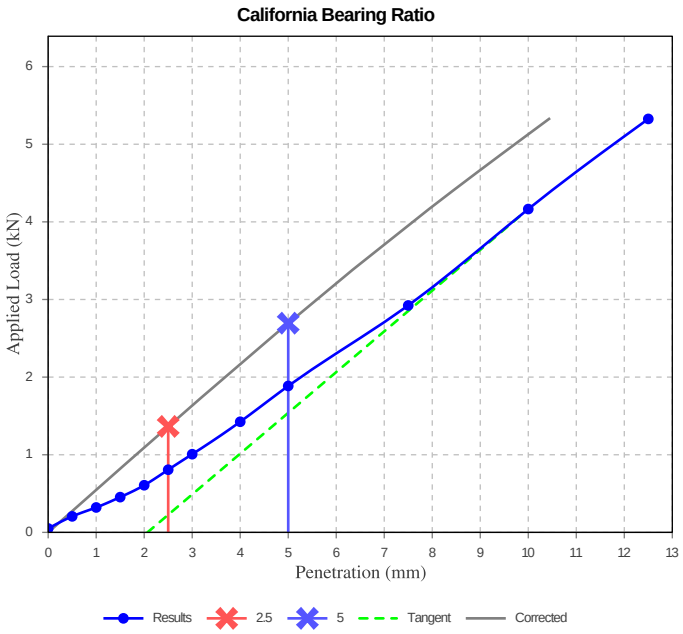
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Nathaniel O'Haire
Branch Manager
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-24H**
**Issue Number:** 1
**Date Issued:** 07/04/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236A
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 27/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1084, 8m From North Boundary, 6m From West Boundary (0.8m Below FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **14** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.84 | | |
| Optimum Moisture Content (%) | 12.5 | | |
| Laboratory Density Ratio (%) | 100.5 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.85 | | |
| Field Moisture Content (%) | 5.9 | | |
| Moisture Content at Placement (%) | 12.4 | | |
| Moisture Content Top 30mm (%) | 13.1 | | |
| Moisture Content Rest of Sample (%) | 14.1 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 48 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | 0 | | |



# Material Test Report


MORRISON GEOTECHNIC
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Accredited for compliance with ISO/IEC 17025 - Testing

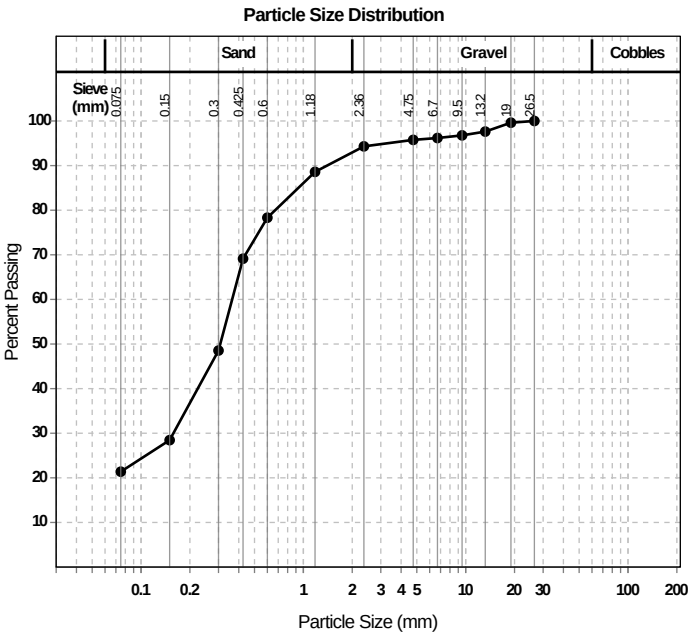
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** DL20/027-24B
**Issue Number:** 1
**Date Issued:** 31/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236B
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 25/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1079, 6m from West Boundary, 6m from South Boundary (FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 26.5 mm | **100** | | | 0 | | |
| 19 mm | **100** | | | 0 | | |
| 13.2 mm | **98** | | | 2 | | |
| 9.5 mm | **97** | | | 1 | | |
| 6.7 mm | **96** | | | 1 | | |
| 4.75 mm | **96** | | | 0 | | |
| 2.36 mm | **94** | | | 1 | | |
| 1.18 mm | **89** | | | 6 | | |
| 0.6 mm | **78** | | | 10 | | |
| 0.425 mm | **69** | | | 9 | | |
| 0.3 mm | **49** | | | 21 | | |
| 0.15 mm | **28** | | | 20 | | |
| 0.075 mm | **21** | | | 7 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 30 | | |
| Plastic Limit (%) | 16 | | |
| **Plasticity Index (%)** | **14** | | |
| Weighted Plasticity Index (%) | 968 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 5.5 | | |
| Cracking Crumbling Curling | Cracking & Curling | | |



# Material Test Report


MORRISON GEOTECHNIC
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Accredited for compliance with ISO/IEC 17025 - Testing

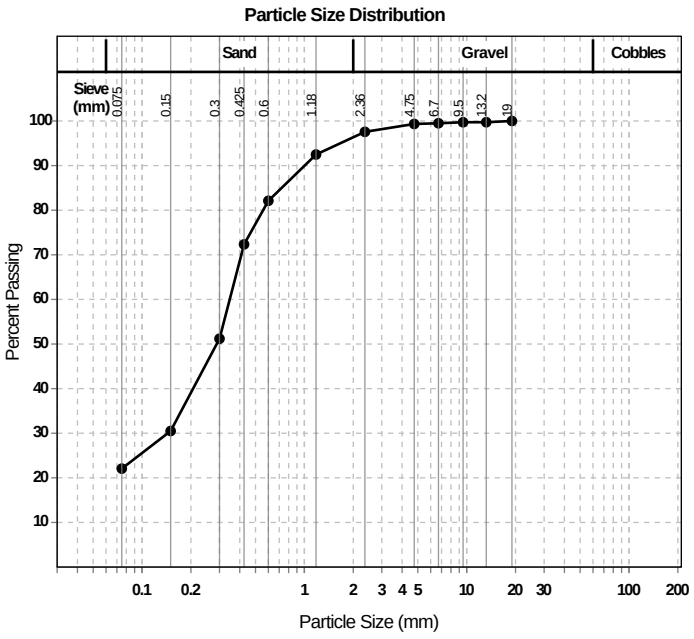
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** DL20/027-24C
**Issue Number:** 1
**Date Issued:** 31/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236C
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 26/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1096, 6m From North Boundary, 4m from East Boundary (FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 19 mm | **100** | | | 0 | | |
| 13.2 mm | **100** | | | 0 | | |
| 9.5 mm | **100** | | | 0 | | |
| 6.7 mm | **99** | | | 0 | | |
| 4.75 mm | **99** | | | 0 | | |
| 2.36 mm | **98** | | | 2 | | |
| 1.18 mm | **92** | | | 5 | | |
| 0.6 mm | **82** | | | 10 | | |
| 0.425 mm | **72** | | | 10 | | |
| 0.3 mm | **51** | | | 21 | | |
| 0.15 mm | **30** | | | 21 | | |
| 0.075 mm | **22** | | | 8 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 30 | | |
| Plastic Limit (%) | 16 | | |
| **Plasticity Index (%)** | **14** | | |
| Weighted Plasticity Index (%) | 1013 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 5.0 | | |
| Cracking Crumbling Curling | Cracking & Curling | | |



# Material Test Report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Accredited for compliance with ISO/IEC 17025 - Testing

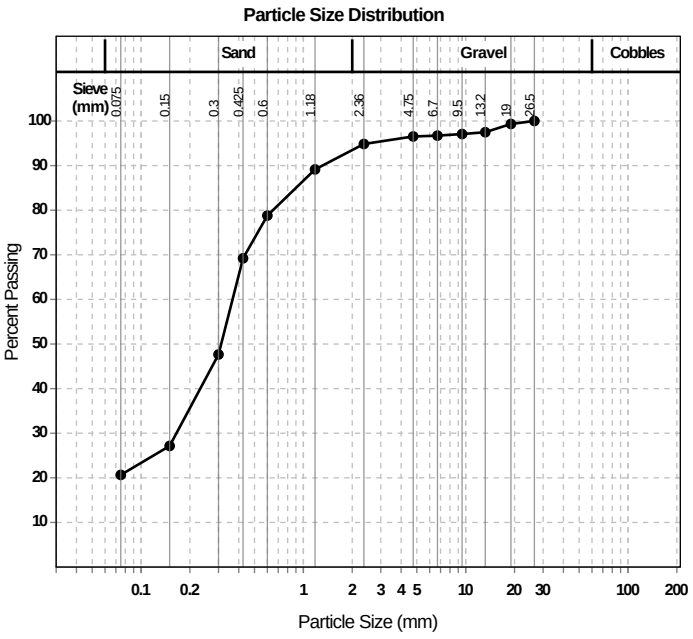
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** DL20/027-24D
**Issue Number:** 1
**Date Issued:** 31/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236D
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 26/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1053, 7m From South Boundary, 5m from West Boundary (FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 26.5 mm | **100** | | | 0 | | |
| 19 mm | **99** | | | 1 | | |
| 13.2 mm | **97** | | | 2 | | |
| 9.5 mm | **97** | | | 0 | | |
| 6.7 mm | **97** | | | 0 | | |
| 4.75 mm | **97** | | | 0 | | |
| 2.36 mm | **95** | | | 2 | | |
| 1.18 mm | **89** | | | 6 | | |
| 0.6 mm | **79** | | | 10 | | |
| 0.425 mm | **69** | | | 10 | | |
| 0.3 mm | **48** | | | 22 | | |
| 0.15 mm | **27** | | | 20 | | |
| 0.075 mm | **21** | | | 6 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 32 | | |
| Plastic Limit (%) | 16 | | |
| **Plasticity Index (%)** | **16** | | |
| Weighted Plasticity Index (%) | 1107 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 5.5 | | |
| Cracking Crumbling Curling | Cracking & Curling | | |



# Material Test Report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Accredited for compliance with ISO/IEC 17025 - Testing

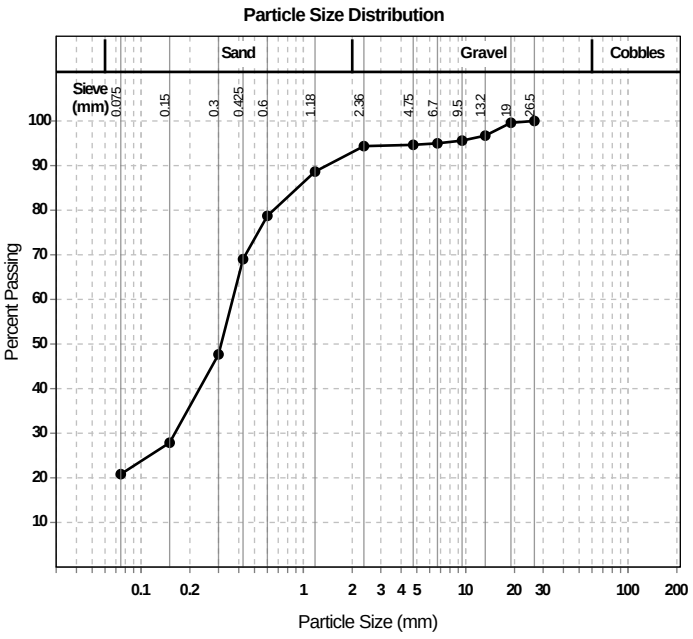
Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

**Report Number:** DL20/027-24E
**Issue Number:** 1
**Date Issued:** 31/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236E
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 23/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1049, 4m from South Boundary, 8m from West Boundary (FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| Particle Size Distribution (AS1289 3.6.1) | | | | | | |
|---|---|---|---|---|---|---|
| Sieve | Passed % | Passing Limits | | Retained % | Retained Limits | |
| 26.5 mm | **100** | | | 0 | | |
| 19 mm | **100** | | | 0 | | |
| 13.2 mm | **97** | | | 3 | | |
| 9.5 mm | **96** | | | 1 | | |
| 6.7 mm | **95** | | | 1 | | |
| 4.75 mm | **95** | | | 0 | | |
| 2.36 mm | **94** | | | 0 | | |
| 1.18 mm | **89** | | | 6 | | |
| 0.6 mm | **79** | | | 10 | | |
| 0.425 mm | **69** | | | 10 | | |
| 0.3 mm | **48** | | | 21 | | |
| 0.15 mm | **28** | | | 20 | | |
| 0.075 mm | **21** | | | 7 | | |

| Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1) | | Min | Max |
|---|---|---|---|
| Sample History | Oven Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 32 | | |
| Plastic Limit (%) | 16 | | |
| **Plasticity Index (%)** | **16** | | |
| Weighted Plasticity Index (%) | 1104 | | |

| Linear Shrinkage (AS1289 3.4.1) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | 5.5 | | |
| Cracking Crumbling Curling | Cracking & Curling | | |



# Material Test Report

**Report Number:** **DL20/027-24F**
**Issue Number:** 1
**Date Issued:** 31/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Dates Tested:** 17/03/2020 - 25/03/2020

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Kiri Pitama
Laboratory Technician
NATA Accredited Laboratory Number: 1169

| Shrink Swell Index AS 1289 7.1.1 & 2.1.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | D20-7236A | D20-7236B | D20-7236C | D20-7236D | D20-7236E |
| Date Sampled | 17/03/2020 | 17/03/2020 | 17/03/2020 | 17/03/2020 | 17/03/2020 |
| Date Tested | 25/03/2020 | 25/03/2020 | 25/03/2020 | 25/03/2020 | 25/03/2020 |
| Material Source | Remoulded | Remoulded | Remoulded | Remoulded | Remoulded |
| Sample Location | Lot 1084, 8m From North Boundary, 6m From West Boundary (0.8m Below FL) | Lot 1079, 6m from West Boundary, 6m from South Boundary (FL) | Lot 1096, 6m From North Boundary, 4m from East Boundary (FL) | Lot 1053, 7m From South Boundary, 5m from West Boundary (FL) | Lot 1049, 4m from South Boundary, 8m from West Boundary (FL) |
| Inert Material Estimate (%) | ** | ** | ** | ** | ** |
| Pocket Penetrometer before (kPa) | >600 | >600 | >600 | >600 | >600 |
| Pocket Penetrometer after (kPa) | 580 | 380 | 580 | 270 | 340 |
| Shrinkage Moisture Content (%) | 12.3 | 13.9 | 13.3 | 12.6 | 11.8 |
| Shrinkage (%) | **0.4** | **1.3** | **0.3** | **0.6** | **0.1** |
| Swell Moisture Content Before (%) | 12.3 | 13.6 | 12.7 | 12.0 | 11.2 |
| Swell Moisture Content After (%) | 15.0 | 15.9 | 15.2 | 17.8 | 16.2 |
| Swell (%) | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| Shrink Swell Index Iss (%) | **0.2** | **0.7** | **0.2** | **0.3** | **0.1** |
| Visual Description | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand |
| Cracking | UC | UC | UC | UC | UC |
| Crumbling | Yes | Yes | Yes | Yes | Yes |
| Remarks | ** | ** | ** | ** | ** |

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

# Material Test Report


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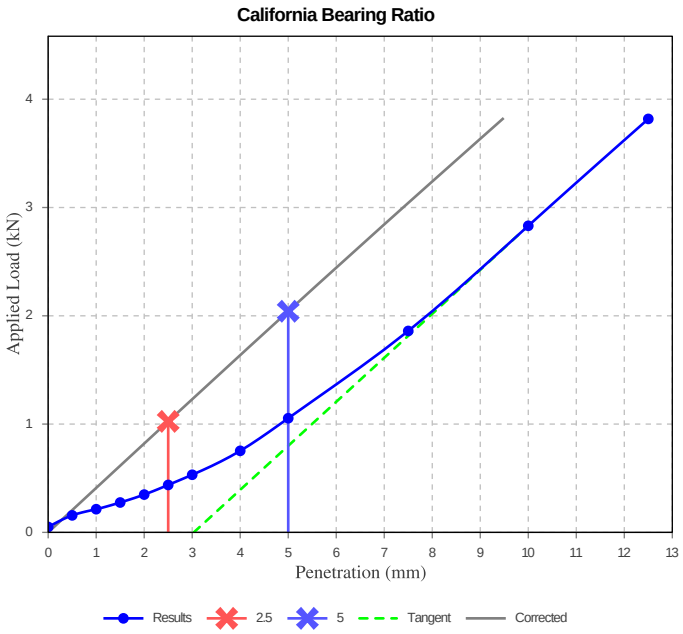
Email: nathaniel@mgeo.com.au


Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Nathaniel O'Haire
Branch Manager
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-24I**
**Issue Number:** 1
**Date Issued:** 07/04/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236B
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 27/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1079, 6m from West Boundary, 6m from South Boundary (FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **10** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.86 | | |
| Optimum Moisture Content (%) | 14.0 | | |
| Laboratory Density Ratio (%) | 100.5 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.87 | | |
| Field Moisture Content (%) | 7.4 | | |
| Moisture Content at Placement (%) | 13.9 | | |
| Moisture Content Top 30mm (%) | 14.8 | | |
| Moisture Content Rest of Sample (%) | 13.6 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 120 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | 0 | | |



# Material Test Report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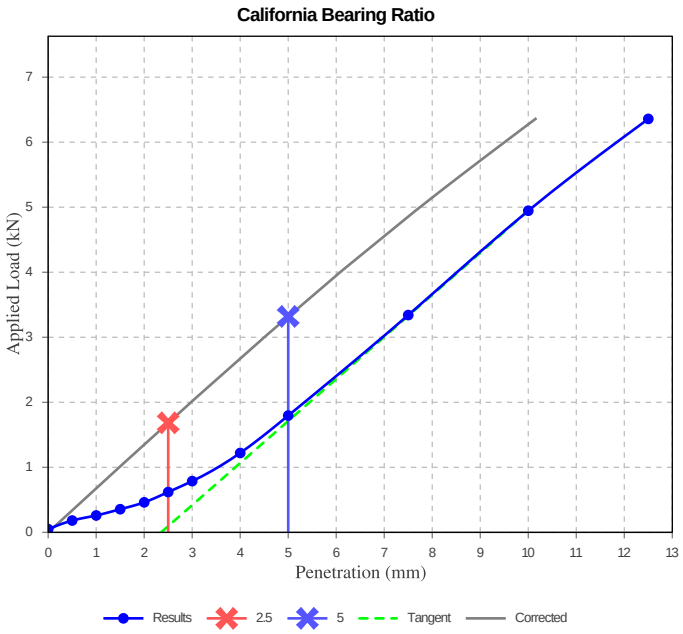
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Nathaniel O'Haire
Branch Manager
NATA Accredited Laboratory Number: 1169

**Report Number:** DL20/027-24J
**Issue Number:** 1
**Date Issued:** 07/04/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236C
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 27/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1096, 6m From North Boundary, 4m from East Boundary (FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **17** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.85 | | |
| Optimum Moisture Content (%) | 13.0 | | |
| Laboratory Density Ratio (%) | 100.5 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.86 | | |
| Field Moisture Content (%) | 7.1 | | |
| Moisture Content at Placement (%) | 12.8 | | |
| Moisture Content Top 30mm (%) | 13.8 | | |
| Moisture Content Rest of Sample (%) | 13.8 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 48 | | |
| Swell (%) | 0.0 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | 0 | | |



# Material Test Report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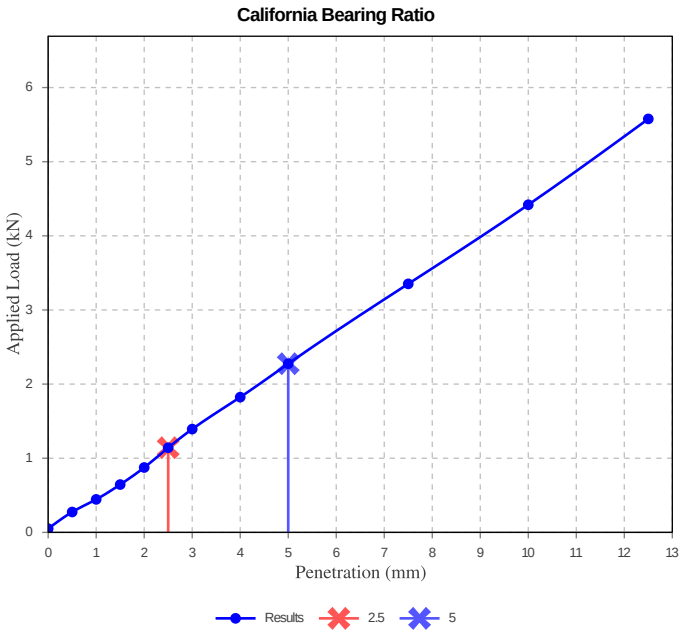
Email: nathaniel@mgeo.com.au


Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Nathaniel O'Haire
Branch Manager
NATA Accredited Laboratory Number: 1169

**Report Number:** **DL20/027-24L**
**Issue Number:** 1
**Date Issued:** 07/04/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7236
**Sample Number:** D20-7236E
**Date Sampled:** 17/03/2020
**Dates Tested:** 17/03/2020 - 27/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Sample Location:** **Lot 1049, 4m from South Boundary, 8m from West Boundary (FL)**
**Lot No:** **Capping Material**
**Material:** Clayey Sand / Sandy Clay
**Material Source:** Imported from Burrow Area

| California Bearing Ratio (AS 1289 6.1.1 & 2.1.1) | | Min | Max |
|---|---|---|---|
| CBR taken at | 5 mm | | |
| CBR % | **11** | | |
| Method of Compactive Effort | Standard | | |
| Method used to Determine MDD | AS 1289 5.1.1 & 2.1.1 | | |
| Method used to Determine Plasticity | VISUAL | | |
| Maximum Dry Density (t/m$^3$) | 1.86 | | |
| Optimum Moisture Content (%) | 12.0 | | |
| Laboratory Density Ratio (%) | 101.0 | | |
| Laboratory Moisture Ratio (%) | 100.0 | | |
| Dry Density after Soaking (t/m$^3$) | 1.87 | | |
| Field Moisture Content (%) | 5.4 | | |
| Moisture Content at Placement (%) | 11.8 | | |
| Moisture Content Top 30mm (%) | 12.8 | | |
| Moisture Content Rest of Sample (%) | 14.2 | | |
| Mass Surcharge (kg) | 4.5 | | |
| Soaking Period (days) | 4 | | |
| Curing Hours | 48 | | |
| Swell (%) | 0.5 | | |
| Oversize Material (mm) | 19 | | |
| Oversize Material Included | Excluded | | |
| Oversize Material (%) | 0 | | |



# Material Test Report

**Report Number:** DL20/027-25
**Issue Number:** 1
**Date Issued:** 30/03/2020
**Client:** SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
**Project Number:** DL20/027
**Project Name:** EARTHWORKS SUPERVISION
**Project Location:** EDEN'S CROSSING, STAGE 21
**Work Request:** 7357
**Date Sampled:** 23/03/2020 13:30
**Dates Tested:** 24/03/2020 - 27/03/2020
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** 95% STD
**Site Selection:** Selected by GTA
**Material:** Allotment Fill
**Material Source:** Onsite Cut

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
Senior Technician
NATA Accredited Laboratory Number: 1169

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | D20-7357A | D20-7357B | D20-7357C | D20-7357D | D20-7357E |
| Date Tested | 23/03/2020 | 23/03/2020 | 23/03/2020 | 23/03/2020 | 23/03/2020 |
| Time Tested | 13:50 | 14:00 | 14:10 | 14:20 | 14:30 |
| Test Request #/Location | Lot 1046 | Lot 1048 | Lot 1050 | Lot 1051 | Lot 1052 |
| Line / Offset | 16m from Rear Boundary | 8m from Rear Boundary | 11m from Rear Boundary | 13m from Rear Boundary | 6m from Rear Boundary |
| Offset | 4m from Left Boundary | 5m from Left Boundary | 6m from Left Boundary | 3.5m from Left Boundary | 5.5m from Left Boundary |
| Layer / Reduced Level | F/L | F/L | F/L | F/L | F/L |
| Soil Description | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown | Gravelly Sandy Clay. Brown |
| Test Depth (mm) | 150 | 150 | 150 | 150 | 150 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Field Wet Density (FWD) t/m$^3$ | 2.02 | 2.02 | 1.94 | 1.98 | 1.97 |
| Field Moisture Content % | 8.9 | 6.0 | 5.1 | 5.1 | 6.6 |
| Field Dry Density (FDD) t/m$^3$ | 1.86 | 1.90 | 1.85 | 1.89 | 1.85 |
| Peak Converted Wet Density t/m$^3$ | 2.01 | 1.94 | 1.93 | 1.94 | 1.99 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 5.0 | 4.5 | 5.5 | 4.5 | 5.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **101.0** | **104.0** | **100.5** | **102.5** | **99.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |

**Moisture Variation Note:**
Positive values = test is dry of OMC
Negative values = test is wet of OMC

MORRISON GEOTECHNIC

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 5 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 21/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| Sample Number : | 233043 | 233044 | 233045 | 233046 |
|---|---|---|---|---|
| Test Number : | 12 | 13 | 14 | 15 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 03/08/2017 | 03/08/2017 | 03/08/2017 | 03/08/2017 |
| Date Tested : | 03/08/2017 | 03/08/2017 | 03/08/2017 | 03/08/2017 |
| Material Type : | Bulk Fill | Bulk Fill | Bulk Fill | Bulk Fill |
| Material Source : | On Site | On Site | On Site | On Site |
| Lot Number : | - | - | - | - |
| Sample Location : | E 0484161<br>N 6939710<br>2.8m Below Final Level | E 0484157<br>N 6939661<br>2.8m Below Final Level | E 0484186<br>N 6939644<br>2.5m Below Final Level | E 0484202<br>N 6939671<br>2.2m Below Final Level |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 21.1 | 18.8 | 29.4 | 26.9 |
| Hilf MDR Number : | 233043 | 233044 | 233045 | 233046 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 90 | 89.5 | 96 | 96 |
| Field Wet Density (t/m³) : | 1.978 | 1.926 | 1.877 | 1.846 |
| Optimum Moisture Content (%) : | 23.5 | 21.0 | 30.6 | 28.0 |
| Moisture Variation : | 2.4 | 2.3 | 1.1 | 1.1 |
| Peak Converted Wet Density (t/m³) : | 1.882 | 1.878 | 1.852 | 1.859 |
| Hilf Density Ratio (%) : | 105.0 | 102.5 | 101.5 | 99.5 |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 1 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 11/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233032 | 233033 | 233034 | |
| Test Number : | 1 | 2 | 3 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 29/07/2017 | 29/07/2017 | 29/07/2017 | |
| Date Tested : | 29/07/2017 | 29/07/2017 | 29/07/2017 | |
| Material Type : | Bulk Fill | Bulk Fill | Bulk Fill | |
| Material Source : | On Site | On Site | On Site | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484150.739<br>N 6939689.218<br>RL 83.095 | E 484146.015<br>N 6939703.855<br>RL 82.504 | E 484133.045<br>N 6939682.634<br>RL 82.509 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 28.2 | 32.3 | 31.6 | |
| Hilf MDR Number : | 233032 | 233033 | 233034 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 92.5 | 101.5 | 109.5 | |
| Field Wet Density (t/m³) : | 1.941 | 1.970 | 1.867 | |
| Optimum Moisture Content (%) : | 30.5 | 31.8 | 28.8 | |
| Moisture Variation : | 2.1 | -0.5 | -2.8 | |
| Peak Converted Wet Density (t/m³) : | 1.876 | 1.916 | 1.830 | |
| Hilf Density Ratio (%) : | 103.5 | 103.0 | 102.0 | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | - | - | - | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 2 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 11/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| Sample Number : | 233035 | 233036 | 233037 | |
|---|---|---|---|---|
| Test Number : | 4 | 5 | 6 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 31/07/2017 | 31/07/2017 | 31/07/2017 | |
| Date Tested : | 31/07/2017 | 31/07/2017 | 31/07/2017 | |
| Material Type : | Bulk Fill | Bulk Fill | Bulk Fill | |
| Material Source : | On Site | On Site | On Site | |
| Lot Number : | - | - | - | |
| Sample Location : | E 0484125.272<br>N 6939664.591<br>RL 83.820 | E 0484137.377<br>N 6939679.380<br>RL 83.667 | E 0484150.878<br>N 6939695.861<br>RL 83.746 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 21.8 | 26.9 | 25.3 | |
| Hilf MDR Number : | 233035 | 233036 | 233037 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 90 | 89.5 | 88 | |
| Field Wet Density (t/m³) : | 1.972 | 1.744 | 1.877 | |
| Optimum Moisture Content (%) : | 24.2 | 30.0 | 28.8 | |
| Moisture Variation : | 2.3 | 3.0 | 3.3 | |
| Peak Converted Wet Density (t/m³) : | 1.910 | 1.821 | 1.841 | |
| Hilf Density Ratio (%) : | 103.0 | 96.0 | 102.0 | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | - | - | - | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 27** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **16/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 240081 | | | |
| Test Number : | 79 | | | |
| Sampling Method : | - | | | |
| Date Sampled : | 10/01/2018 | | | |
| Date Tested : | 10/01/2018 | | | |
| Material Type : | **Bulk Fill** | | | |
| Material Source : | **On Site** | | | |
| Lot Number : | - | | | |
| Sample Location : | E 484059.9<br>N 6939725.9<br>RL 79.149 | | | |
| Test Depth (mm ) : | 150 | | | |
| Layer Depth (mm) : | - | | | |
| Maximum Size (mm) : | 19 | | | |
| Oversize Wet (%) : | - | | | |
| Oversize Dry (%) : | - | | | |
| Oversize Density (t/m³) : | - | | | |
| Field Moisture Content (%) : | 18.6 | | | |
| Hilf MDR Number : | 240081 | | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | | | |
| Compactive Effort : | Standard | | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | | | |
| Moisture Method : | AS1289.2.1.1 | | | |
| Moisture Ratio (%) : | 101 | | | |
| Field Wet Density (t/m³) : | 2.044 | | | |
| Optimum Moisture Content (%) : | 18.4 | | | |
| Moisture Variation : | -0.2 | | | |
| Peak Converted Wet Density (t/m³) : | 2.052 | | | |
| Hilf Density Ratio (%) : | **99.5** | | | |
| Minimum Specification : | 95 | | | |
| Moisture Specification : | + or - 2% | | | |
| Site Selection : | - | | | |
| Soil Description : | - | | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 10 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 22/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| Sample Number : | 233058 | 233059 | 233060 | 233061 |
|---|---|---|---|---|
| Test Number : | 27 | 28 | 29 | 30 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 05/08/2017 | 05/08/2017 | 05/08/2017 | 05/08/2017 |
| Date Tested : | 05/08/2017 | 05/08/2017 | 05/08/2017 | 05/08/2017 |
| Material Type : | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) |
| Material Source : | On Site (Crushed Basalt) | On Site (Crushed Basalt) | On Site (Crushed Basalt) | On Site (Crushed Basalt) |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484200.100<br>N 6939566.948<br>RL 90.519<br>Final Level | E 484184.890<br>N 6939568.577<br>RL 89.978<br>Final Level | E 484170.777<br>N 6939576.884<br>RL 89.223<br>Final Level | E 484139.952<br>N 6939598.619<br>RL 88.207<br>Final Level |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 10.7 | 12.4 | 9.7 | 11.8 |
| Hilf MDR Number : | 233058 | 233059 | 233060 | 233061 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 72 | 83.5 | 70.5 | 83 |
| Field Wet Density (t/m³) : | 2.258 | 2.287 | 2.224 | 2.285 |
| Optimum Moisture Content (%) : | 14.8 | 14.8 | 13.7 | 14.2 |
| Moisture Variation : | 4.0 | 2.4 | 3.9 | 2.3 |
| Peak Converted Wet Density (t/m³) : | 2.183 | 2.219 | 2.204 | 2.245 |
| Hilf Density Ratio (%) : | 103.5 | 103.0 | 101.0 | 102.0 |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 14 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 23/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| Sample Number : | 233104 | 233105 | 233106 | 233107 |
|---|---|---|---|---|
| Test Number : | 38 | 39 | 40 | 41 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 08/08/2017 | 08/08/2017 | 08/08/2017 | 08/08/2017 |
| Date Tested : | 08/08/2017 | 08/08/2017 | 08/08/2017 | 08/08/2017 |
| Material Type : | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) |
| Material Source : | On Site (Crushed Basalt) | On Site (Crushed Basalt) | On Site (Crushed Basalt) | On Site (Crushed Basalt) |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484217.874<br>N 6939676.530<br>RL 89.091<br>Final Level | E 484229.355<br>N 6939653.382<br>RL 89.899<br>Final Level | E 484229.223<br>N 6939599.195<br>RL 90.930 | E 484242.357<br>N 6939611.667<br>RL 91.157 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 14.1 | 10.1 | 10.5 | 14.6 |
| Hilf MDR Number : | 233104 | 233105 | 233106 | 233107 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 82.5 | 82.5 | 95.5 | 86.5 |
| Field Wet Density (t/m³) : | 2.100 | 2.091 | 2.081 | 2.088 |
| Optimum Moisture Content (%) : | 17.1 | 12.2 | 11.0 | 16.9 |
| Moisture Variation : | 2.9 | 2.1 | 0.4 | 2.3 |
| Peak Converted Wet Density (t/m³) : | 2.101 | 2.116 | 2.170 | 2.027 |
| Hilf Density Ratio (%) : | 100.0 | 99.0 | 96.0 | 103.0 |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 3 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 21/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| Sample Number : | 233038 | 233039 | 233040 | 233041 |
|---|---|---|---|---|
| Test Number : | 7 | 8 | 9 | 10 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 01/08/2017 | 01/08/2017 | 01/08/2017 | 01/08/2017 |
| Date Tested : | 01/08/2017 | 01/08/2017 | 01/08/2017 | 01/08/2017 |
| Material Type : | Bulk Fill | Bulk Fill | Bulk Fill | Bulk Fill |
| Material Source : | On Site | On Site | On Site | On Site |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484120.1<br>N 6939651.7<br>RL 84.6 | E 484128.1<br>N 6939672.5<br>RL 84.2 | E 484118.7<br>N 6939718.3<br>RL 80.6 | E 484110.1<br>N 6939692.3<br>RL 81.6 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 28.3 | 31.8 | 26.2 | 21.7 |
| Hilf MDR Number : | 233038 | 233039 | 233040 | 233041 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 88.5 | 93 | 99 | 82.5 |
| Field Wet Density (t/m³) : | 1.911 | 1.859 | 1.816 | 1.852 |
| Optimum Moisture Content (%) : | 32.1 | 34.1 | 26.5 | 26.3 |
| Moisture Variation : | 3.4 | 2.2 | 0.2 | 4.5 |
| Peak Converted Wet Density (t/m³) : | 1.837 | 1.793 | 1.847 | 1.799 |
| Hilf Density Ratio (%) : | 104.0 | 103.5 | 98.5 | 103.0 |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 4 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 21/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233042 | | | |
| Test Number : | 11 | | | |
| Sampling Method : | - | | | |
| Date Sampled : | 01/08/2017 | | | |
| Date Tested : | 01/08/2017 | | | |
| Material Type : | Bulk Fill | | | |
| Material Source : | On Site | | | |
| Lot Number : | - | | | |
| Sample Location : | E 484099.0<br>N 6939665.3<br>RL 82.9 | | | |
| Test Depth (mm ) : | 150 | | | |
| Layer Depth (mm) : | - | | | |
| Maximum Size (mm) : | 19 | | | |
| Oversize Wet (%) : | - | | | |
| Oversize Dry (%) : | - | | | |
| Oversize Density (t/m³) : | - | | | |
| Field Moisture Content (%) : | 21.9 | | | |
| Hilf MDR Number : | 233042 | | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | | | |
| Compactive Effort : | Standard | | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | | | |
| Moisture Method : | AS1289.2.1.1 | | | |
| Moisture Ratio (%) : | 84 | | | |
| Field Wet Density (t/m³) : | 1.907 | | | |
| Optimum Moisture Content (%) : | 26.0 | | | |
| Moisture Variation : | 4.0 | | | |
| Peak Converted Wet Density (t/m³) : | 1.837 | | | |
| Hilf Density Ratio (%) : | 104.0 | | | |
| Minimum Specification : | 95 | | | |
| Moisture Specification : | - | | | |
| Site Selection : | - | | | |
| Soil Description : | - | | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 52** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 241859 | 241860 | 241861 | 241862 |
|---|---|---|---|---|
| Test Number : | 150 | 151 | 152 | 153 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 14/02/2018 | 14/02/2018 | 14/02/2018 | 14/02/2018 |
| Date Tested : | 14/02/2018 | 14/02/2018 | 14/02/2018 | 14/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484101.259<br>N 6939799.218<br>RL 78.017 | E 484108.745<br>N 6939825.950<br>RL 78.541 | E 484122.140<br>N 6939815.212<br>RL 79.486 | E 484115.117<br>N 6939786.400<br>RL 78.922 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 21.6 | 25.4 | 19.9 | 17.8 |
| Hilf MDR Number : | 241859 | 241860 | 241861 | 241862 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 99.5 | 101 | 97.5 | 89.5 |
| Field Wet Density (t/m³) : | 2.078 | 2.017 | 2.072 | 1.970 |
| Optimum Moisture Content (%) : | 21.7 | 25.2 | 20.4 | 19.9 |
| Moisture Variation : | 0.1 | -0.2 | 0.5 | 2.0 |
| Peak Converted Wet Density (t/m³) : | 2.062 | 2.040 | 2.041 | 2.062 |
| Hilf Density Ratio (%) : | **101.0** | **99.0** | **101.5** | **95.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 46** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **19/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 241616 | 241617 | 241618 | 241619 |
|---|---|---|---|---|
| Test Number : | 131 | 132 | 133 | 134 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 08/02/2018 | 08/02/2018 | 08/02/2018 | 08/02/2018 |
| Date Tested : | 08/02/2018 | 08/02/2018 | 08/02/2018 | 08/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484066.945<br>N 6939720.523<br>RL 82.310 | E 484087.957<br>N 6939730.400<br>RL 82.334 | E 484098.366<br>N 6939704.852<br>RL 83.635 | E 484115.227<br>N 6939735.093<br>RL 82.600 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | 19 | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | 2.481 | - |
| Field Moisture Content (%) : | 23.0 | 16.6 | 21.0 | 17.9 |
| Hilf MDR Number : | 241616 | 241617 | 241618 | 241619 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 91.5 | 100.5 | 99 | 90 |
| Field Wet Density (t/m³) : | 1.927 | 1.957 | 2.154 | 1.971 |
| Optimum Moisture Content (%) : | 25.1 | 16.5 | 21.2 | 19.9 |
| Moisture Variation : | 1.9 | -0.1 | 0.2 | 1.9 |
| Peak Converted Wet Density (t/m³) : | 1.986 | 2.060 | 2.085* | 1.996 |
| Hilf Density Ratio (%) : | **97.0** | **95.0** | **103.5** | **99.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

* - denotes adjusted for oversize

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 6 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 21/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233047 | 233048 | | |
| Test Number : | 16 | 17 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 03/08/2017 | 03/08/2017 | | |
| Date Tested : | 03/08/2017 | 03/08/2017 | | |
| Material Type : | Bulk Fill | Bulk Fill | | |
| Material Source : | On Site | On Site | | |
| Lot Number : | - | - | | |
| Sample Location : | E 0484226<br>N 6939625<br>1m Below Final Level | E 0484217<br>N 6939640<br>2m Below Final Level | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 14.7 | 26.4 | | |
| Hilf MDR Number : | 233047 | 233048 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 82.5 | 97.5 | | |
| Field Wet Density (t/m³) : | 2.035 | 1.790 | | |
| Optimum Moisture Content (%) : | 17.8 | 27.1 | | |
| Moisture Variation : | 3.0 | 0.7 | | |
| Peak Converted Wet Density (t/m³) : | 1.982 | 1.872 | | |
| Hilf Density Ratio (%) : | 102.5 | 95.5 | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | - | - | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

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|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 50** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **22/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 241762 | 241763 | 241764 | 241765 |
|---|---|---|---|---|
| Test Number : | 144 | 145 | 146 | 147 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 13/02/2018 | 13/02/2018 | 13/02/2018 | 13/02/2018 |
| Date Tested : | 13/02/2018 | 13/02/2018 | 13/02/2018 | 13/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484054.579<br>N 6939741.264<br>RL 80.310 | E 484048.493<br>N 6939719.242<br>RL 81.509 | E 484039.981<br>N 6939695.341<br>RL 82.262 | E 484051.214<br>N 6939706.448<br>RL 82.560 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 27.7 | 16.6 | 25.9 | 23.5 |
| Hilf MDR Number : | 241762 | 241763 | 241764 | 241765 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 100.5 | 98.5 | 92.5 | 92 |
| Field Wet Density (t/m³) : | 1.910 | 2.007 | 1.858 | 2.006 |
| Optimum Moisture Content (%) : | 27.6 | 16.8 | 28.0 | 25.5 |
| Moisture Variation : | -0.1 | 0.2 | 2.0 | 1.8 |
| Peak Converted Wet Density (t/m³) : | 1.966 | 1.996 | 1.955 | 2.001 |
| Hilf Density Ratio (%) : | **97.0** | **100.5** | **95.0** | **100.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 29** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **25/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 240297 | 240298 | | |
| Test Number : | 84 | 85 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 15/01/2018 | 15/01/2018 | | |
| Date Tested : | 15/01/2018 | 15/01/2018 | | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | | |
| Material Source : | **On Site** | **On Site** | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484051.137<br>N 6939698.140<br>RL 80.290 | E 484061.062<br>N 6939732.618<br>RL 79.269 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 25.8 | 25.0 | | |
| Hilf MDR Number : | 240297 | 240298 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 92.5 | 92 | | |
| Field Wet Density (t/m³) : | 1.832 | 1.791 | | |
| Optimum Moisture Content (%) : | 28.0 | 27.2 | | |
| Moisture Variation : | 2.0 | 2.0 | | |
| Peak Converted Wet Density (t/m³) : | 1.908 | 1.890 | | |
| Hilf Density Ratio (%) : | **96.0** | **95.0** | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | - | - | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

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|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 35** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **36008** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 240685 | 240686 | 240687 | |
| Test Number : | 100 | 101 | 102 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 19/01/2018 | 19/01/2018 | 19/01/2018 | |
| Date Tested : | 19/01/2018 | 19/01/2018 | 19/01/2018 | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | |
| Material Source : | **On Site** | **On Site** | **On Site** | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484069.500<br>N 6939673.56<br>RL 82.572 | E 484083.455<br>N 6939678.366<br>RL 82.626 | E 484079.861<br>N 6939702.624<br>RL 81.464 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 15.0 | 12.9 | 13.5 | |
| Hilf MDR Number : | 240685 | 240686 | 240687 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 102 | 87 | 87.5 | |
| Field Wet Density (t/m³) : | 2.004 | 1.881 | 1.905 | |
| Optimum Moisture Content (%) : | 14.7 | 14.8 | 15.4 | |
| Moisture Variation : | -0.3 | 2.0 | 1.9 | |
| Peak Converted Wet Density (t/m³) : | 2.061 | 1.976 | 1.990 | |
| Hilf Density Ratio (%) : | **97.0** | **95.0** | **95.5** | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 26** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **16/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 240037 | 240038 | 240039 | |
| Test Number : | 76 | 77 | 78 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 09/01/2018 | 09/01/2018 | 09/01/2018 | |
| Date Tested : | 09/01/2018 | 09/01/2018 | 09/01/2018 | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | |
| Material Source : | **On Site** | **On Site** | **On Site** | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484082.245<br>N 6939717.122<br>RL 80.995 | E 484069.505<br>N 6939720.319<br>RL 80.577 | E 484061.505<br>N 6939699.860<br>RL 81.134 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 22.1 | 22.9 | 22.5 | |
| Hilf MDR Number : | 240037 | 240038 | 240039 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 99.5 | 100.5 | 99 | |
| Field Wet Density (t/m³) : | 2.052 | 2.009 | 2.048 | |
| Optimum Moisture Content (%) : | 22.2 | 22.8 | 22.7 | |
| Moisture Variation : | 0.1 | -0.1 | 0.1 | |
| Peak Converted Wet Density (t/m³) : | 2.035 | 2.027 | 2.019 | |
| Hilf Density Ratio (%) : | **101.0** | **99.0** | **101.5** | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 7 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 21/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233049 | 233050 | 233051 | |
| Test Number : | 18 | 19 | 20 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 03/08/2017 | 03/08/2017 | 03/08/2017 | |
| Date Tested : | 03/08/2017 | 03/08/2017 | 03/08/2017 | |
| Material Type : | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | |
| Material Source : | On Site (Crushed Basalt) | On Site (Crushed Basalt) | On Site (Crushed Basalt) | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484235.053<br>N 6939695.713<br>RL 89.057 | E 484249.482<br>N 6939680.030<br>RL 89.667 | E 484254.583<br>N 6939658.408<br>RL 89.975 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 9.7 | 9.3 | 12.1 | |
| Hilf MDR Number : | 233049 | 233050 | 233051 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 70.5 | 66.5 | 75 | |
| Field Wet Density (t/m³) : | 2.133 | 2.187 | 2.105 | |
| Optimum Moisture Content (%) : | 13.7 | 14.0 | 16.1 | |
| Moisture Variation : | 4.0 | 4.6 | 3.9 | |
| Peak Converted Wet Density (t/m³) : | 2.128 | 2.126 | 2.156 | |
| Hilf Density Ratio (%) : | 100.0 | 103.0 | 97.5 | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | - | - | - | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 8 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 21/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 |  | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233052 | 233053 | | |
| Test Number : | 21 | 22 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 03/08/2017 | 03/08/2017 | | |
| Date Tested : | 03/08/2017 | 03/08/2017 | | |
| Material Type : | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | | |
| Material Source : | On Site (Crushed Basalt) | On Site (Crushed Basalt) | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484236.737<br>N 6939698.674<br>RL 89.623 | E 484247.899<br>N 6939678.013<br>RL 90.092 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 11.0 | 11.5 | | |
| Hilf MDR Number : | 233052 | 233053 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 81.5 | 73.5 | | |
| Field Wet Density (t/m³) : | 2.184 | 2.199 | | |
| Optimum Moisture Content (%) : | 13.5 | 15.7 | | |
| Moisture Variation : | 2.4 | 4.0 | | |
| Peak Converted Wet Density (t/m³) : | 2.197 | 2.134 | | |
| Hilf Density Ratio (%) : | 99.5 | 103.0 | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | - | - | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 49** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **22/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 241657 | 241658 | 241659 | 241660 |
|---|---|---|---|---|
| Test Number : | 140 | 141 | 142 | 143 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 09/02/2018 | 09/02/2018 | 09/02/2018 | 09/02/2018 |
| Date Tested : | 09/02/2018 | 09/02/2018 | 09/02/2018 | 09/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484056.366<br>N 6939747.986<br>RL 78.487 | E 484047.671<br>N 6939733.068<br>RL 79.005 | E 484037.192<br>N 6939708.800<br>RL 80.348 | E 484032.942<br>N 6939675.653<br>RL 81.750 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 24.1 | 24.7 | 31.5 | 34.6 |
| Hilf MDR Number : | 241657 | 241658 | 241659 | 241660 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 91 | 92.5 | 93.5 | 94 |
| Field Wet Density (t/m³) : | 1.948 | 1.940 | 1.857 | 1.781 |
| Optimum Moisture Content (%) : | 26.5 | 26.7 | 33.6 | 36.8 |
| Moisture Variation : | 2.2 | 1.9 | 2.0 | 2.0 |
| Peak Converted Wet Density (t/m³) : | 1.966 | 1.910 | 1.829 | 1.795 |
| Hilf Density Ratio (%) : | **99.0** | **101.5** | **101.5** | **99.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | Silty CLAY | Silty CLAY | Silty CLAY | Silty CLAY |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 18 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 29/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| Sample Number : | 233335 | 233336 | 233337 | 233338 |
|---|---|---|---|---|
| Test Number : | 50 | 51 | 52 | 53 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 10/08/2017 | 10/08/2017 | 10/08/2017 | 10/08/2017 |
| Date Tested : | 10/08/2017 | 10/08/2017 | 10/08/2017 | 10/08/2017 |
| Material Type : | Bulk Fill | Bulk Fill | Bulk Fill | Bulk Fill |
| Material Source : | On Site | On Site | On Site | On Site |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484178.603<br>N 6939625.738<br>RL 87.133 | E 484178.900<br>N 6939608.528<br>RL 87.026 | E 484207.623<br>N 6939568.469<br>RL 89.128 | E 484181.847<br>N 6939584.018<br>RL 88.386 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 21.1 | 23.5 | 14.0 | 21.3 |
| Hilf MDR Number : | 233335 | 233336 | 233337 | 233338 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 89 | 90 | 82.5 | 86.5 |
| Field Wet Density (t/m³) : | 1.918 | 1.964 | 1.870 | 1.839 |
| Optimum Moisture Content (%) : | 23.7 | 26.1 | 17.0 | 24.6 |
| Moisture Variation : | 2.4 | 2.5 | 3.0 | 3.1 |
| Peak Converted Wet Density (t/m³) : | 1.914 | 1.894 | 1.953 | 1.914 |
| Hilf Density Ratio (%) : | 100.0 | 103.5 | 96.0 | 96.0 |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 11 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 22/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233062 | 233063 | 233064 | |
| Test Number : | 31 | 32 | 33 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 07/08/2017 | 07/08/2017 | 07/08/2017 | |
| Date Tested : | 07/08/2017 | 07/08/2017 | 07/08/2017 | |
| Material Type : | Bulk Fill | Bulk Fill | Bulk Fill | |
| Material Source : | On Site | On Site | On Site | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484210.721<br>N 6939695.084<br>RL 87.534 | E 484219.112<br>N 6939674.609<br>RL 88.374 | E 484231.614<br>N 6939654.434<br>RL 89.088 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 25.5 | 23.2 | 29.8 | |
| Hilf MDR Number : | 233062 | 233063 | 233064 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 94 | 99 | 98 | |
| Field Wet Density (t/m³) : | 2.104 | 2.127 | 1.934 | |
| Optimum Moisture Content (%) : | 27.2 | 23.5 | 30.3 | |
| Moisture Variation : | 1.5 | 0.2 | 0.5 | |
| Peak Converted Wet Density (t/m³) : | 2.022 | 2.107 | 1.889 | |
| Hilf Density Ratio (%) : | 104.0 | 101.0 | 102.5 | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 12 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 22/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233065 | 233066 | | |
| Test Number : | 34 | 35 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 07/08/2017 | 07/08/2017 | | |
| Date Tested : | 07/08/2017 | 07/08/2017 | | |
| Material Type : | Bulk Fill | Bulk Fill | | |
| Material Source : | On Site | On Site | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484208.8<br>N 6939698.3<br>RL 87.0 | E 484218.8<br>N 6939674.4<br>RL 88.1 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 25.0 | 26.9 | | |
| Hilf MDR Number : | 233065 | 233066 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 99 | 99 | | |
| Field Wet Density (t/m³) : | 1.923 | 1.912 | | |
| Optimum Moisture Content (%) : | 25.3 | 27.2 | | |
| Moisture Variation : | 0.2 | 0.2 | | |
| Peak Converted Wet Density (t/m³) : | 1.902 | 1.911 | | |
| Hilf Density Ratio (%) : | 101.0 | 100.0 | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | + or - 2% | + or - 2% | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 13 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 22/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233067 | 233068 | | |
| Test Number : | 36 | 37 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 07/08/2017 | 07/08/2017 | | |
| Date Tested : | 07/08/2017 | 07/08/2017 | | |
| Material Type : | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | | |
| Material Source : | On Site (Crushed Basalt) | On Site (Crushed Basalt) | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484246.4<br>N 6939658.4<br>RL 90.4 | E 484231.8<br>N 6939687.2<br>RL 89.8 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 10.3 | 14.9 | | |
| Hilf MDR Number : | 233067 | 233068 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 78.5 | 100.5 | | |
| Field Wet Density (t/m³) : | 2.241 | 2.271 | | |
| Optimum Moisture Content (%) : | 13.1 | 14.8 | | |
| Moisture Variation : | 2.8 | -0.1 | | |
| Peak Converted Wet Density (t/m³) : | 2.168 | 2.260 | | |
| Hilf Density Ratio (%) : | 103.5 | 100.5 | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | - | - | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 69** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **23/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 242679 | 242680 | 242681 | 242682 |
| Test Number : | 211 | 212 | 213 | 214 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 15/03/2018 | 15/03/2018 | 15/03/2018 | 15/03/2018 |
| Date Tested : | 15/03/2018 | 15/03/2018 | 15/03/2018 | 15/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484162.704<br>N 6939744.357<br>RL 84.994 | E 484155.883<br>N 6939760.784<br>RL 84.384 | E 484165.729<br>N 6939764.377<br>RL 84.705 | E 484160.522<br>N 6939784.473<br>RL 83.921 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 17.1 | 18.7 | 17.8 | 19.6 |
| Hilf MDR Number : | 242679 | 242680 | 242681 | 242682 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 100.5 | 99.5 | 98.5 | 100.5 |
| Field Wet Density (t/m³) : | 1.906 | 1.949 | 1.867 | 2.044 |
| Optimum Moisture Content (%) : | 17.0 | 18.8 | 18.0 | 19.5 |
| Moisture Variation : | -0.1 | 0.1 | 0.2 | -0.1 |
| Peak Converted Wet Density (t/m³) : | 1.995 | 2.043 | 1.953 | 2.098 |
| Hilf Density Ratio (%) : | **95.5** | **95.5** | **95.5** | **97.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | SILTY CLAY | SILTY CLAY | SILTY CLAY | SILTY CLAY |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 58** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **08/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 242376 | 242377 | 242378 | 242379 |
|---|---|---|---|---|
| Test Number : | 172 | 173 | 174 | 175 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 01/03/2018 | 01/03/2018 | 01/03/2018 | 01/03/2018 |
| Date Tested : | 01/03/2018 | 01/03/2018 | 01/03/2018 | 01/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484164.307<br>N 6939799.614<br>RL 83.298 | E 484156.322<br>N 6939790.237<br>RL 82.731 | E 484160.883<br>N 6939776.470<br>RL 83.291 | E 484152.753<br>N 6939764.257<br>RL 83.167 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | 14 | 15 | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | 2.553 | 2.569 | - |
| Field Moisture Content (%) : | 22.7 | 18.9 | 20.1 | 24.6 |
| Hilf MDR Number : | 242376 | 242377 | 242378 | 242379 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 96.5 | 93 | 98 | 100 |
| Field Wet Density (t/m³) : | 1.946 | 2.190 | 2.150 | 2.052 |
| Optimum Moisture Content (%) : | 23.5 | 20.3 | 20.5 | 24.6 |
| Moisture Variation : | 0.7 | 1.3 | 0.3 | 0.0 |
| Peak Converted Wet Density (t/m³) : | 1.908 | 2.156* | 2.178* | 2.025 |
| Hilf Density Ratio (%) : | **102.0** | **101.5** | **98.5** | **101.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| Remarks : | - | | | |

* - denotes adjusted for oversize

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 15 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 23/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 |  | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233108 | 233109 | | |
| Test Number : | 42 | 43 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 08/08/2017 | 08/08/2017 | | |
| Date Tested : | 08/08/2017 | 08/08/2017 | | |
| Material Type : | Bulk Fill | Bulk Fill | | |
| Material Source : | On Site | On Site | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484204.367<br>N 6939674.430<br>RL 87.619 | E 484214.100<br>N 6939652.862<br>RL 88.511 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 22.0 | 22.8 | | |
| Hilf MDR Number : | 233108 | 233109 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 98.5 | 91.5 | | |
| Field Wet Density (t/m³) : | 1.901 | 1.998 | | |
| Optimum Moisture Content (%) : | 22.4 | 24.9 | | |
| Moisture Variation : | 0.4 | 2.0 | | |
| Peak Converted Wet Density (t/m³) : | 1.921 | 1.975 | | |
| Hilf Density Ratio (%) : | 99.0 | 101.0 | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | + or - 2% | + or - 2% | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 25** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **16/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 240033 | 240034 | 240035 | 240036 |
|---|---|---|---|---|
| Test Number : | 72 | 73 | 74 | 75 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 09/01/2018 | 09/01/2018 | 09/01/2018 | 09/01/2018 |
| Date Tested : | 09/01/2018 | 09/01/2018 | 09/01/2018 | 09/01/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484065.479<br>N 6939754.619<br>RL 79.210 | E 484059.109<br>N 6939735.950<br>RL 79.780 | E 484076.784<br>N 6939678.617<br>RL 82.605 | E 484080.209<br>N 6939694.628<br>RL 81.798 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | 10 | 10 | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | 2.473 | 2.483 | - | - |
| Field Moisture Content (%) : | 16.8 | 12.5 | 24.9 | 27.1 |
| Hilf MDR Number : | 240033 | 240034 | 240035 | 240036 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 99 | 101 | 101 | 101 |
| Field Wet Density (t/m³) : | 2.160 | 2.237 | 2.060 | 1.855 |
| Optimum Moisture Content (%) : | 17.0 | 12.4 | 24.7 | 26.8 |
| Moisture Variation : | 0.2 | -0.1 | -0.2 | -0.2 |
| Peak Converted Wet Density (t/m³) : | 2.127* | 2.14* | 2.054 | 1.936 |
| Hilf Density Ratio (%) : | **101.5** | **104.5** | **100.5** | **96.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

* - denotes adjusted for oversize

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# Hilf Density Ratio Report

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|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 57** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 242205 | 242206 | 242207 | 242208 |
|---|---|---|---|---|
| Test Number : | 168 | 169 | 170 | 171 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 21/02/2018 | 21/02/2018 | 21/02/2018 | 21/02/2018 |
| Date Tested : | 21/02/2018 | 21/02/2018 | 21/02/2018 | 21/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484107.769<br>N 6939809.077<br>RL 80.154 | E 484099.934<br>N 6939779.085<br>RL 80.002 | E 484124.143<br>N 6939802.429<br>RL 81.104 | E 484117.909<br>N 6939774.110<br>RL 81.001 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | 13 |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | 2.610 |
| Field Moisture Content (%) : | 17.7 | 18.5 | 21.0 | 10.1 |
| Hilf MDR Number : | 242205 | 242206 | 242207 | 242208 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 86.5 | 98 | 93.5 | 82 |
| Field Wet Density (t/m³) : | 2.031 | 2.051 | 2.072 | 2.093 |
| Optimum Moisture Content (%) : | 20.4 | 18.9 | 22.5 | 12.3 |
| Moisture Variation : | 2.6 | 0.3 | 1.4 | 2.2 |
| Peak Converted Wet Density (t/m³) : | 2.027 | 2.049 | 1.982 | 2.096* |
| Hilf Density Ratio (%) : | **100.0** | **100.0** | **104.5** | **100.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

* - denotes adjusted for oversize

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 16 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 26/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| Sample Number : | 233216 | 233217 | 233218 | 233219 |
|---|---|---|---|---|
| Test Number : | 44 | 45 | 46 | 47 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 09/08/2017 | 09/08/2017 | 09/08/2017 | 09/08/2017 |
| Date Tested : | 09/08/2017 | 09/08/2017 | 09/08/2017 | 09/08/2017 |
| Material Type : | Bulk Fill | Bulk Fill | Bulk Fill | Bulk Fill |
| Material Source : | On Site | On Site | On Site | On Site |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484204.100<br>N 6939673.744<br>RL 88.068 | E 484201.060<br>N 6939646.807<br>RL 88.798 | E 484205.030<br>N 6939632.421<br>RL 87.991 | E 484190.965<br>N 6939642.963<br>RL 86.974 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 22.4 | 21.7 | 14.6 | 13.2 |
| Hilf MDR Number : | 233216 | 233217 | 233218 | 233219 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 88.5 | 88 | 74.5 | 77.5 |
| Field Wet Density (t/m³) : | 2.013 | 1.909 | 1.950 | 1.892 |
| Optimum Moisture Content (%) : | 25.3 | 24.6 | 19.6 | 17.0 |
| Moisture Variation : | 2.6 | 2.8 | 4.9 | 3.8 |
| Peak Converted Wet Density (t/m³) : | 1.940 | 1.927 | 1.966 | 1.937 |
| Hilf Density Ratio (%) : | 104.0 | 99.0 | 99.0 | 97.5 |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 48** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **19/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 241624 | | | |
| Test Number : | 139 | | | |
| Sampling Method : | - | | | |
| Date Sampled : | 08/02/2018 | | | |
| Date Tested : | 08/02/2018 | | | |
| Material Type : | **Bulk Fill** | | | |
| Material Source : | **On Site** | | | |
| Lot Number : | - | | | |
| Sample Location : | E 484104.527<br>N 6939735.252<br>RL 82.444 | | | |
| Test Depth (mm ) : | 150 | | | |
| Layer Depth (mm) : | - | | | |
| Maximum Size (mm) : | 19 | | | |
| Oversize Wet (%) : | - | | | |
| Oversize Dry (%) : | - | | | |
| Oversize Density (t/m³) : | - | | | |
| Field Moisture Content (%) : | 22.7 | | | |
| Hilf MDR Number : | 241624 | | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | | | |
| Compactive Effort : | Standard | | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | | | |
| Moisture Method : | AS1289.2.1.1 | | | |
| Moisture Ratio (%) : | 100.5 | | | |
| Field Wet Density (t/m³) : | 2.013 | | | |
| Optimum Moisture Content (%) : | 22.5 | | | |
| Moisture Variation : | -0.1 | | | |
| Peak Converted Wet Density (t/m³) : | 2.035 | | | |
| Hilf Density Ratio (%) : | **99.0** | | | |
| Minimum Specification : | 95 | | | |
| Moisture Specification : | + or - 2% | | | |
| Site Selection : | - | | | |
| Soil Description : | - | | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 17 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 26/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 |  | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233220 | 233221 | | |
| Test Number : | 48 | 49 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 09/08/2017 | 09/08/2017 | | |
| Date Tested : | 09/08/2017 | 09/08/2017 | | |
| Material Type : | Bulk Fill | Bulk Fill | | |
| Material Source : | On Site | On Site | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484188.765<br>N 6939641.200<br>RL 87.712 | E 484200.020<br>N 6939624.265<br>RL 88.550 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | 150 | 150 | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 21.1 | 19.3 | | |
| Hilf MDR Number : | 233220 | 233221 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 86 | 88 | | |
| Field Wet Density (t/m³) : | 1.955 | 1.985 | | |
| Optimum Moisture Content (%) : | 24.5 | 21.9 | | |
| Moisture Variation : | 3.2 | 2.5 | | |
| Peak Converted Wet Density (t/m³) : | 1.932 | 1.966 | | |
| Hilf Density Ratio (%) : | 101.0 | 101.0 | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | - | - | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 38** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **36008** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 240717 | 240718 | | |
| Test Number : | 108 | 109 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 20/01/2018 | 20/01/2018 | | |
| Date Tested : | 20/01/2018 | 20/01/2018 | | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | | |
| Material Source : | **On Site** | **On Site** | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484072.514<br>N 6939757.810<br>RL 79.174 | E 484053.974<br>N 6939715.145<br>RL 80.519 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 17.7 | 14.5 | | |
| Hilf MDR Number : | 240717 | 240718 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 98.5 | 96.5 | | |
| Field Wet Density (t/m³) : | 1.845 | 1.850 | | |
| Optimum Moisture Content (%) : | 17.9 | 15.0 | | |
| Moisture Variation : | 0.2 | 0.5 | | |
| Peak Converted Wet Density (t/m³) : | 1.937 | 1.940 | | |
| Hilf Density Ratio (%) : | **95.0** | **95.5** | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | + or - 2% | + or - 2% | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 19 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 29/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233339 | 233340 | 233341 | |
| Test Number : | 54 | 55 | 56 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 10/08/2017 | 10/08/2017 | 10/08/2017 | |
| Date Tested : | 10/08/2017 | 10/08/2017 | 10/08/2017 | |
| Material Type : | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | |
| Material Source : | On Site (Crushed Basalt) | On Site (Crushed Basalt) | On Site (Crushed Basalt) | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484244.311<br>N 6939620.023<br>Final Level | E 484232.300<br>N 6939618.948<br>Final Level | E 484223.904<br>N 6939602.141<br>Final Level | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | 2.239 | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 10.0 | 12.4 | 10.3 | |
| Hilf MDR Number : | 233339 | 233340 | 233341 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 69.5 | 97 | 80.5 | |
| Field Wet Density (t/m³) : | 2.239 | 2.200 | 2.166 | |
| Optimum Moisture Content (%) : | 14.4 | 12.8 | 12.8 | |
| Moisture Variation : | 4.3 | 0.3 | 2.5 | |
| Peak Converted Wet Density (t/m³) : | 2.130 | 2.196 | 2.134 | |
| Hilf Density Ratio (%) : | 105.0 | 100.0 | 101.5 | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | - | - | - | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 20 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 30/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| Sample Number : | 233461 | 233462 | 233463 | 233464 |
|---|---|---|---|---|
| Test Number : | 57 | 58 | 59 | 60 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 11/08/2017 | 11/08/2017 | 11/08/2017 | 11/08/2017 |
| Date Tested : | 11/08/2017 | 11/08/2017 | 11/08/2017 | 11/08/2017 |
| Material Type : | Bulk Fill | Bulk Fill | Bulk Fill | Bulk Fill |
| Material Source : | On Site | On Site | On Site | On Site |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484155.075<br>N 6939640.985<br>RL 85.404 | E 484166.069<br>N 6939625.787<br>RL 86.286 | E 484178.253<br>N 6939639.834<br>RL 86.861 | E 484195.858<br>N 6939607.992<br>RL 88.598 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 21.2 | 24.5 | 15.8 | 18.2 |
| Hilf MDR Number : | 233461 | 233462 | 233463 | 233464 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 85 | 88.5 | 79.5 | 80.5 |
| Field Wet Density (t/m³) : | 1.905 | 1.848 | 1.895 | 1.964 |
| Optimum Moisture Content (%) : | 25.0 | 27.6 | 19.9 | 22.6 |
| Moisture Variation : | 3.7 | 3.0 | 3.9 | 4.3 |
| Peak Converted Wet Density (t/m³) : | 1.820 | 1.838 | 1.976 | 1.870 |
| Hilf Density Ratio (%) : | 104.5 | 100.5 | 96.0 | 105.0 |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 21 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 30/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| Sample Number : | 233602 | 233603 | 233604 | |
|---|---|---|---|---|
| Test Number : | 61 | 62 | 63 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 15/08/2017 | 15/08/2017 | 15/08/2017 | |
| Date Tested : | 15/08/2017 | 15/08/2017 | 15/08/2017 | |
| Material Type : | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | |
| Material Source : | On Site | On Site | On Site | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484210.231<br>N 6939602.924<br>RL 89.994 | E 484200.816<br>N 6939615.874<br>RL 89.101 | E 484191.390<br>N 6939629.749<br>RL 88.614 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | 150 | 150 | 150 | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 21.3 | 18.7 | 14.5 | |
| Hilf MDR Number : | 233602 | 233603 | 233604 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 94 | 95 | 82.5 | |
| Field Wet Density (t/m³) : | 1.987 | 2.064 | 1.988 | |
| Optimum Moisture Content (%) : | 22.6 | 19.7 | 17.6 | |
| Moisture Variation : | 1.3 | 0.9 | 3.0 | |
| Peak Converted Wet Density (t/m³) : | 1.987 | 2.054 | 2.079 | |
| Hilf Density Ratio (%) : | 100.0 | 100.5 | 95.5 | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | - | - | - | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 66** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **15/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 242575 | 242576 | 242577 | 242578 |
|---|---|---|---|---|
| Test Number : | 200 | 201 | 202 | 203 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 13/03/2018 | 13/03/2018 | 13/03/2018 | 13/03/2018 |
| Date Tested : | 13/03/2018 | 13/03/2018 | 13/03/2018 | 13/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484121.169<br>N 6939897.174<br>RL 78.146 | E 484122.036<br>N 6939879.545<br>RL 78.654 | E 484123.528<br>N 6939864.741<br>RL 79.644 | E 484131.723<br>N 6939881.515<br>RL 79.440 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | 10 | - | 12 | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | 2.564 | - | 2.099 | - |
| Field Moisture Content (%) : | 21.2 | 19.8 | 30.1 | 18.2 |
| Hilf MDR Number : | 242575 | 242576 | 242577 | 242578 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 101 | 100.5 | 101 | 102.5 |
| Field Wet Density (t/m³) : | 2.132 | 2.032 | 2.035 | 2.008 |
| Optimum Moisture Content (%) : | 21.0 | 19.7 | 29.8 | 17.8 |
| Moisture Variation : | -0.2 | -0.1 | -0.2 | -0.5 |
| Peak Converted Wet Density (t/m³) : | 2.118* | 2.111 | 1.947* | 2.110 |
| Hilf Density Ratio (%) : | **100.5** | **96.5** | **104.5** | **95.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

* - denotes adjusted for oversize

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 24 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 31/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 |  | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233639 | 233640 | | |
| Test Number : | 70 | 71 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 16/08/2017 | 16/08/2017 | | |
| Date Tested : | 16/08/2017 | 16/08/2017 | | |
| Material Type : | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | | |
| Material Source : | On Site (Crushed Basalt) | On Site (Crushed Basalt) | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484182.435<br>N 6939604.985<br>RL 89.120 | E 484169.530<br>N 6939593.310<br>RL 88.720 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 13.1 | 11.6 | | |
| Hilf MDR Number : | 233639 | 233640 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 75.5 | 83 | | |
| Field Wet Density (t/m³) : | 2.171 | 2.108 | | |
| Optimum Moisture Content (%) : | 17.4 | 14.0 | | |
| Moisture Variation : | 4.1 | 2.4 | | |
| Peak Converted Wet Density (t/m³) : | 2.105 | 2.124 | | |
| Hilf Density Ratio (%) : | 103.0 | 99.0 | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | - | - | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 22 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 30/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233605 | 233606 | 233607 | |
| Test Number : | 64 | 65 | 66 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 15/08/2017 | 15/08/2017 | 15/08/2017 | |
| Date Tested : | 15/08/2017 | 15/08/2017 | 15/08/2017 | |
| Material Type : | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | Bulk Fill (Capping Layer) | |
| Material Source : | On Site (Crushed Basalt) | On Site (Crushed Basalt) | On Site (Crushed Basalt) | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484207.589<br>N 6939586.412<br>RL 90.487 | E 484200.097<br>N 6939596.705<br>RL 90.033 | E 484194.420<br>N 6939604.893<br>RL 89.769 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | 150 | 150 | 150 | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 13.7 | 12.5 | 12.2 | |
| Hilf MDR Number : | 233605 | 233606 | 233607 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 84.5 | 83 | 83 | |
| Field Wet Density (t/m³) : | 2.180 | 2.248 | 2.253 | |
| Optimum Moisture Content (%) : | 16.2 | 15.0 | 14.7 | |
| Moisture Variation : | 2.4 | 2.5 | 2.4 | |
| Peak Converted Wet Density (t/m³) : | 2.113 | 2.156 | 2.155 | |
| Hilf Density Ratio (%) : | 103.0 | 104.5 | 104.5 | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | - | - | - | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 56** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 242079 | 242080 | 242081 | 242082 |
| Test Number : | 164 | 165 | 166 | 167 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 19/02/2018 | 19/02/2018 | 19/02/2018 | 19/02/2018 |
| Date Tested : | 19/02/2018 | 19/02/2018 | 19/02/2018 | 19/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484111.59<br>N 6939751.16<br>RL 81.92 | E 484113.91<br>N 6939771.86<br>RL 80.49 | E 484118.93<br>N 6939794.46<br>RL 80.58 | E 484112.39<br>N 6939816.16<br>RL 80.25 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 16.0 | 11.8 | 11.4 | 22.4 |
| Hilf MDR Number : | 242079 | 242080 | 242081 | 242082 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 89.5 | 88 | 85.5 | 91.5 |
| Field Wet Density (t/m³) : | 1.987 | 1.997 | 2.012 | 2.038 |
| Optimum Moisture Content (%) : | 17.8 | 13.4 | 13.3 | 24.4 |
| Moisture Variation : | 1.8 | 1.7 | 2.0 | 2.0 |
| Peak Converted Wet Density (t/m³) : | 2.048 | 2.057 | 1.976 | 1.945 |
| Hilf Density Ratio (%) : | **97.0** | **97.0** | **102.0** | **105.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | CCA WINSLOW | Report Number: | DL17/398 - 23 |
| Address : | 1587 IPSWICH ROAD, ROCKLEA, QLD, 4106 | Report Date : | 30/08/2017 |
| Project Name : | EARTHWORKS SUPERVISION | Order Number : | 33832 |
| Project Number : | DL17/398 | Test Method : | AS1289.5.8.1 & 5.7.1 |
| Location: | EDEN'S CROSSING , FUTURE STAGES 15-20 | Page 1 of 1 | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 233636 | 233637 | 233638 | |
| Test Number : | 67 | 68 | 69 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 16/08/2017 | 16/08/2017 | 16/08/2017 | |
| Date Tested : | 16/08/2017 | 16/08/2017 | 16/08/2017 | |
| Material Type : | Bulk Fill | Bulk Fill | Bulk Fill | |
| Material Source : | On Site | On Site | On Site | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484169<br>N 6939601<br>RL 87.8 | E 484176<br>N 6939607<br>RL 88.2 | E 484170<br>N 6939598<br>RL 87.8 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | 150 | 150 | 150 | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 27.4 | 27.3 | 23.9 | |
| Hilf MDR Number : | 233636 | 233637 | 233638 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 98.5 | 99 | 90.5 | |
| Field Wet Density (t/m³) : | 1.688 | 1.726 | 1.804 | |
| Optimum Moisture Content (%) : | 27.8 | 27.5 | 26.3 | |
| Moisture Variation : | 0.4 | 0.3 | 2.4 | |
| Peak Converted Wet Density (t/m³) : | 1.721 | 1.776 | 1.817 | |
| Hilf Density Ratio (%) : | 98.0 | 97.0 | 99.5 | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | - | - | - | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 64** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **08/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 242436 | 242437 | 242438 | 242439 |
|---|---|---|---|---|
| Test Number : | 193 | 194 | 195 | 196 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 03/03/2018 | 03/03/2018 | 03/03/2018 | 03/03/2018 |
| Date Tested : | 03/03/2018 | 03/03/2018 | 03/03/2018 | 03/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484123.011<br>N 6939861.764<br>RL 78.888 | E 484115.119<br>N 6939879.784<br>RL 76.680 | E 484126.682<br>N 6939880.145<br>RL 78.569 | E 484136.730<br>N 6939859.444<br>RL 79.914 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 18.5 | 15.5 | 11.9 | 15.0 |
| Hilf MDR Number : | 242436 | 242437 | 242438 | 242439 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 98 | 95.5 | 92 | 97 |
| Field Wet Density (t/m³) : | 2.050 | 2.086 | 2.043 | 2.051 |
| Optimum Moisture Content (%) : | 18.8 | 16.2 | 12.9 | 15.5 |
| Moisture Variation : | 0.3 | 0.7 | 1.0 | 0.5 |
| Peak Converted Wet Density (t/m³) : | 2.111 | 2.132 | 2.087 | 2.107 |
| Hilf Density Ratio (%) : | **97.0** | **98.0** | **98.0** | **97.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

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|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 28** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **19/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 240175 | 240176 | 240177 | 240178 |
|---|---|---|---|---|
| Test Number : | 80 | 81 | 82 | 83 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 12/01/2018 | 12/01/2018 | 12/01/2018 | 12/01/2018 |
| Date Tested : | 12/01/2018 | 12/01/2018 | 12/01/2018 | 12/01/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484083.474<br>N 6939715.456<br>RL 80.315 | E 484094.239<br>N 6939740.988<br>RL 79.540 | E 484098.017<br>N 6939698.481<br>RL 81.201 | E 484080.606<br>N 6939712.33<br>RL 81.501 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 34.0 | 23.2 | 26.9 | 29.8 |
| Hilf MDR Number : | 240175 | 240176 | 240177 | 240178 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 95 | 91.5 | 95.5 | 94 |
| Field Wet Density (t/m³) : | 1.770 | 1.742 | 1.820 | 1.792 |
| Optimum Moisture Content (%) : | 35.9 | 25.3 | 28.2 | 31.7 |
| Moisture Variation : | 1.8 | 2.1 | 1.2 | 1.8 |
| Peak Converted Wet Density (t/m³) : | 1.766 | 1.809 | 1.818 | 1.842 |
| Hilf Density Ratio (%) : | **100.0** | **96.5** | **100.0** | **97.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

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|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 30** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **25/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 240424 | 240425 | 240426 | 240427 |
|---|---|---|---|---|
| Test Number : | 86 | 87 | 88 | 89 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 16/01/2018 | 16/01/2018 | 16/01/2018 | 16/01/2018 |
| Date Tested : | 16/01/2018 | 16/01/2018 | 16/01/2018 | 16/01/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484113.273<br>N 6939734.817<br>RL 80.294 | E 484098.364<br>N 6939724.142<br>RL 80.590 | E 484099.610<br>N 6939700.422<br>RL 81.654 | E 484084.549<br>N 6939684.687<br>RL 81.797 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 24.5 | 19.1 | 23.0 | 21.0 |
| Hilf MDR Number : | 240424 | 240425 | 240426 | 240427 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 92 | 90.5 | 91.5 | 91 |
| Field Wet Density (t/m³) : | 1.804 | 1.894 | 1.804 | 1.873 |
| Optimum Moisture Content (%) : | 26.6 | 21.2 | 25.1 | 23.0 |
| Moisture Variation : | 2.1 | 2.0 | 2.1 | 2.0 |
| Peak Converted Wet Density (t/m³) : | 1.846 | 1.901 | 1.852 | 1.885 |
| Hilf Density Ratio (%) : | **97.5** | **99.5** | **97.5** | **99.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 31** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **25/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 240428 | | | |
| Test Number : | 90 | | | |
| Sampling Method : | - | | | |
| Date Sampled : | 16/01/2018 | | | |
| Date Tested : | 16/01/2018 | | | |
| Material Type : | **Bulk Fill** | | | |
| Material Source : | **On Site** | | | |
| Lot Number : | - | | | |
| Sample Location : | E 484085.467<br>N 6939663.085<br>RL 83.102 | | | |
| Test Depth (mm ) : | 150 | | | |
| Layer Depth (mm) : | - | | | |
| Maximum Size (mm) : | 19 | | | |
| Oversize Wet (%) : | - | | | |
| Oversize Dry (%) : | - | | | |
| Oversize Density (t/m³) : | - | | | |
| Field Moisture Content (%) : | 19.5 | | | |
| Hilf MDR Number : | 240428 | | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | | | |
| Compactive Effort : | Standard | | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | | | |
| Moisture Method : | AS1289.2.1.1 | | | |
| Moisture Ratio (%) : | 90.5 | | | |
| Field Wet Density (t/m³) : | 1.877 | | | |
| Optimum Moisture Content (%) : | 21.5 | | | |
| Moisture Variation : | 2.0 | | | |
| Peak Converted Wet Density (t/m³) : | 1.889 | | | |
| Hilf Density Ratio (%) : | **99.5** | | | |
| Minimum Specification : | 95 | | | |
| Moisture Specification : | + or - 2% | | | |
| Site Selection : | - | | | |
| Soil Description : | - | | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 62** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **08/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 242428 | 242429 | 242430 | 242431 |
|---|---|---|---|---|
| Test Number : | 185 | 186 | 187 | 188 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 03/03/2018 | 03/03/2018 | 03/03/2018 | 03/03/2018 |
| Date Tested : | 03/03/2018 | 03/03/2018 | 03/03/2018 | 03/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484109<br>N 6939873<br>RL 78.600 | E 484109<br>N 6939882<br>RL 77.670 | E 484110<br>N 6939893<br>RL 76.903 | E 484119<br>N 6939874<br>RL 78.250 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 18.4 | 16.2 | 15.2 | 21.7 |
| Hilf MDR Number : | 242428 | 242429 | 242430 | 242431 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 95 | 91.5 | 95.5 | 99.5 |
| Field Wet Density (t/m³) : | 2.006 | 1.997 | 2.052 | 1.968 |
| Optimum Moisture Content (%) : | 19.3 | 17.7 | 15.9 | 21.8 |
| Moisture Variation : | 0.9 | 1.5 | 0.7 | 0.1 |
| Peak Converted Wet Density (t/m³) : | 2.063 | 1.991 | 2.066 | 2.027 |
| Hilf Density Ratio (%) : | **97.0** | **100.5** | **99.5** | **97.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 32** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **30/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 240613 | 240614 | 240615 | 240616 |
| Test Number : | 91 | 92 | 93 | 94 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 18/01/2018 | 18/01/2018 | 18/01/2018 | 18/01/2018 |
| Date Tested : | 18/01/2018 | 18/01/2018 | 18/01/2018 | 18/01/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484050.596<br>N 6939651.457<br>RL 83.012 | E 484047.127<br>N 6939672.996<br>RL 81.924 | E 484063.542<br>N 6939698.318<br>RL 80.875 | E 484063.727<br>N 6939724.304<br>RL 80.044 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 49.5 | 13.9 | 23.9 | 14.7 |
| Hilf MDR Number : | 240613 | 240614 | 240615 | 240616 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 99 | 88 | 101.5 | 90 |
| Field Wet Density (t/m³) : | 1.766 | 1.833 | 1.987 | 1.963 |
| Optimum Moisture Content (%) : | 50.1 | 15.8 | 23.5 | 16.3 |
| Moisture Variation : | 0.5 | 2.0 | -0.4 | 1.6 |
| Peak Converted Wet Density (t/m³) : | 1.825 | 1.931 | 2.017 | 2.030 |
| Hilf Density Ratio (%) : | **97.0** | **95.0** | **98.5** | **96.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 61** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **08/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 242414 | 242416 | 242417 | 242418 |
| Test Number : | 181 | 182 | 183 | 184 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 02/03/2018 | 02/03/2018 | 02/03/2018 | 02/03/2018 |
| Date Tested : | 02/03/2018 | 02/03/2018 | 02/03/2018 | 02/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484098.778<br>N 6939757.514<br>RL 82.433 | E 484106.219<br>N 6939785.914<br>RL 81.695 | E 484116.485<br>N 6939784.205<br>RL 81.854 | E 484115.575<br>N 6939814.536<br>RL 81.204 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | 12 | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | 2.507 | - | - | - |
| Field Moisture Content (%) : | 16.8 | 15.1 | 16.7 | 14.8 |
| Hilf MDR Number : | 242414 | 242416 | 242417 | 242418 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 101.5 | 101.5 | 104.5 | 100 |
| Field Wet Density (t/m³) : | 2.121 | 2.099 | 2.059 | 2.073 |
| Optimum Moisture Content (%) : | 16.6 | 14.9 | 16.0 | 14.8 |
| Moisture Variation : | -0.2 | -0.2 | -0.7 | 0.0 |
| Peak Converted Wet Density (t/m³) : | 2.162* | 2.150 | 2.145 | 2.130 |
| Hilf Density Ratio (%) : | **98.0** | **97.5** | **96.0** | **97.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| Remarks : | - | | | |

* - denotes adjusted for oversize

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 33** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **30/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 240617 | 240618 | 240619 | 240620 |
|---|---|---|---|---|
| Test Number : | 95 | 96 | 97 | 98 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 18/01/2018 | 18/01/2018 | 18/01/2018 | 18/01/2018 |
| Date Tested : | 18/01/2018 | 18/01/2018 | 18/01/2018 | 18/01/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484079.689<br>N 6939748.415<br>RL 79.404 | E 484102.335<br>N 6939658.260<br>RL 84.137 | E 484114.725<br>N 6939704.726<br>RL 81.890 | E 484112.507<br>N 6939723.162<br>RL 81.198 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 17.1 | 16.4 | 18.6 | 16.3 |
| Hilf MDR Number : | 240617 | 240618 | 240619 | 240620 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 102 | 89.5 | 101 | 89.5 |
| Field Wet Density (t/m³) : | 1.868 | 1.945 | 1.798 | 1.723 |
| Optimum Moisture Content (%) : | 16.8 | 18.4 | 18.4 | 18.2 |
| Moisture Variation : | -0.4 | 1.9 | -0.1 | 2.1 |
| Peak Converted Wet Density (t/m³) : | 1.927 | 2.005 | 1.845 | 1.723 |
| Hilf Density Ratio (%) : | **97.0** | **97.0** | **97.5** | **100.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

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|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 34** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **30/01/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **33832** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 240621 | | | |
| Test Number : | 99 | | | |
| Sampling Method : | - | | | |
| Date Sampled : | 18/01/2018 | | | |
| Date Tested : | 18/01/2018 | | | |
| Material Type : | **Bulk Fill** | | | |
| Material Source : | **On Site** | | | |
| Lot Number : | - | | | |
| Sample Location : | E 484090.691<br>N 6939669.865<br>RL 83.227 | | | |
| Test Depth (mm ) : | 150 | | | |
| Layer Depth (mm) : | - | | | |
| Maximum Size (mm) : | 19 | | | |
| Oversize Wet (%) : | - | | | |
| Oversize Dry (%) : | - | | | |
| Oversize Density (t/m³) : | - | | | |
| Field Moisture Content (%) : | 31.1 | | | |
| Hilf MDR Number : | 240621 | | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | | | |
| Compactive Effort : | Standard | | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | | | |
| Moisture Method : | AS1289.2.1.1 | | | |
| Moisture Ratio (%) : | 93.5 | | | |
| Field Wet Density (t/m³) : | 1.784 | | | |
| Optimum Moisture Content (%) : | 33.2 | | | |
| Moisture Variation : | 2.1 | | | |
| Peak Converted Wet Density (t/m³) : | 1.760 | | | |
| Hilf Density Ratio (%) : | **101.5** | | | |
| Minimum Specification : | 95 | | | |
| Moisture Specification : | + or - 2% | | | |
| Site Selection : | - | | | |
| Soil Description : | - | | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 37** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **36008** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 240713 | 240714 | 240715 | 240716 |
|---|---|---|---|---|
| Test Number : | 104 | 105 | 106 | 107 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 20/01/2018 | 20/01/2018 | 20/01/2018 | 20/01/2018 |
| Date Tested : | 20/01/2018 | 20/01/2018 | 20/01/2018 | 20/01/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484101.557<br>N 6939663.149<br>RL 84.439 | E 484100.366<br>N 6939687.176<br>RL 83.084 | E 484097.825<br>N 6939711.150<br>RL 81.889 | E 484107.216<br>N 6939741.157<br>RL 80.663 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 17.4 | 17.6 | 17.0 | 16.3 |
| Hilf MDR Number : | 240713 | 240714 | 240715 | 240716 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 99.5 | 90 | 98 | 89.5 |
| Field Wet Density (t/m³) : | 1.989 | 1.985 | 1.929 | 1.981 |
| Optimum Moisture Content (%) : | 17.5 | 19.6 | 17.4 | 18.3 |
| Moisture Variation : | 0.1 | 1.9 | 0.3 | 1.9 |
| Peak Converted Wet Density (t/m³) : | 2.032 | 1.990 | 2.020 | 2.017 |
| Hilf Density Ratio (%) : | **98.0** | **100.0** | **95.5** | **98.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 39** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **36008** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 240769 | 240770 | 240771 | 240773 |
|---|---|---|---|---|
| Test Number : | 110 | 111 | 112 | 113 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 22/01/2018 | 22/01/2018 | 22/01/2018 | 22/01/2018 |
| Date Tested : | 22/01/2018 | 22/01/2018 | 22/01/2018 | 22/01/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484040.961<br>N 6939665.243<br>RL 82.814 | E 484049.496<br>N 6939686.665<br>RL 81.974 | E 484061.450<br>N 6939680.185<br>RL 82.373 | E 484084.971<br>N 6939676.107<br>RL 83.367 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 13.6 | 15.3 | 14.3 | 17.0 |
| Hilf MDR Number : | 240769 | 240770 | 240771 | 240773 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 99 | 97.5 | 96.5 | 98.5 |
| Field Wet Density (t/m³) : | 2.043 | 1.943 | 1.971 | 1.862 |
| Optimum Moisture Content (%) : | 13.7 | 15.7 | 14.8 | 17.2 |
| Moisture Variation : | 0.1 | 0.4 | 0.5 | 0.2 |
| Peak Converted Wet Density (t/m³) : | 2.088 | 1.986 | 2.028 | 1.912 |
| Hilf Density Ratio (%) : | **98.0** | **98.0** | **97.0** | **97.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 40** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **36008** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 240774 | 240775 | | |
| Test Number : | 114 | 115 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 22/01/2018 | 22/01/2018 | | |
| Date Tested : | 22/01/2018 | 22/01/2018 | | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | | |
| Material Source : | **On Site** | **On Site** | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484097.518<br>N 6939708.992<br>RL 82.229 | E 484114.965<br>N 6939713.288<br>RL 82.575 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 16.4 | 18.0 | | |
| Hilf MDR Number : | 240774 | 240775 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 100 | 102.5 | | |
| Field Wet Density (t/m³) : | 1.900 | 1.851 | | |
| Optimum Moisture Content (%) : | 16.4 | 17.5 | | |
| Moisture Variation : | 0.0 | -0.5 | | |
| Peak Converted Wet Density (t/m³) : | 1.948 | 1.950 | | |
| Hilf Density Ratio (%) : | **97.5** | **95.0** | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | + or - 2% | + or - 2% | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 42** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **19/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 241372 | 241373 | 241374 | |
| Test Number : | 118 | 119 | 120 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 05/02/2018 | 05/02/2018 | 05/02/2018 | |
| Date Tested : | 05/02/2018 | 05/02/2018 | 05/02/2018 | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | |
| Material Source : | **On Site** | **On Site** | **On Site** | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484055.395<br>N 6939664.870<br>RL 83.126<br>Retest of Field Density No. 116 on the 22/01/18 | E 484099.284<br>N 6939722.691<br>RL 81.154<br>Retest of Field Density No. 103 on the 19/01/18 | E 484102.743<br>N 6939679.343<br>RL 83.961<br>Retest of Field Density No. 117 on the 22/01/18 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 20.8 | 24.0 | 22.3 | |
| Hilf MDR Number : | 241372 | 241373 | 241374 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 99 | 98 | 110 | |
| Field Wet Density (t/m³) : | 2.027 | 1.976 | 2.045 | |
| Optimum Moisture Content (%) : | 21.0 | 24.4 | 20.2 | |
| Moisture Variation : | 0.2 | 0.5 | -2.0 | |
| Peak Converted Wet Density (t/m³) : | 2.027 | 2.018 | 2.077 | |
| Hilf Density Ratio (%) : | **100.0** | **98.0** | **98.5** | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 43** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **19/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 241480 | 241481 | 241482 | 241483 |
|---|---|---|---|---|
| Test Number : | 121 | 122 | 123 | 124 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 06/02/2018 | 06/02/2018 | 06/02/2018 | 06/02/2018 |
| Date Tested : | 06/02/2018 | 06/02/2018 | 06/02/2018 | 06/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484144.525<br>N 6939711.400<br>RL 83.830 | E 484127.770<br>N 6939687.884<br>RL 84.592 | E 484152.870<br>N 6939705.726<br>RL 84.269 | E 484136.117<br>N 6939660.155<br>RL 85.274 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 22.8 | 26.9 | 22.5 | 21.9 |
| Hilf MDR Number : | 241480 | 241481 | 241482 | 241483 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 110 | 107.5 | 93.5 | 99.5 |
| Field Wet Density (t/m³) : | 1.986 | 1.905 | 1.971 | 2.039 |
| Optimum Moisture Content (%) : | 20.8 | 25.0 | 24.1 | 22.0 |
| Moisture Variation : | -2.0 | -1.8 | 1.5 | 0.1 |
| Peak Converted Wet Density (t/m³) : | 2.041 | 1.962 | 1.916 | 1.998 |
| Hilf Density Ratio (%) : | **97.5** | **97.0** | **103.0** | **102.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 44** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **19/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 241565 | 241566 | 241567 | 241568 |
|---|---|---|---|---|
| Test Number : | 125 | 126 | 127 | 128 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 07/02/2018 | 07/02/2018 | 07/02/2018 | 07/02/2018 |
| Date Tested : | 07/02/2018 | 07/02/2018 | 07/02/2018 | 07/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484070.766<br>N 6939745.705<br>RL 80.615 | E 484050.747<br>N 6939692.243<br>RL 82.658 | E 484103.084<br>N 6939728.645<br>RL 82.202 | E 484085.407<br>N 6939688.985<br>RL 83.632 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | 8 | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | 2.404 | - |
| Field Moisture Content (%) : | 22.0 | 13.8 | 16.6 | 16.0 |
| Hilf MDR Number : | 241565 | 241566 | 241567 | 241568 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 89 | 86.5 | 87.5 | 86.5 |
| Field Wet Density (t/m³) : | 2.066 | 2.077 | 2.121 | 2.043 |
| Optimum Moisture Content (%) : | 24.7 | 16.0 | 18.9 | 18.5 |
| Moisture Variation : | 2.4 | 2.1 | 2.2 | 2.3 |
| Peak Converted Wet Density (t/m³) : | 2.107 | 2.126 | 2.165* | 2.116 |
| Hilf Density Ratio (%) : | **98.0** | **97.5** | **98.0** | **96.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | - | - | - | - |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

* - denotes adjusted for oversize

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 45** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **19/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 241569 | 241570 | | |
| Test Number : | 129 | 130 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 07/02/2018 | 07/02/2018 | | |
| Date Tested : | 07/02/2018 | 07/02/2018 | | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | | |
| Material Source : | **On Site** | **On Site** | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484156.520<br>N 6939725.484<br>RL 83.981 | E 484140.955<br>N 6939704.904<br>RL 84.480 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 16.1 | 18.2 | | |
| Hilf MDR Number : | 241569 | 241570 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 90 | 89 | | |
| Field Wet Density (t/m³) : | 2.142 | 2.081 | | |
| Optimum Moisture Content (%) : | 17.9 | 20.4 | | |
| Moisture Variation : | 1.8 | 2.1 | | |
| Peak Converted Wet Density (t/m³) : | 2.120 | 2.057 | | |
| Hilf Density Ratio (%) : | **101.0** | **101.0** | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | - | - | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 55** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 241924 | 241925 | 241926 | 241927 |
| Test Number : | 160 | 161 | 162 | 163 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 15/02/2018 | 15/02/2018 | 15/02/2018 | 15/02/2018 |
| Date Tested : | 15/02/2018 | 15/02/2018 | 15/02/2018 | 15/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484130.335<br>N 6939790.489<br>RL 80.337 | E 484124.203<br>N 6939768.003<br>RL 80.223 | E 484127.601<br>N 6939826.029<br>RL 80.571 | E 484115.940<br>N 6939776.213<br>RL 80.083 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 21.8 | 12.2 | 22.4 | 19.0 |
| Hilf MDR Number : | 241924 | 241925 | 241926 | 241927 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 99 | 98 | 91 | 100 |
| Field Wet Density (t/m³) : | 1.985 | 1.934 | 2.070 | 1.931 |
| Optimum Moisture Content (%) : | 22.0 | 12.4 | 24.6 | 19.0 |
| Moisture Variation : | 0.2 | 0.2 | 2.0 | 0.0 |
| Peak Converted Wet Density (t/m³) : | 1.951 | 1.899 | 2.007 | 1.974 |
| Hilf Density Ratio (%) : | **101.5** | **102.0** | **103.0** | **98.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 47** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **19/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 241620 | 241621 | 241622 | 241623 |
|---|---|---|---|---|
| Test Number : | 135 | 136 | 137 | 138 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 08/02/2018 | 08/02/2018 | 08/02/2018 | 08/02/2018 |
| Date Tested : | 08/02/2018 | 08/02/2018 | 08/02/2018 | 08/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484108.544<br>N 6939702.552<br>RL 84.080 | E 484101.619<br>N 6939709.857<br>RL 83.630 | E 484115.252<br>N 6939722.539<br>RL 83.319 | E 484117.204<br>N 6939742.052<br>RL 82.150 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 21.2 | 18.3 | 14.8 | 31.1 |
| Hilf MDR Number : | 241620 | 241621 | 241622 | 241623 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 100.5 | 99.5 | 101 | 100.5 |
| Field Wet Density (t/m³) : | 2.090 | 2.149 | 1.985 | 1.903 |
| Optimum Moisture Content (%) : | 21.1 | 18.4 | 14.6 | 31.0 |
| Moisture Variation : | -0.1 | 0.0 | -0.1 | -0.1 |
| Peak Converted Wet Density (t/m³) : | 2.062 | 2.089 | 1.999 | 1.904 |
| Hilf Density Ratio (%) : | **101.5** | **103.0** | **99.5** | **100.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 51** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **22/02/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 241766 | 241767 | | |
| Test Number : | 148 | 149 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 13/02/2018 | 13/02/2018 | | |
| Date Tested : | 13/02/2018 | 13/02/2018 | | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | | |
| Material Source : | **On Site** | **On Site** | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484032.190<br>N 6939683.009<br>RL 82.780 | E 484036.405<br>N 6939658.874<br>RL 82.746 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 20.7 | 22.5 | | |
| Hilf MDR Number : | 241766 | 241767 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 101 | 100.5 | | |
| Field Wet Density (t/m³) : | 2.004 | 2.049 | | |
| Optimum Moisture Content (%) : | 20.5 | 22.4 | | |
| Moisture Variation : | -0.2 | -0.1 | | |
| Peak Converted Wet Density (t/m³) : | 2.027 | 2.061 | | |
| Hilf Density Ratio (%) : | **99.0** | **99.5** | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | + or - 2% | + or - 2% | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

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|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 54** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 241920 | 241921 | 241922 | 241923 |
|---|---|---|---|---|
| Test Number : | 156 | 157 | 158 | 159 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 15/02/2018 | 15/02/2018 | 15/02/2018 | 15/02/2018 |
| Date Tested : | 15/02/2018 | 15/02/2018 | 15/02/2018 | 15/02/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484095.817<br>N 6939777.059<br>RL 78.826 | E 484107.189<br>N 6939798.327<br>RL 79.329 | E 484113.853<br>N 6939826.323<br>RL 79.586 | E 484135.285<br>N 6939821.787<br>RL 80.754 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 21.8 | 23.0 | 22.4 | 14.2 |
| Hilf MDR Number : | 241920 | 241921 | 241922 | 241923 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 91 | 100 | 100 | 100.5 |
| Field Wet Density (t/m³) : | 2.045 | 2.033 | 1.910 | 1.989 |
| Optimum Moisture Content (%) : | 23.9 | 23.0 | 22.4 | 14.1 |
| Moisture Variation : | 2.0 | 0.0 | 0.0 | -0.1 |
| Peak Converted Wet Density (t/m³) : | 1.978 | 2.025 | 1.897 | 1.998 |
| Hilf Density Ratio (%) : | **103.5** | **100.5** | **100.5** | **99.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | - | - | - | - |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 53** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **02/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 241863 | 241864 | | |
| Test Number : | 154 | 155 | | |
| Sampling Method : | - | - | | |
| Date Sampled : | 14/02/2018 | 14/02/2018 | | |
| Date Tested : | 14/02/2018 | 14/02/2018 | | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | | |
| Material Source : | **On Site** | **On Site** | | |
| Lot Number : | - | - | | |
| Sample Location : | E 484112.477<br>N 6939796.696<br>RL 78.982 | E 484119.137<br>N 6939821.305<br>RL 79.470 | | |
| Test Depth (mm ) : | 150 | 150 | | |
| Layer Depth (mm) : | - | - | | |
| Maximum Size (mm) : | 19 | 19 | | |
| Oversize Wet (%) : | - | - | | |
| Oversize Dry (%) : | - | - | | |
| Oversize Density (t/m³) : | - | - | | |
| Field Moisture Content (%) : | 23.7 | 19.9 | | |
| Hilf MDR Number : | 241863 | 241864 | | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | | |
| Compactive Effort : | Standard | Standard | | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | | |
| Moisture Ratio (%) : | 99.5 | 98.5 | | |
| Field Wet Density (t/m³) : | 1.984 | 2.125 | | |
| Optimum Moisture Content (%) : | 23.8 | 20.2 | | |
| Moisture Variation : | 0.1 | 0.2 | | |
| Peak Converted Wet Density (t/m³) : | 2.002 | 2.103 | | |
| Hilf Density Ratio (%) : | **99.0** | **101.0** | | |
| Minimum Specification : | 95 | 95 | | |
| Moisture Specification : | + or - 2% | + or - 2% | | |
| Site Selection : | - | - | | |
| Soil Description : | - | - | | |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 59** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **08/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 242380 | 242381 | 242382 | 242383 |
|---|---|---|---|---|
| Test Number : | 176 | 177 | 178 | 179 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 01/03/2018 | 01/03/2018 | 01/03/2018 | 01/03/2018 |
| Date Tested : | 01/03/2018 | 01/03/2018 | 01/03/2018 | 01/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484156.272<br>N 6939753.617<br>RL 83.670 | E 484138.775<br>N 6939816.052<br>RL 81.645 | E 484131.150<br>N 6939793.32<br>RL 81.755 | E 484122.814<br>N 6939761.151<br>RL 82.390 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | 13 | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | 2.395 | - |
| Field Moisture Content (%) : | 16.0 | 20.3 | 19.8 | 18.1 |
| Hilf MDR Number : | 242380 | 242381 | 242382 | 242383 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 95 | 97.5 | 96 | 99.5 |
| Field Wet Density (t/m³) : | 2.135 | 2.033 | 2.171 | 2.083 |
| Optimum Moisture Content (%) : | 16.8 | 20.8 | 20.6 | 18.2 |
| Moisture Variation : | 0.8 | 0.5 | 0.8 | 0.1 |
| Peak Converted Wet Density (t/m³) : | 2.137 | 2.005 | 2.093* | 2.105 |
| Hilf Density Ratio (%) : | **100.0** | **101.5** | **103.5** | **99.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| Remarks : | - | | | |

* - denotes adjusted for oversize

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# Hilf Density Ratio Report

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|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 63** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **08/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 242432 | 242433 | 242434 | 242435 |
|---|---|---|---|---|
| Test Number : | 189 | 190 | 191 | 192 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 03/03/2018 | 03/03/2018 | 03/03/2018 | 03/03/2018 |
| Date Tested : | 03/03/2018 | 03/03/2018 | 03/03/2018 | 03/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484125<br>N 6939880<br>RL 77.080 | E 484120<br>N 6939951<br>RL 76.062 | E 484109<br>N 6939928<br>RL 75.363 | E 484115.655<br>N 6939851.725<br>RL 79.295 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 17.7 | 19.2 | 21.9 | 13.0 |
| Hilf MDR Number : | 242432 | 242433 | 242434 | 242435 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 98 | 91 | 92 | 88 |
| Field Wet Density (t/m³) : | 2.057 | 2.011 | 2.031 | 2.045 |
| Optimum Moisture Content (%) : | 18.1 | 21.1 | 23.9 | 14.8 |
| Moisture Variation : | 0.3 | 1.8 | 1.8 | 1.8 |
| Peak Converted Wet Density (t/m³) : | 2.112 | 2.029 | 1.978 | 2.047 |
| Hilf Density Ratio (%) : | **97.5** | **99.0** | **102.5** | **100.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| Remarks : | - | | | |

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# Hilf Density Ratio Report

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|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 65** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **14/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 242539 | 242540 | 242541 | |
| Test Number : | 197 | 198 | 199 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 12/03/2018 | 12/03/2018 | 12/03/2018 | |
| Date Tested : | 12/03/2018 | 12/03/2018 | 12/03/2018 | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | |
| Material Source : | **On Site** | **On Site** | **On Site** | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484125.200<br>N 6939928.301<br>RL 77.144 | E 484131.963<br>N 6939900.471<br>RL 78.505 | E 484136.732<br>N 6939879.990<br>RL 79.515 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | 10 | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | 2.552 | |
| Field Moisture Content (%) : | 25.0 | 28.1 | 19.1 | |
| Hilf MDR Number : | 242539 | 242540 | 242541 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 103.5 | 100.5 | 100 | |
| Field Wet Density (t/m³) : | 1.916 | 2.016 | 2.085 | |
| Optimum Moisture Content (%) : | 24.1 | 28.0 | 19.1 | |
| Moisture Variation : | -0.8 | -0.1 | 0.0 | |
| Peak Converted Wet Density (t/m³) : | 2.009 | 2.026 | 2.061* | |
| Hilf Density Ratio (%) : | **95.5** | **99.5** | **101.0** | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

* - denotes adjusted for oversize

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WORLD RECOGNISED ACCREDITATION

**Accredited for compliance with ISO/IEC 17025 - Testing.**

APPROVED SIGNATORY

Liam Mcdowall (Brisbane) - Branch Manager
NATA Accreditation Number
1162 / 1169

MORRISON GEOTECHNIC

Brisbane | Gold Coast | Maroochydore
Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 P (07) 3279 0900 F (07) 3279 0955
ABN: 51 009 878 899
www.morrisongeo.com.au

# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 67** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **15/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 242579 | 242580 | 242581 | |
| Test Number : | 204 | 205 | 206 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 13/03/2018 | 13/03/2018 | 13/03/2018 | |
| Date Tested : | 13/03/2018 | 13/03/2018 | 13/03/2018 | |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | |
| Material Source : | **On Site** | **On Site** | **On Site** | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484131.409<br>N 6939868.527<br>RL 80.072 | E 484130.609<br>N 6939864.017<br>RL 80.280 | E 484131.842<br>N 6939876.400<br>RL 79.591 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 21.3 | 19.1 | 24.0 | |
| Hilf MDR Number : | 242579 | 242580 | 242581 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 101 | 101 | 108 | |
| Field Wet Density (t/m³) : | 2.017 | 2.057 | 2.025 | |
| Optimum Moisture Content (%) : | 21.0 | 18.9 | 22.2 | |
| Moisture Variation : | -0.2 | -0.2 | -1.8 | |
| Peak Converted Wet Density (t/m³) : | 2.085 | 2.099 | 2.023 | |
| Hilf Density Ratio (%) : | **96.5** | **98.0** | **100.0** | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | |
| Site Selection : | - | - | - | |
| Soil Description : | - | - | - | |
| Remarks : | - | | | |

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APPROVED SIGNATORY

Liam Mcdowall (Brisbane) - Branch Manager
NATA Accreditation Number
1162 / 1169

MORRISON GEOTECHNIC

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ABN: 51 009 878 899
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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 68** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **22/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| Sample Number : | 242633 | 242634 | 242635 | 242636 |
|---|---|---|---|---|
| Test Number : | 207 | 208 | 209 | 210 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 14/03/2018 | 14/03/2018 | 14/03/2018 | 14/03/2018 |
| Date Tested : | 14/03/2018 | 14/03/2018 | 14/03/2018 | 14/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484114.993<br>N 6939904.564<br>RL 78.350 | E 484116.637<br>N 6939875.337<br>RL 79.766 | E 484127.066<br>N 6939926.925<br>RL 78.291 | E 484119.842<br>N 6939950.084<br>RL 76.577 |
| Test Depth (mm ) : | 150 | 150 | 150 | 150 |
| Layer Depth (mm) : | 150 | 150 | 150 | 150 |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 18.7 | 17.9 | 26.1 | 14.9 |
| Hilf MDR Number : | 242633 | 242634 | 242635 | 242636 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 99.5 | 97.5 | 98.5 | 100 |
| Field Wet Density (t/m³) : | 2.131 | 2.022 | 1.772 | 2.131 |
| Optimum Moisture Content (%) : | 18.8 | 18.4 | 26.5 | 14.9 |
| Moisture Variation : | 0.1 | 0.5 | 0.4 | 0.0 |
| Peak Converted Wet Density (t/m³) : | 2.175 | 1.980 | 1.849 | 2.180 |
| Hilf Density Ratio (%) : | **98.0** | **102.0** | **96.0** | **98.0** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | -2% to +1% | -2% to +1% | -2% to +1% | -2% to +1% |
| Site Selection : | - | - | - | - |
| Soil Description : | GENERAL FILL | GENERAL FILL | GENERAL FILL | GENERAL FILL |
| Remarks : | - | | | |

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Liam Mcdowall (Brisbane) - Branch Manager
NATA Accreditation Number
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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 70** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **23/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 242683 | 242684 | 242685 | 242686 |
| Test Number : | 215 | 216 | 217 | 218 |
| Sampling Method : | - | - | - | - |
| Date Sampled : | 15/03/2018 | 15/03/2018 | 15/03/2018 | 15/03/2018 |
| Date Tested : | 15/03/2018 | 15/03/2018 | 15/03/2018 | 15/03/2018 |
| Material Type : | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** | **Bulk Fill** |
| Material Source : | **On Site** | **On Site** | **On Site** | **On Site** |
| Lot Number : | - | - | - | - |
| Sample Location : | E 484169.830<br>N 6939786.318<br>RL 84.340 | E 484150.262<br>N 6939914.808<br>RL 79.984 | E 484152.563<br>N 6939890.330<br>RL 80.730 | E 484153.322<br>N 6939870.529<br>RL 81.170 |
| Test Depth (mm ) : | 150 | | 150 | 150 |
| Layer Depth (mm) : | - | - | - | - |
| Maximum Size (mm) : | 19 | 19 | 19 | 19 |
| Oversize Wet (%) : | - | - | - | - |
| Oversize Dry (%) : | - | - | - | - |
| Oversize Density (t/m³) : | - | - | - | - |
| Field Moisture Content (%) : | 17.4 | 17.5 | 18.9 | 19.3 |
| Hilf MDR Number : | 242683 | 242684 | 242685 | 242686 |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 |
| Compactive Effort : | Standard | Standard | Standard | Standard |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 |
| Moisture Ratio (%) : | 101.5 | 98.5 | 92 | 100.5 |
| Field Wet Density (t/m³) : | 2.048 | 2.221 | 2.133 | 2.034 |
| Optimum Moisture Content (%) : | 17.2 | 17.7 | 20.5 | 19.2 |
| Moisture Variation : | -0.2 | 0.2 | 1.6 | -0.1 |
| Peak Converted Wet Density (t/m³) : | 2.081 | 2.119 | 2.107 | 1.966 |
| Hilf Density Ratio (%) : | **98.5** | **105.0** | **101.0** | **103.5** |
| Minimum Specification : | 95 | 95 | 95 | 95 |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | + or - 2% |
| Site Selection : | - | - | - | - |
| Soil Description : | SILTY CLAY | SANDY CLAY | SANDY CLAY | SANDY CLAY |
| Remarks : | - | | | |

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Liam Mcdowall (Brisbane) - Branch Manager
NATA Accreditation Number
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# Hilf Density Ratio Report

| | | | |
|---|---|---|---|
| Client : | **CCA WINSLOW** | Report Number: | **DL17/398 - 71** |
| Address : | **1587 IPSWICH ROAD, ROCKLEA, QLD, 4106** | Report Date : | **28/03/2018** |
| Project Name : | **EARTHWORKS SUPERVISION** | Order Number : | **37618** |
| Project Number : | **DL17/398** | Test Method : | **AS1289.5.8.1 & 5.7.1** |
| Location: | **EDEN'S CROSSING , FUTURE STAGES 15-20** | **Page 1 of 1** | |

| | | | | |
|---|---|---|---|---|
| Sample Number : | 242872 | 242873 | 242874 | |
| Test Number : | 219 | 220 | 221 | |
| Sampling Method : | - | - | - | |
| Date Sampled : | 19/03/2018 | 19/03/2018 | 19/03/2018 | |
| Date Tested : | 19/03/2018 | 19/03/2018 | 19/03/2018 | |
| Material Type : | **General Fill** | **General Fill** | **General Fill** | |
| Material Source : | **On Site** | **On Site** | **On Site** | |
| Lot Number : | - | - | - | |
| Sample Location : | E 484132.587<br>N 6939811.223<br>RL 82.499 | E 484131.470<br>N 6939789.767<br>RL 83.300 | E 484123.503<br>N 6939784.111<br>RL 83.131 | |
| Test Depth (mm ) : | 150 | 150 | 150 | |
| Layer Depth (mm) : | - | - | - | |
| Maximum Size (mm) : | 19 | 19 | 19 | |
| Oversize Wet (%) : | - | - | - | |
| Oversize Dry (%) : | - | - | - | |
| Oversize Density (t/m³) : | - | - | - | |
| Field Moisture Content (%) : | 21.5 | 22.4 | 16.6 | |
| Hilf MDR Number : | 242872 | 242873 | 242874 | |
| Hilf MDR Method : | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | AS1289.5.1.1 & 5.7.1 | |
| Compactive Effort : | Standard | Standard | Standard | |
| Field Density Method : | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | AS1289.5.8.1 & 5.7.1 | |
| Moisture Method : | AS1289.2.1.1 | AS1289.2.1.1 | AS1289.2.1.1 | |
| Moisture Ratio (%) : | 101.5 | 100 | 91 | |
| Field Wet Density (t/m³) : | 2.018 | 1.942 | 2.012 | |
| Optimum Moisture Content (%) : | 21.2 | 22.4 | 18.2 | |
| Moisture Variation : | -0.3 | 0.0 | 1.6 | |
| Peak Converted Wet Density (t/m³) : | 2.095 | 2.013 | 2.036 | |
| Hilf Density Ratio (%) : | **96.5** | **96.5** | **99.0** | |
| Minimum Specification : | 95 | 95 | 95 | |
| Moisture Specification : | + or - 2% | + or - 2% | + or - 2% | |
| Site Selection : | - | - | - | |
| Soil Description : | CLAY | CLAY | CLAY | |
| Remarks : | - | | | |

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Liam Mcdowall (Brisbane) - Branch Manager
NATA Accreditation Number
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**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16146*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1033**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1033 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1033 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1033 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

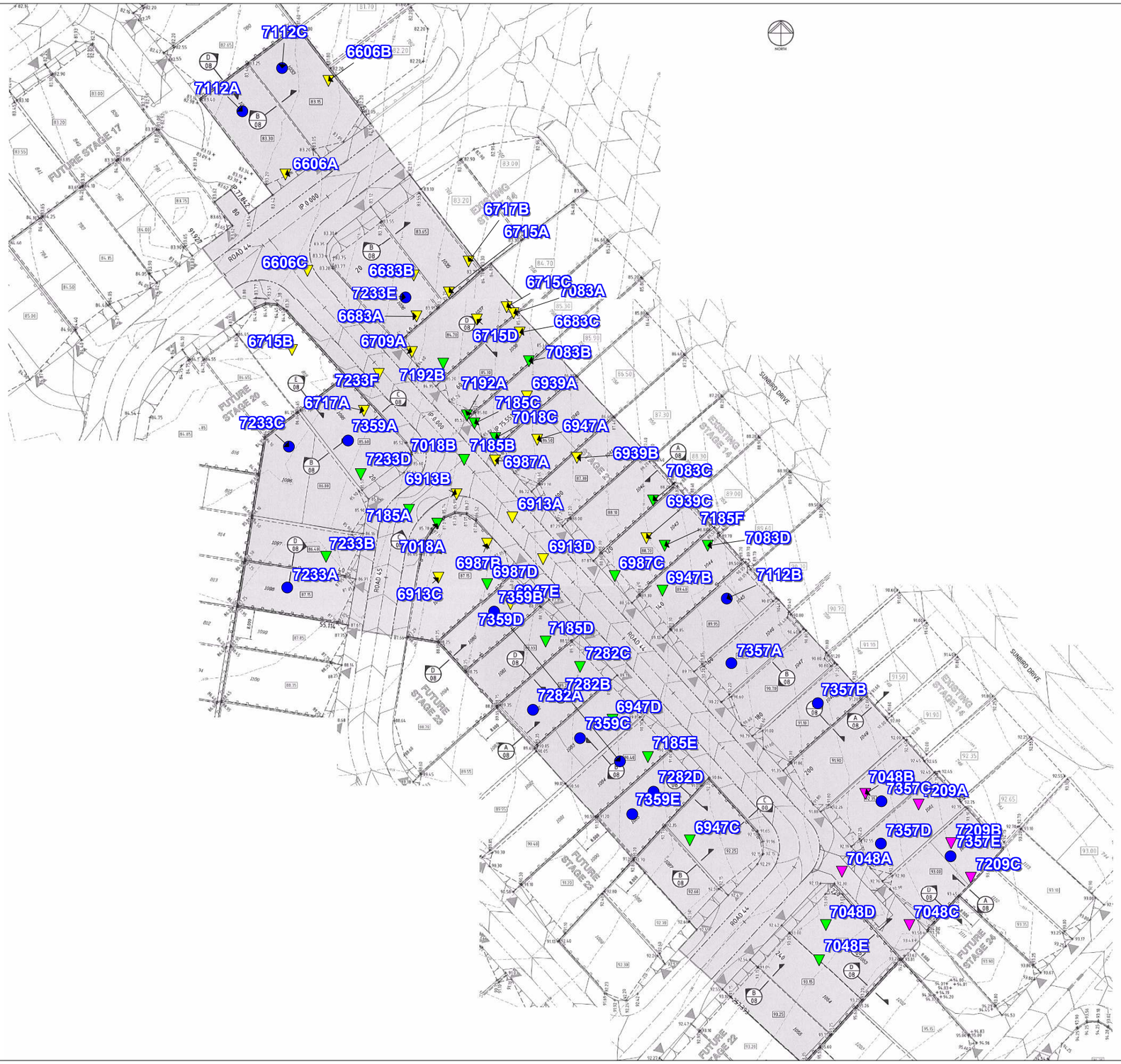
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

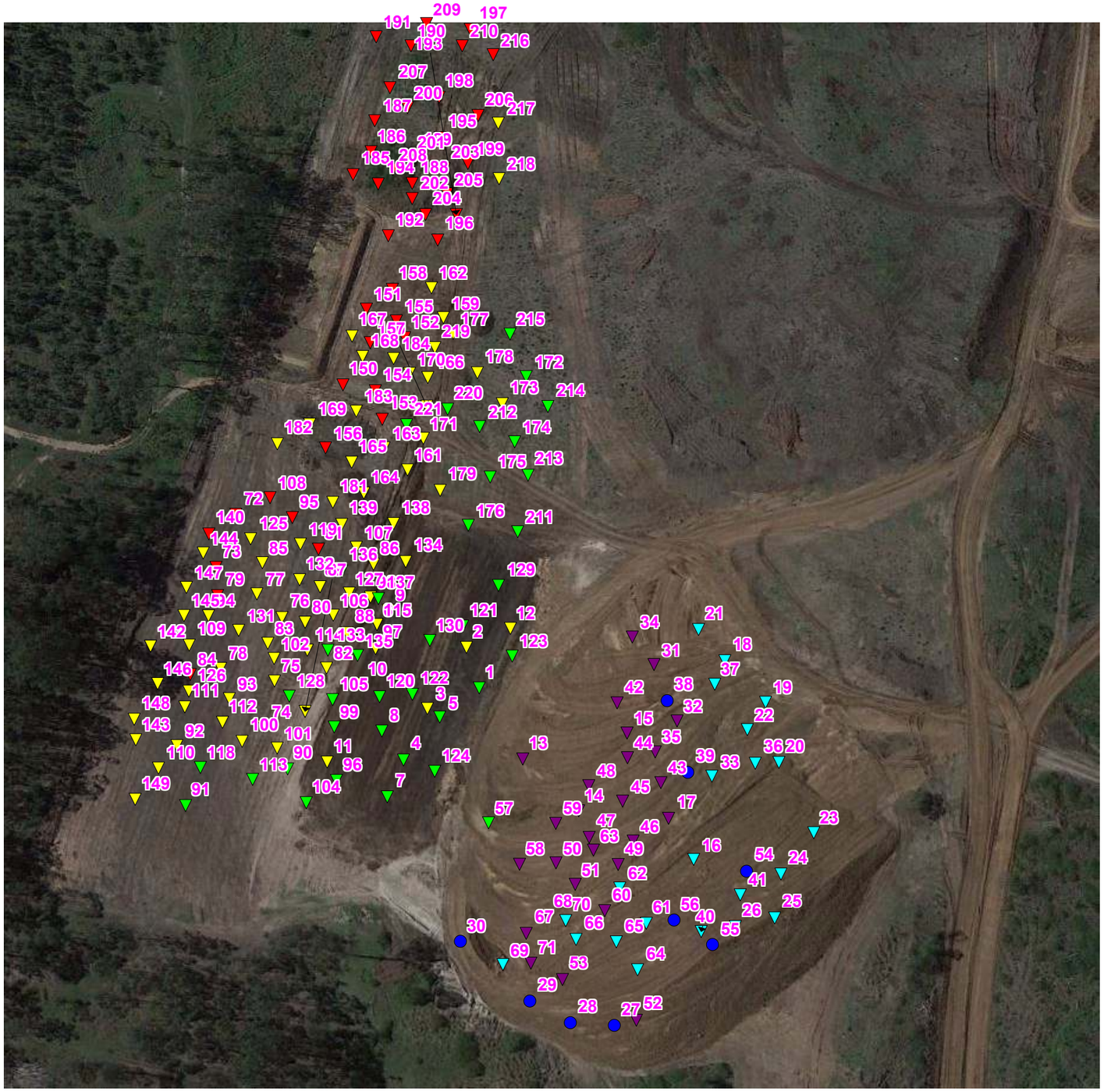
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





**MORRISON GEOTECHNIC PTY LTD**

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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16147*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1034**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1034 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1034 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1034 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

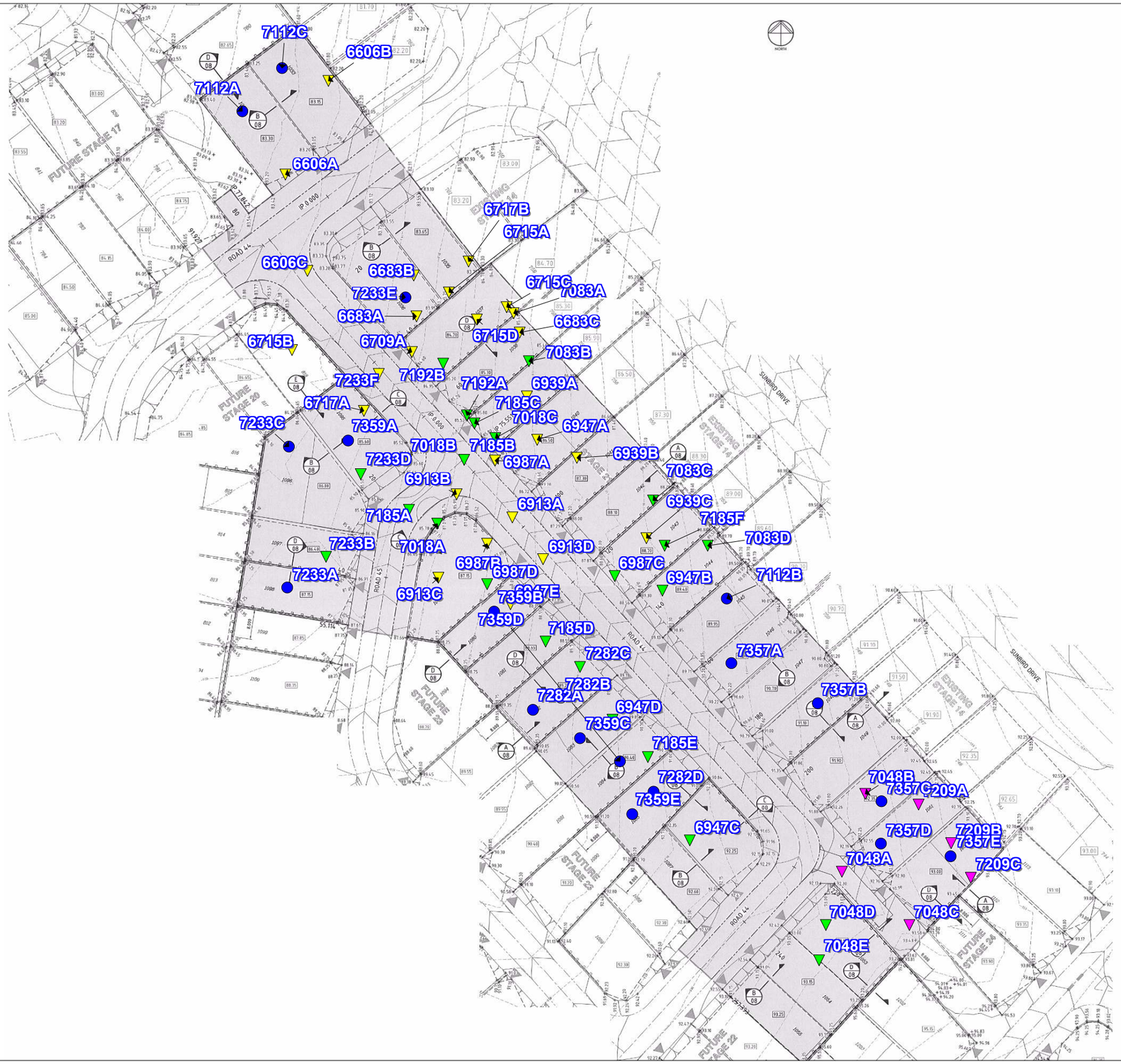
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

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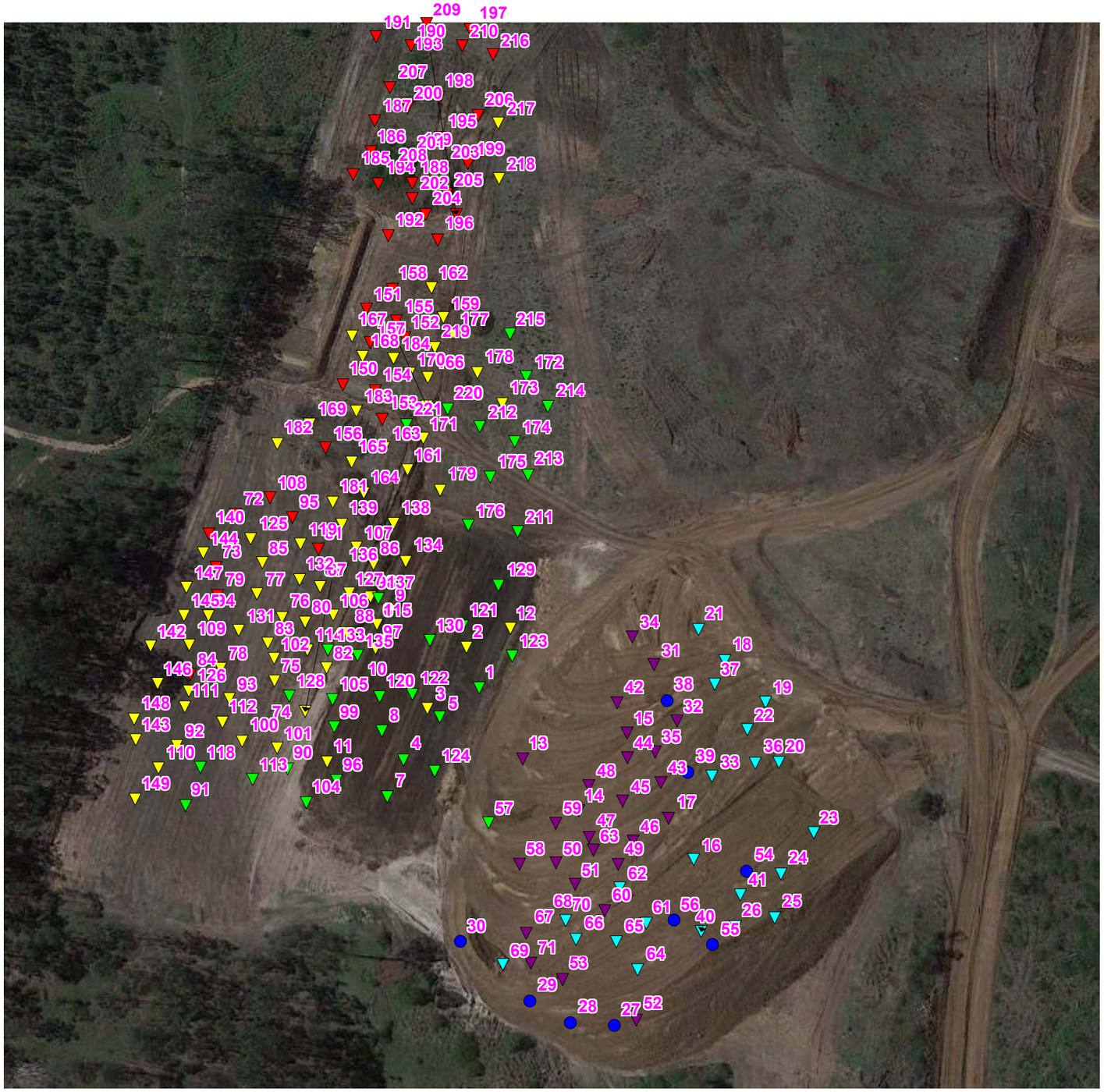
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16148*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1035**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1035 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1035 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1035 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

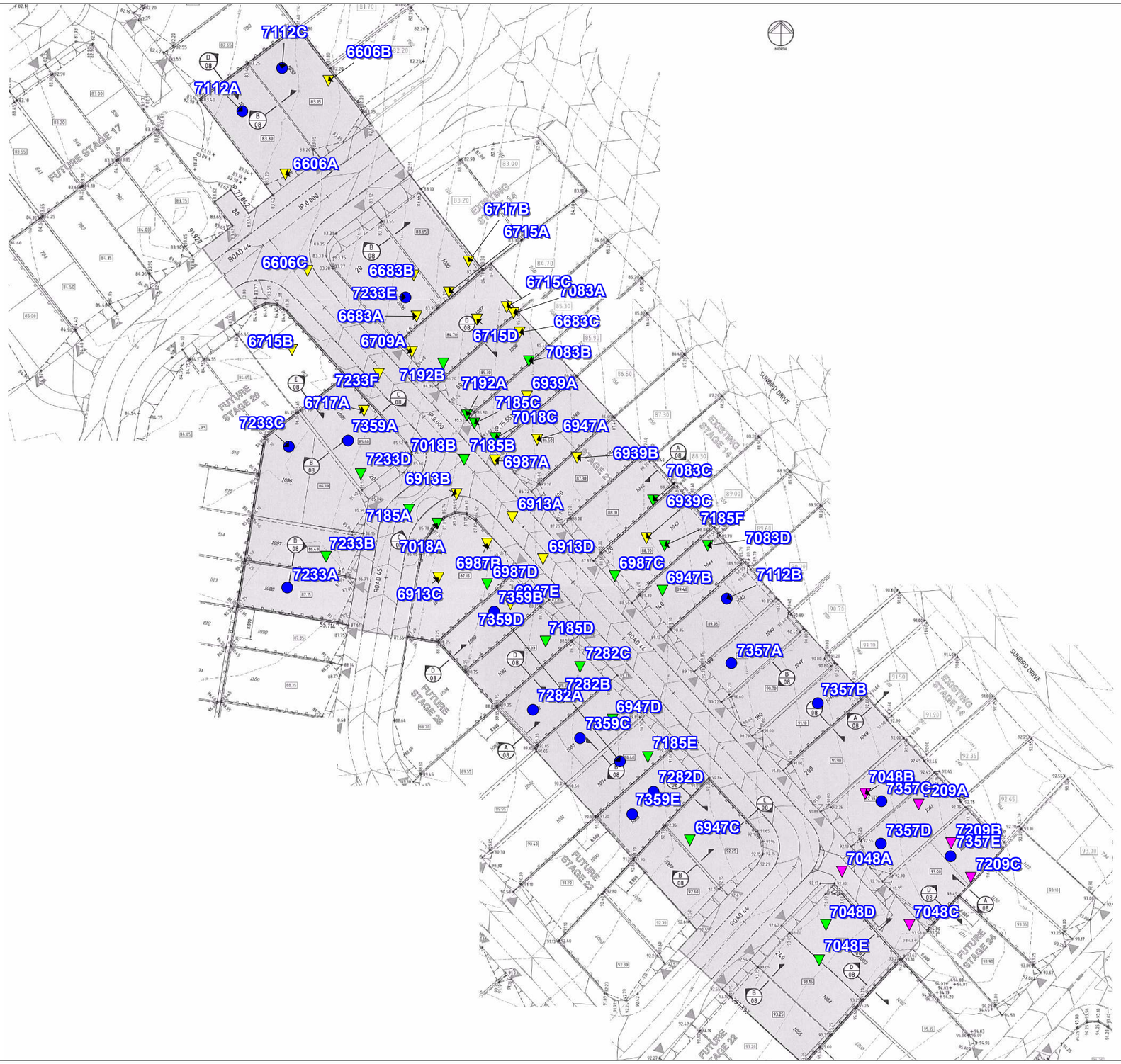
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

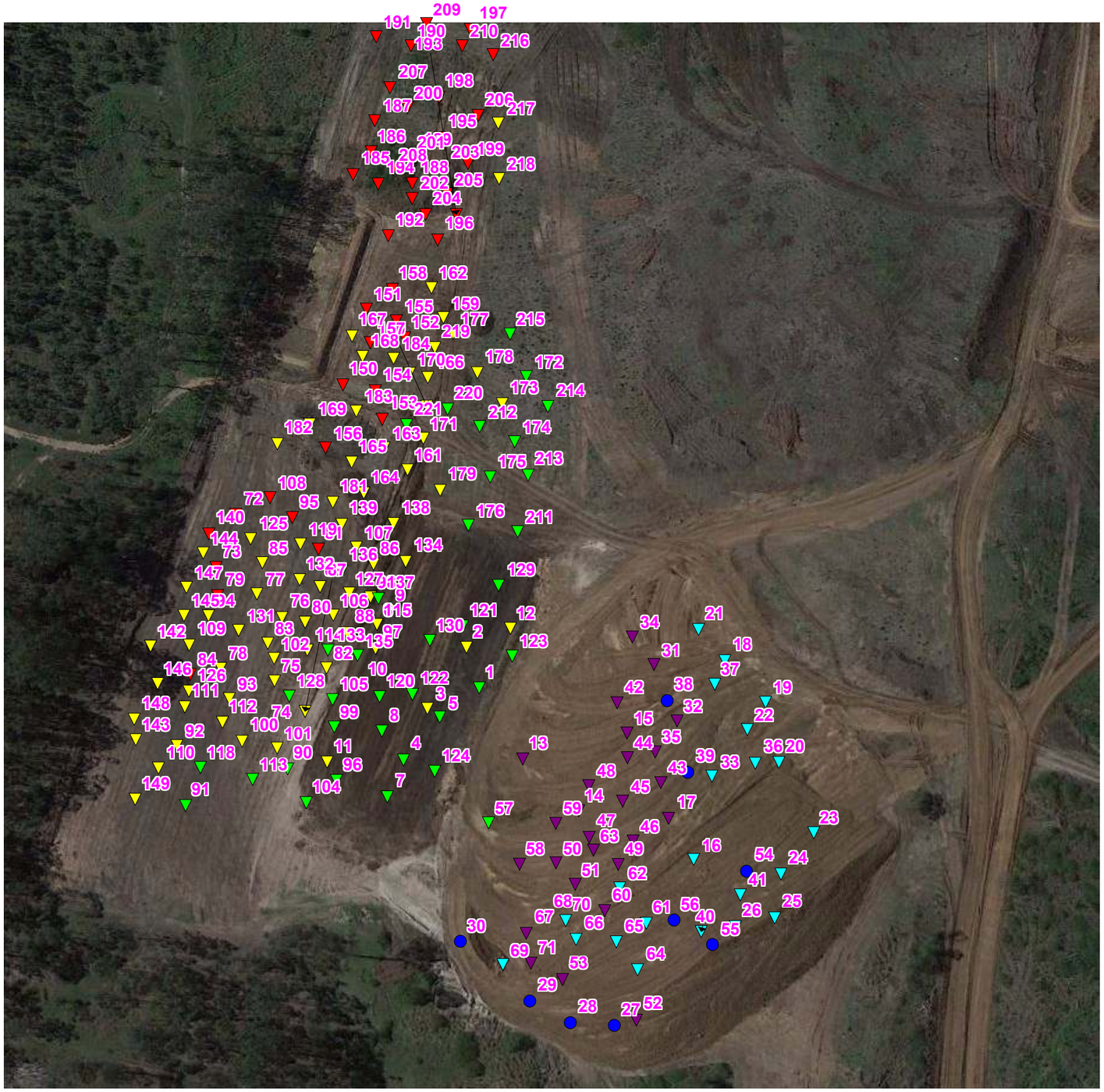
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16149*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1036**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1036 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1036 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1036 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

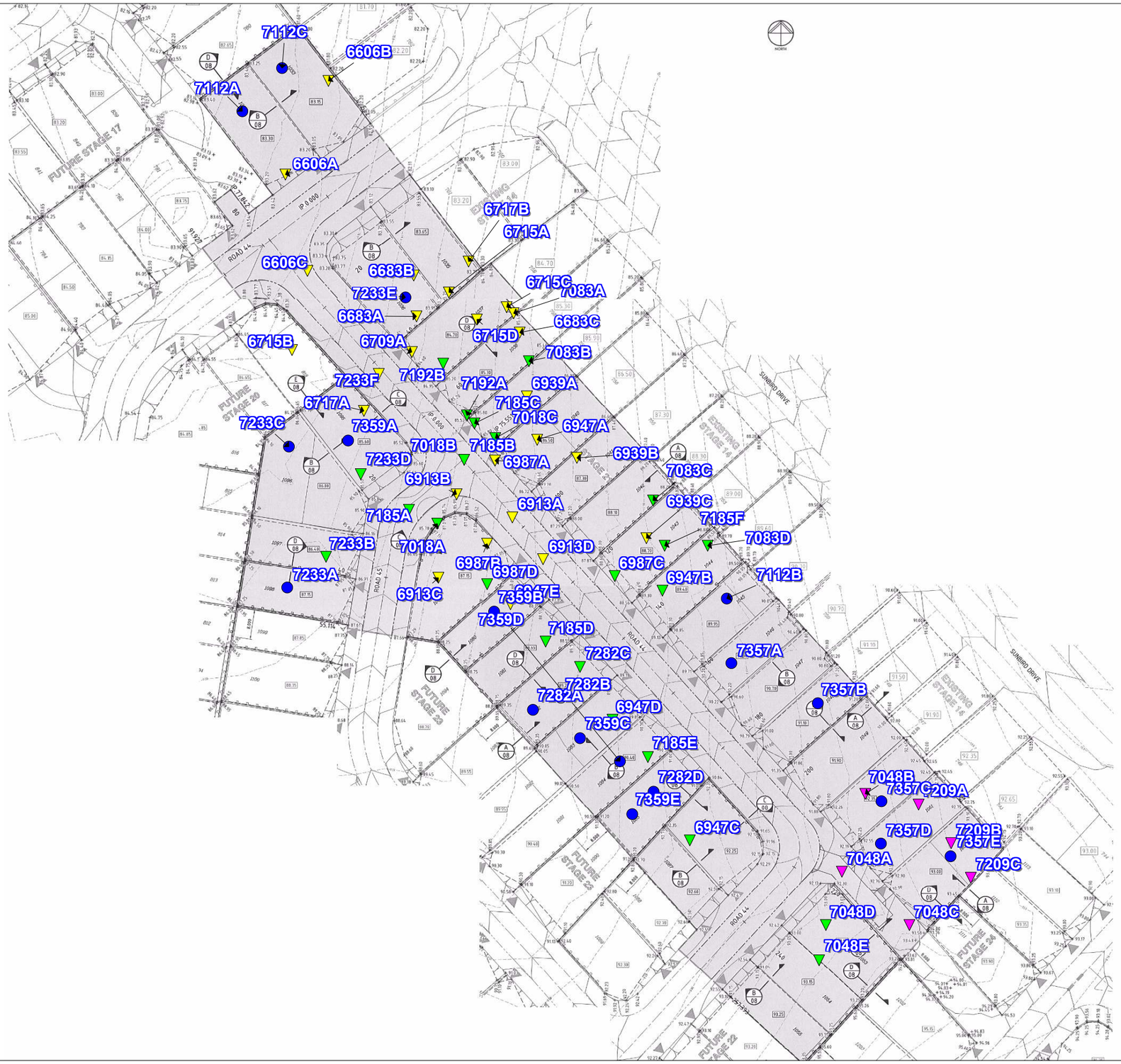
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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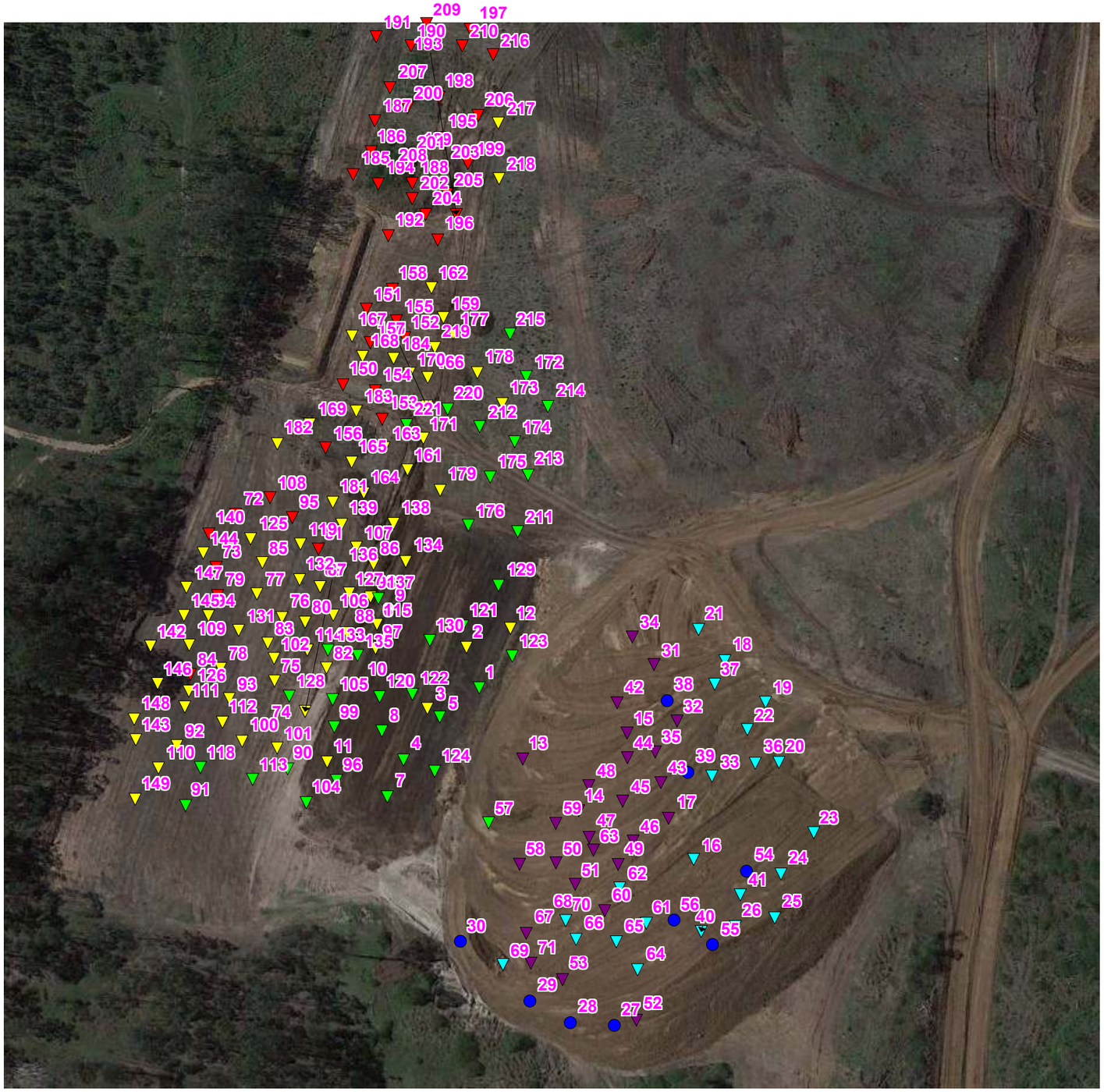
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16150*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1037**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1037 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1037 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1037 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

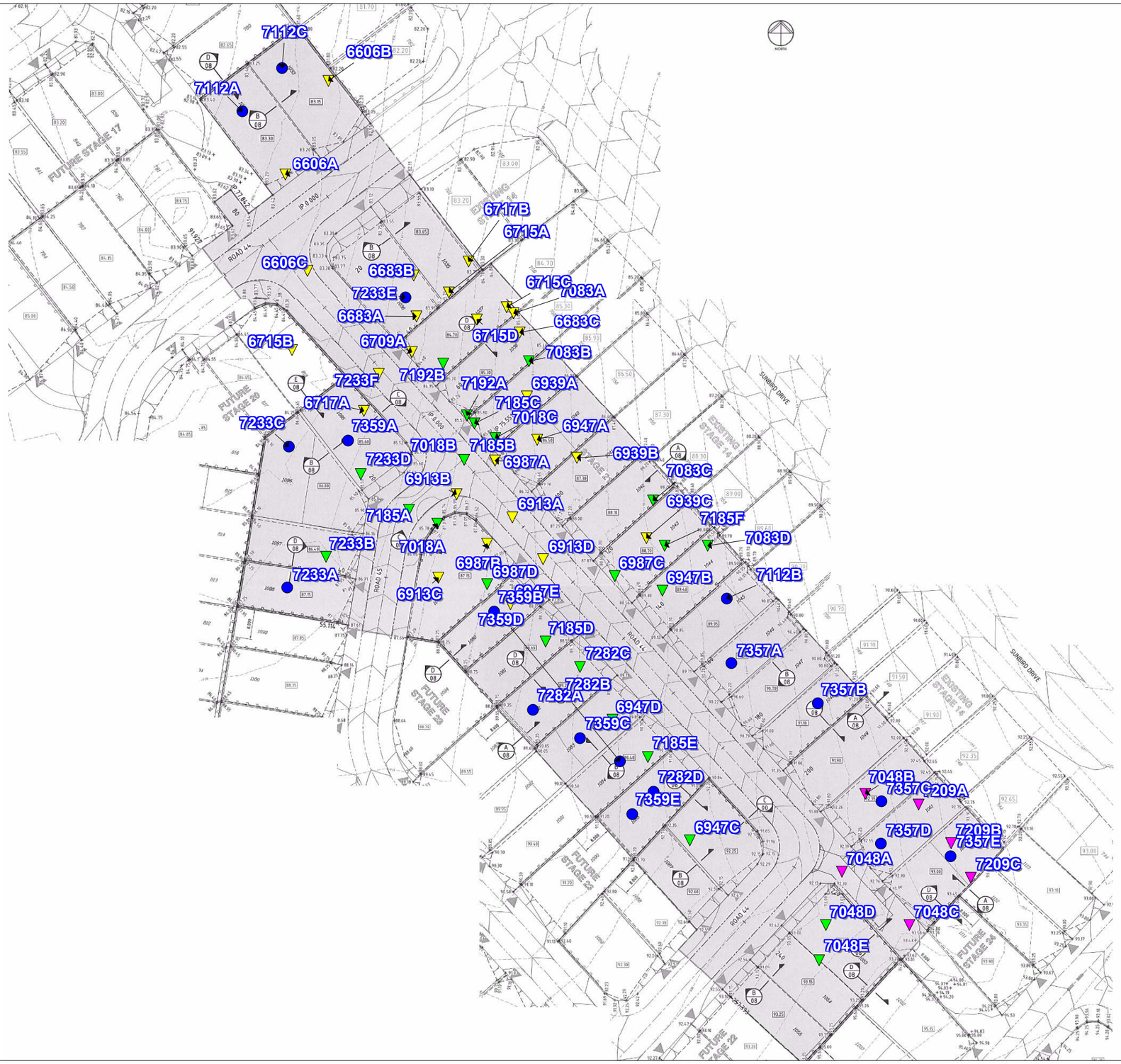
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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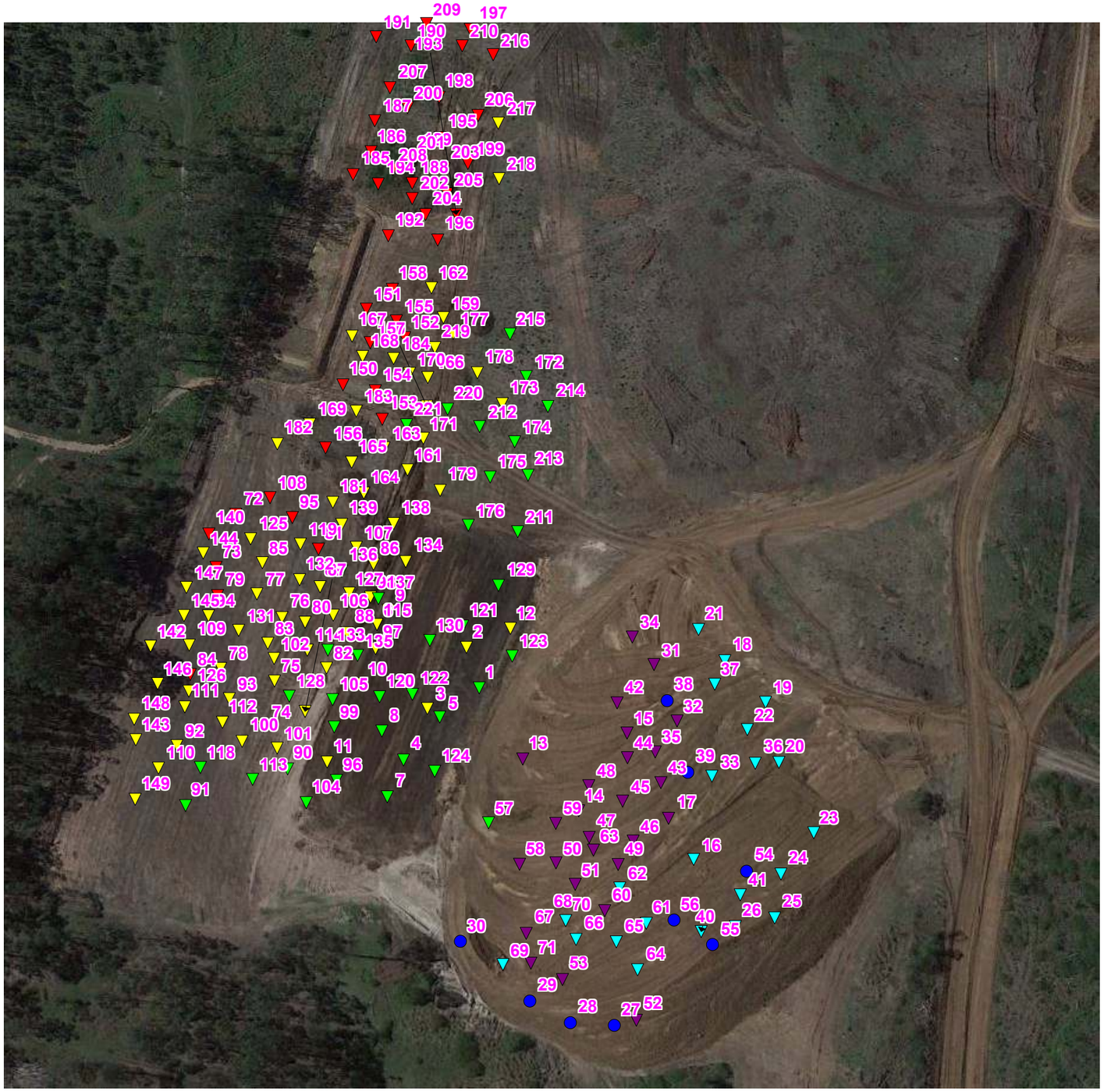
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16151*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1038**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1038 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1038 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1038 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

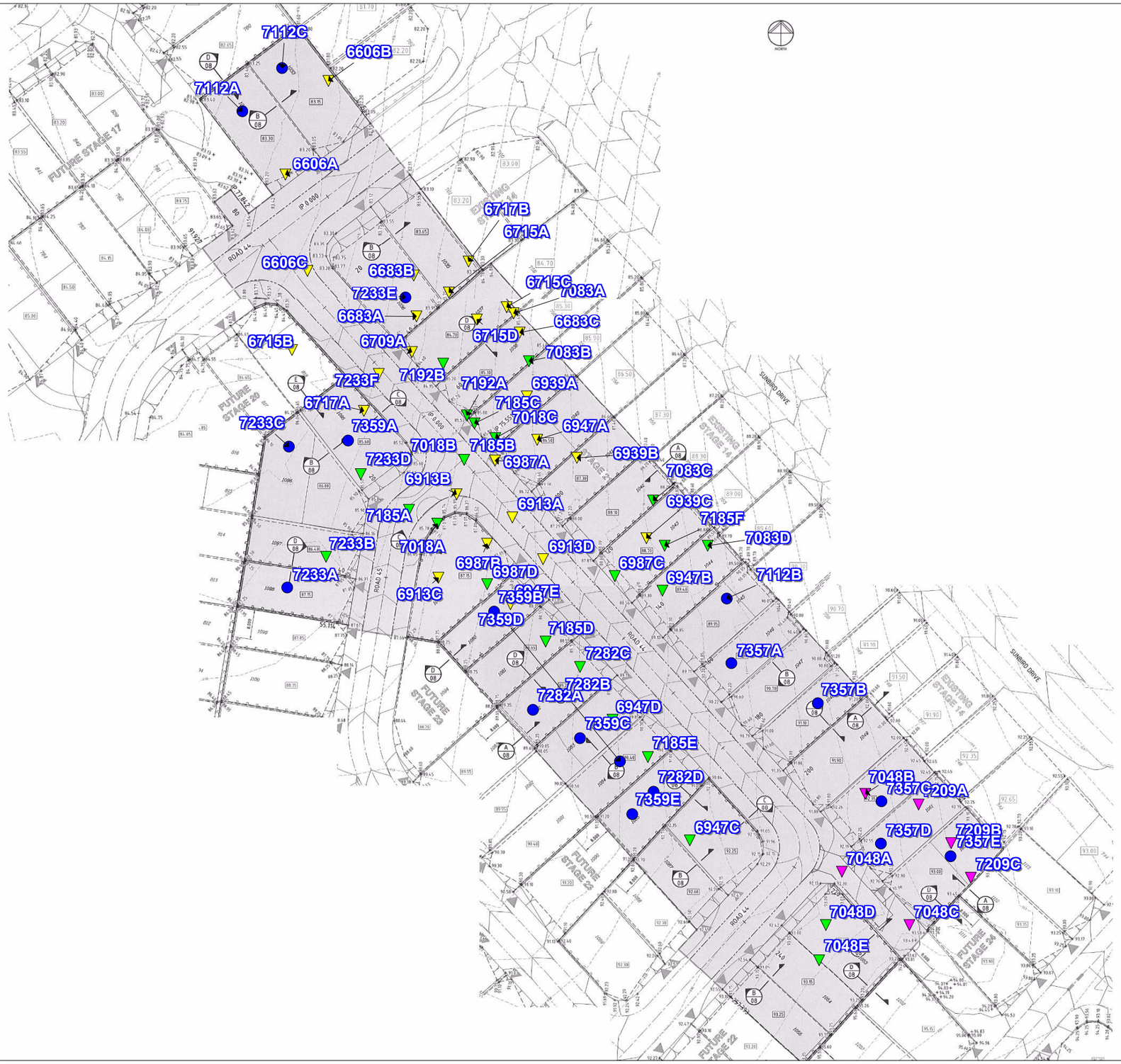
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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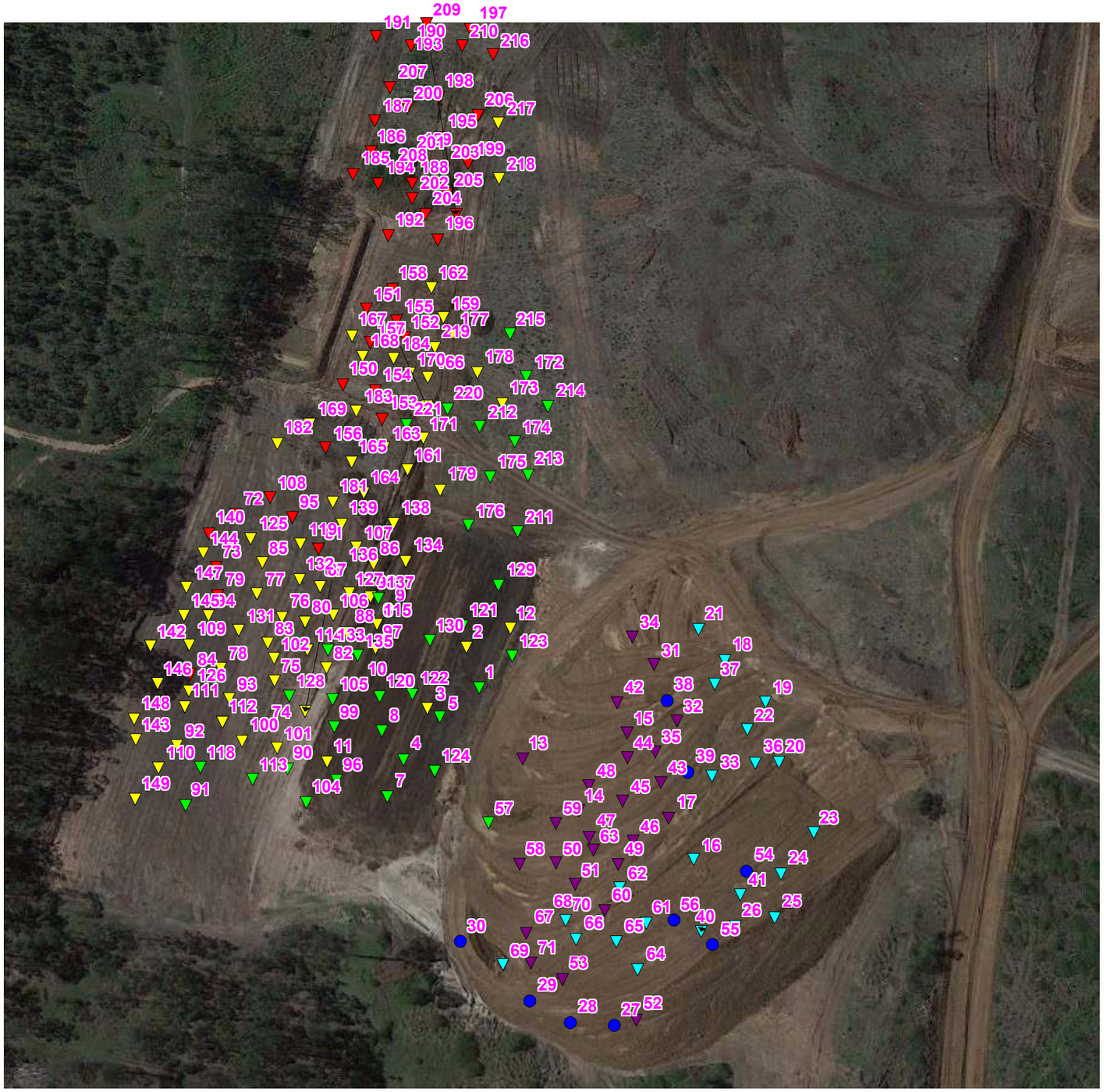
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16152*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1039**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1039 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1039 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1039 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

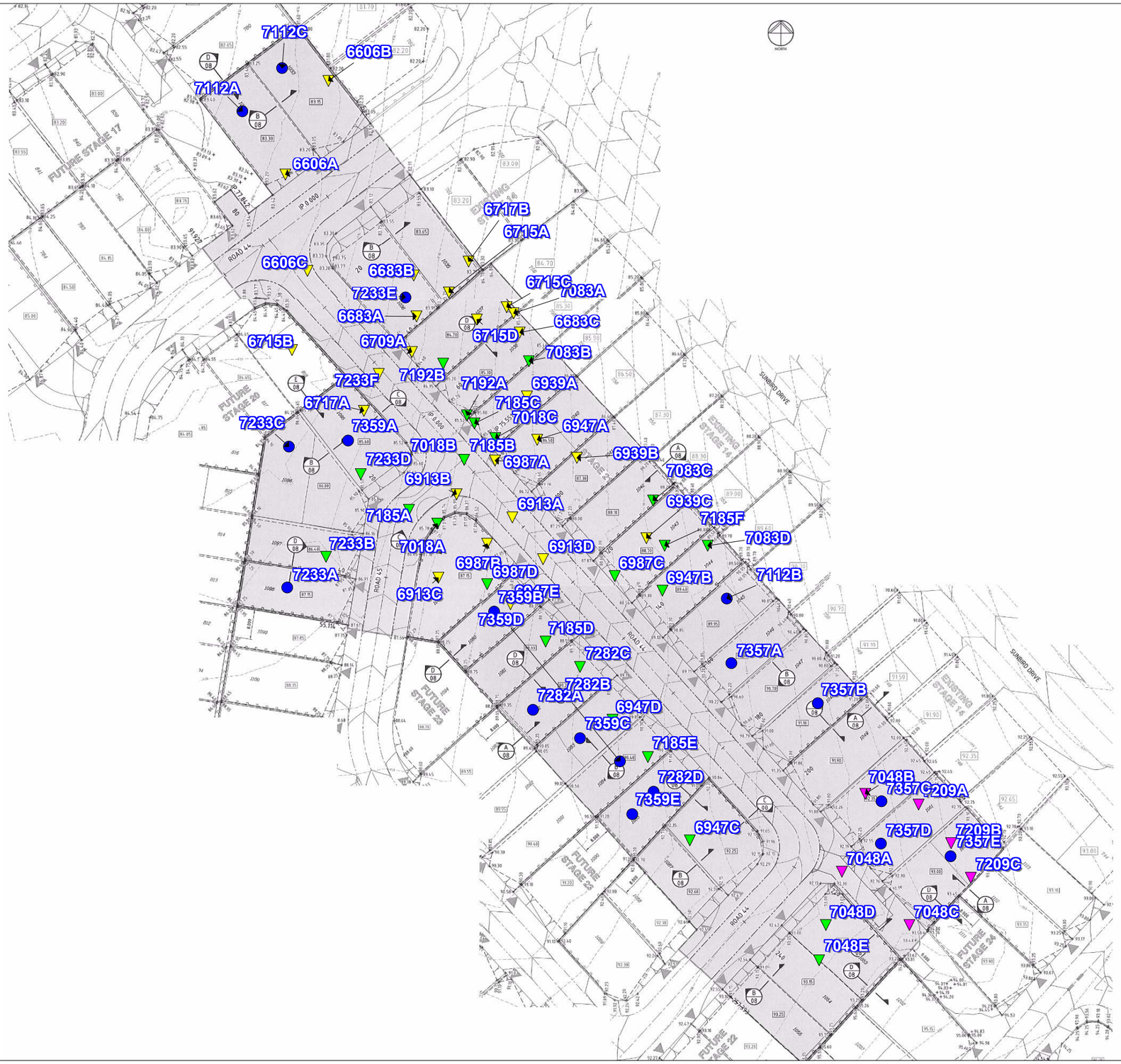
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

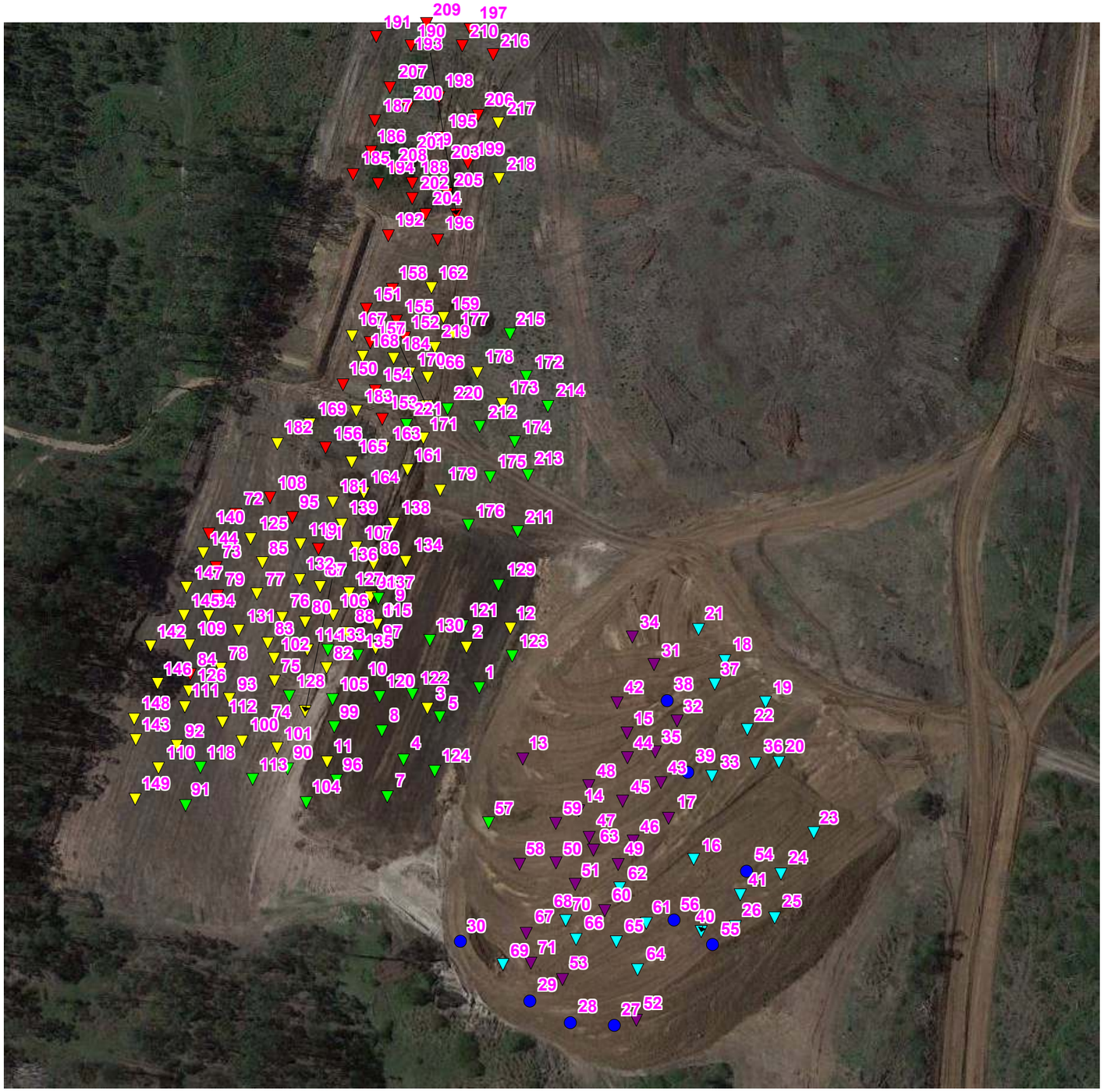
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

**Brisbane** | Gold Coast | Maroochydore
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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16153*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1040**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1040 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1040 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1040 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

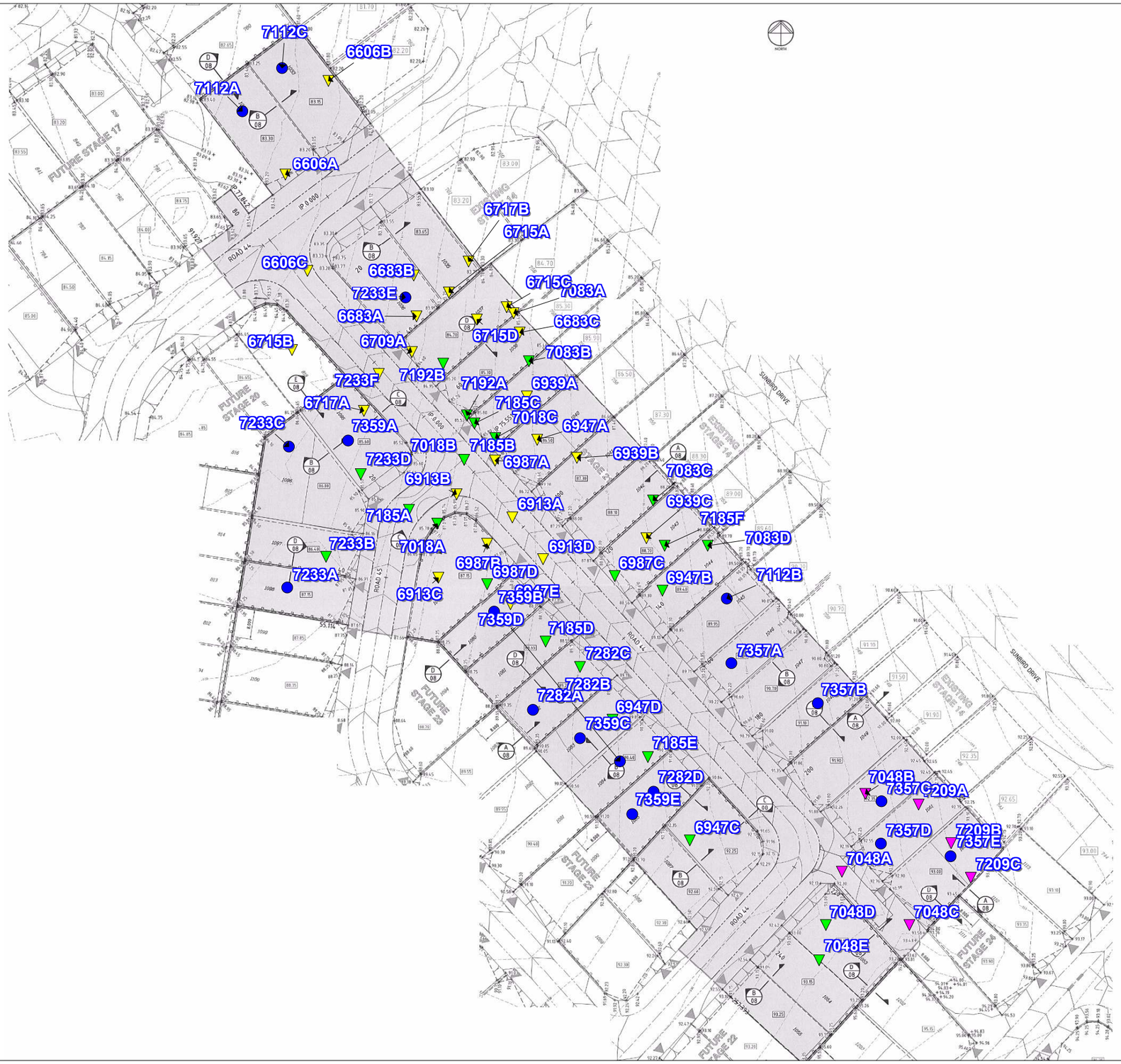
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

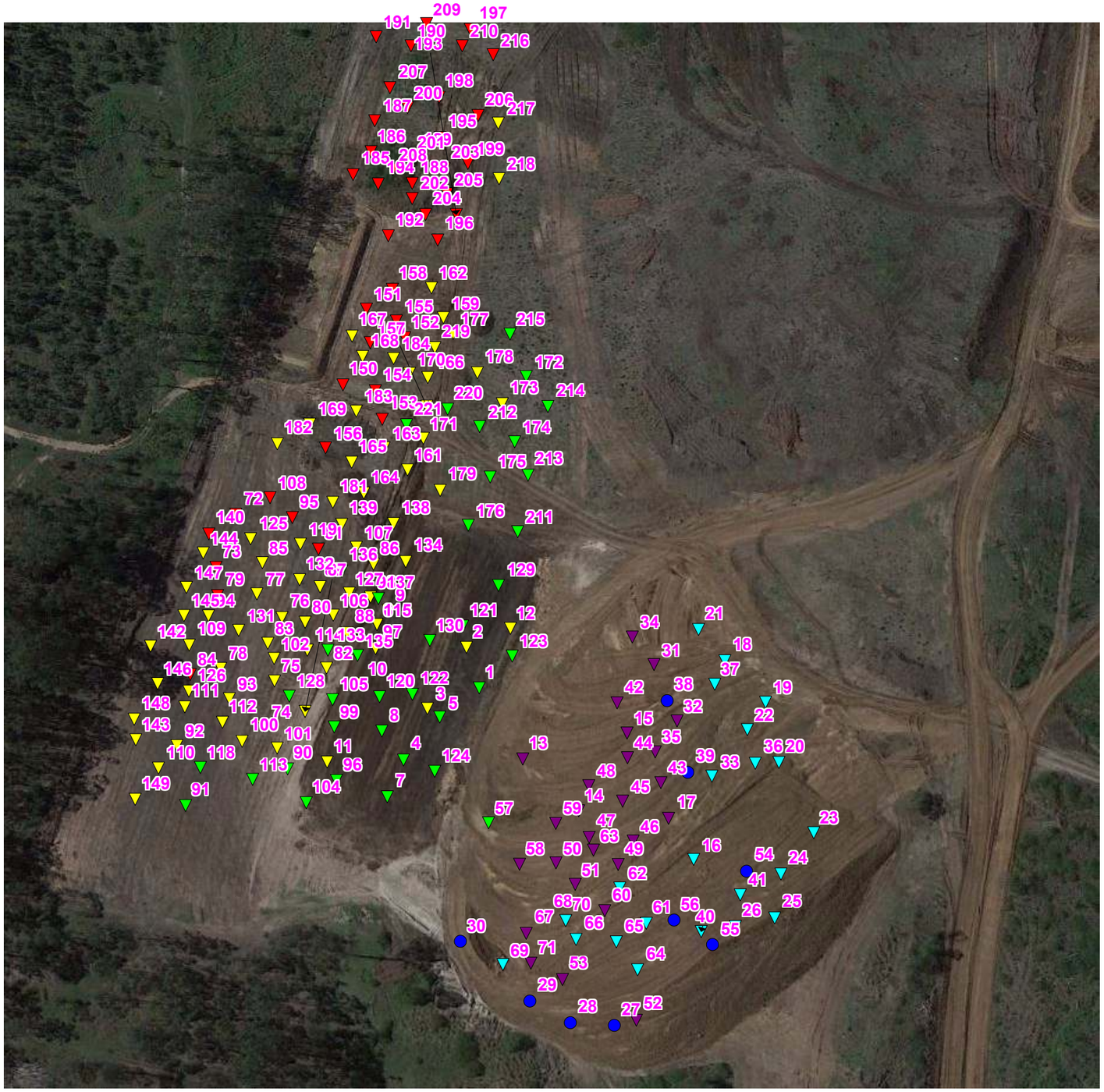
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16154*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1041**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1041 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
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Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1041 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1041 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

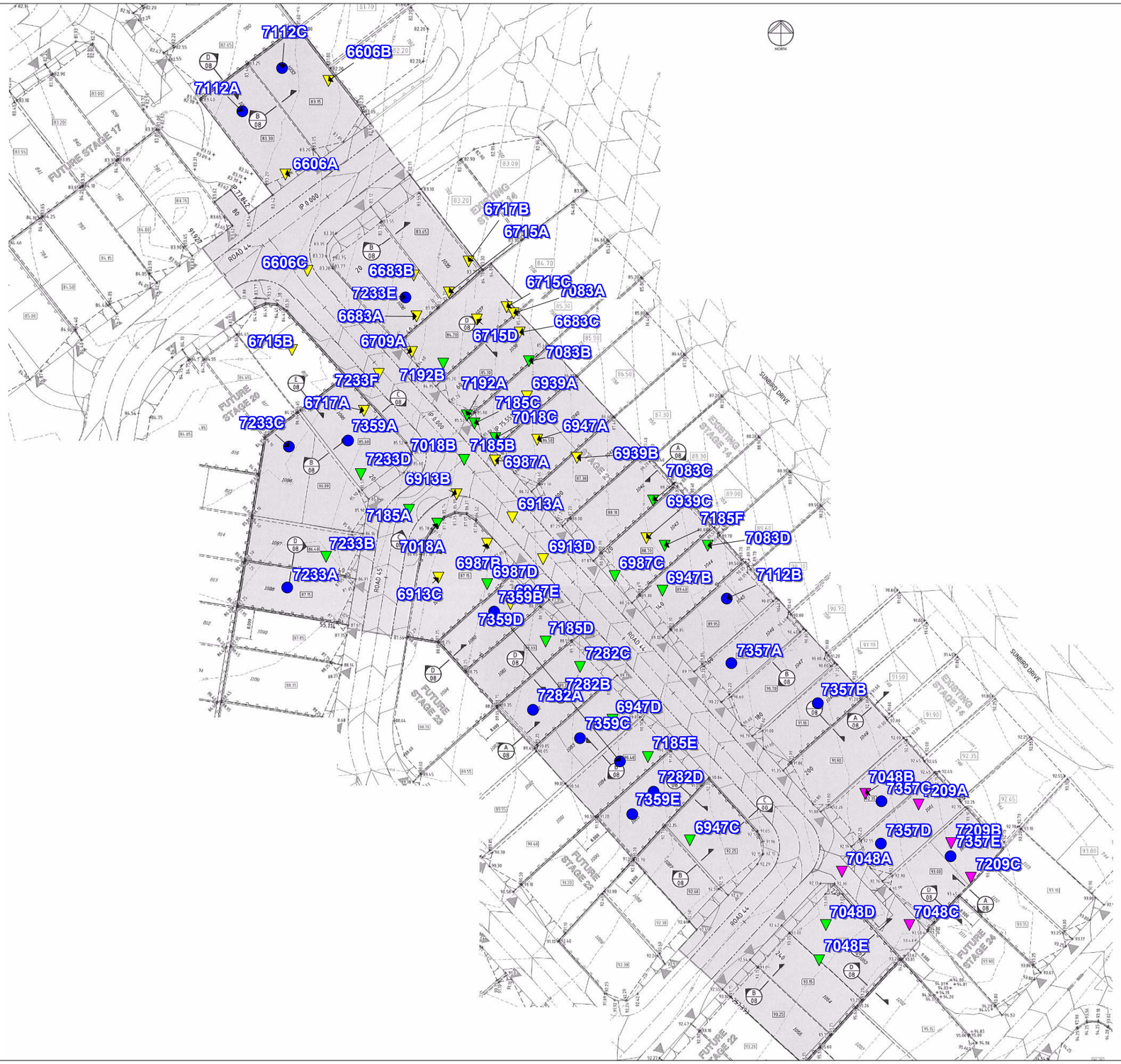
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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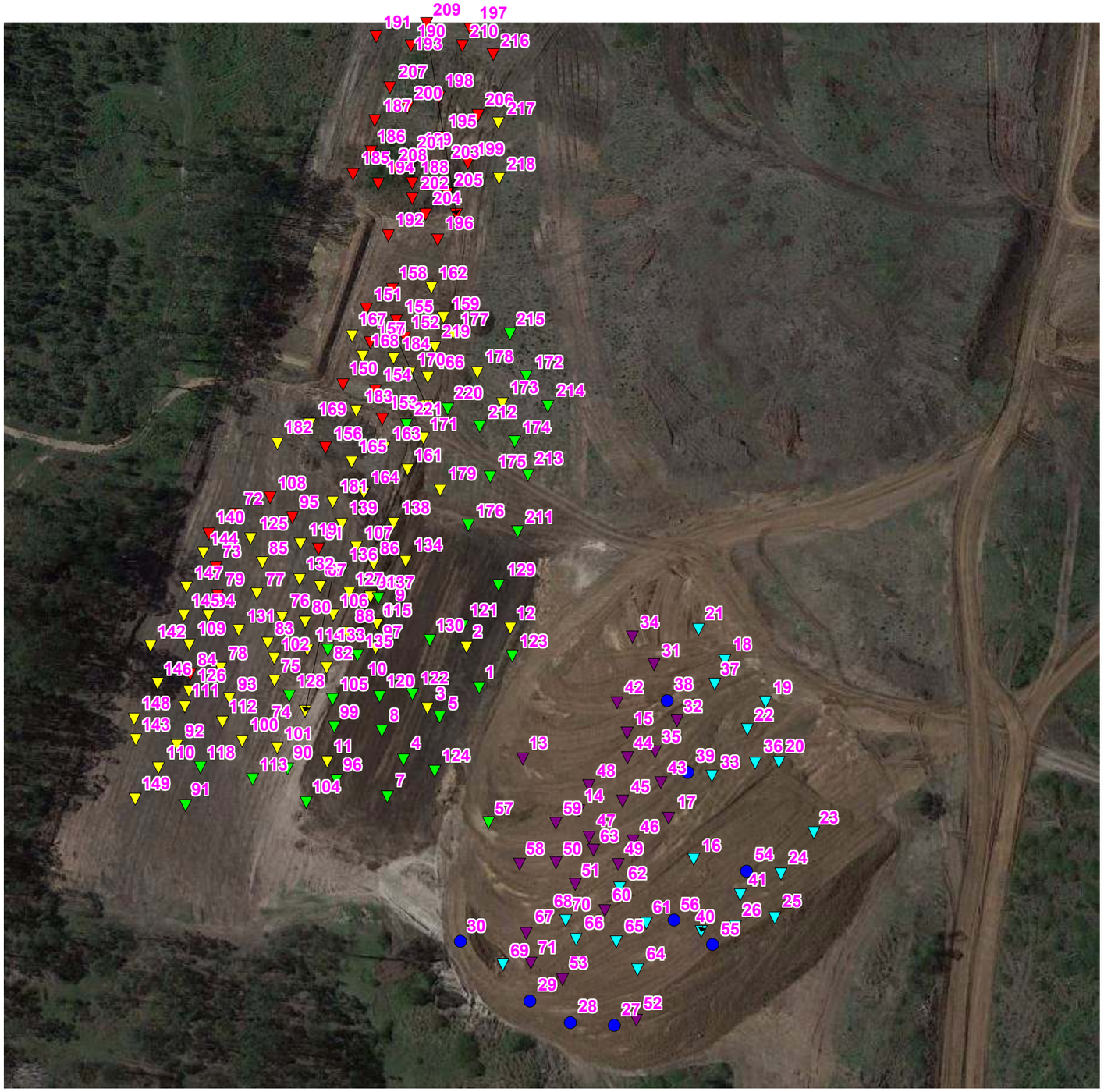
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16155*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1042**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1042 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1042 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1042 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

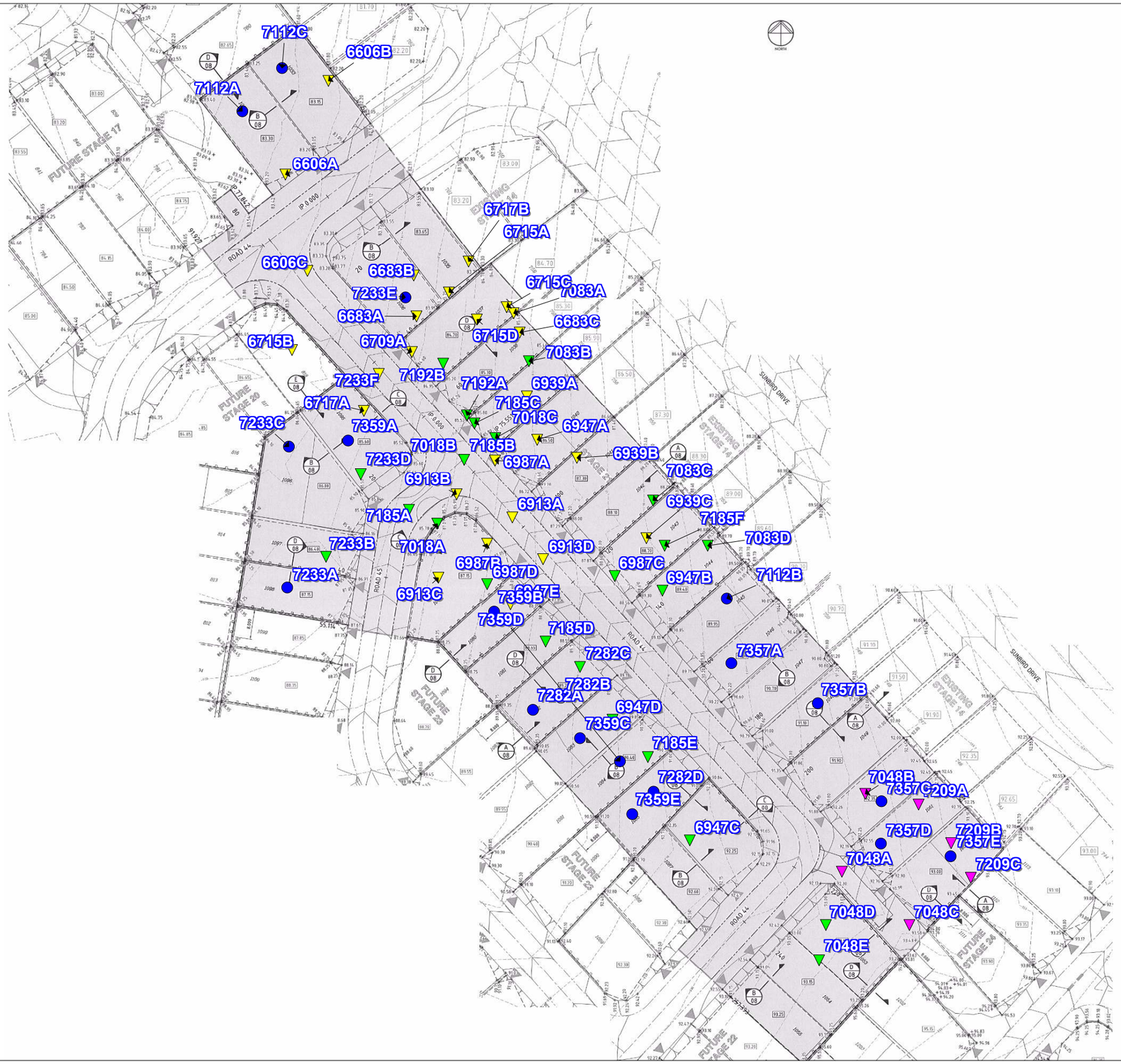
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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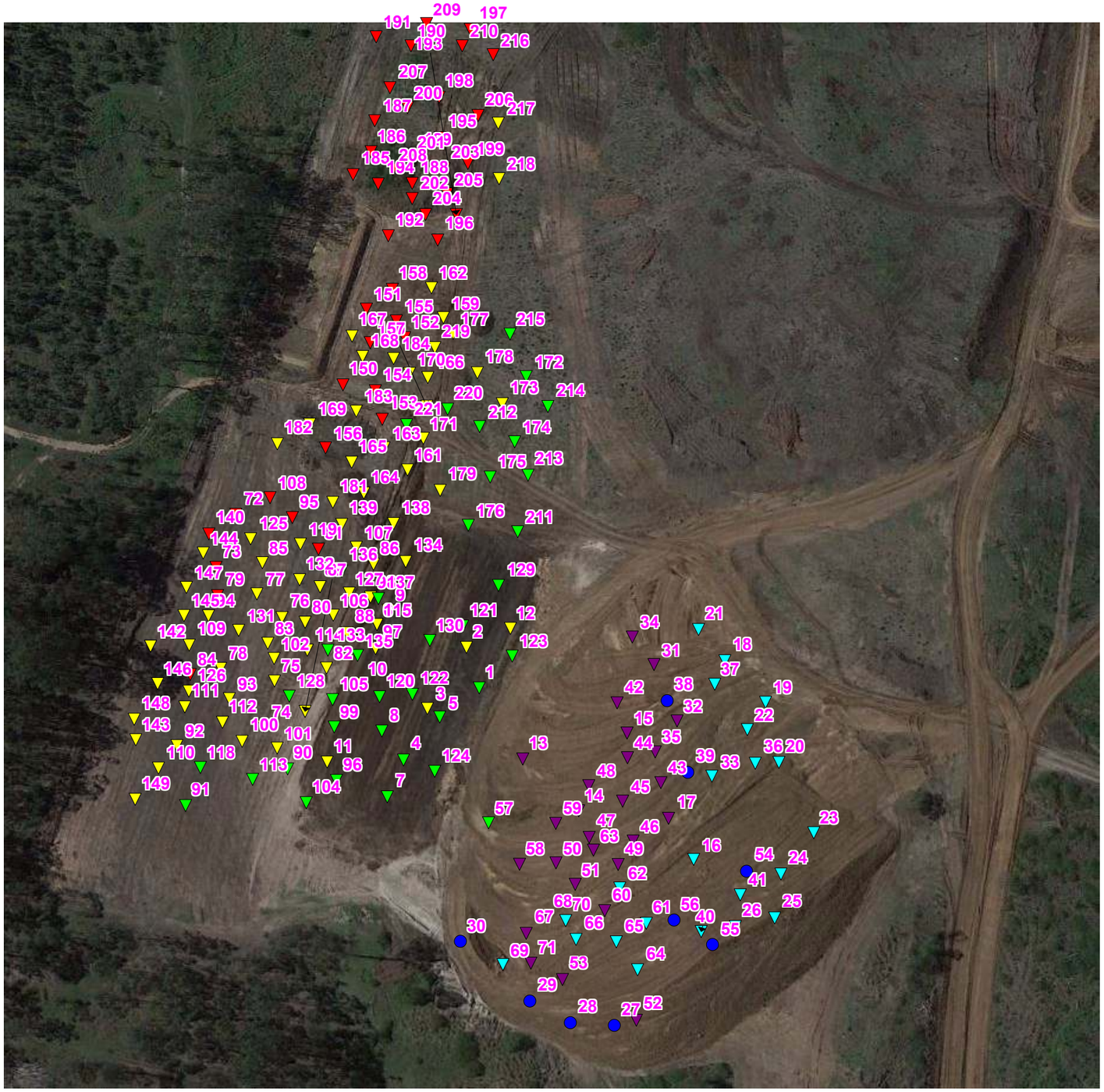
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16156*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1043**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1043 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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- Notes on KN Group Pty Ltd Civil Drawings.

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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1043 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1043 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

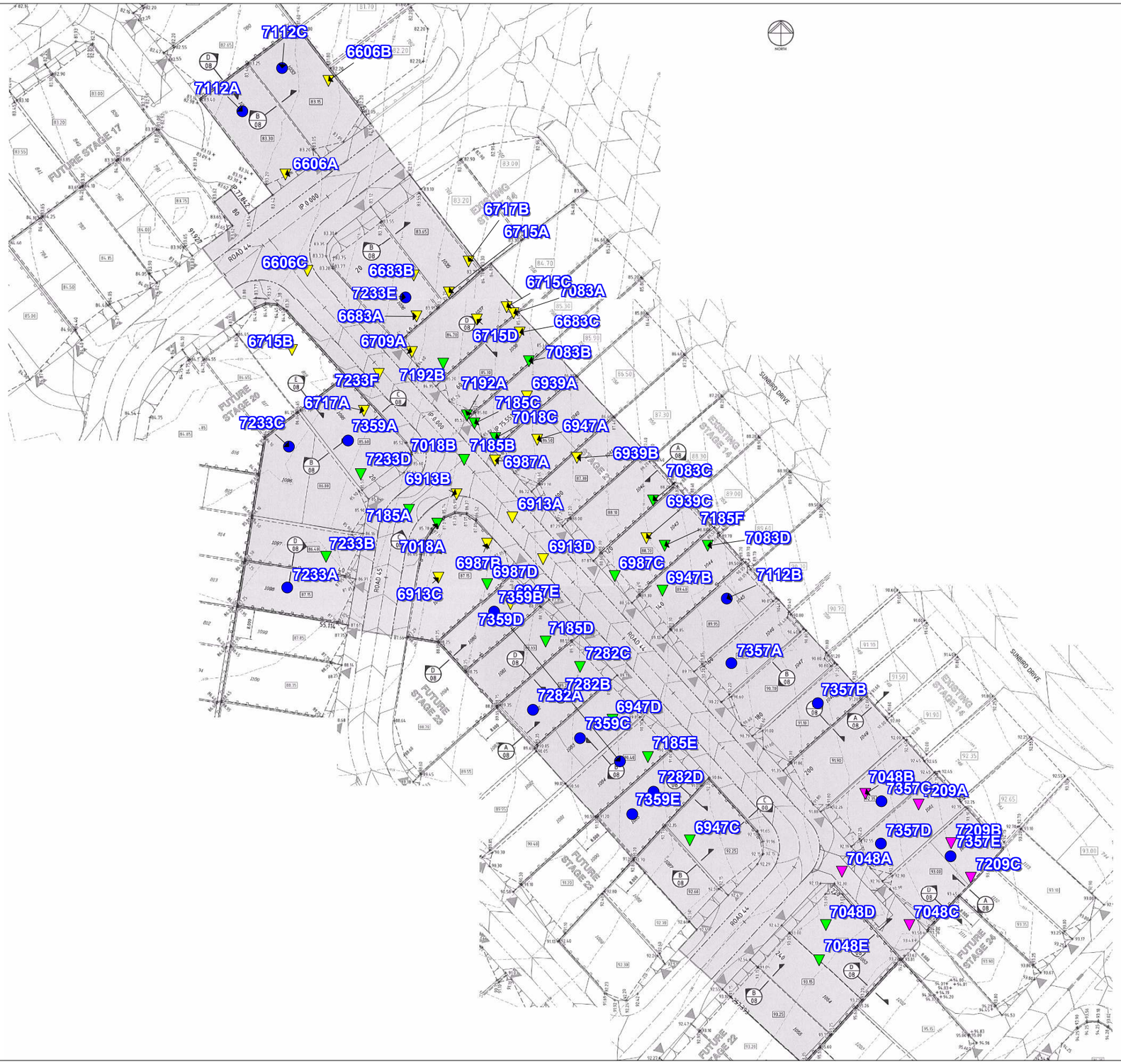
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
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- Final Level

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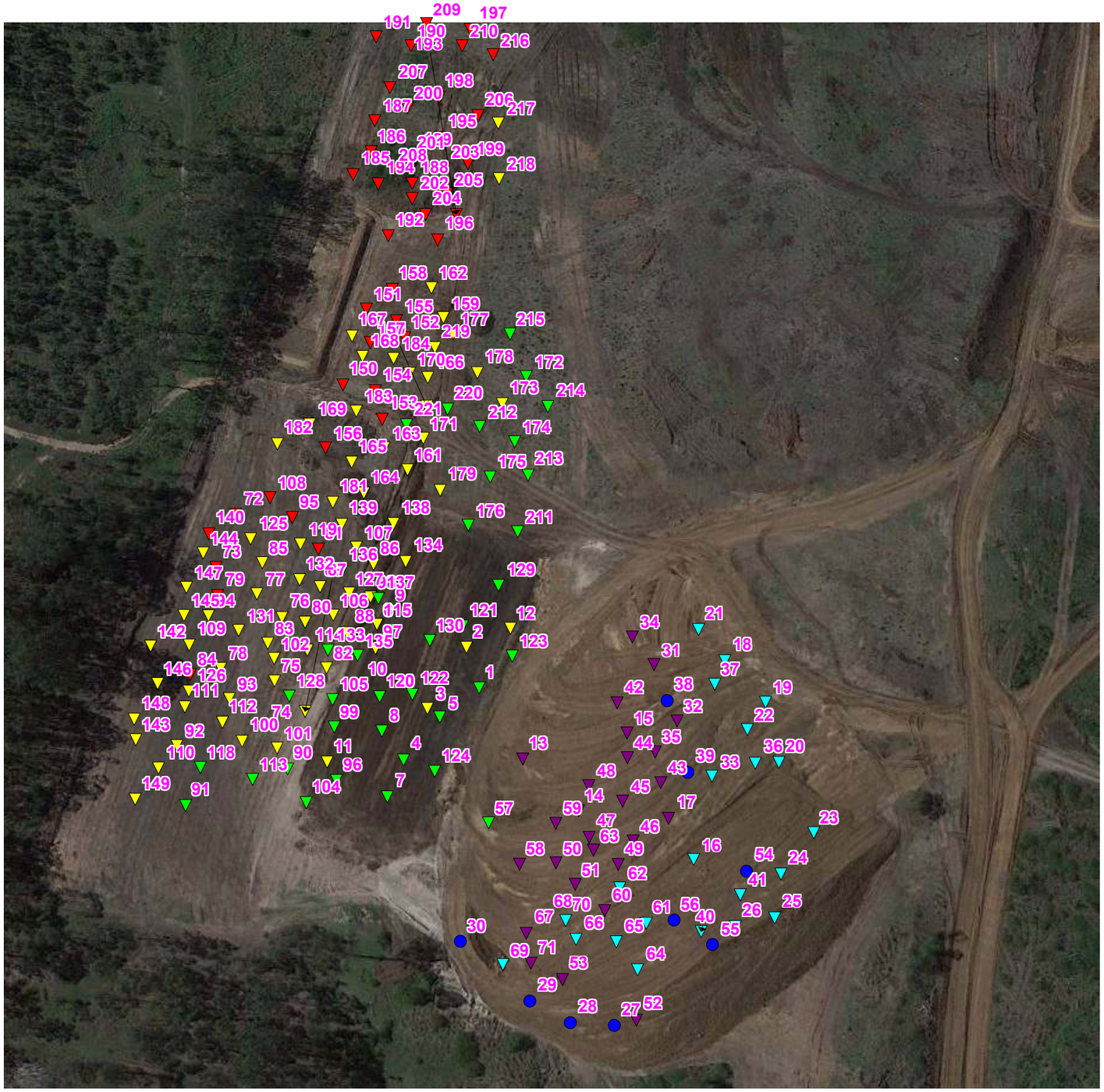
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16157*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1044**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1044 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1044 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1044 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

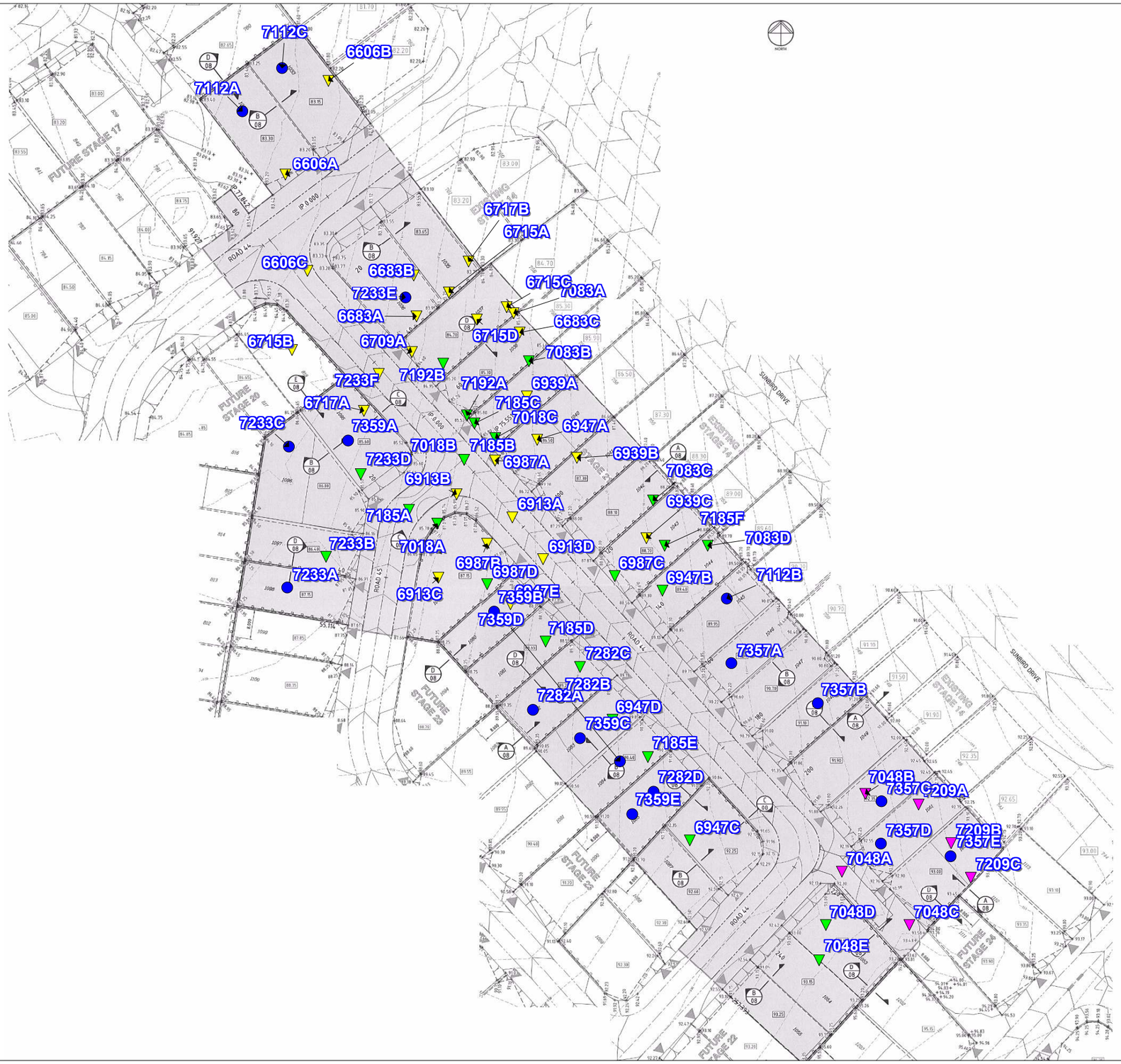
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

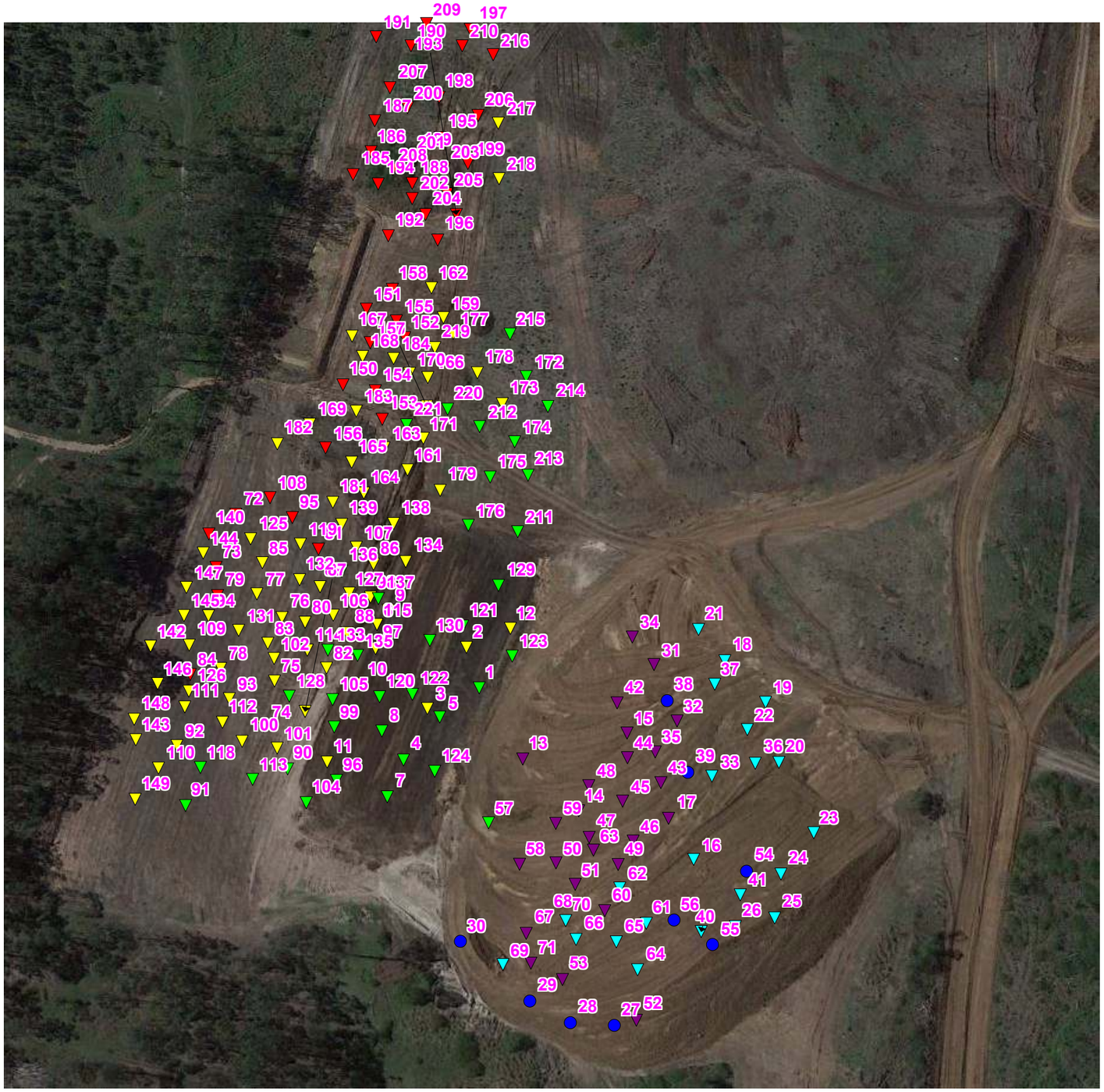
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
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LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

**Brisbane** | Gold Coast | Maroochydore
Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16158*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1045**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1045 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1045 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1045 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

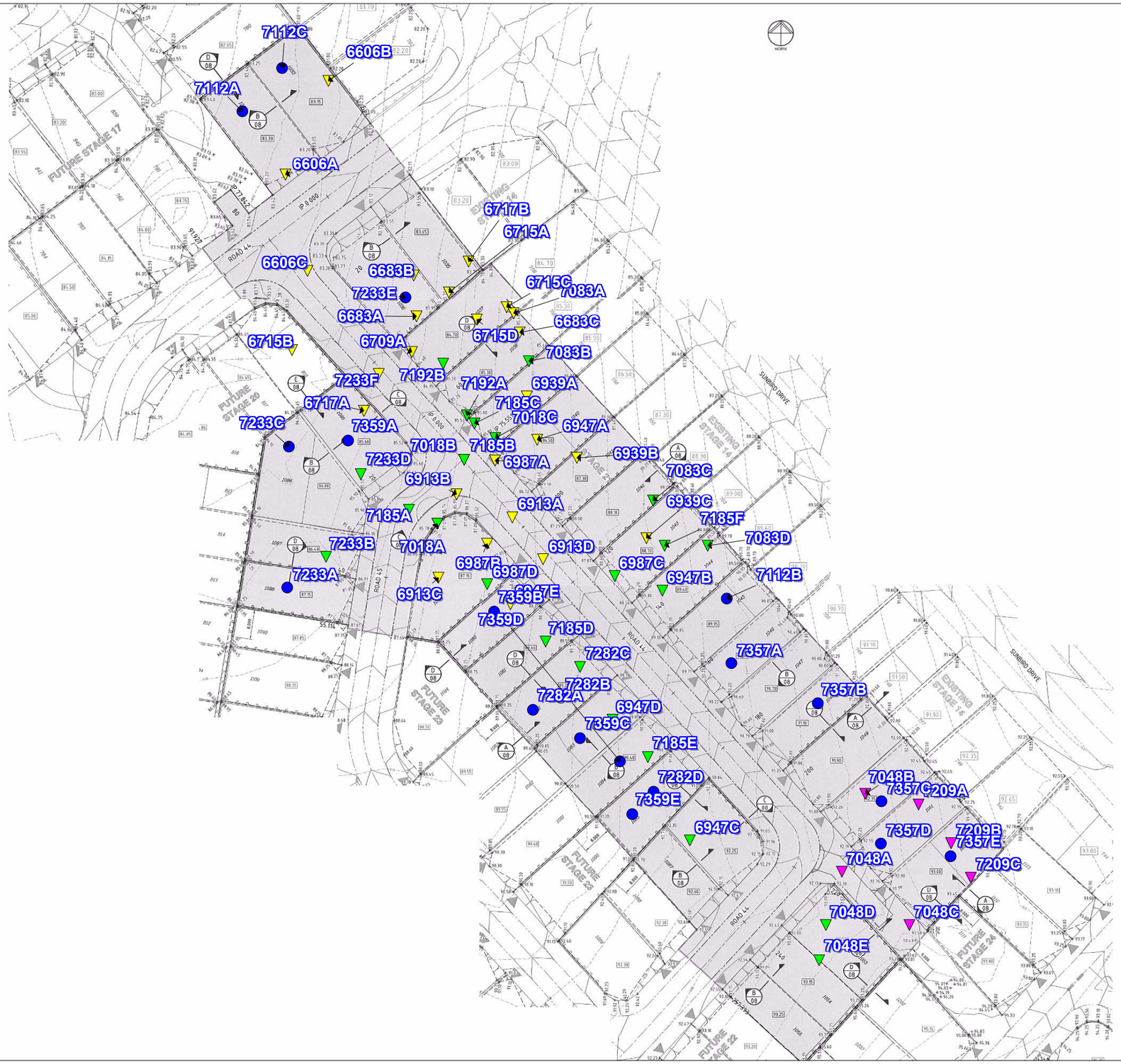
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

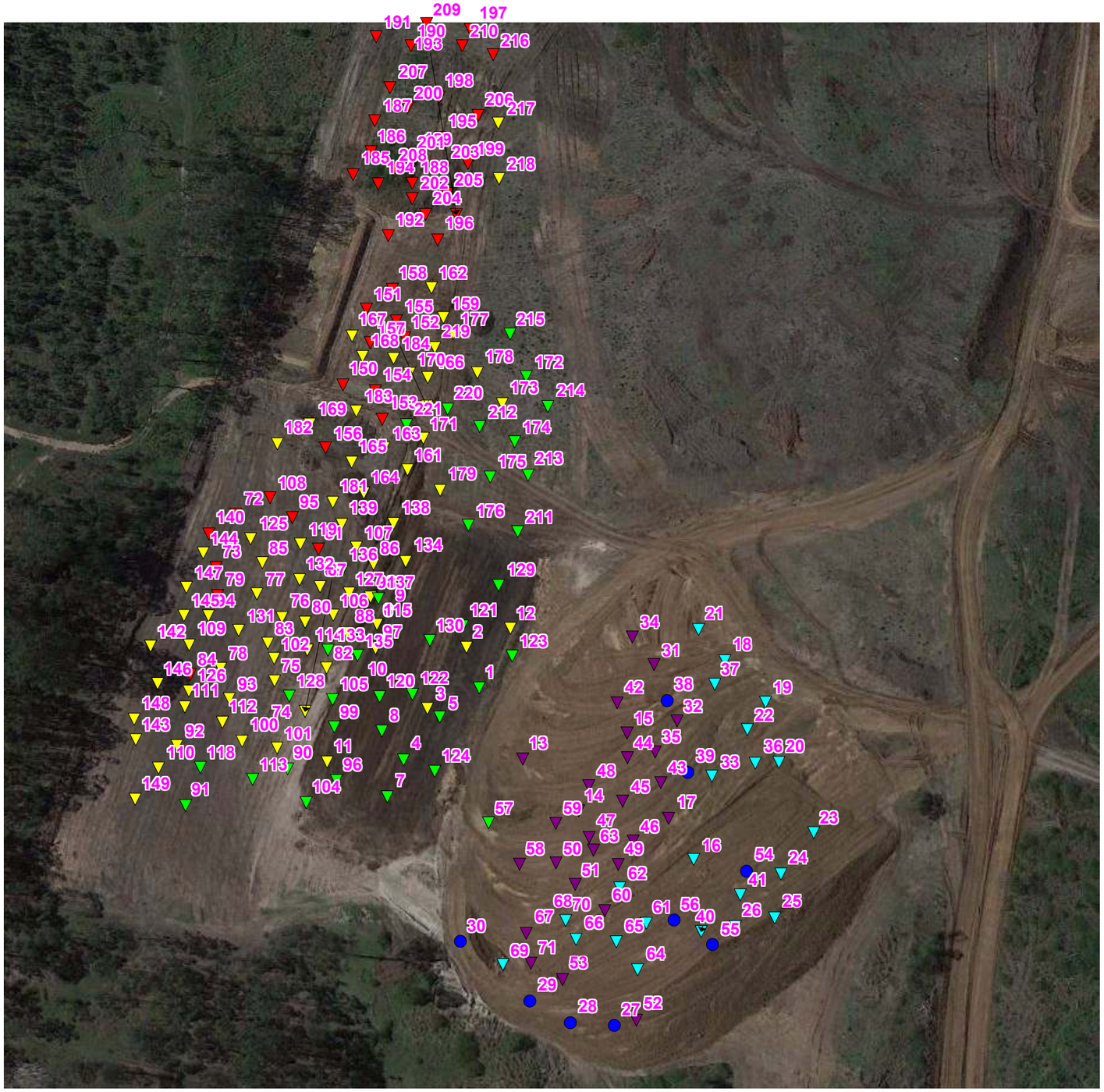
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16159*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1046**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1046 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1046 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1046 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

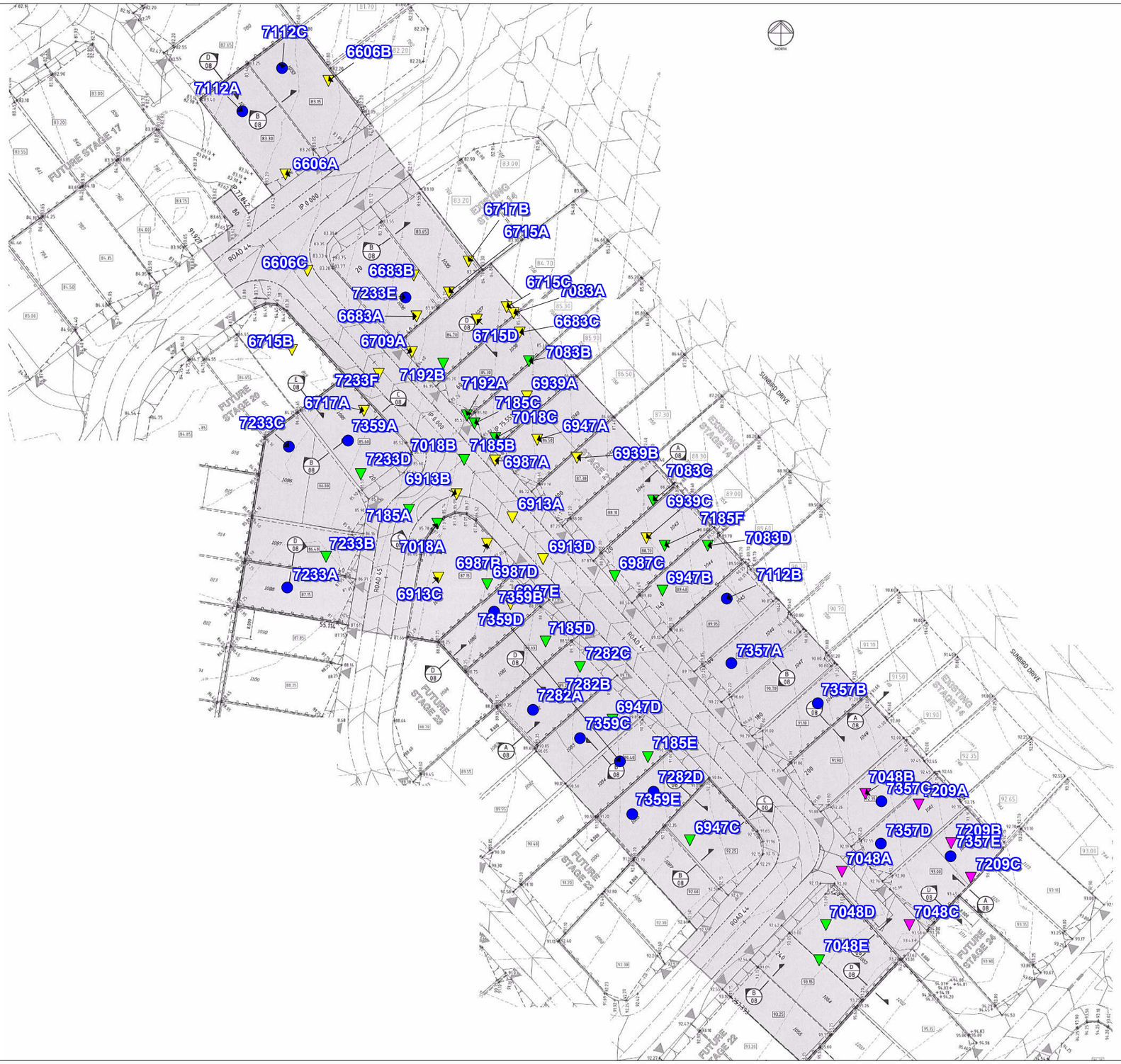
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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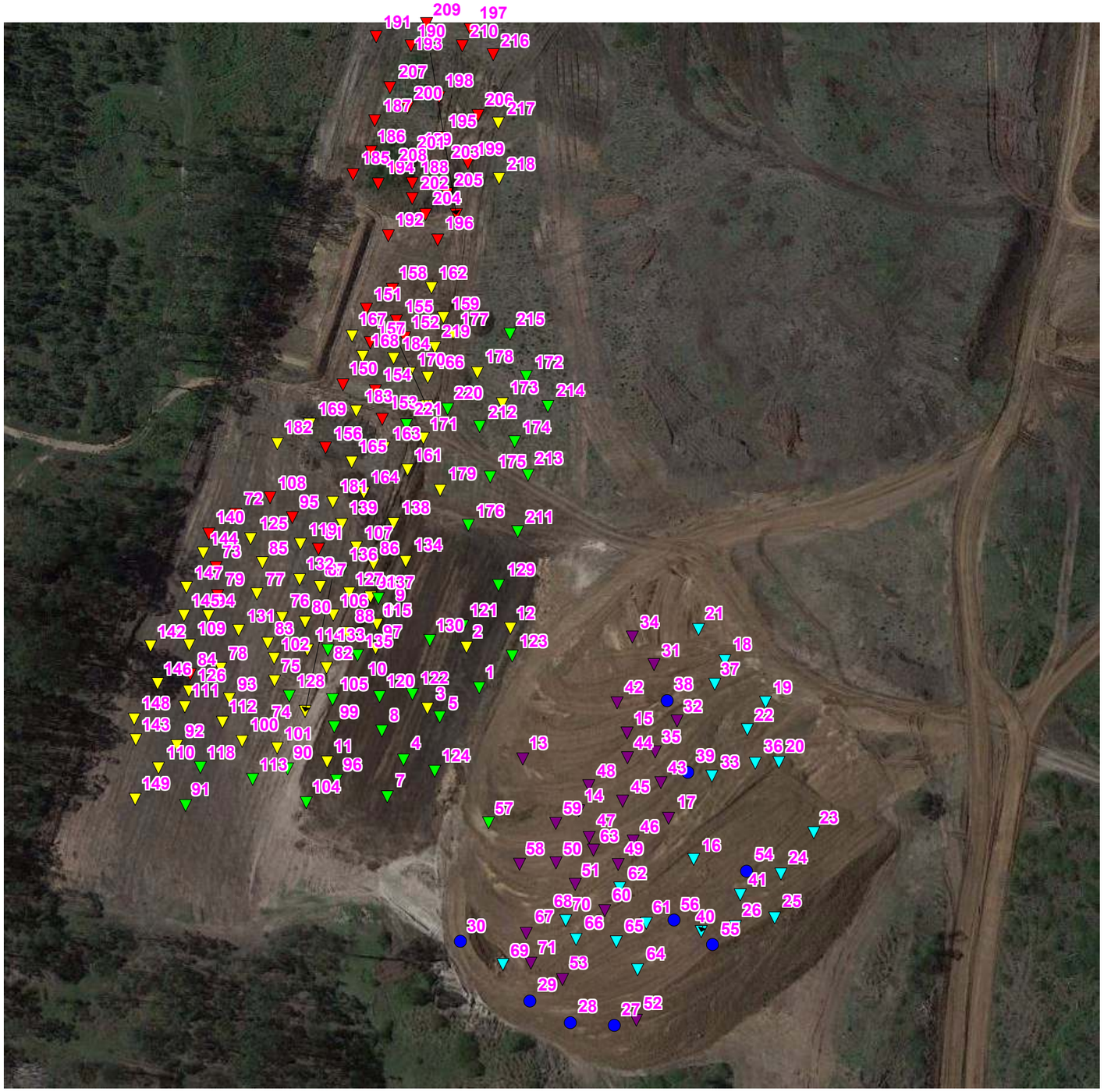
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16160*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1047**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1047 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1047 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1047 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

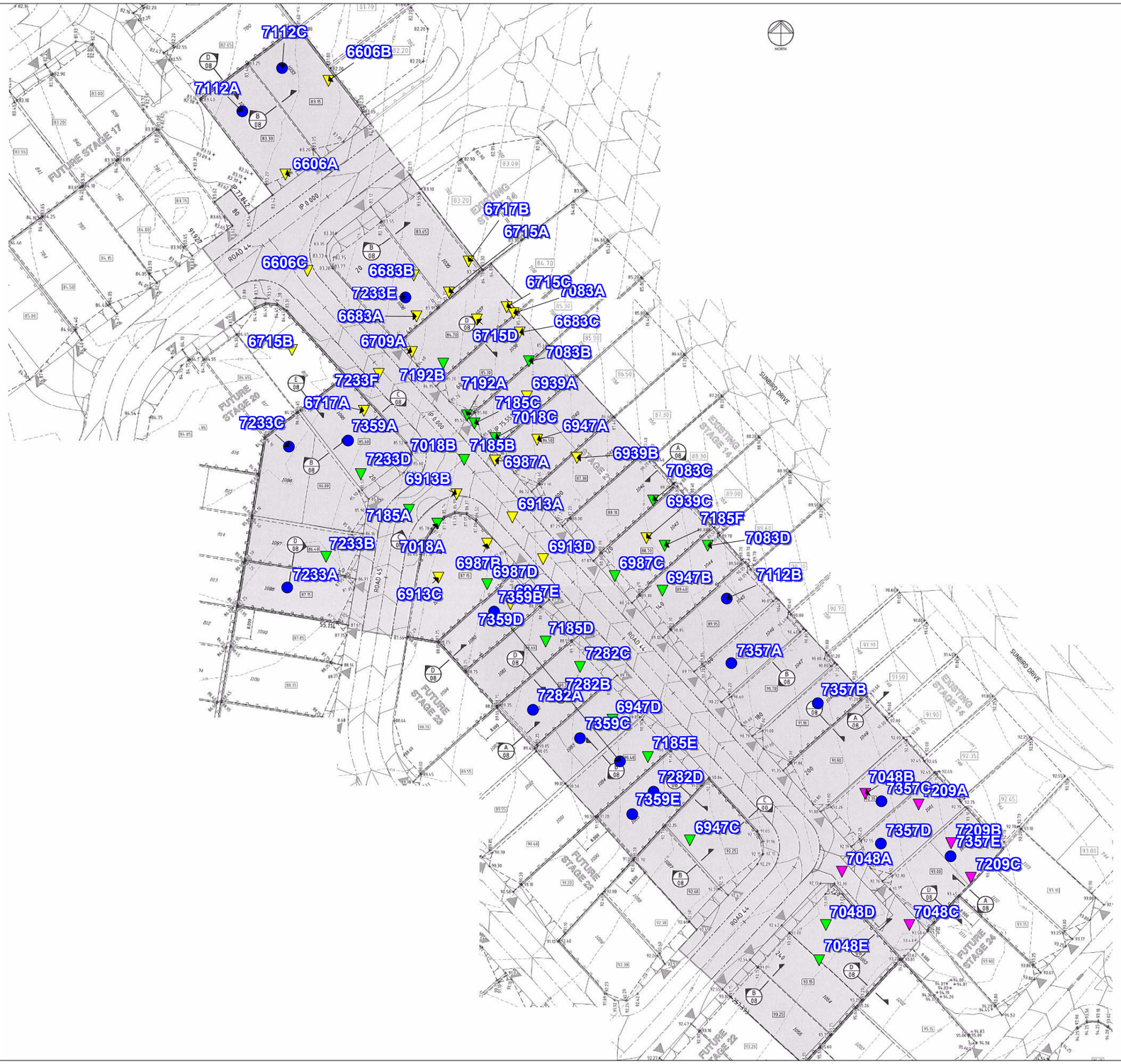
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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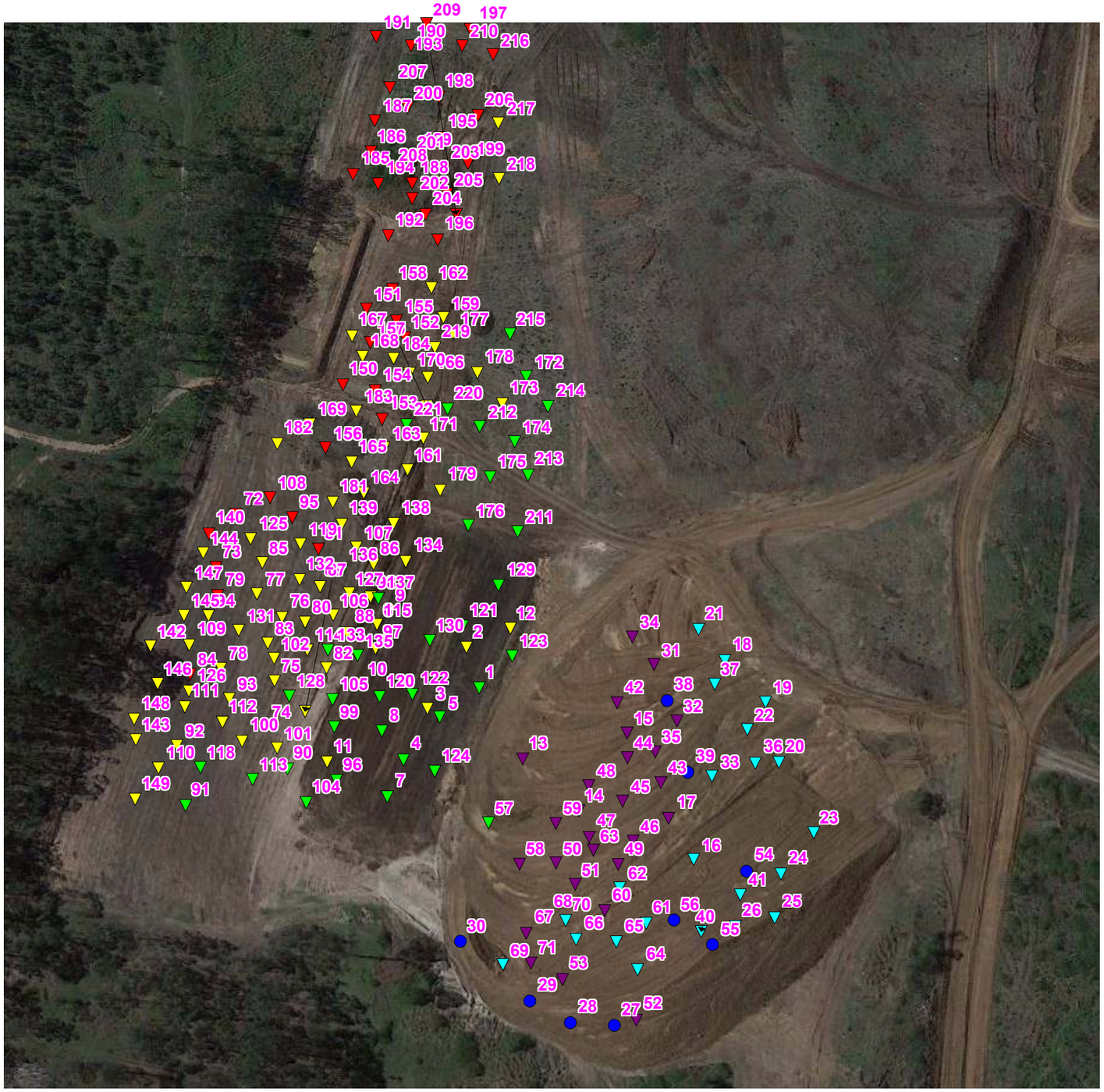
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16161*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1048**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1048 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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- Notes on KN Group Pty Ltd Civil Drawings.

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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1048 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1048 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

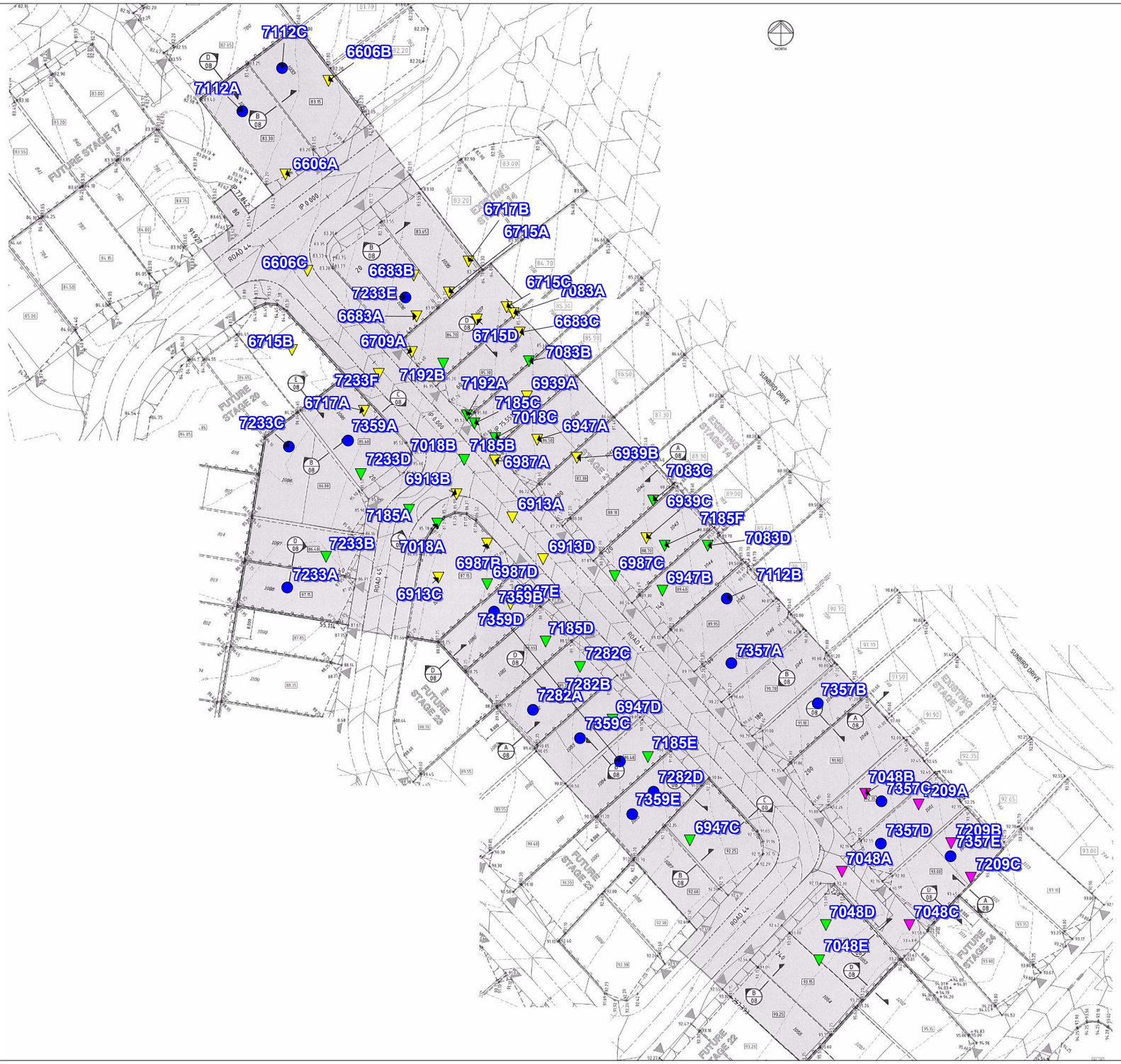
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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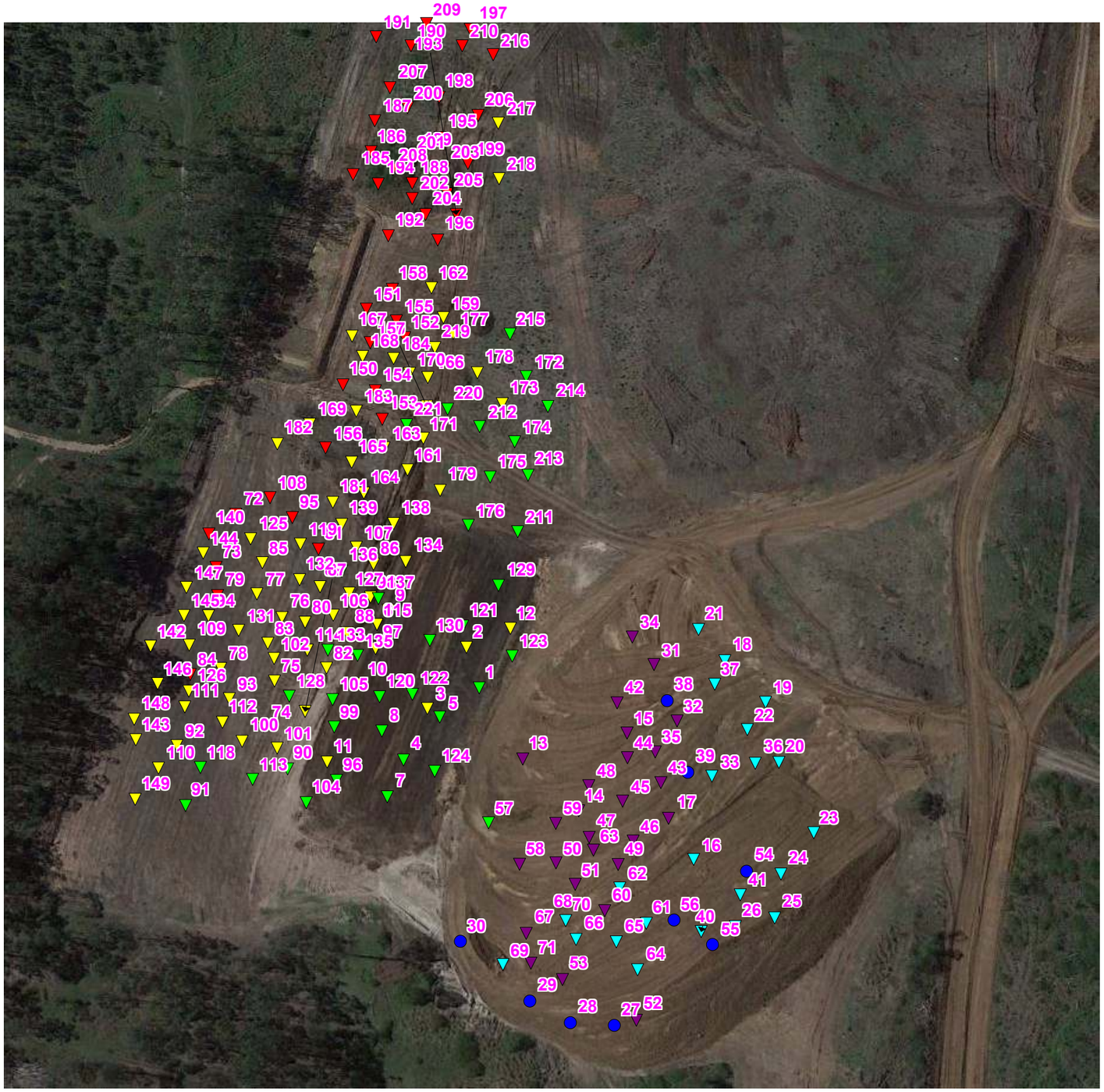
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

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- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
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- R.L 85.0 - 86.99
- Final Level

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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16162*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1049**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1049 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

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Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1049 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1049 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

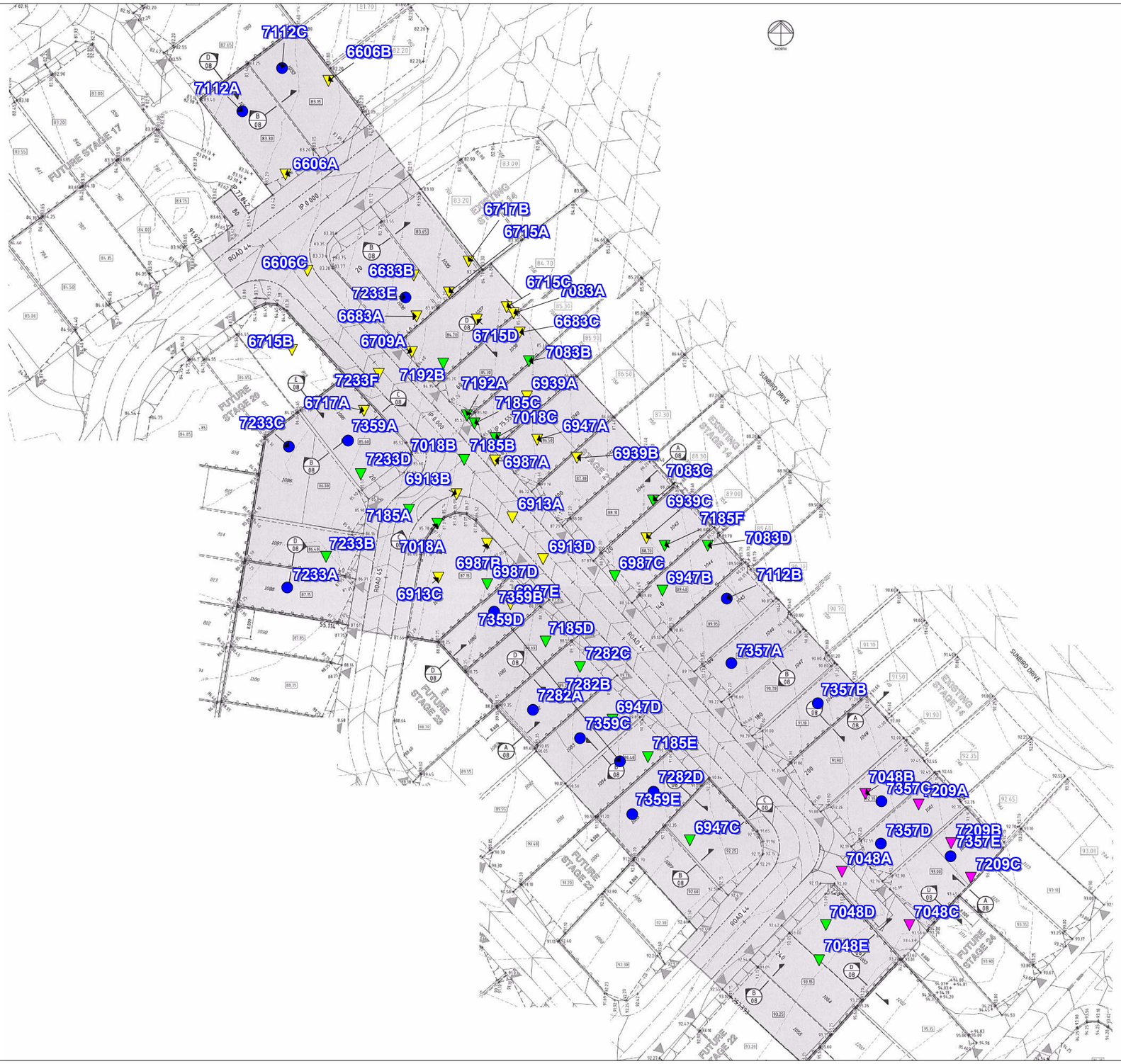
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

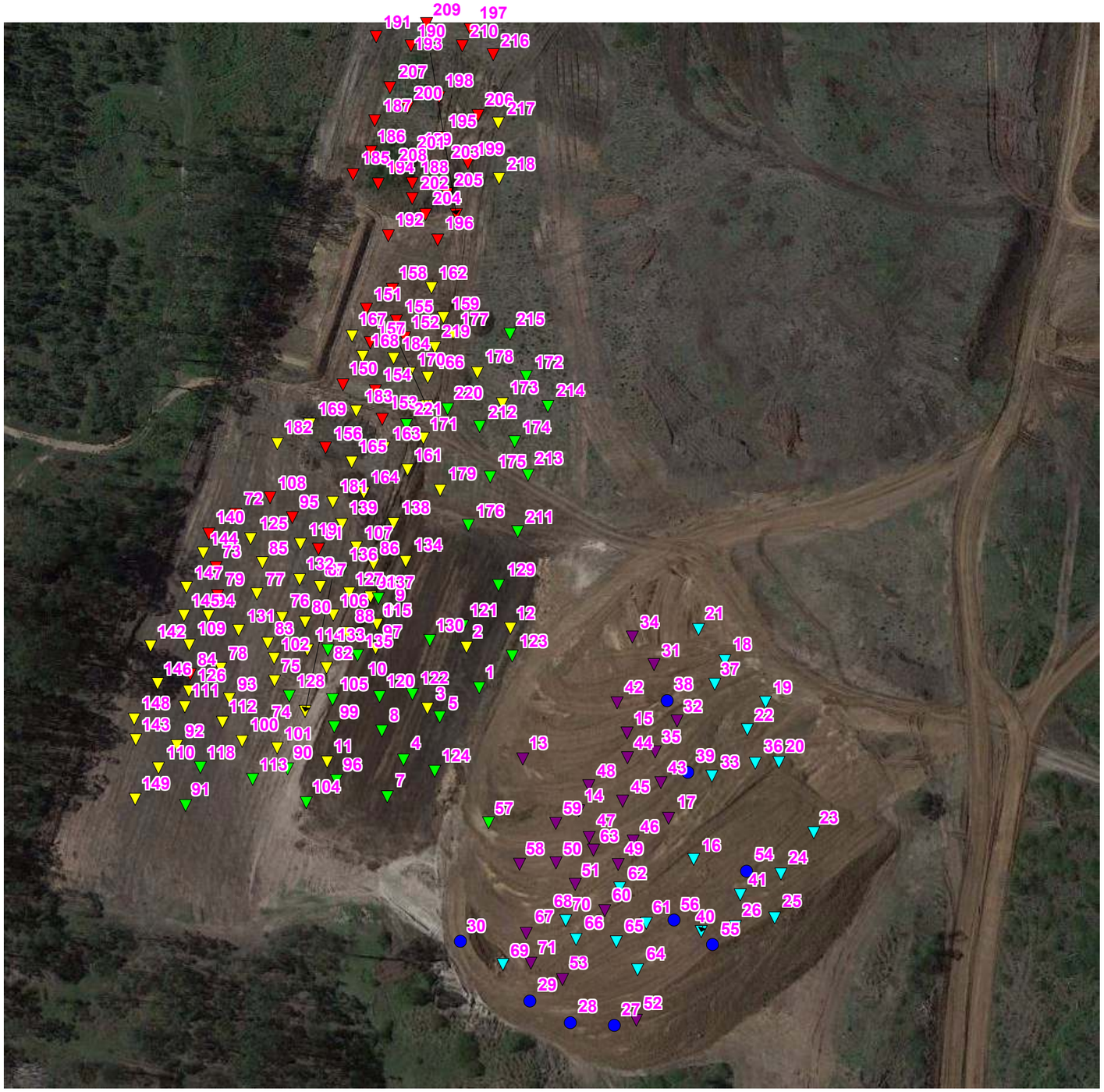
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

**Brisbane** | Gold Coast | Maroochydore
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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16163*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1050**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1050 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1050 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1050 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

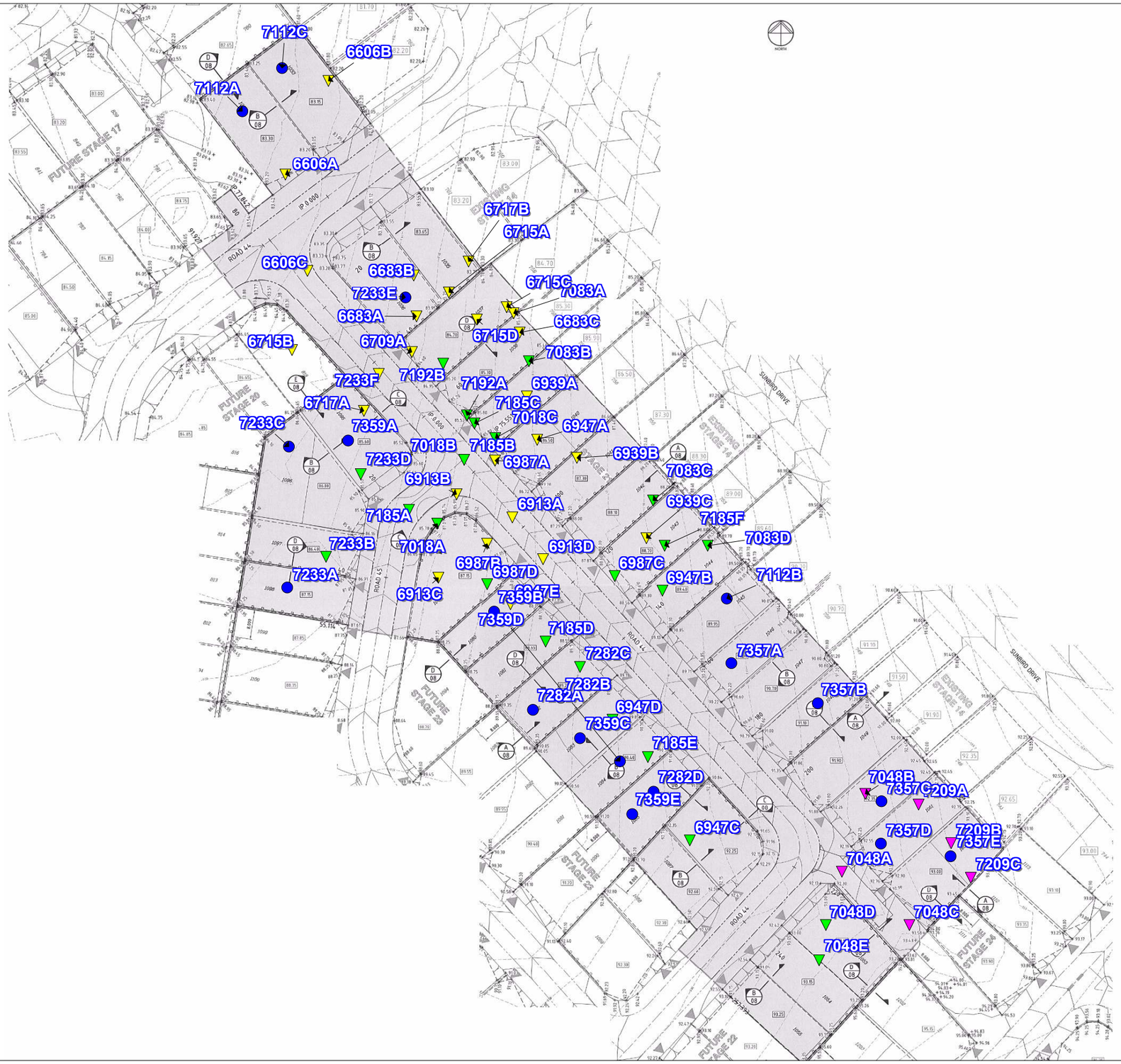
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

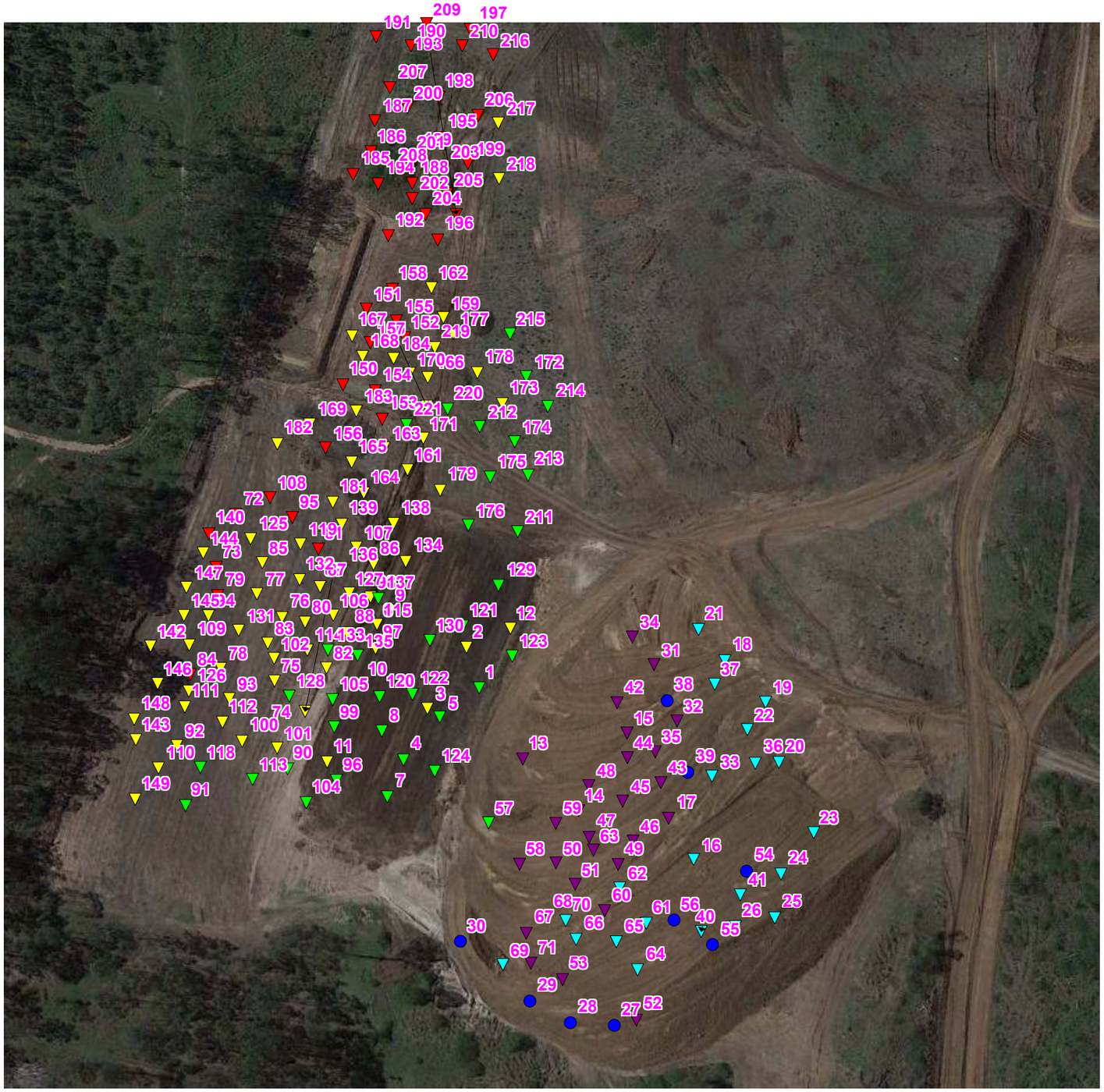
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16164*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1051**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1051 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1051 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1051 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

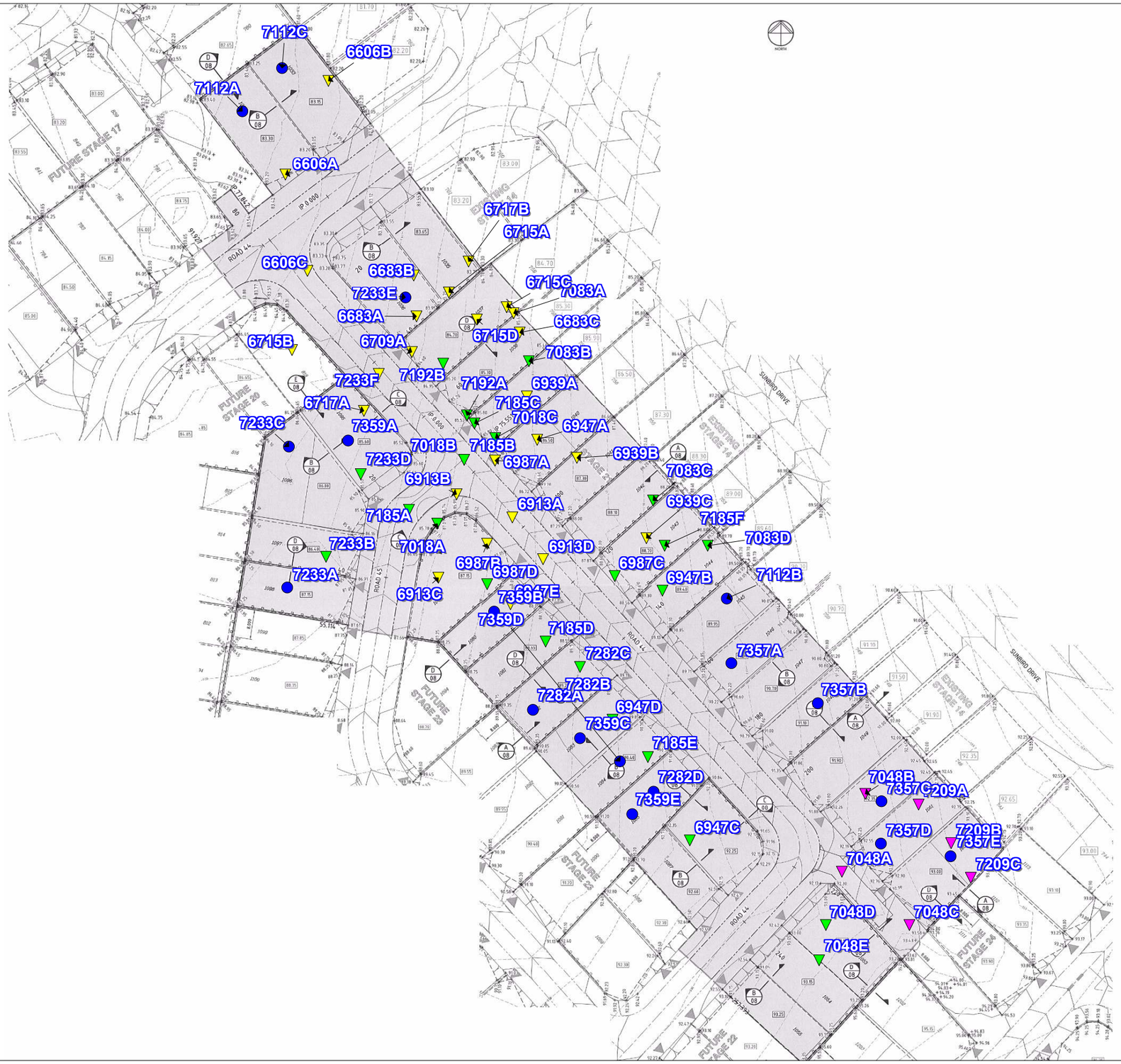
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

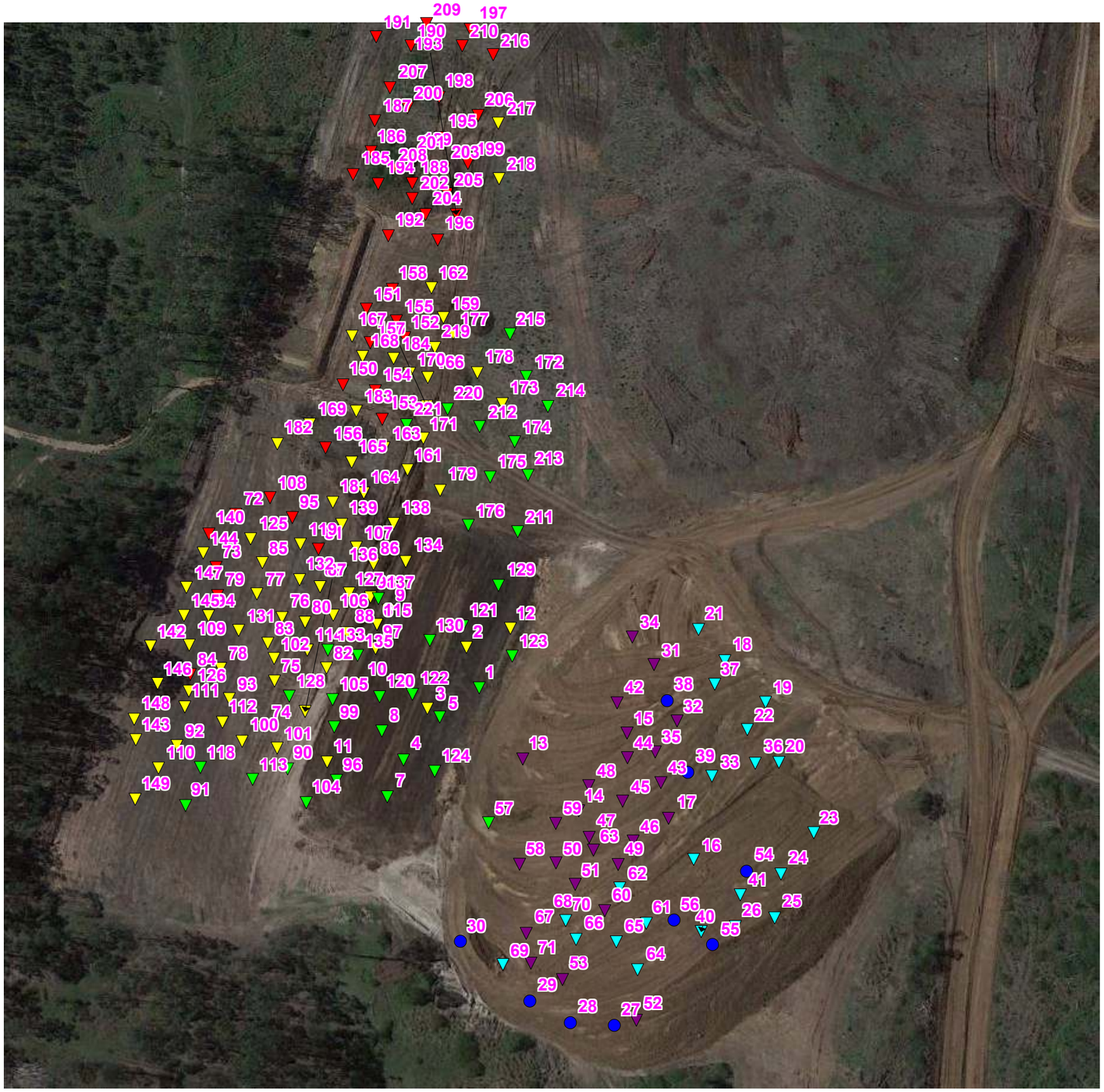
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

**Brisbane** | Gold Coast | Maroochydore
Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16165*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1052**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1052 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1052 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1052 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

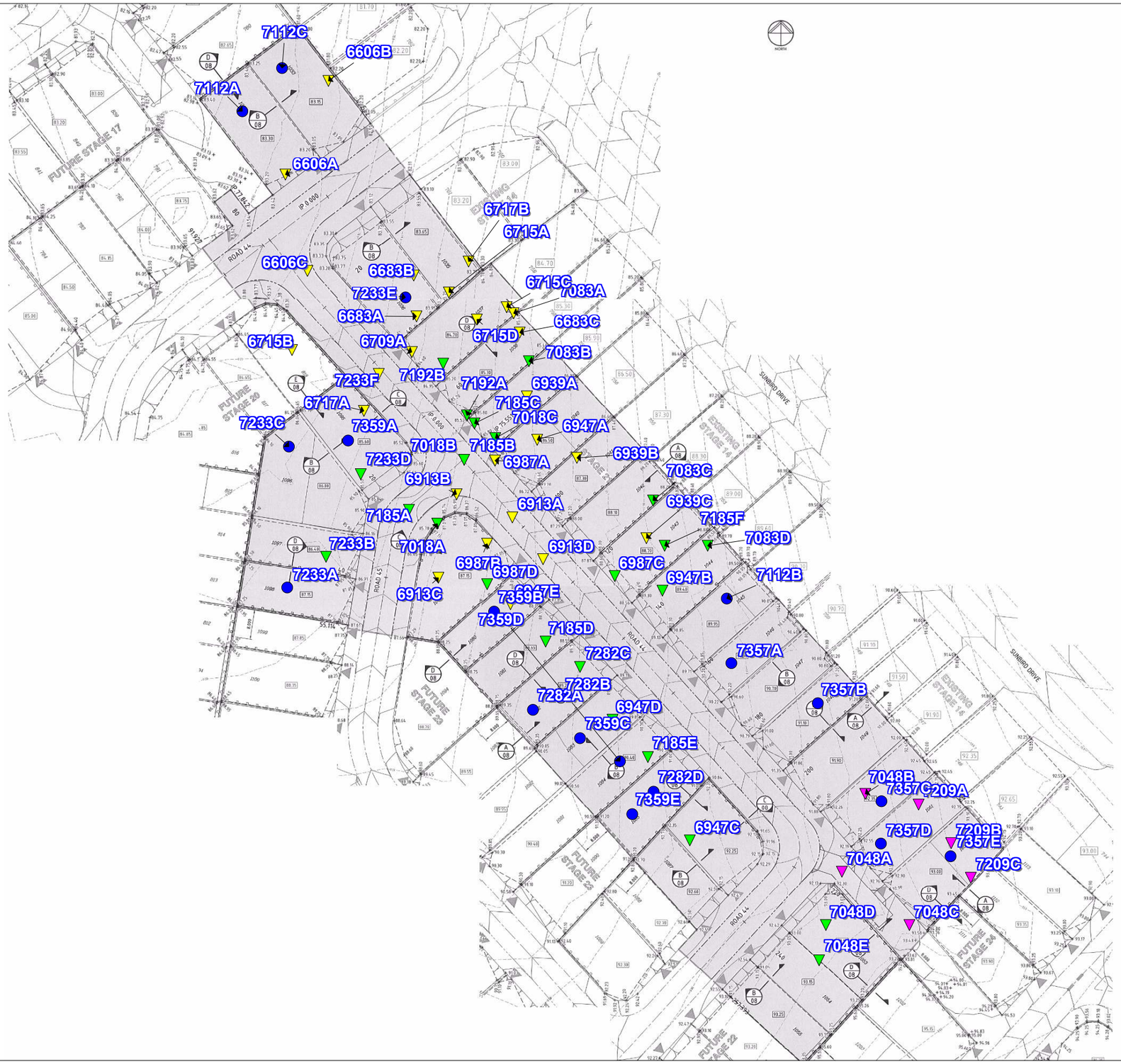
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

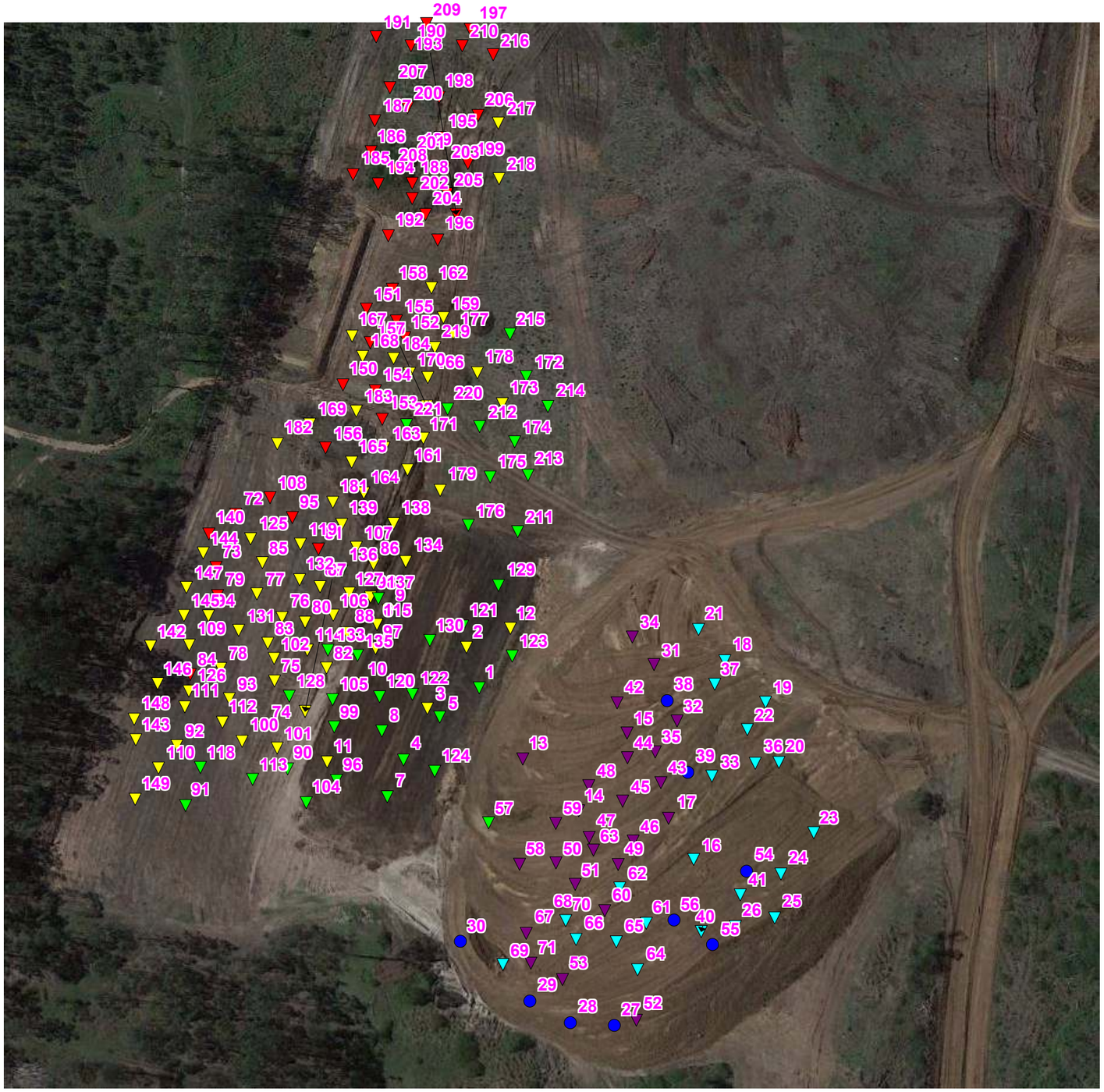
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

**Brisbane** | Gold Coast | Maroochydore
Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16166*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1053**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1053 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1053 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1053 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

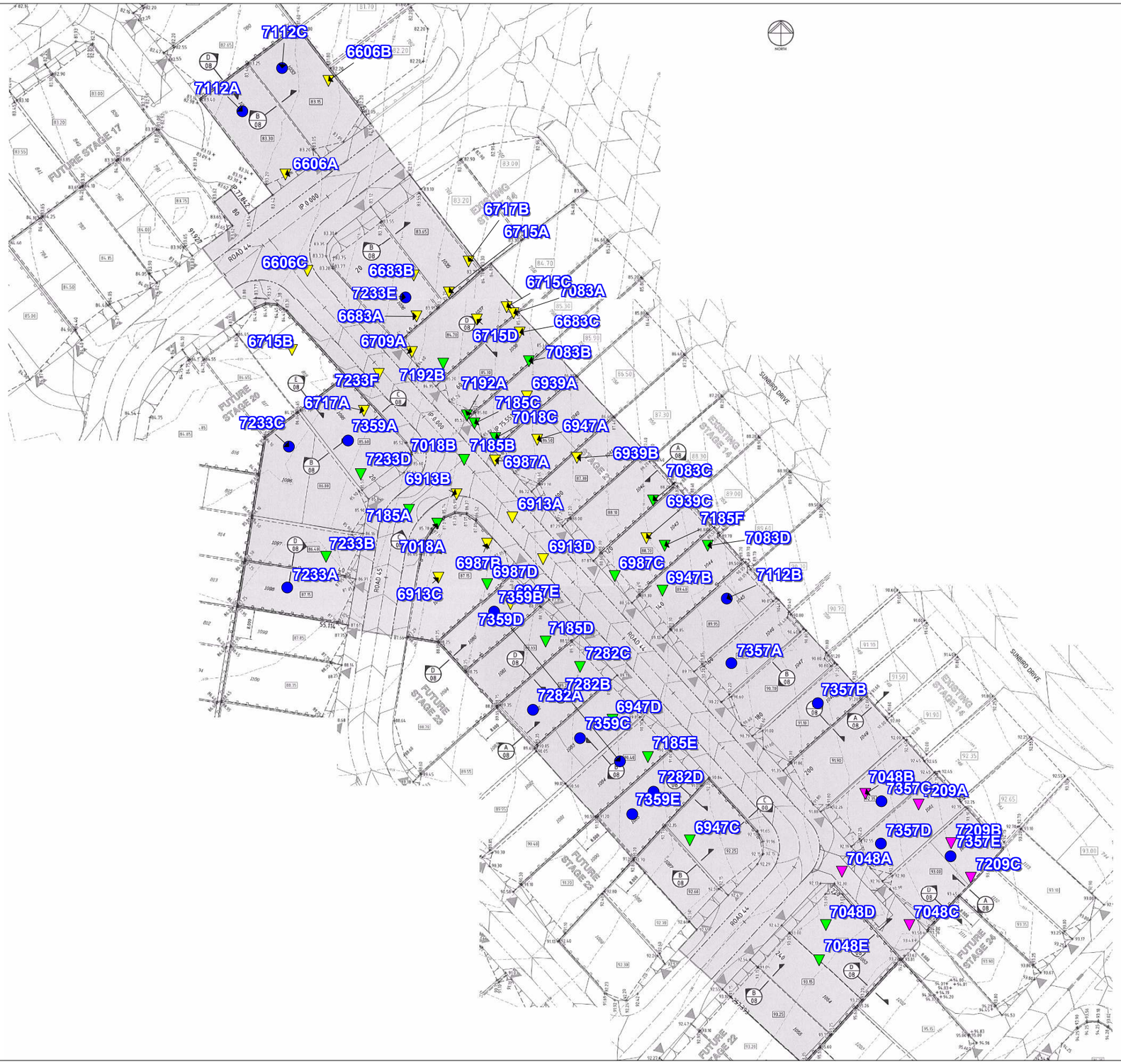
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

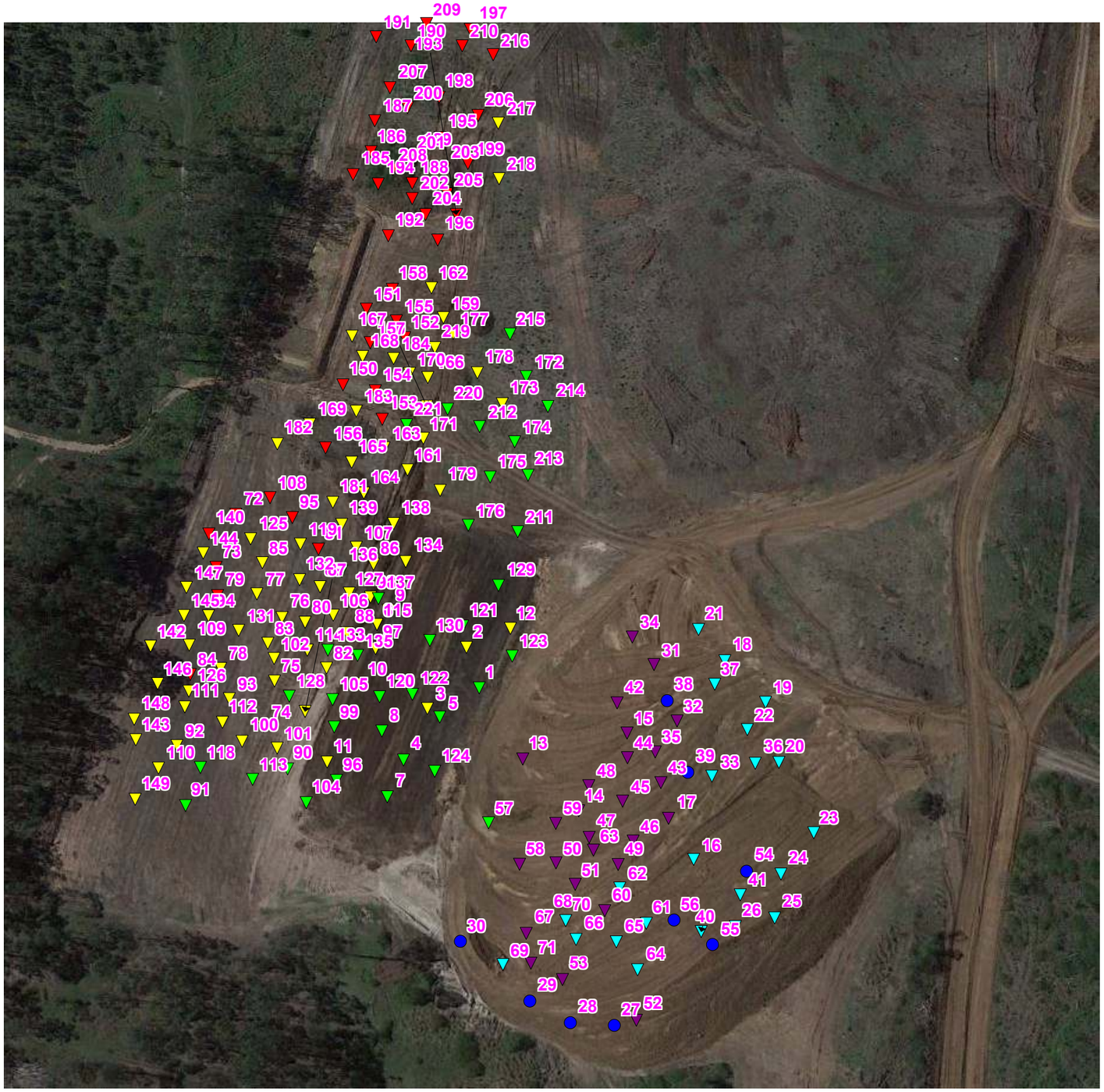
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





**MORRISON GEOTECHNIC PTY LTD**

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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

**Brisbane** | Gold Coast | Maroochydore
Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16167*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1054**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1054 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1054 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1054 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

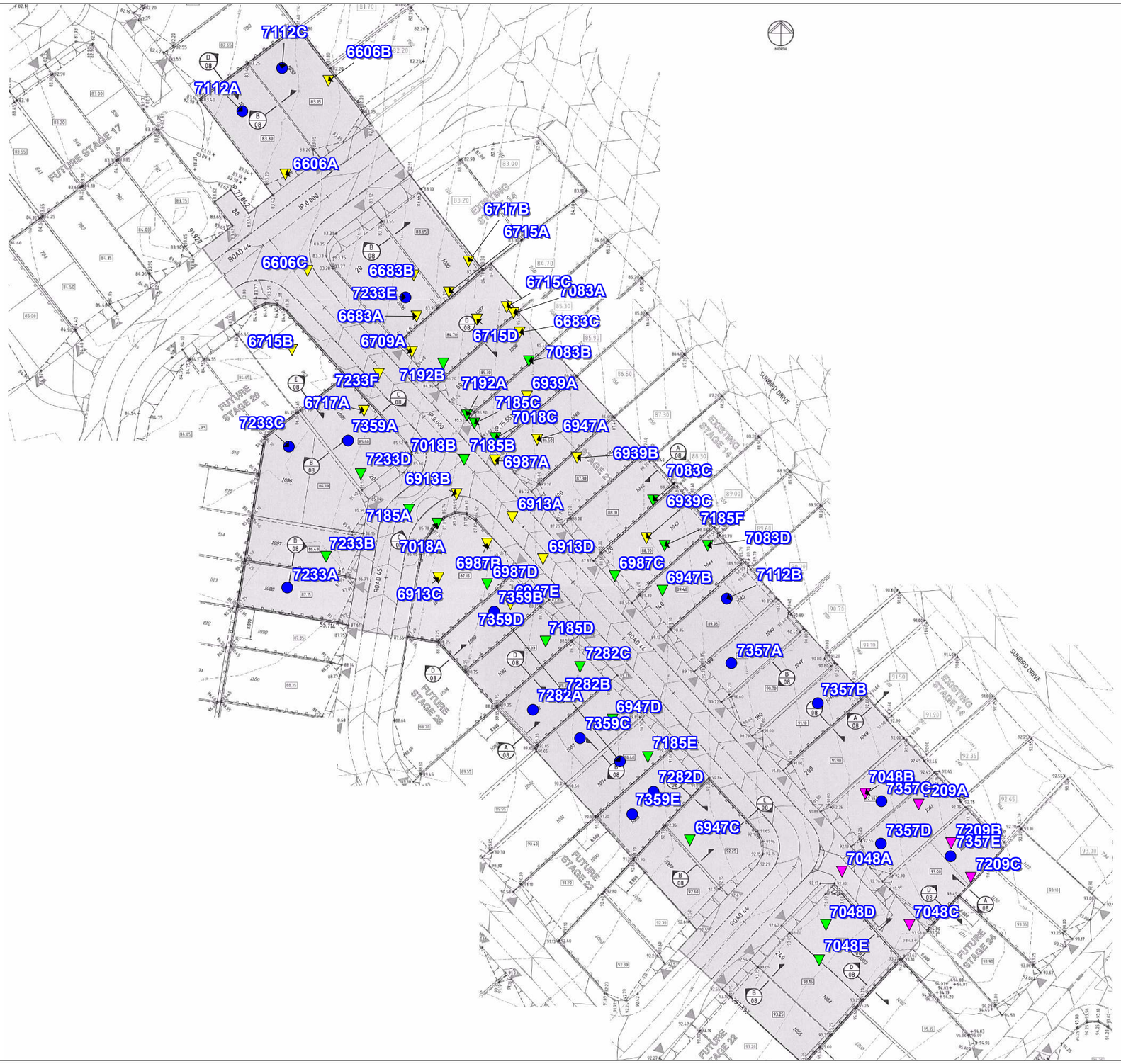
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

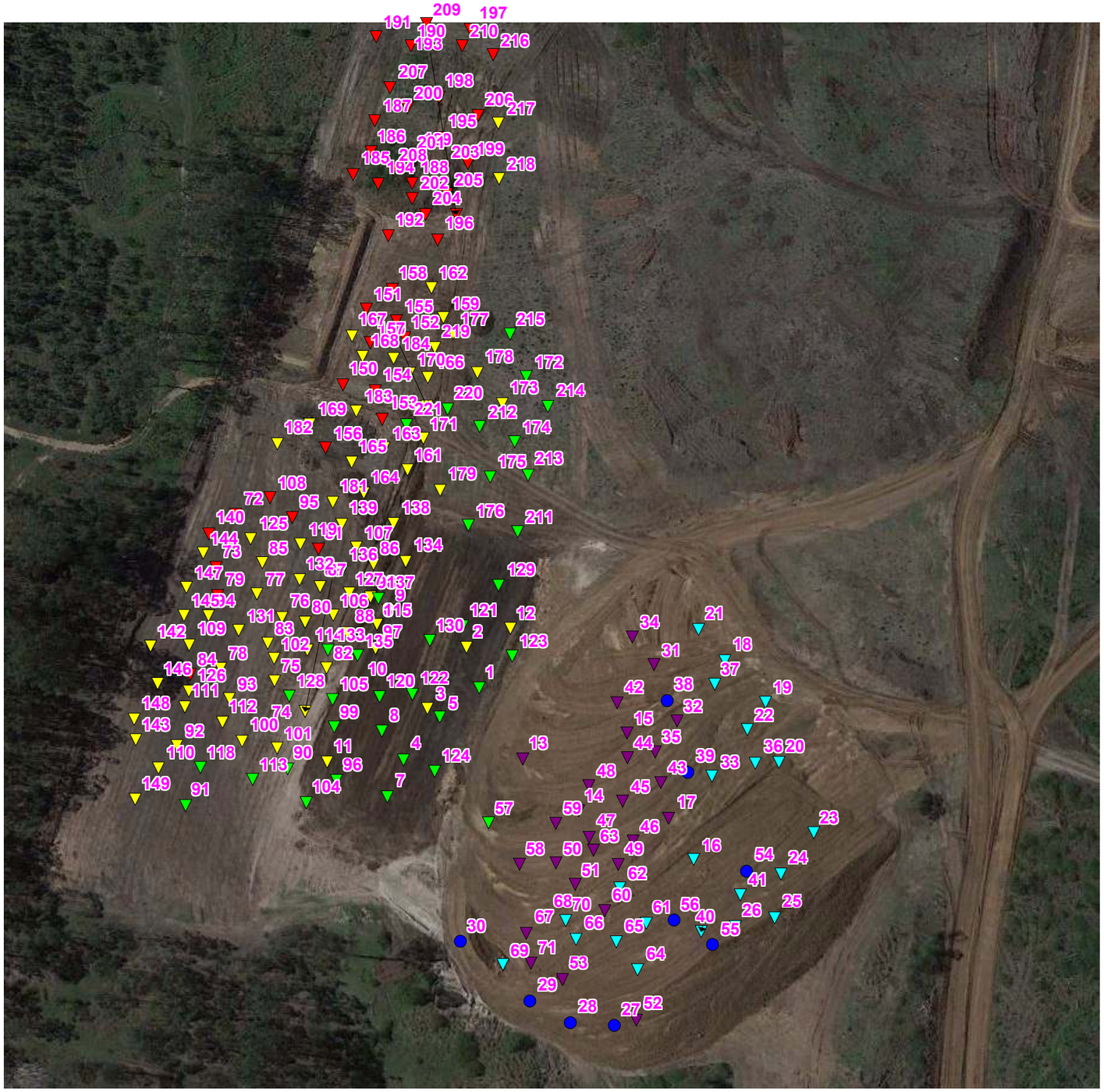
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16168*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1055**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1055 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1055 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1055 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

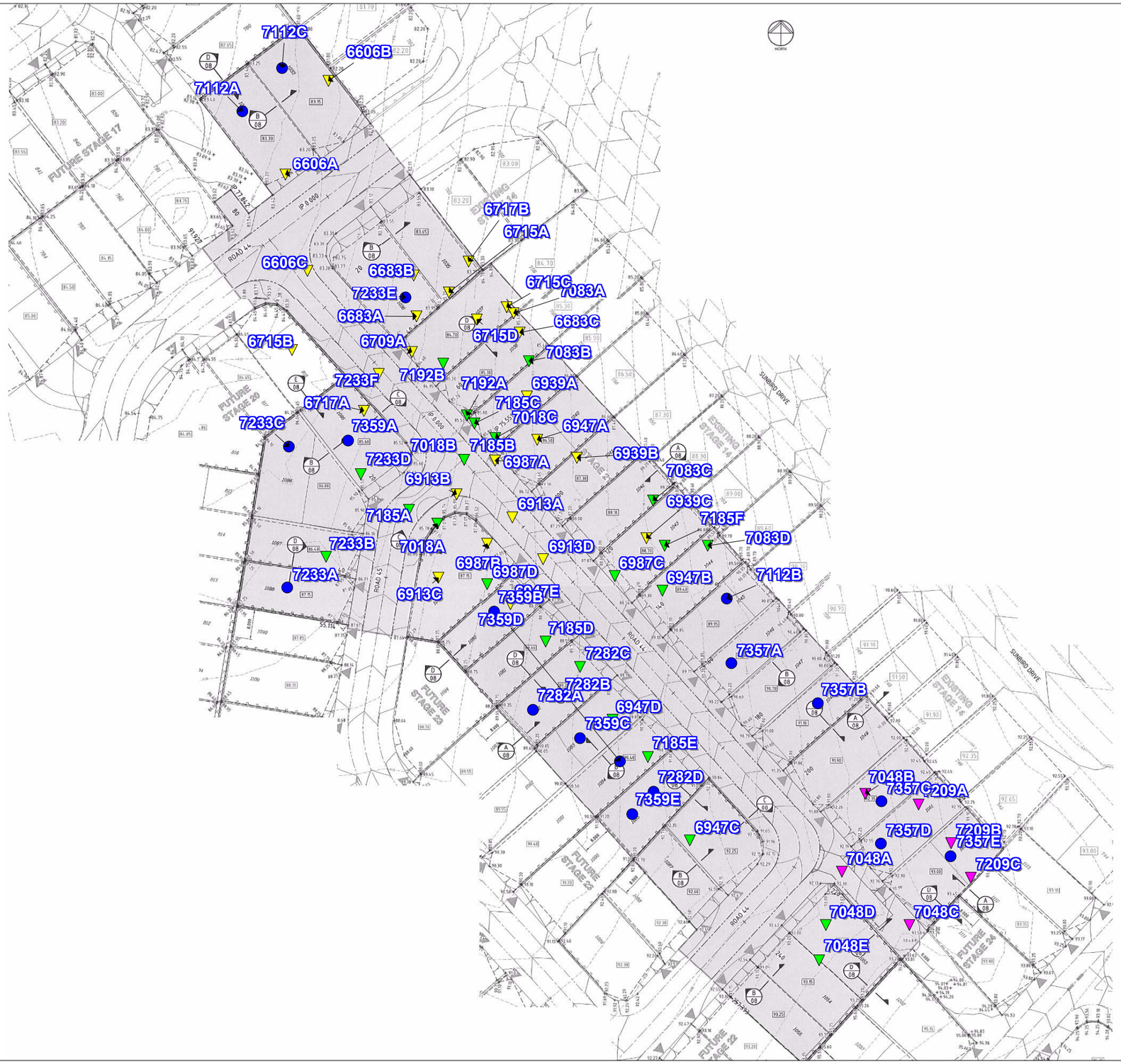
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

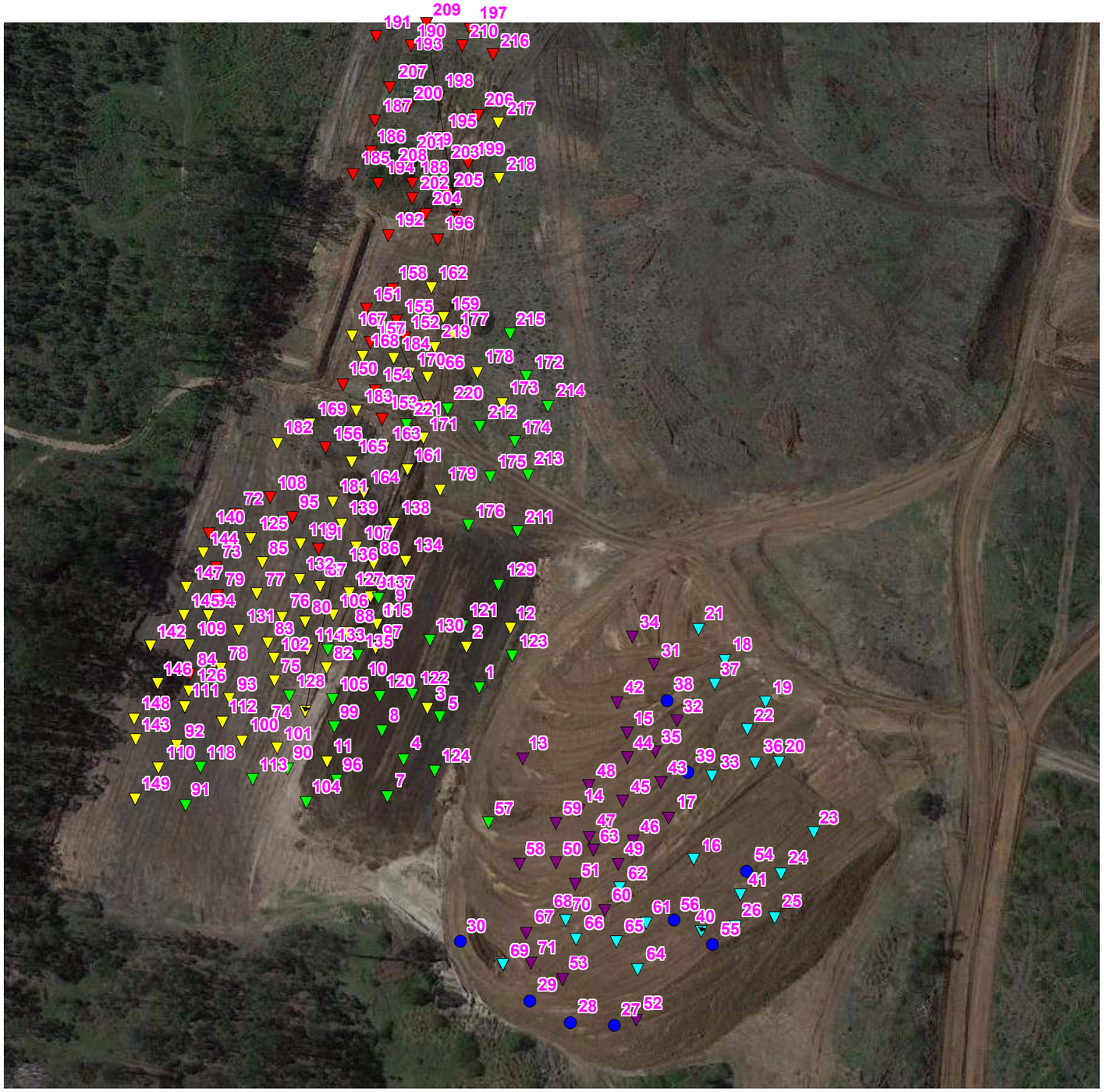
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16169*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1079**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1079 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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- Ipswich City Council Specifications.
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Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1079 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1079 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

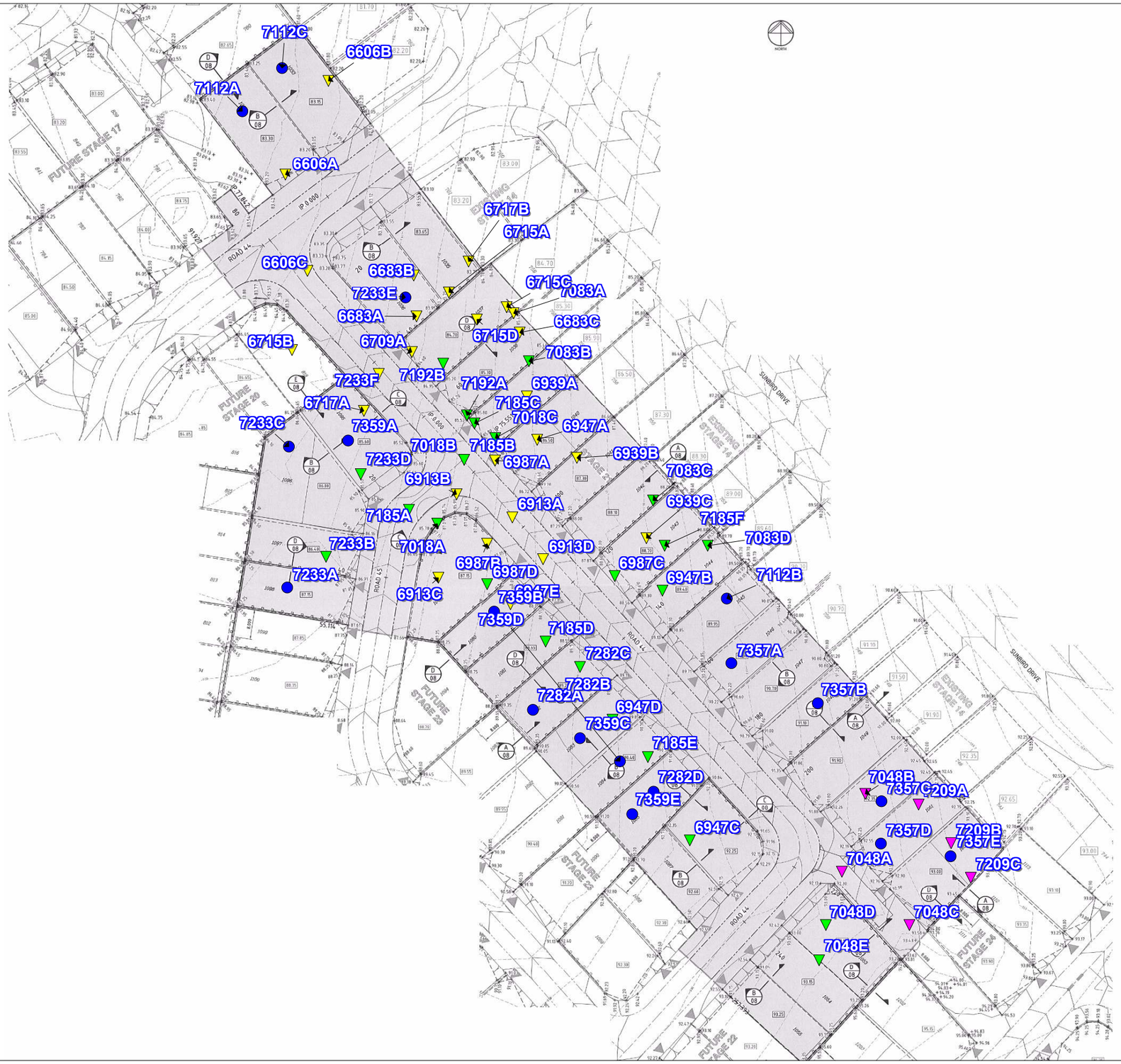
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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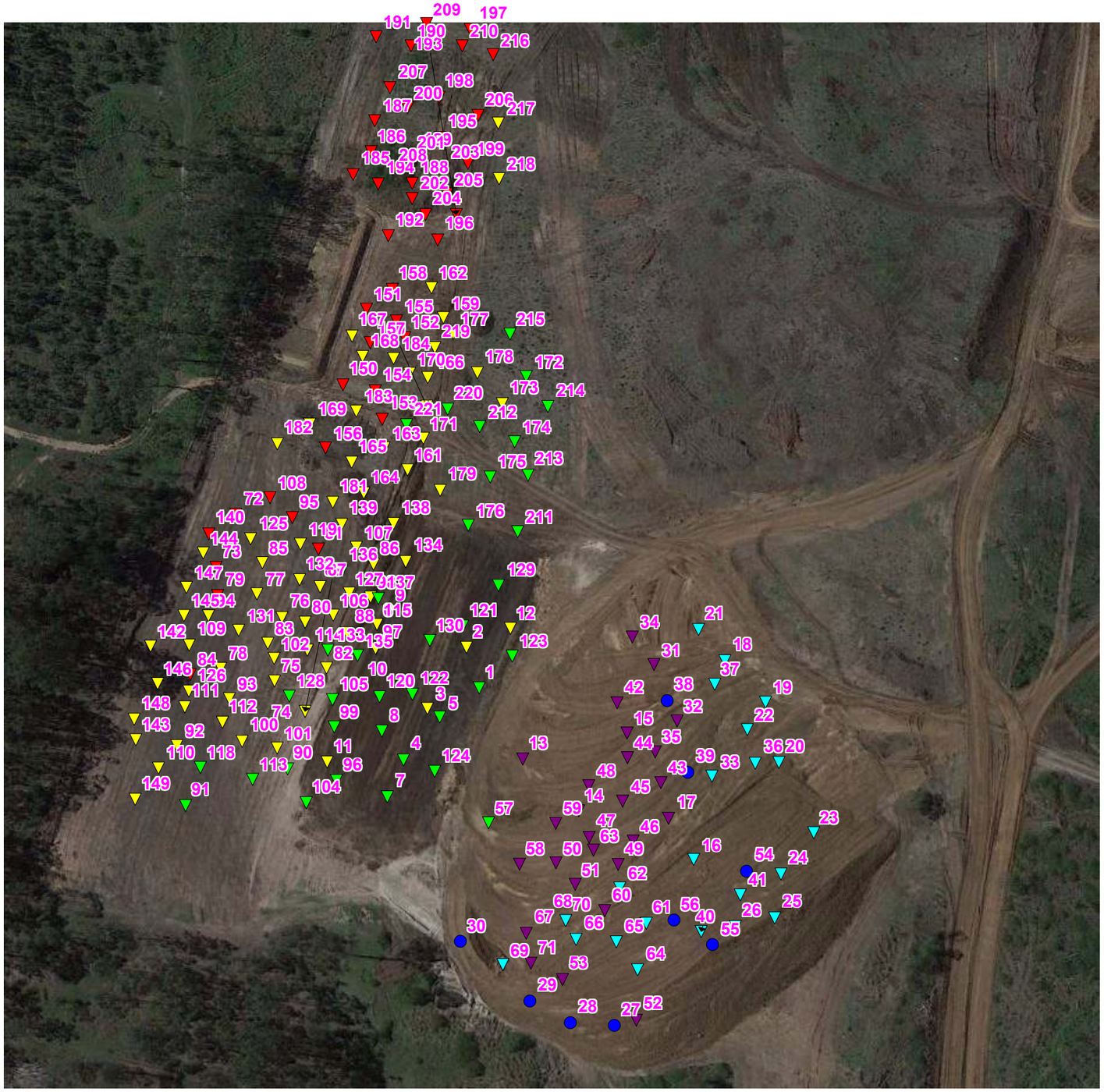
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

**Brisbane** | Gold Coast | Maroochydore
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**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16170*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1080**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1080 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1080 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1080 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

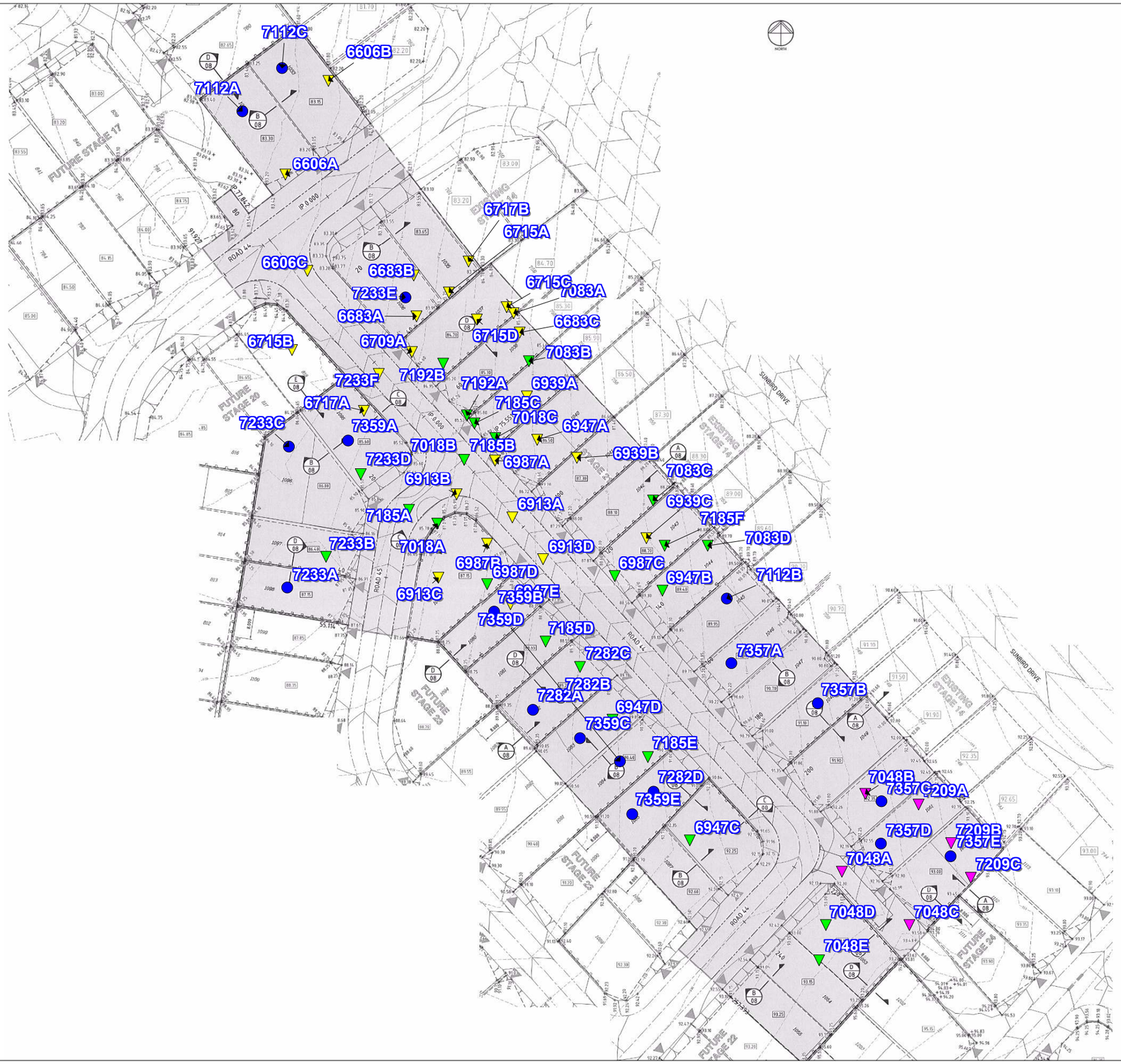
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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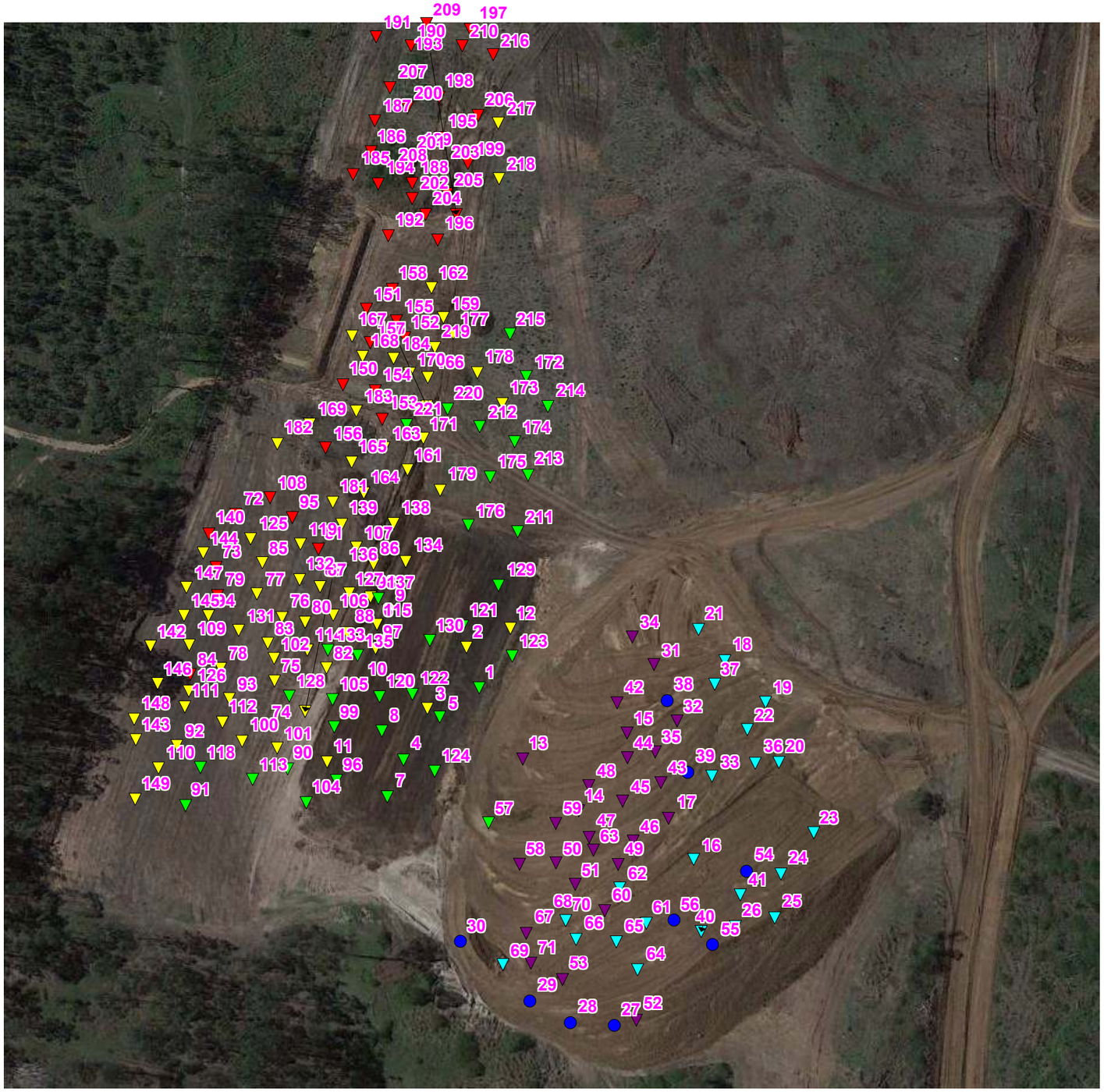
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16171*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1081**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1081 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1081 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1081 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

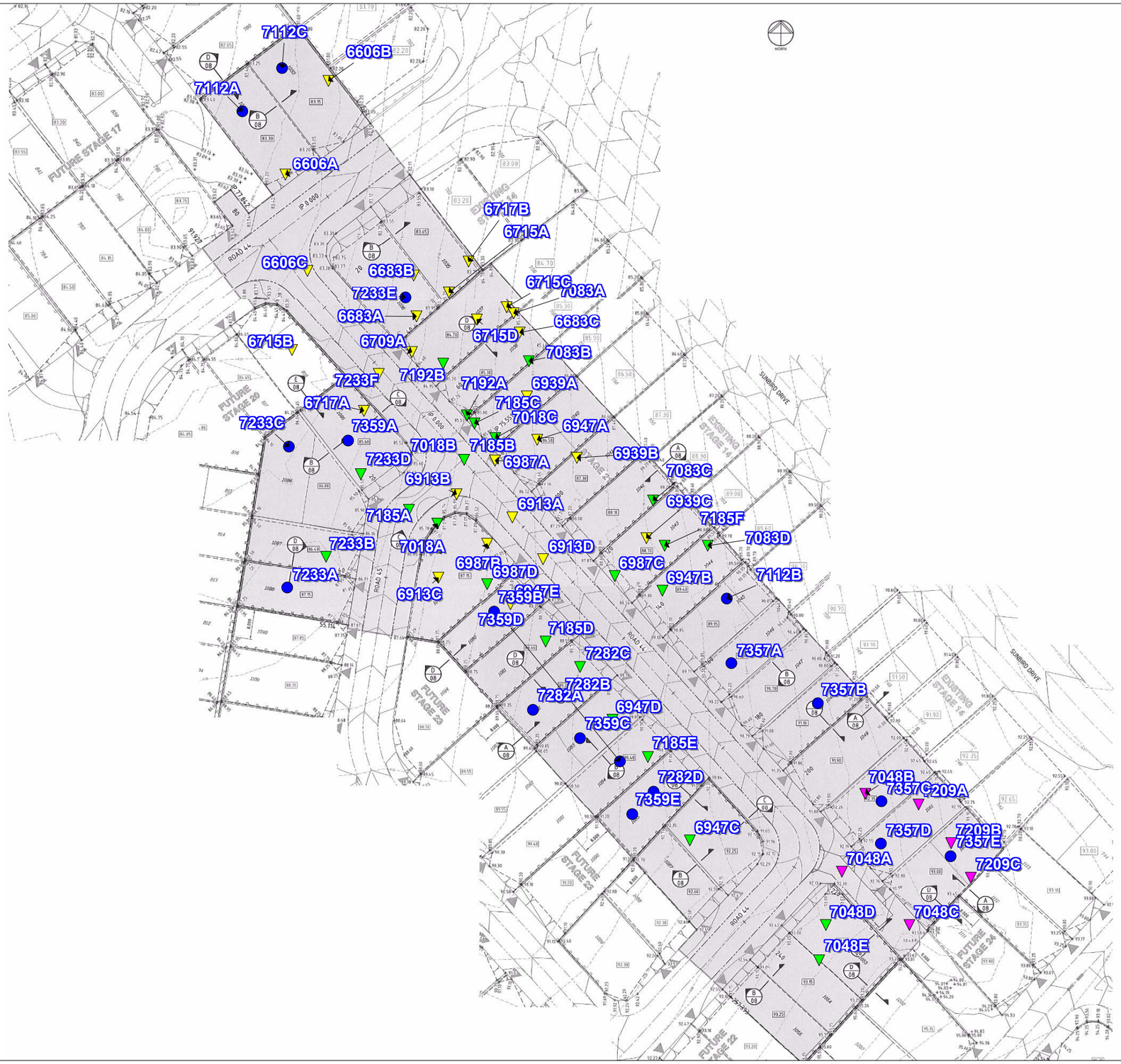
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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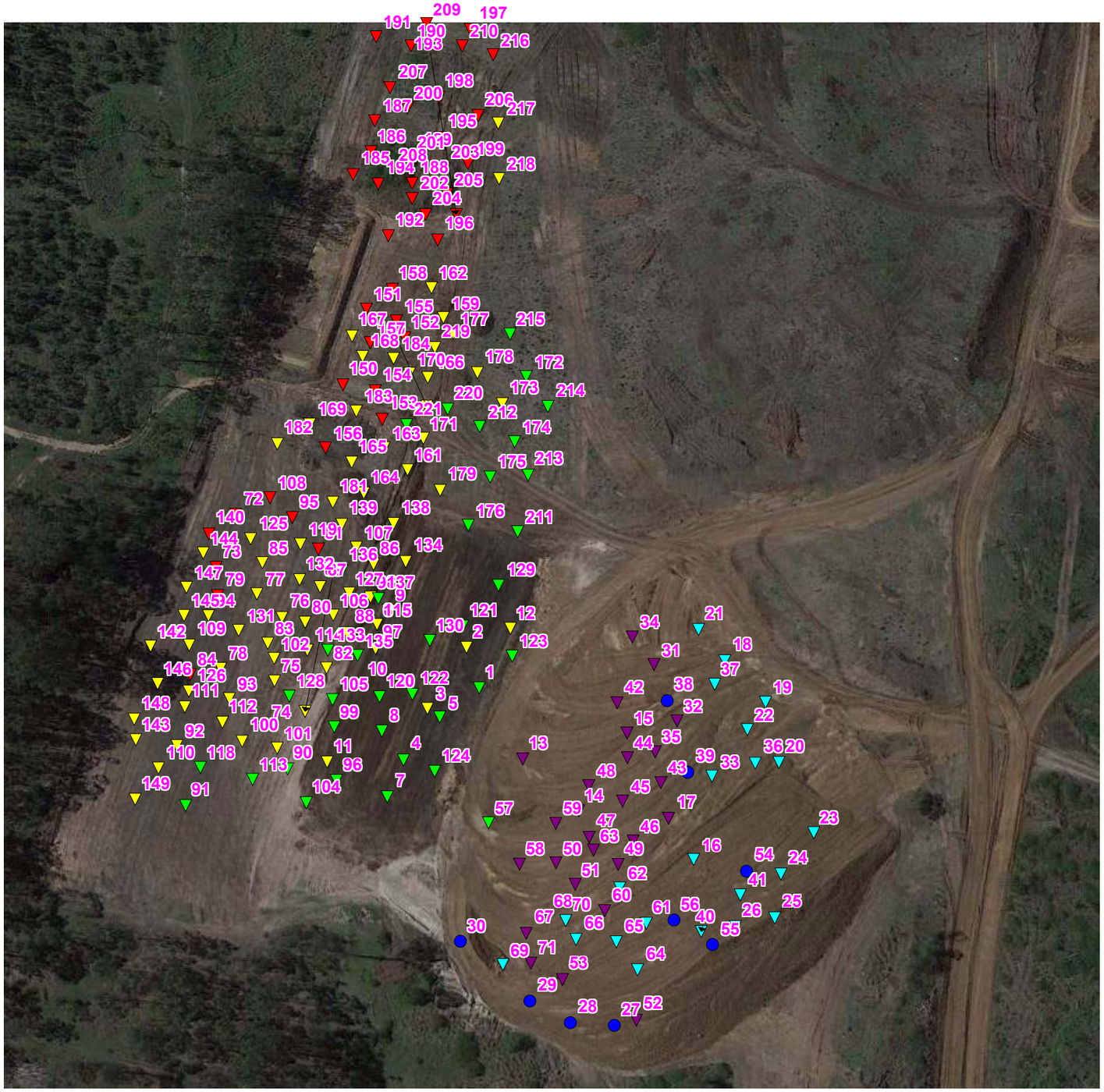
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

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- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**ABN** 51 009 878 899
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*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16172*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1082**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1082 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1082 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1082 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

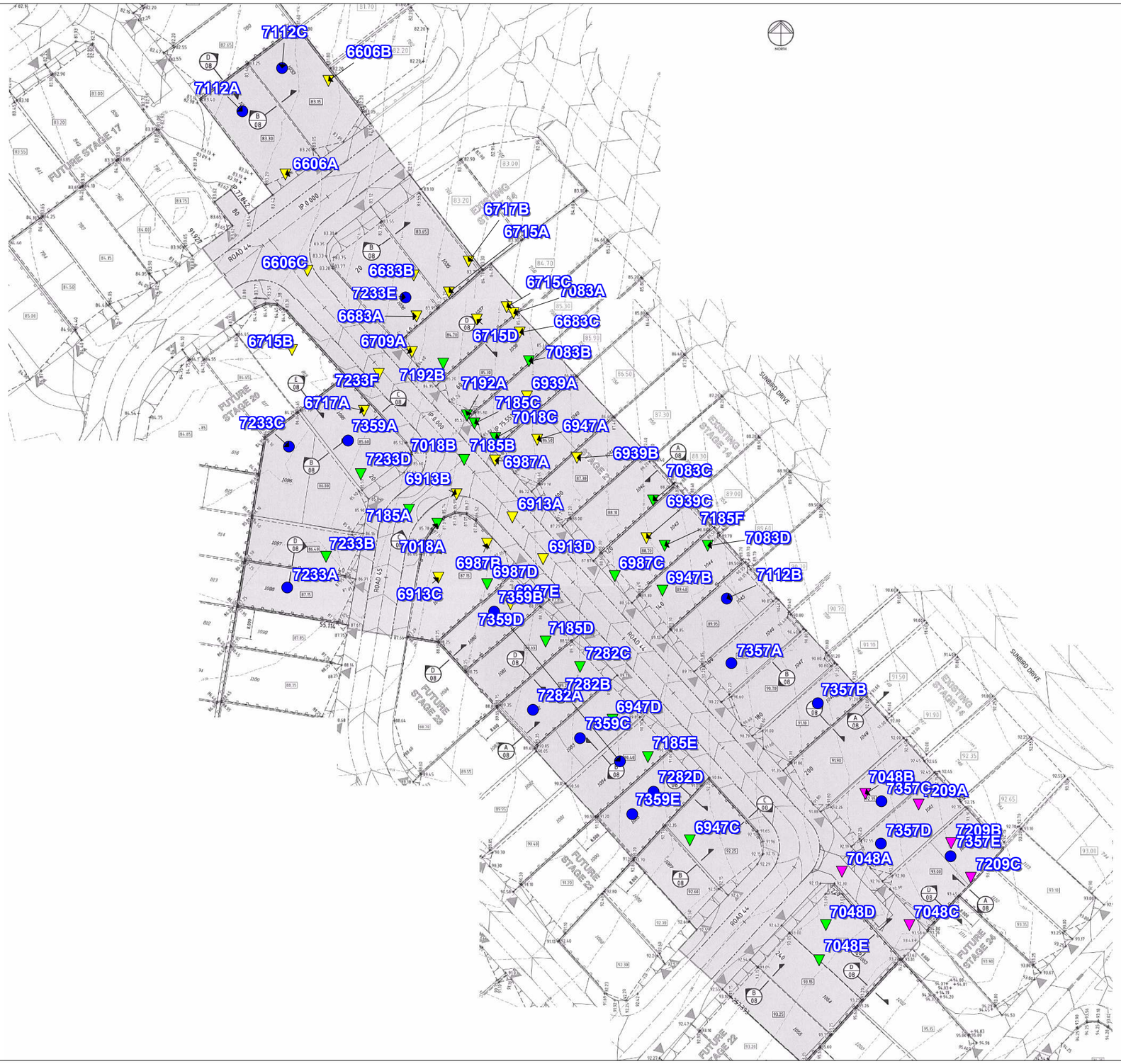
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

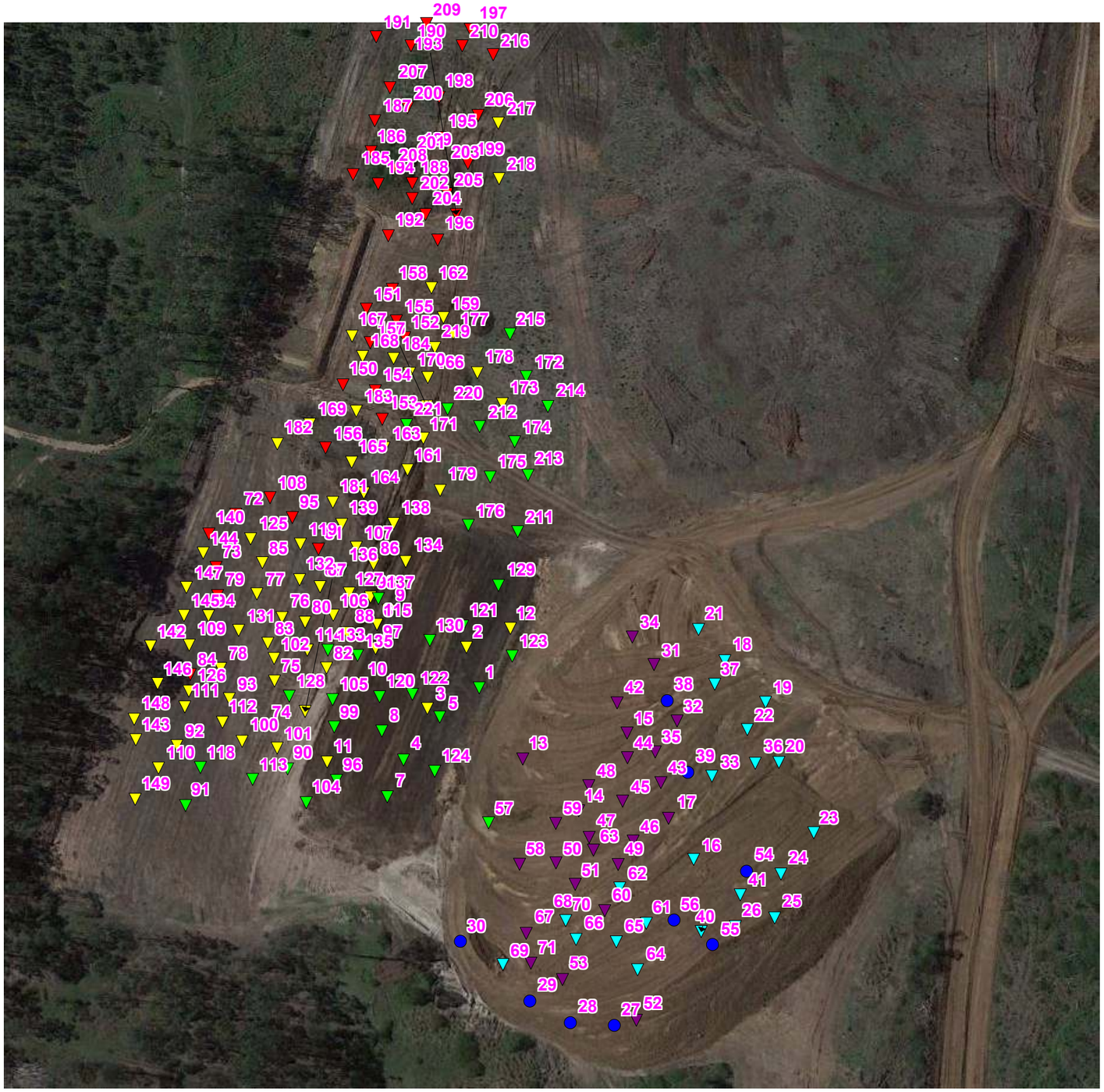
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

**Brisbane** | Gold Coast | Maroochydore
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**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16173*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1083**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1083 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

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- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1083 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1083 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

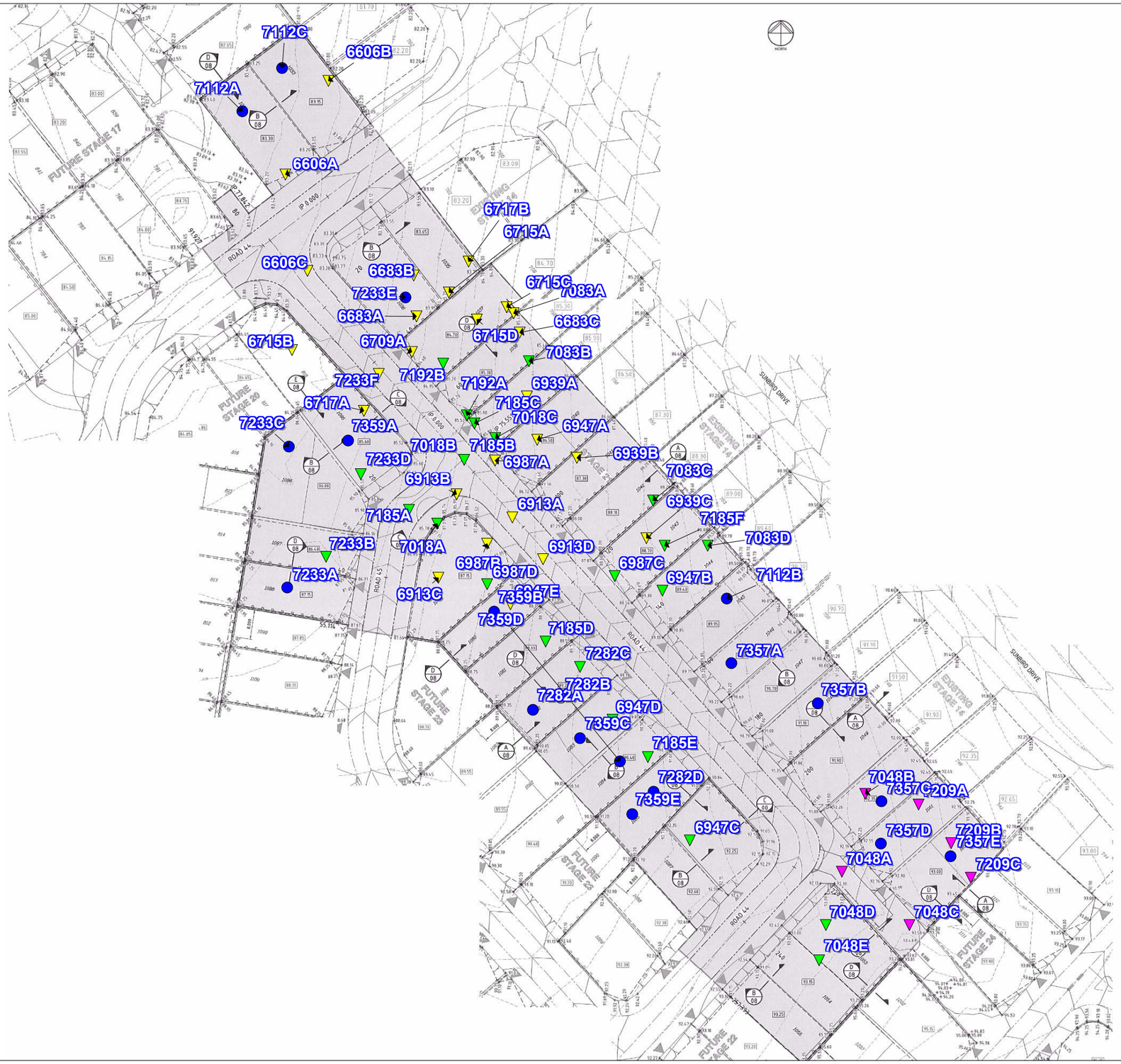
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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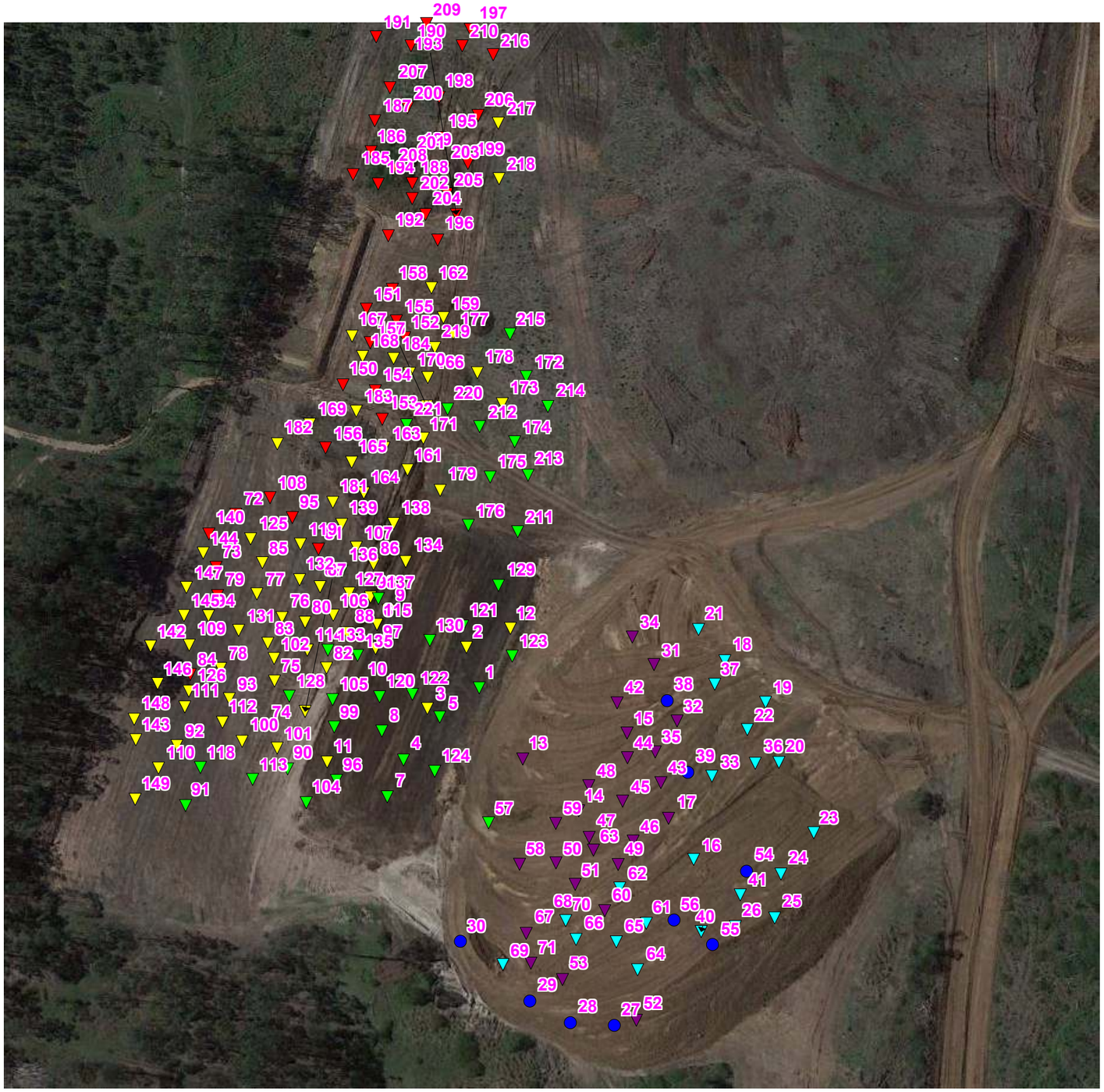
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16174*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1084**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1084 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1084 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1084 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

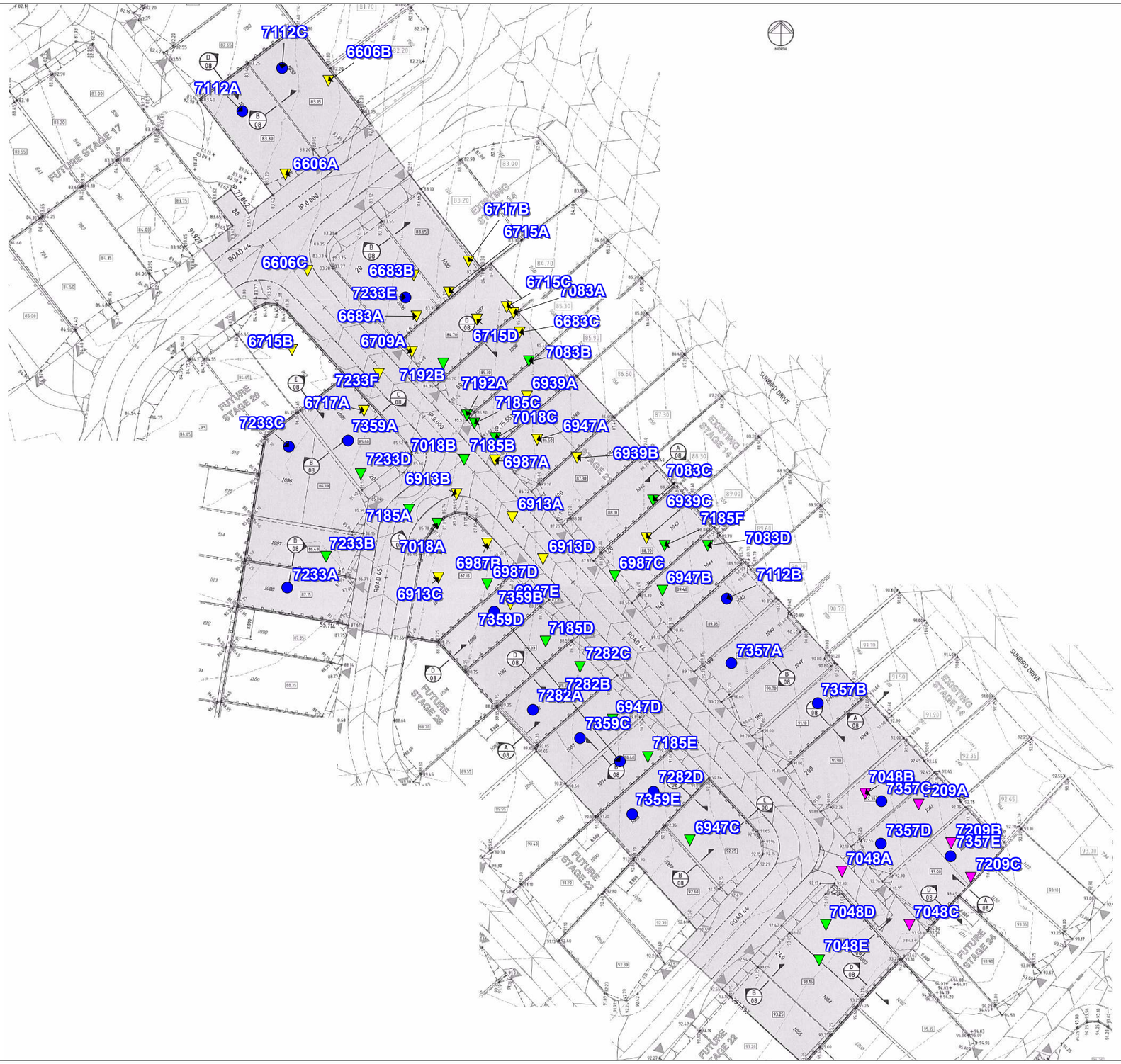
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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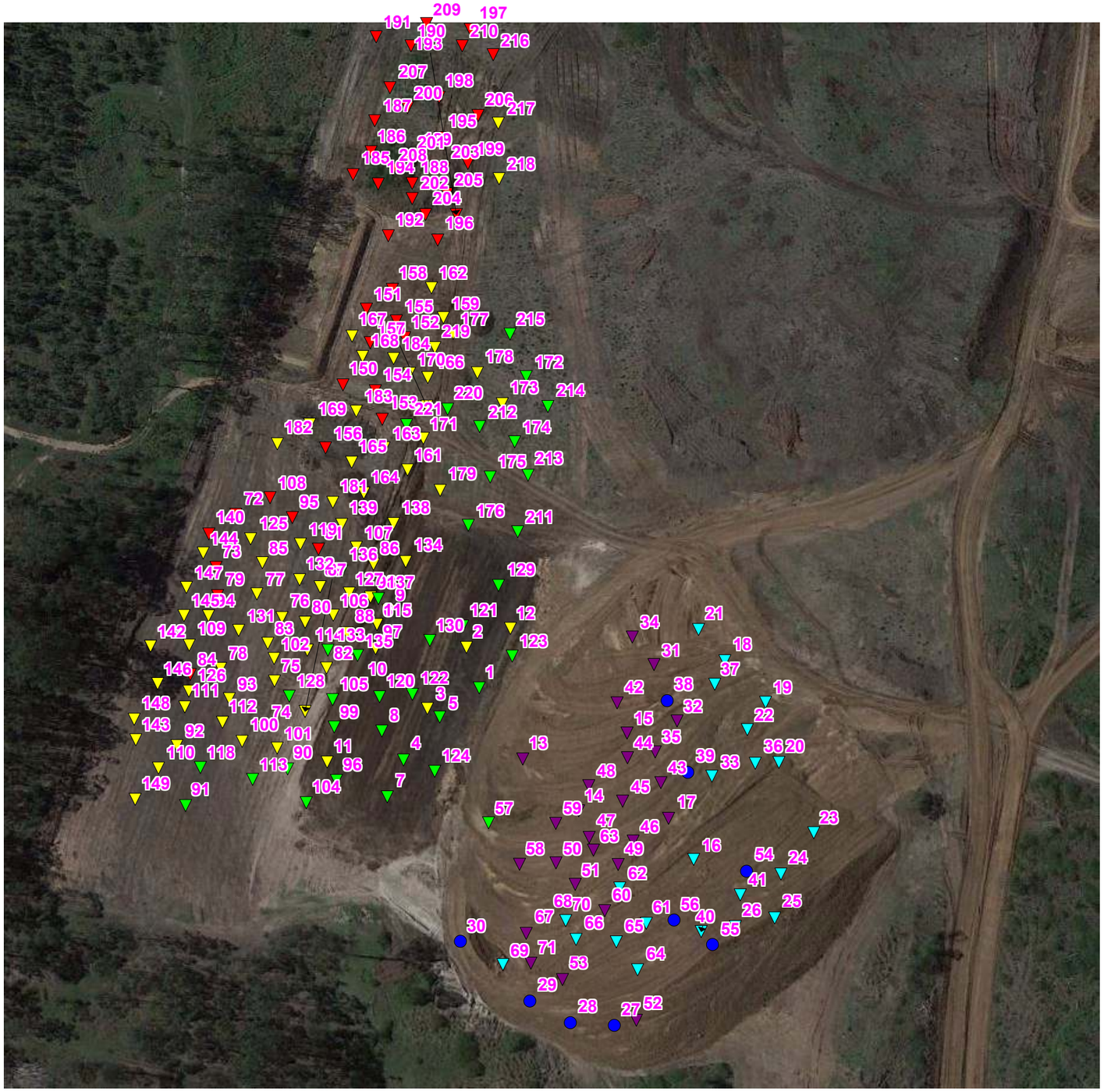
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

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**ABN** 51 009 878 899
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*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16175*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1085**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1085 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1085 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1085 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

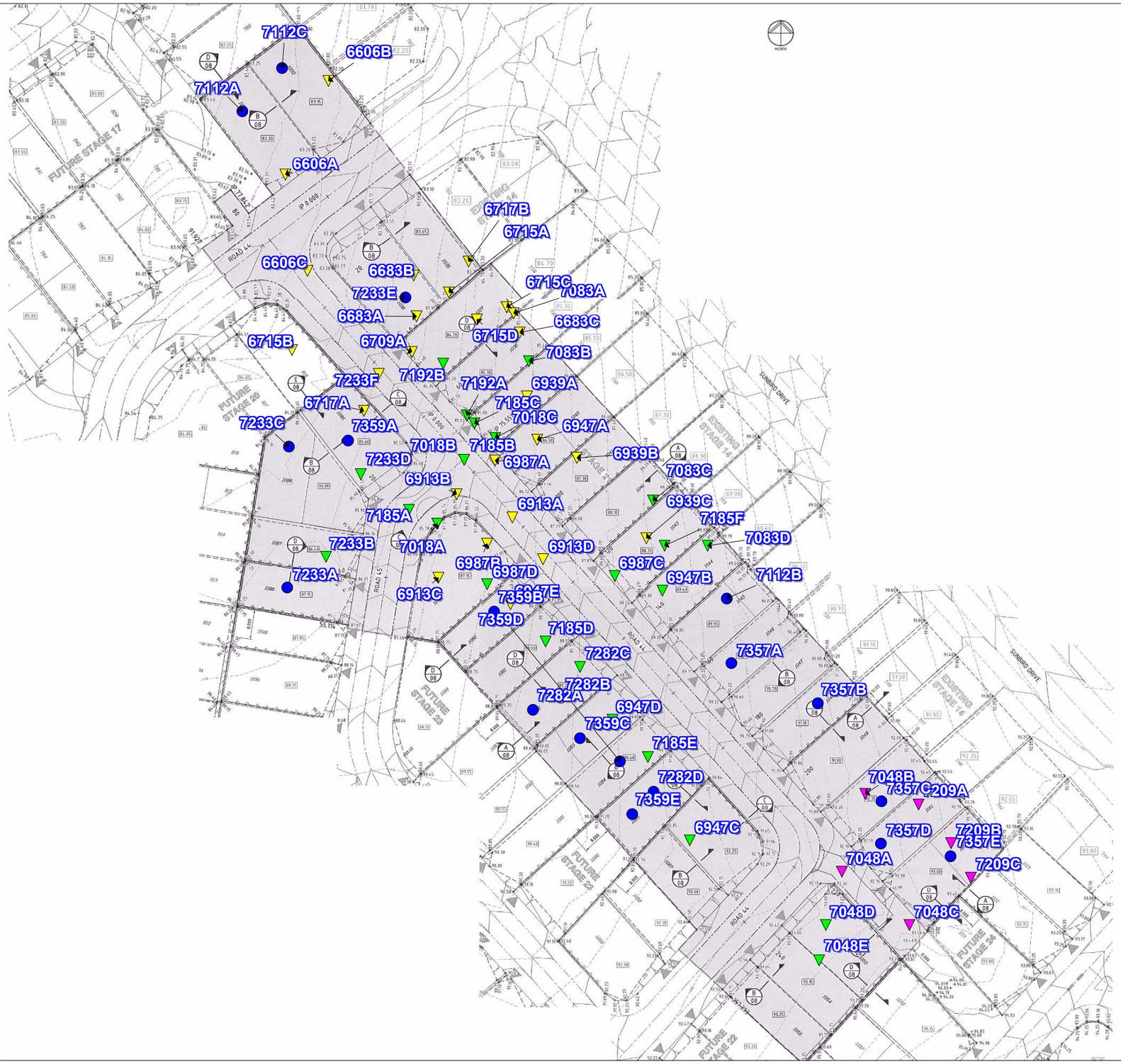
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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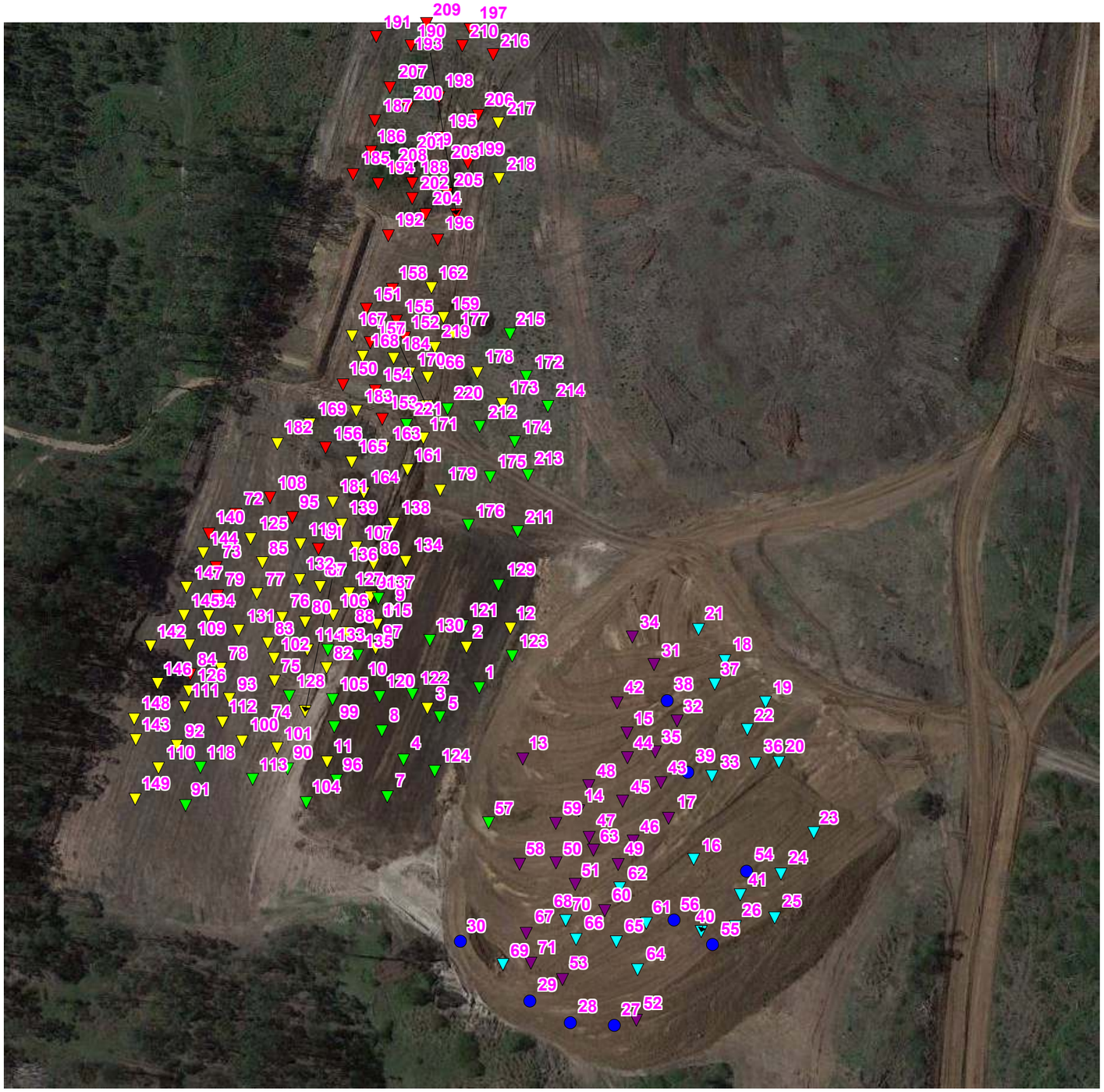
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au* *Fax: 3279 0955*

Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
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- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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**ABN** 51 009 878 899
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*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16176*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1086**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1086 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1086 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1086 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

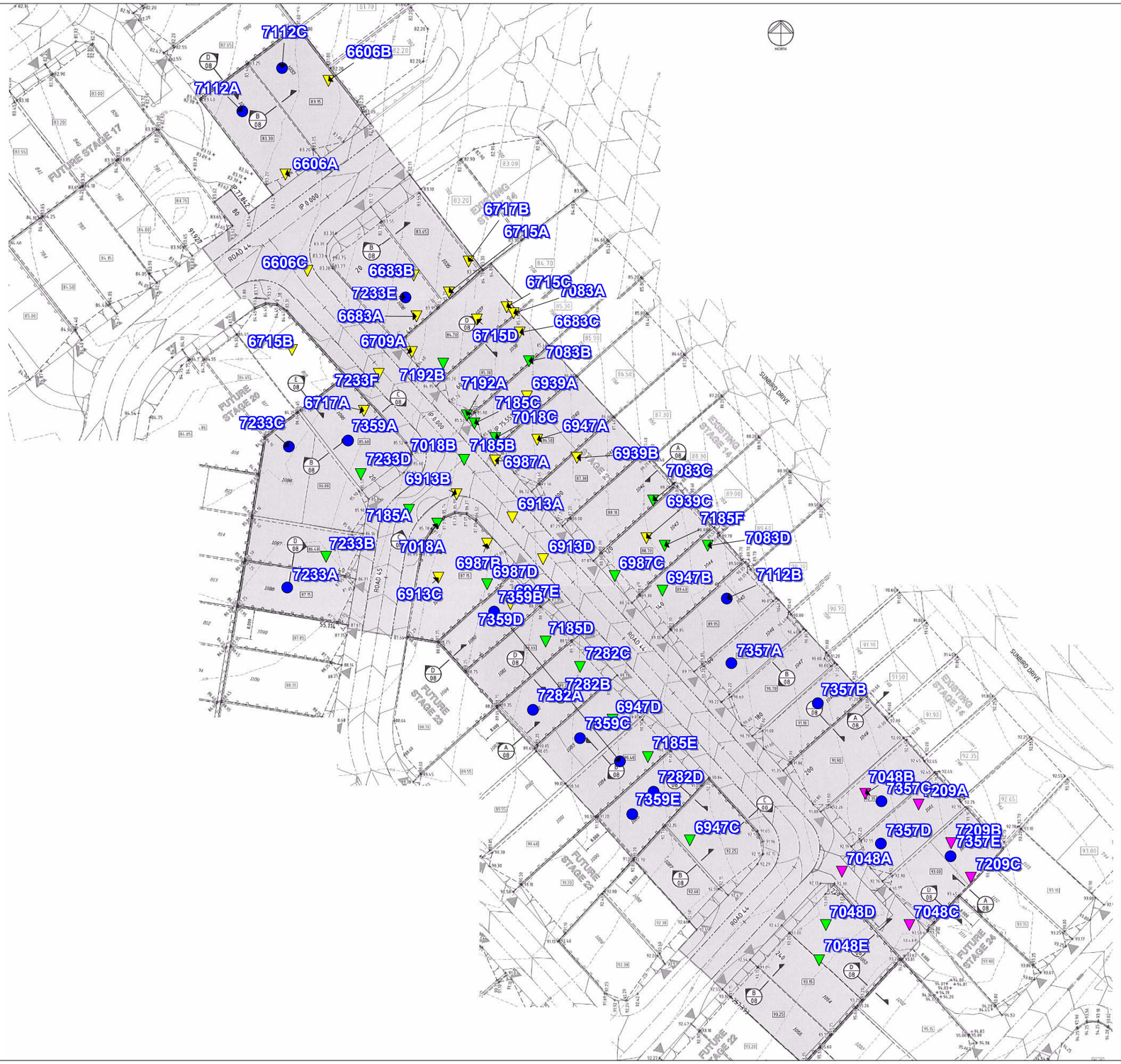
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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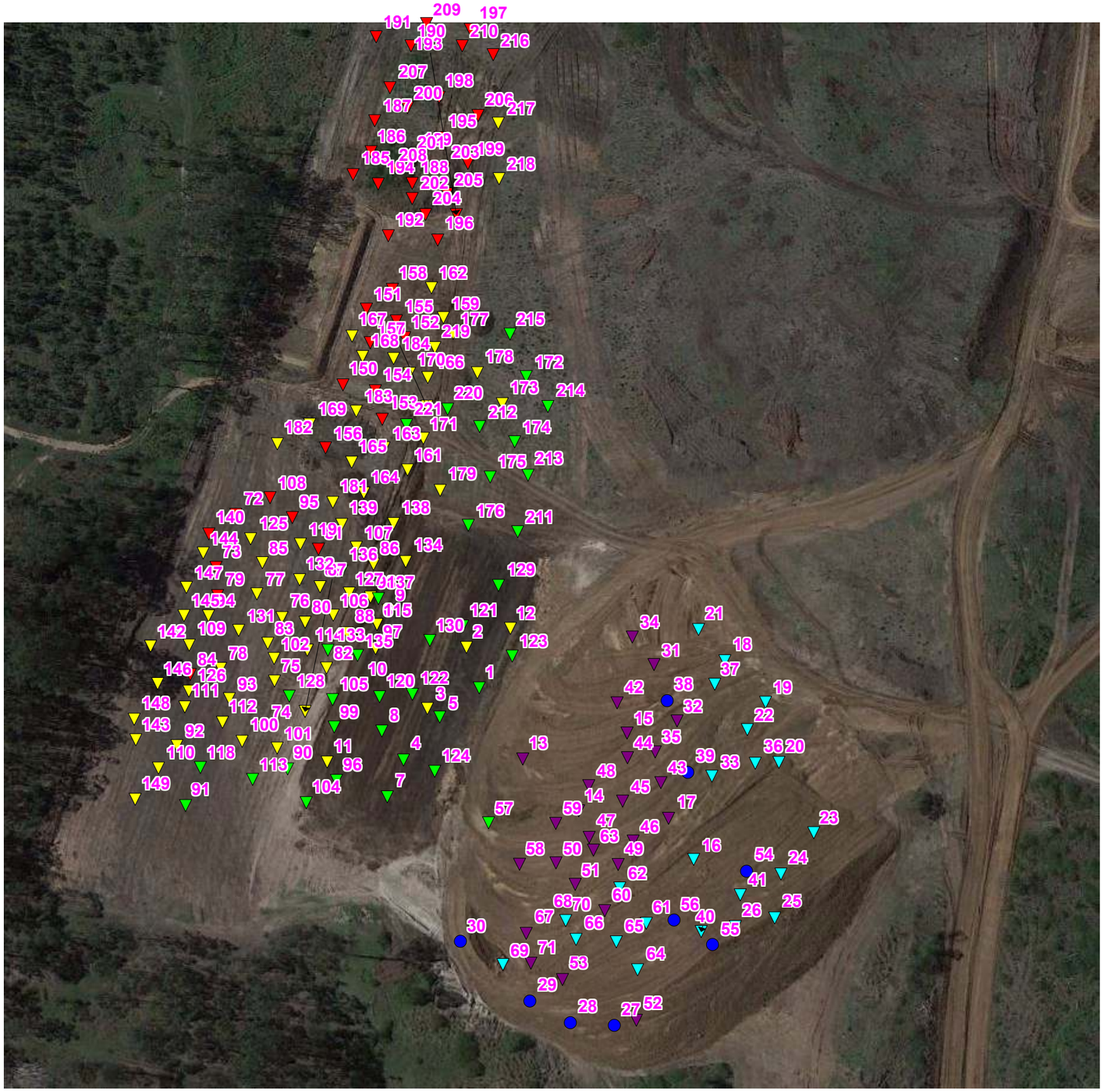
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

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- Final Level

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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

MORRISON GEOTECHNIC

**Brisbane** | Gold Coast | Maroochydore
Unit 1, 35 Limestone Street (PO Box 3063), Darra Q 4076 **P** (07) 3279 0900 **F** (07) 3279 0955
**ABN** 51 009 878 899
**www.morrisongeo.com.au**

*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16177*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1087**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1087 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.
- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1087 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1087 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

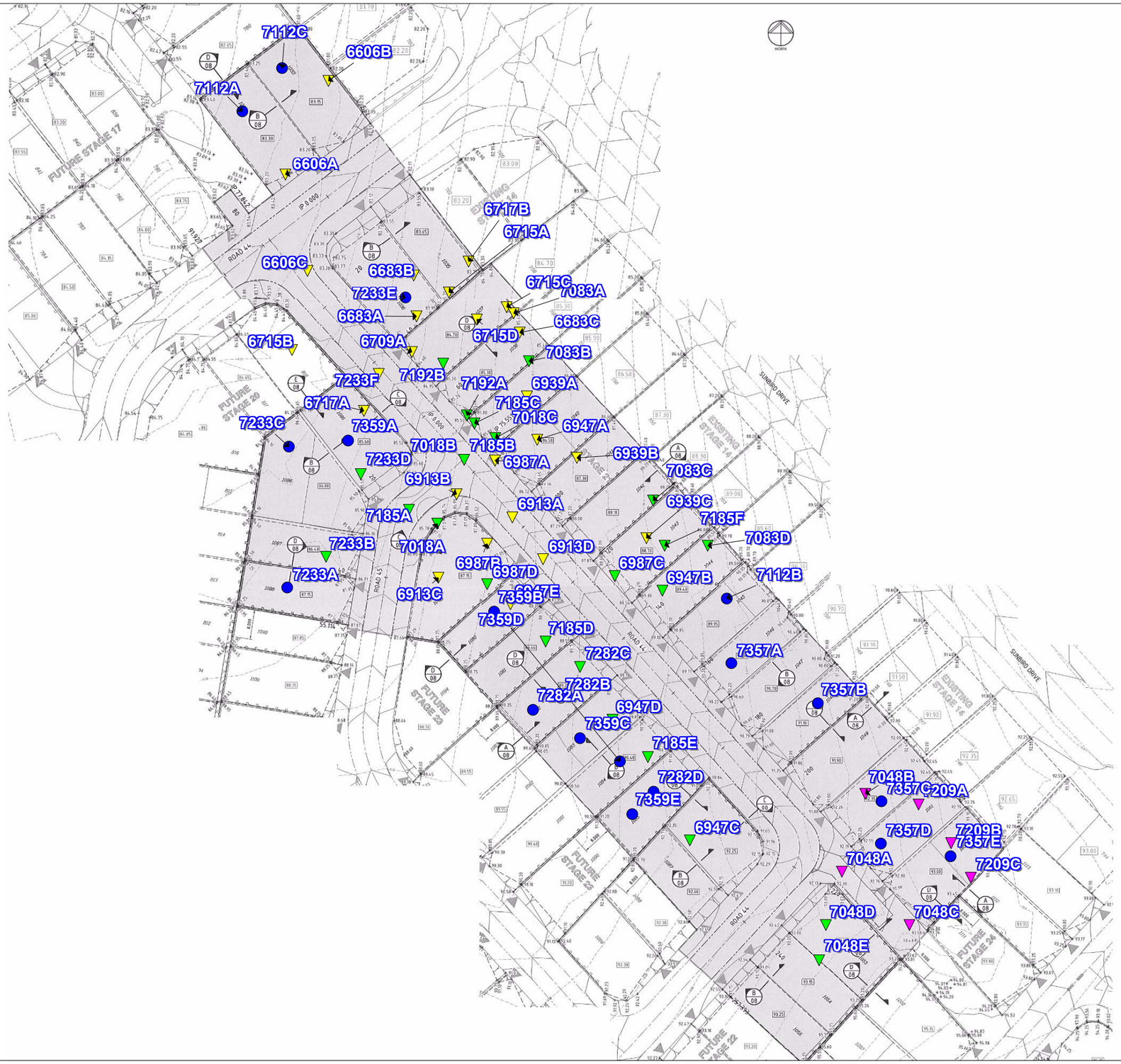
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





**MORRISON GEOTECHNIC PTY LTD**

*ABN: 51 009 878 899*

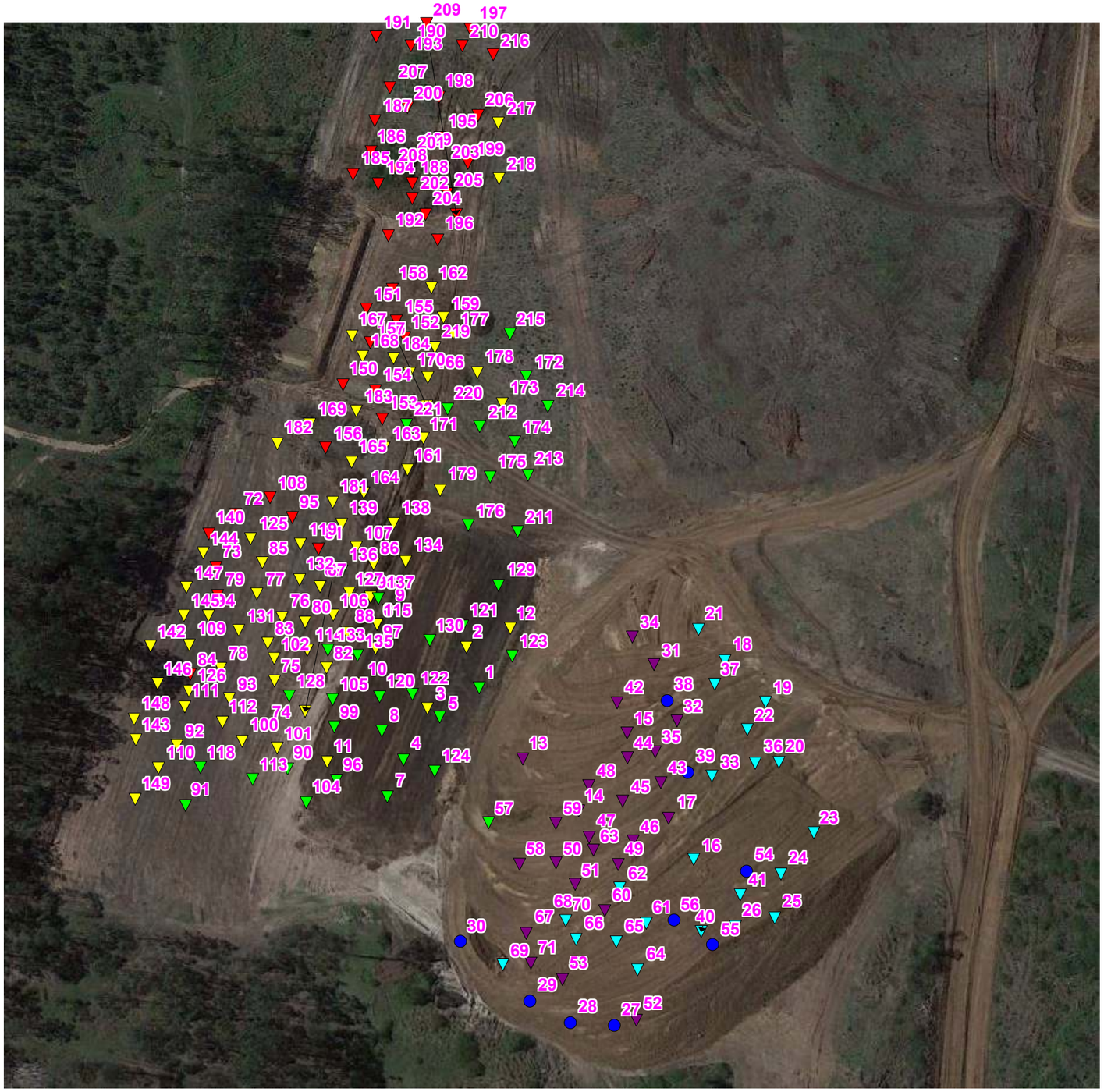
*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16178*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1095**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1095 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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Level One Inspections and Testing was carried out on the stripped ground surfaces and during the placement and compaction of fill materials. Field and laboratory testing included proof roll testing of the stripped surface and compaction testing.

Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1095 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1095 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

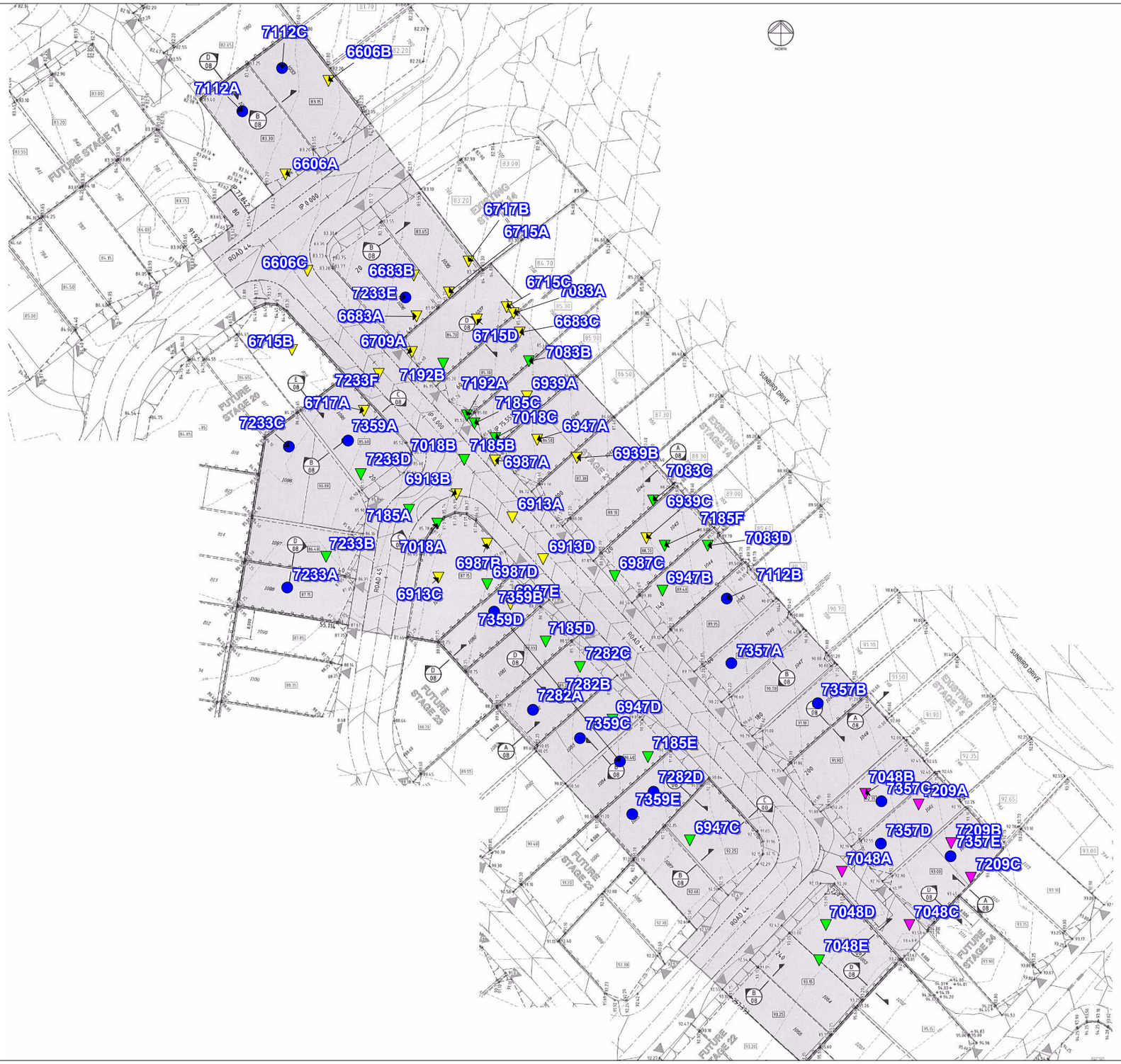
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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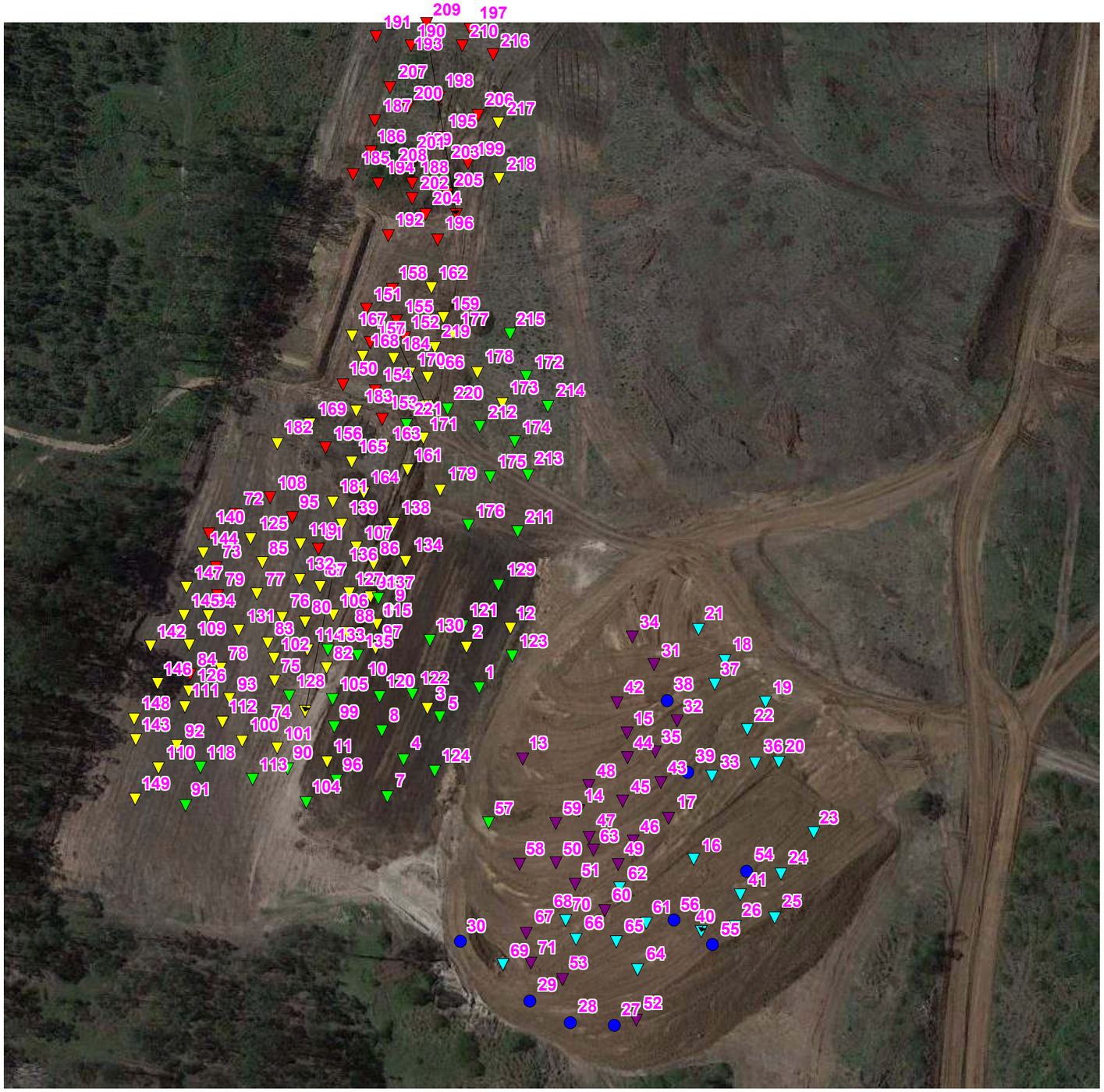
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16179*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1096**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1096 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
The Brief from the Client for was limited to:

- Level One Inspection of the placement and compaction of fill materials in accordance with AS3798 2007 – "Guidelines on Earthworks for Commercial and Residential Developments"
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- Ipswich City Council Specifications.
- Notes on KN Group Pty Ltd Civil Drawings.

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Compaction testing at the Eden's Crossing Stage 21 Development was carried out at a frequency of 1 test per 500m$^3$ of placed and compacted fill as defined in AS3798 Table 8.1. Test locations were selected using Random Stratified methods. Compaction testing was carried out at frequencies representative of the fill volume as a mass. On this basis, compaction testing was not required on each individual Lot.

A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1096 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1096 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

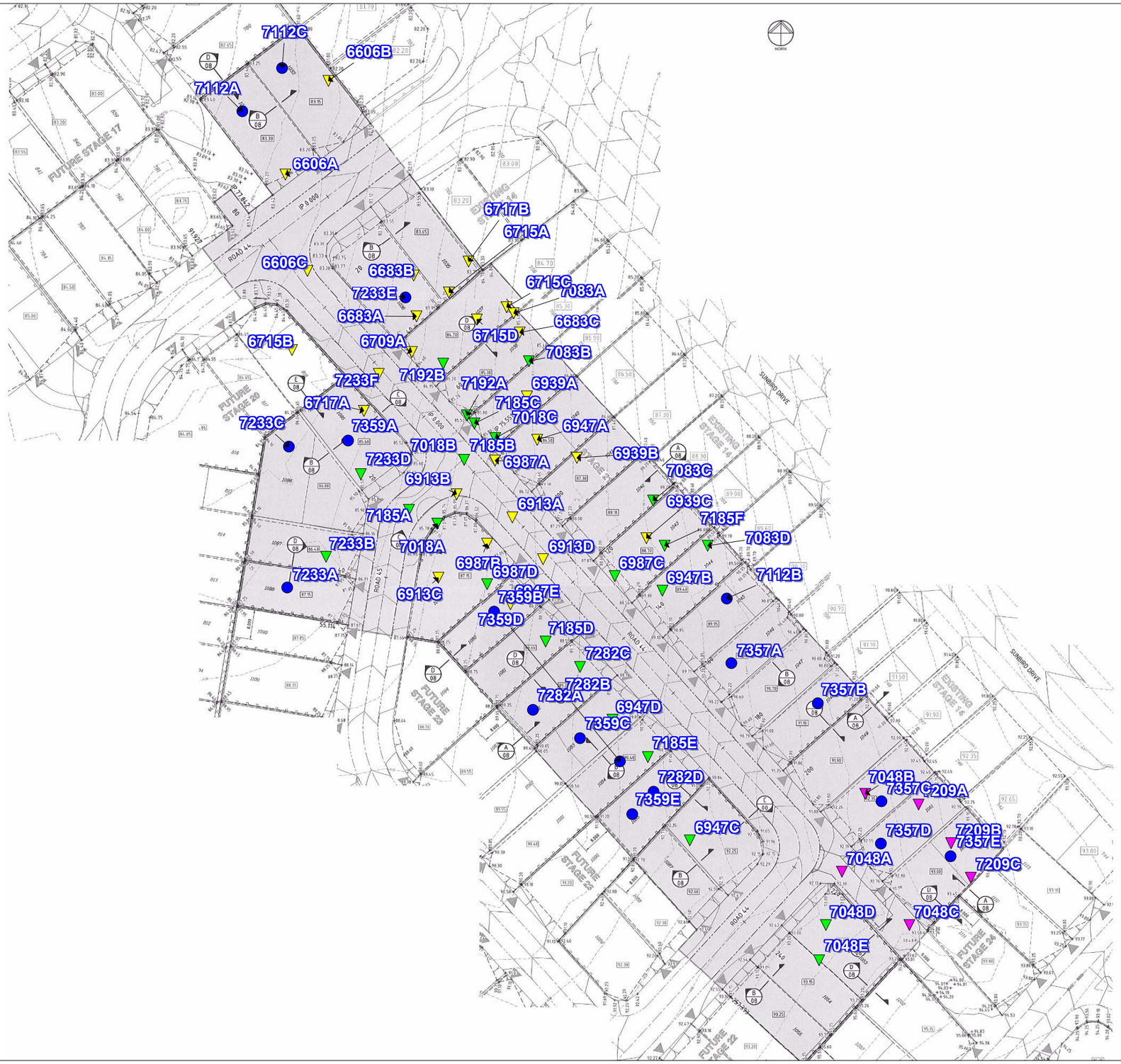
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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*ABN: 51 009 878 899*

*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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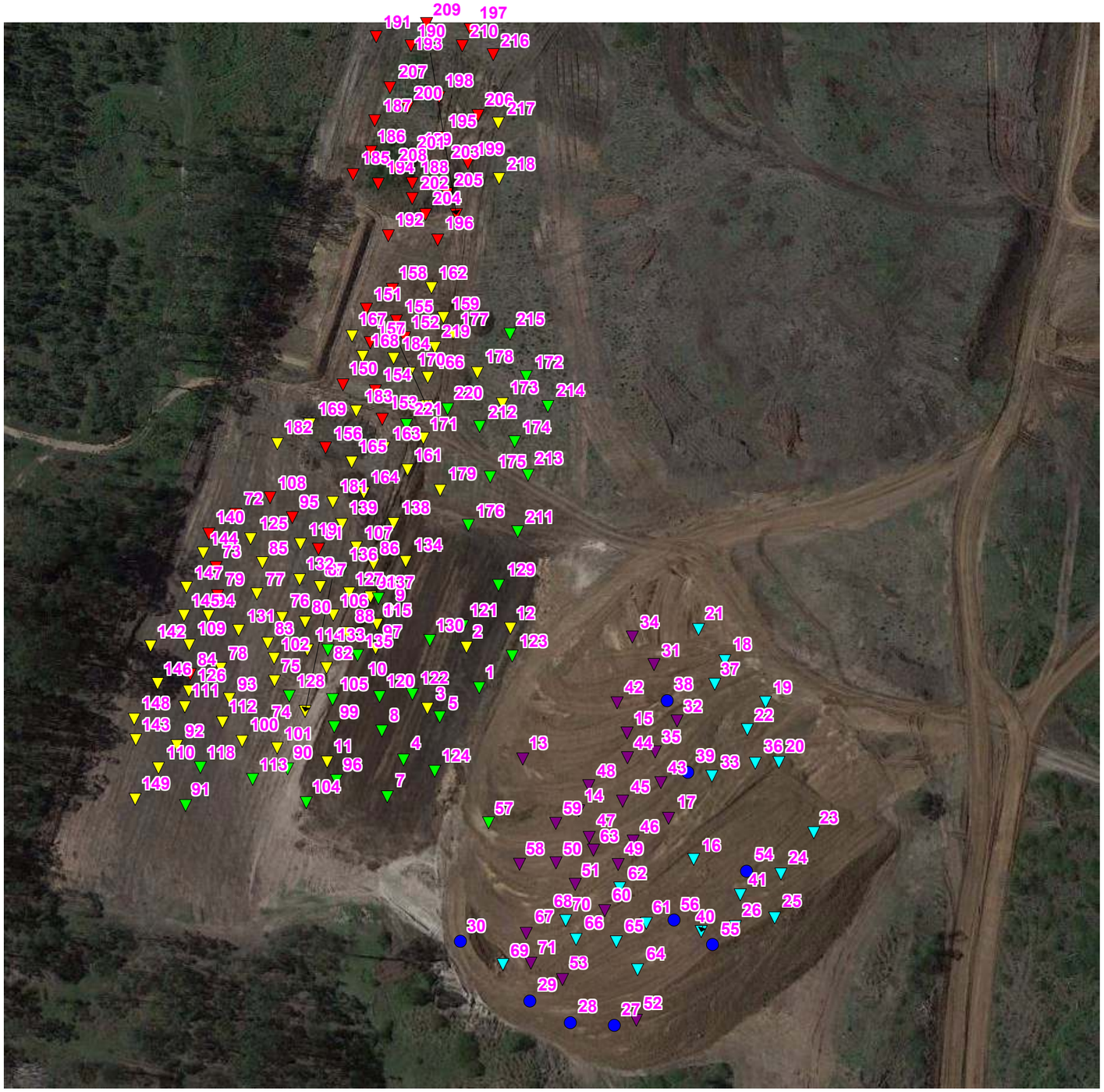
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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Engineers: D.Riley, J. Daly
D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 77.0 - 78.99
- R.L 79.0 - 80.99
- R.L 81.0 - 82.99
- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |

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*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16180*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1097**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1097 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

This report should be read in conjunction with Morrison Geotechnic Report "16058 – DL20/027 Shadforths – Level One Compliance Report – Eden's Crossing Stage 21" Dated 21st April 2020.
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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1097 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1097 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

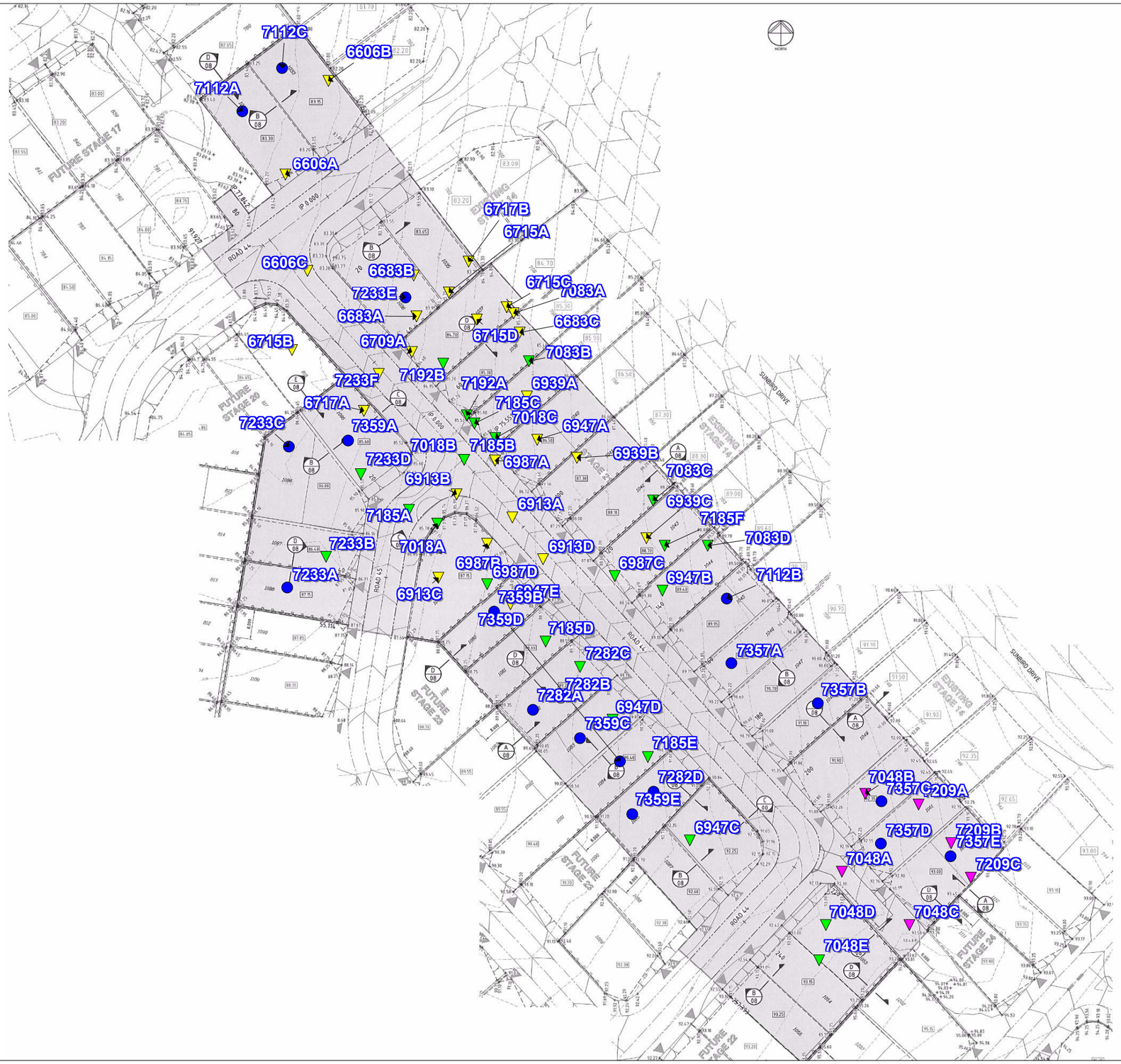
This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

If there are any queries concerning the above please do not hesitate to contact this office, or alternatively send to my email at mickmorrison@morrisongeo.com.au.

Yours faithfully,

**RHYS MITCHELL**
For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

Encl: Marked Up Site Pan





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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

Engineers: M. Ballard, D.Dragun
Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
- R.L 85.0 - 89.99
- R.L 90.0 -94.99
- Final Level

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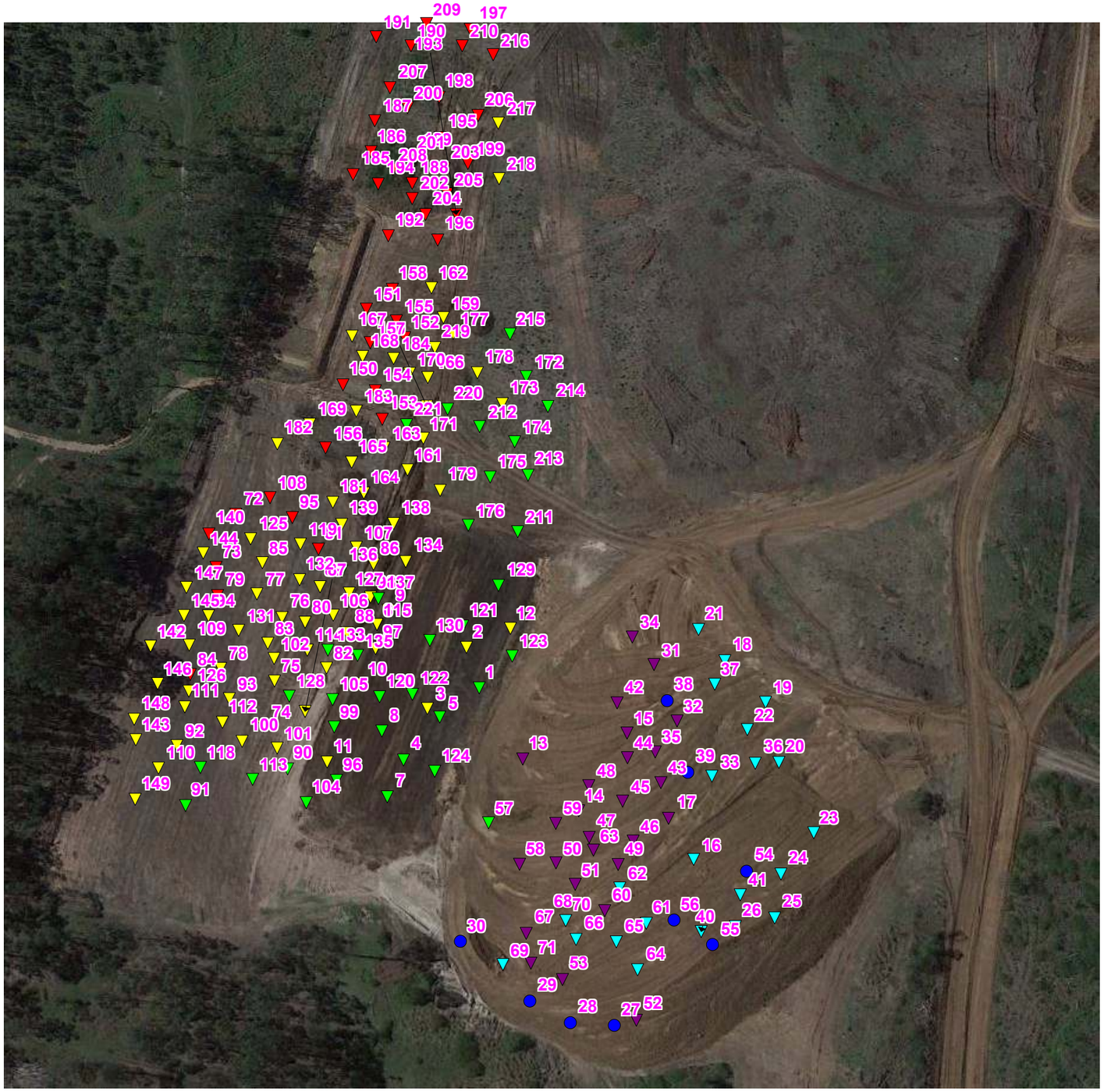
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
| Project No : | DL20/027 | Drawing No : | DL20/027 - 01 | Scale : | Not to Scale |





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D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


LEGEND

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- Final Level

| | | | | | |
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| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
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*Brisbane Office*
*Job Number: DL20/027*
*Ref No: 16181*
*Author: R. Mitchell*

22nd April 2020

Shadforths Civil Pty Ltd
99 Sandalwood Lane
Forest Glen 4556

**ATTENTION: MR MICHAEL PRITCHARD**
Email: Michael.Pritchard@shadcivil.com.au

Dear Sir,

**RE: LOT 1098**
**LEVEL ONE COMPLIANCE REPORT FOR**
**EARTHWORKS FILL CONSTRUCTION**
**EDENS CROSSING STAGE 21**

Earthworks filling operations were carried out on Lot 1098 at the above Development to form a working platform to support a future residential building.

Earthworks were constructed by CCA Winslow (The Client) between May 2017 and March 2018 and Shadforths Civil (The Client) between January 2020 and March 2020.

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A marked-up site plan shown the location of compaction testing is attached.

Fill constructed on Lot 1098 has been observed to be placed and compacted in accordance with the Brief. The fill on Lot 1098 can be termed as “Controlled Fill” in accordance with AS 2870-2011 “Residential Slabs and Footings”.

This statement does not include any topsoil, which may have been placed for use as Lot dressing or any other subsequent earthworks after March 2020.

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Yours faithfully,

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For and on Behalf of
**MORRISON GEOTECHNIC PTY LIMITED**

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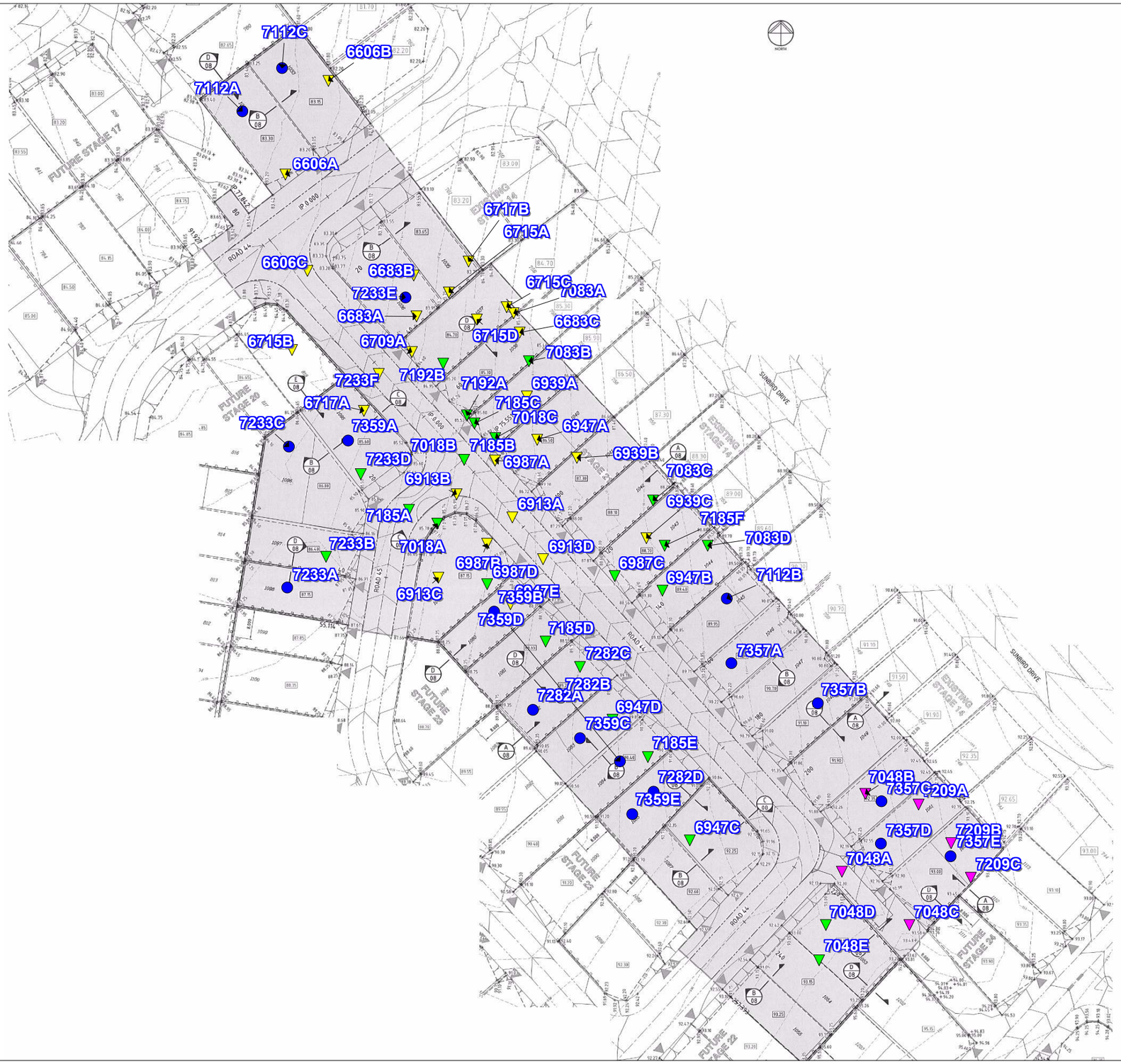



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*Unit 1/ 35 Limestone St, Darra 4076* *Ph: 3279 0900*
*Email: brisbanelab@morrisongeo.com.au*

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Geologists: R.Howchin
Laboratory: M.Morrison


LEGEND

- R.L 80.0 - 84.99
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|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | SHADFORTHS PTY LTD | | | | |
| Project : | **EDENS CROSSING - STAGE 21** | | | | |
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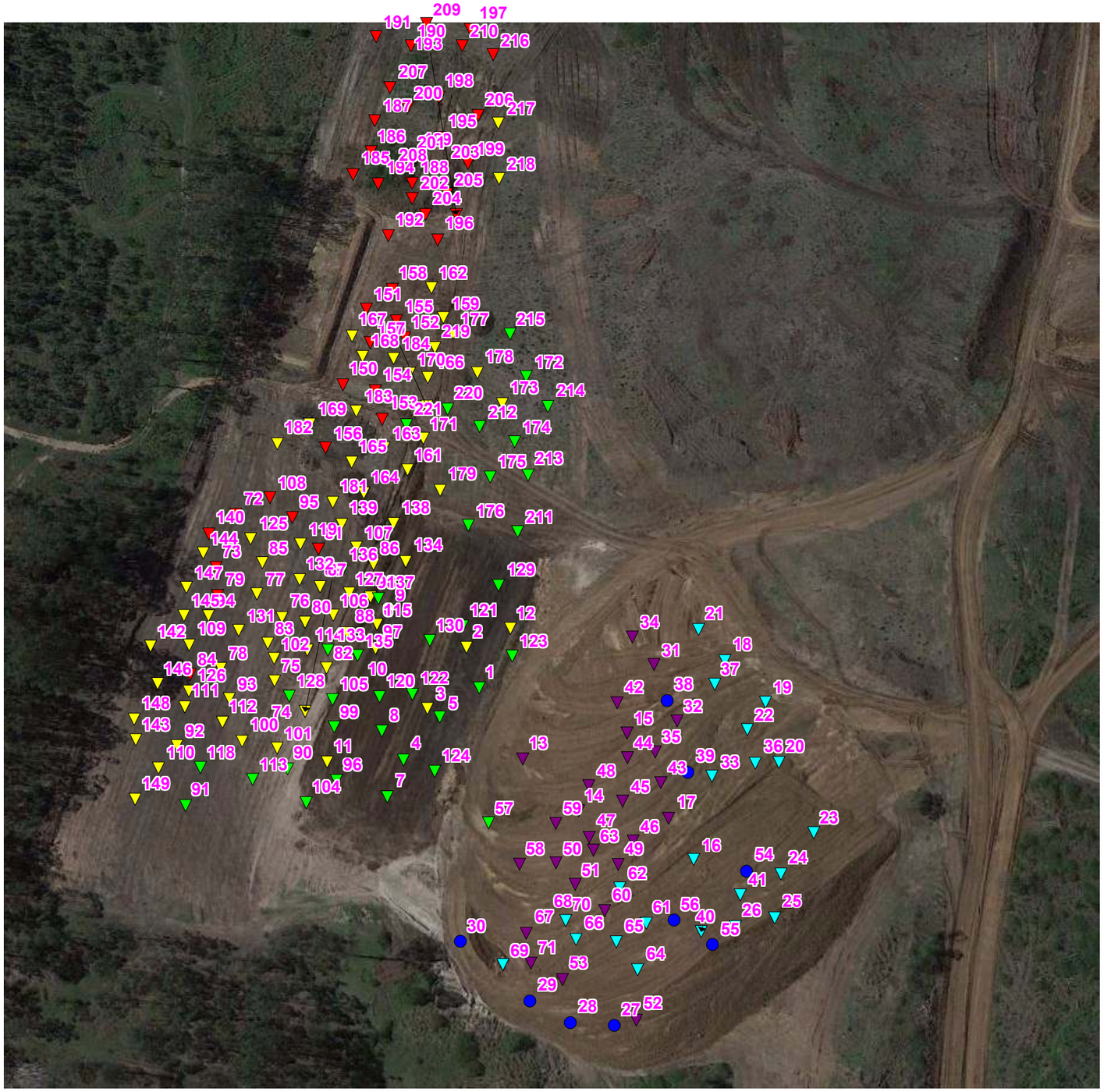



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D.Dragun, & S.Wynne
Geologists: L.Bexley & R.Howchin
Laboratory: M.Morrison


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- R.L 83.0 - 84.99
- R.L 85.0 - 86.99
- Final Level

| | | | | | |
|---|---|---|---|---|---|
| Map Description : | **EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection** | | | | |
| Client : | CCA WINSLOW | | | | |
| Project : | **EDENS CROSSING, FUTURE STAGES 15-20** | | | | |
| Project No : | DL17/398 | Drawing No : | DL17/398 - 01 | Scale : | Not to Scale |