Douglas Partners Pty Ltd
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Phone (07) 5351 0400

**Shadforth Civil Pty Ltd**
**99 Sandalwood Lane**
**Forest Glen QLD 4556**

Project 204982.00
5 November 2021
R.001.docx
SDH:BWE

Attention: Alex Watson

Email: Alex.watson@shadcivil.com.au

**Geotechnical Inspections and Testing**
**Proposed Subdivision**
**Release 19 & 20 Bulk Earthworks, Harmony Estate**

## 1. Introduction

This report presents the results of the inspection and testing of bulk earthworks for Release 19 and 20 as part of the Harmony development at Palmview. The work was undertaken at the request of Shadforth Civil Pty Ltd (Shadforths).

The scope of testing and inspections provided by Douglas Partners Pty Ltd (DP) comprised 'Level 1' geotechnical inspection and testing of bulk earthworks in general accordance with AS3798 (2007). No other earthworks specification was provided for the work.

This report must be read in conjunction with the attached notes entitled 'About this Inspection Report' along with any other explanatory notes and should be kept in its entirety without separation of individual pages or sections.

## 2. Bulk Filling

### 2.1 Scope of Works

This report only addresses the bulk fill placed over the period 17 May 2021 to 20 October 2021 within the extents of the test locations (including elevation) noted on the test report sheets and test location plan attached to this report, and the earthworks plans Drawing No. 190-109 prepared by Calibre Professional Services and supplied by Shadforths. This report covers all lots within Release 19 and 20. Any other part of the site is not covered by this report unless stated otherwise.

In general, the bulk earthworks operations comprised stripping of the existing surface, then placement and compaction of fill material sourced from onsite to bring the ground level up to design surface level required for the works.

## 2.2 Stripping Inspections and Proof Rolling

Geotechnical personnel from DP inspected the stripped subgrade areas prior to the placement of bulk fill. All subgrade areas were stripped of vegetation and any other unsuitable material. The subgrade was test rolled using on site construction equipment (ie. vibrating pad foot compactor, loaded truck) and was considered suitable for the placement of fill to proceed. Any identified 'weak' or problem subgrade areas were rectified prior to the placement of fill.

## 2.3 Fill Materials

Fill material typically comprised sandy clay and clayey sands sourced from onsite.

## 2.4 Placement and Testing of Fill

Fill materials were placed on site by conventional earthmoving equipment, spread out in uniform layers appropriate to the equipment used and test procedures adopted, and then compacted using a vibrating roller.

Observations were made on site by the supervising geotechnical personnel from DP who were present on site during the placement of filling over the period 17 May 2021 to 20 October 2021.

The compaction requirements for the earthworks included a minimum density ratio of 95% Standard compaction. No moisture range was specified.

Following the compaction of each layer, testing was carried out to assess compliance with the specified density ratio. In conjunction with test rolling where applicable, testing was carried out using the nuclear gauge method AS1289.5.8.1 (2007) at the testing frequency nominated in AS3798 and the project requirements. The relative compaction was determined using the Hilf method AS1289.5.7.1 (2006).

Where a layer was considered to have failed based on the wet density values measured by the nuclear gauge, these test values were not recorded and the contractor was advised that the layer required further rolling and testing prior to the placement of any further fill. At times when fill material was either too wet or dry, the contractor was advised to dry back or add moisture to the fill, in order to bring the field moisture content back closer to the optimum moisture content.

A total of 148 density tests were recorded by DP on filling placed over the period 17 May 2021 to 20 October 2021. A summary of the testing is presented in Table 1.

**Table 1: Summary of Density Testing**

| | Compaction | Moisture |
|---|---|---|
| Specification | 95% std. | - |
| No. of Tests | 148 | 148 |
| Range | 90.0% to 104.0% | 3.5% wet to 5.0% dry of OMC |
| Mean Average | 97.9% | 0.8% dry of OMC |
| No. of Tests Outside Specification | 7 | - |

Note: std. – Standard compaction, OMC – optimum moisture content

With respect to the failed test results, the layer in which the failure was recorded was subsequently reworked. The failed area was then retested near to the location of the failure. The retest passed the compaction specification.

## 3. Comments

DP undertook inspection and earthworks testing in general accordance with a Level 1 standard as defined in AS3798.

It is considered that the placement and compaction of the bulk fill over the period 17 May 2021 to 20 October 2021 for Release 19 and 20 as part of the Harmony development at Palmview has been carried out in general accordance with the requirements of the specification. DP does not undertake to guarantee the work of the contractors nor relieve their responsibility to produce a completed product conforming to the requirements of the specification.

For building on controlled filled areas, consideration should be given by the user to the following:

- possible disruption of the compacted fill by the installation of services;
- the possibility that additional fill has been placed before and after the dates of field density tests or at times when DP has not been notified that filling operations are in progress;
- adequate containment of the filled areas;
- the suitability of the filled land to support structures of various types without excessive deflection, in particular, the shrink-swell properties of the fill and natural soils must be considered in foundation/footing slab design and in detailing future structures;
- the potential for differential settlements due to differential thicknesses of fill; and
- any topsoil which may have been placed following the completion of bulk filling.

Based on the inspection and test results, it is considered the fill referred to in this report may be considered as ‘controlled fill’ as defined in AS2870 (2011) for site classification purposes.

## 4. References

AS 1289.5.7.1. (2006). *Methods for testing soils for engineering purposes - Soil compaction and density tests - Compaction control test - Hilf density ratio and Hilf moisture variation (rapid method).* Standards Australia.

AS 1289.5.8.1. (2007). *Methods for testing soils for engineering purposes - Soil compaction and density tests - Determination of field density and field moisture content of a soil using a nuclear surface moisture-density gauge - Direct transmission mode.* Standards Australia.

AS 2870. (2011). *Residential Slabs and Footings.* Standards Australia.

AS 3798. (2007). *Guidelines on Earthworks for Commercial and Residential Developments.* Standards Australia.

## 5. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report (or services) Release 19 and 20 as part of the Harmony development at Palmview. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Shadforth Civil Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the subsurface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully

**Douglas Partners Pty Ltd**

**Shae Harry**
Laboratory Manager

Reviewed by

**Brett Egen (RPEQ 8597)**
Senior Associate

Attachments: About this Inspection Report
Laboratory Test Results
Test Location Plan

# About this Inspection Report

Douglas Partners

## Introduction

These notes are provided to amplify DP's inspection report in regard to the limitations of carrying out inspection work. Not all notes are necessarily relevant to this report.

### Standards

This inspection report has been prepared by qualified personnel to current engineering standards of interpretation and analysis.

### Copyright and Limits of Use

This inspection report is the property of DP and is provided for the exclusive use of the client for the specific project and purpose as described in the report. It should not be used by a third party for any purpose other than to confirm that the construction works addressed in the report have been inspected as described. Use of the inspection report is limited in accordance with the Conditions of Engagement for the commission.

DP does not undertake to guarantee the works of the contractors or relieve them of their responsibility to produce a completed product conforming to the design.

### Reports

This inspection report may include advice or opinion that is based on engineering and/or geological interpretation, information provided by the client or the client's agent, and information gained from:

- an investigation report for the project (if available to DP);
- inspection of the work, exposed ground conditions, excavation spoil and performance of excavating equipment while DP was on site;
- investigation and testing that was carried out during the site inspection;
- anecdotal information provided by authoritative site personnel; and
- DP's experience and knowledge of local geology.

Such information may be limited by the frequency of any inspection or testing that was able to be practically carried out, including possible site or cost constraints imposed by the client/ contractor(s). For these reasons, the reliability of this inspection report is limited by the scope of information on which it relies.

Every care is taken with the inspection report as it relates to interpretation of subsurface conditions and any recommendations or suggestions for construction or design. However, DP cannot anticipate or assume responsibility for:

- unexpected variations in subsurface conditions that are not evident from the inspection; and
- the actions of contractors responding to commercial pressures.

Should these issues occur, then additional advice should be sought from DP and, if required, amendments made.

This inspection report must be read in conjunction with any attached information. This inspection report should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions from review by others of this inspection report or test data, which are not otherwise supported by an expressed statement, interpretation, outcome or conclusion stated in this inspection report.

# Material Test Report

Douglas Partners
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**Report Number:** **204982.00-1**
**Issue Number:** 1
**Date Issued:** 04/06/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19, Harmony Estate QLD
**Work Request:** 12947
**Date Sampled:** 25/05/2021
**Dates Tested:** 25/05/2021 - 28/05/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Import

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-12947A | SS-12947B | SS-12947C | SS-12947D |
| Date Tested | 25/05/2021 | 25/05/2021 | 25/05/2021 | 25/05/2021 |
| Time Tested | 13:05 | 13:12 | 13:18 | 13:28 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505743 | 0505730 | 0505712 | 0505716 |
| Northing | 7043178 | 7043172 | 7043166 | 7043200 |
| Elevation (m) | R.L 14.3 | R.L 14.3 | R.L 14.7 | R.L 14.7 |
| Soil Description | Clay | Clay | Clay | Clay |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.01 | 2.01 | 2.00 | 2.05 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 1.98 | 2.01 | 1.98 | 2.06 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 4.5 | 4.0 | 4.0 | 4.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **102.0** | **100.0** | **101.0** | **100.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

**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:** **204982.00-2**
**Issue Number:** 1
**Date Issued:** 04/06/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19, Harmony Estate QLD
**Work Request:** 12975
**Date Sampled:** 27/05/2021
**Dates Tested:** 27/05/2021 - 31/05/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Import

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-12975A | SS-12975B | SS-12975C | SS-12975D |
| Date Tested | 27/05/2021 | 27/05/2021 | 27/05/2021 | 27/05/2021 |
| Time Tested | 08:00 | 08:05 | 08:12 | 08:17 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505738 | 0505693 | 0505738 | 0505721 |
| Northing | 7043154 | 7043132 | 7043179 | 7043189 |
| Elevation (m) | R.L 14.6 | R.L 14.3 | R.L 14.6 | R.L 14.3 |
| Soil Description | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.02 | 1.96 | 2.02 | 1.98 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 1.98 | 1.98 | 1.97 | 1.98 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.0 | 0.0 | 0.0 | 1.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **102.5** | **99.0** | **102.5** | **100.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

**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:** | **204982.00-3** |
| **Issue Number:** | 1 |
| **Date Issued:** | 23/06/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13057 |
| **Date Sampled:** | 02/06/2021 |
| **Dates Tested:** | 02/06/2021 - 04/06/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13057A | | |
| Date Tested | 02/06/2021 | | |
| Time Tested | 09:18 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505783 | | |
| Northing | 7043210 | | |
| Elevation (m) | R.L 14.4 | | |
| Soil Description | Sandy Clay | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 2.01 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.09 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | -0.5 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **96.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

**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:** | **204982.00-4** |
| **Issue Number:** | 1 |
| **Date Issued:** | 23/06/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13085 |
| **Date Sampled:** | 03/06/2021 |
| **Dates Tested:** | 03/06/2021 - 07/06/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13085A | | |
| Date Tested | 03/06/2021 | | |
| Time Tested | 12:21 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505704 | | |
| Northing | 7043123 | | |
| Elevation (m) | R.L 14.7 | | |
| Soil Description | Silty Sandy Clay | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 1.97 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.07 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 2.5 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **95.0** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

**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:** | **204982.00-5** |
| **Issue Number:** | 1 |
| **Date Issued:** | 23/06/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13199 |
| **Date Sampled:** | 10/06/2021 |
| **Dates Tested:** | 10/06/2021 - 15/06/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Import |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13199A | | |
| Date Tested | 10/06/2021 | | |
| Time Tested | 13:54 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505723 | | |
| Northing | 7043172 | | |
| Elevation (m) | R.L 15.3 | | |
| Soil Description | Clay | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 1.77 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 1.96 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 0.5 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **90.0** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

**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:** | **204982.00-6** |
| **Issue Number:** | 1 |
| **Date Issued:** | 23/06/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13261 |
| **Date Sampled:** | 16/06/2021 |
| **Dates Tested:** | 16/06/2021 - 21/06/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13261A | | |
| Date Tested | 16/06/2021 | | |
| Time Tested | 12:22 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505711 | | |
| Northing | 7043188 | | |
| Elevation (m) | R.L 15.1 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 2.10 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.17 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | -2.0 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **96.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

**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:** | **204982.00-7** |
| **Issue Number:** | 1 |
| **Date Issued:** | 28/06/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13283 |
| **Date Sampled:** | 17/06/2021 |
| **Dates Tested:** | 17/06/2021 - 23/06/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13283A | | |
| Date Tested | 17/06/2021 | | |
| Time Tested | 13:00 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505701 | | |
| Northing | 7043158 | | |
| Elevation (m) | R.L 15.3 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 2.14 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.19 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 0.0 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **97.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-8**
**Issue Number:** 1
**Date Issued:** 28/06/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19, Harmony Estate QLD
**Work Request:** 13353
**Date Sampled:** 22/06/2021
**Dates Tested:** 22/06/2021 - 24/06/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Import

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-13353A | SS-13353B | SS-13353C | SS-13353D |
| Date Tested | 22/06/2021 | 22/06/2021 | 22/06/2021 | 22/06/2021 |
| Time Tested | 07:48 | 08:00 | 08:06 | 08:14 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505863 | 0505788 | 0505779 | 0505796 |
| Northing | 7043209 | 7043200 | 7043214 | 7043213 |
| Elevation (m) | R.L 14.5 | R.L 14.4 | R.L 14.4 | R.L 14.5 |
| Soil Description | Clay | Clay | Clay | Clay |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 1.94 | 1.93 | 1.94 | 1.94 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.00 | 2.00 | 2.02 | 2.00 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -0.5 | 0.0 | 0.0 | -0.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **97.0** | **96.5** | **96.5** | **97.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-9** |
| **Issue Number:** | 1 |
| **Date Issued:** | 02/07/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13399 |
| **Date Sampled:** | 24/06/2021 |
| **Dates Tested:** | 24/06/2021 - 01/07/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13399A | SS-13399B | |
| Date Tested | 24/06/2021 | 24/06/2021 | |
| Time Tested | 11:52 | 12:00 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0505819 | 050814 | |
| Northing | 7043216 | 7043215 | |
| Elevation (m) | R.L 14.2 | R.L 14.2 | |
| Soil Description | Clayey Sand | Clayey Sand | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 1.94 | 1.96 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 1.96 | 1.94 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | 0.0 | 0.5 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **99.0** | **100.5** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-10** |
| **Issue Number:** | 1 |
| **Date Issued:** | 19/07/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13536 |
| **Date Sampled:** | 08/07/2021 |
| **Dates Tested:** | 08/07/2021 - 09/07/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13536A | SS-13536B | |
| Date Tested | 08/07/2021 | 08/07/2021 | |
| Time Tested | 12:21 | 12:31 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0505580 | 0505583 | |
| Northing | 7043159 | 7043149 | |
| Elevation (m) | R.L 15.0 | R.L 15.0 | |
| Soil Description | Silty Sand | Silty Sand | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 2.05 | 2.03 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 2.06 | 2.03 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | 0.0 | 0.0 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **99.5** | **100.0** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-11** |
| **Issue Number:** | 1 |
| **Date Issued:** | 19/07/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13547 |
| **Date Sampled:** | 12/07/2021 |
| **Dates Tested:** | 12/07/2021 - 14/07/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13547A | SS-13547B | |
| Date Tested | 12/07/2021 | 12/07/2021 | |
| Time Tested | 14:28 | 14:40 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0505908 | 0505898 | |
| Northing | 7043249 | 7043248 | |
| Elevation (m) | R.L 15.0 | R.L 15.0 | |
| Soil Description | Clayey Sand | Clayey Sand | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 2.03 | 2.00 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 2.06 | 2.05 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | -0.5 | 0.0 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **98.5** | **97.5** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-12** |
| **Issue Number:** | 1 |
| **Date Issued:** | 19/07/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13556 |
| **Date Sampled:** | 13/07/2021 |
| **Dates Tested:** | 13/07/2021 - 14/07/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13556A | SS-13556B | |
| Date Tested | 13/07/2021 | 13/07/2021 | |
| Time Tested | 13:00 | 13:10 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0505902 | 0505891 | |
| Northing | 7043271 | 7043252 | |
| Elevation (m) | R.L 13.4 | R.L 13.4 | |
| Soil Description | Clayey Sand | Clayey Sand | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 1.99 | 2.02 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 2.16 | 2.11 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | -3.0 | -3.5 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **92.0** | **95.5** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
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Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-13**
**Issue Number:** 1
**Date Issued:** 19/07/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19, Harmony Estate QLD
**Work Request:** 13598
**Date Sampled:** 15/07/2021
**Dates Tested:** 15/07/2021 - 16/07/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13598A | SS-13598B | SS-13598C |
| Date Tested | 15/07/2021 | 15/07/2021 | 15/07/2021 |
| Time Tested | 12:52 | 13:00 | 13:07 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505864 | 0505853 | 0505846 |
| Northing | 7043250 | 7043227 | 7043206 |
| Elevation (m) | R.L 13.8 | R.L 13.7 | R.L 13.7 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.07 | 2.05 | 2.05 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.08 | 2.06 | 2.05 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** |
| Moisture Variation (Wv) % | 0.0 | 0.0 | 0.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | **99.5** | **99.5** | **100.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-14** |
| **Issue Number:** | 1 |
| **Date Issued:** | 21/07/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13649 |
| **Date Sampled:** | 16/07/2021 |
| **Dates Tested:** | 16/07/2021 - 21/07/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13649A | SS-13649B | |
| Date Tested | 16/07/2021 | 16/07/2021 | |
| Time Tested | 14:11 | 14:18 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0505867 | 0505865 | |
| Northing | 7043158 | 7043176 | |
| Elevation (m) | R.L 14.7 | R.L 14.7 | |
| Soil Description | Clayey Sand | Clayey Sand | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 2.00 | 1.98 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 2.01 | 2.00 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | -2.5 | -2.0 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **99.0** | **99.0** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-15** |
| **Issue Number:** | 1 |
| **Date Issued:** | 21/07/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13668 |
| **Date Sampled:** | 19/07/2021 |
| **Dates Tested:** | 19/07/2021 - 21/07/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13668A | SS-13668B | |
| Date Tested | 19/07/2021 | 19/07/2021 | |
| Time Tested | 12:51 | 13:01 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0505874 | 0505853 | |
| Northing | 7043144 | 7043132 | |
| Elevation (m) | R.L 14.7 | R.L 14.7 | |
| Soil Description | Clayey Sand | Clayey Sand | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 2.01 | 2.04 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 2.04 | 2.03 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | 2.0 | 2.5 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **98.5** | **100.5** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-16** |
| **Issue Number:** | 1 |
| **Date Issued:** | 27/07/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13686 |
| **Date Sampled:** | 20/07/2021 |
| **Dates Tested:** | 20/07/2021 - 22/07/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13686A | | |
| Date Tested | 20/07/2021 | | |
| Time Tested | 12:31 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505853 | | |
| Northing | 7043218 | | |
| Elevation (m) | R.L 17.4 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 2.10 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.11 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 0.0 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **99.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-17** |
| **Issue Number:** | 1 |
| **Date Issued:** | 27/07/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19, Harmony Estate QLD |
| **Work Request:** | 13724 |
| **Date Sampled:** | 21/07/2021 |
| **Dates Tested:** | 21/07/2021 - 23/07/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13724A | | |
| Date Tested | 21/07/2021 | | |
| Time Tested | 11:57 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505666 | | |
| Northing | 7043198 | | |
| Elevation (m) | R.L 14.7 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 2.03 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.10 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 0.0 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **96.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-18**
**Issue Number:** 1
**Date Issued:** 27/07/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19, Harmony Estate QLD
**Work Request:** 13751
**Date Sampled:** 22/07/2021
**Dates Tested:** 22/07/2021 - 23/07/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13751A | SS-13751B | |
| Date Tested | 22/07/2021 | 22/07/2021 | |
| Time Tested | 13:47 | 13:56 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0505765 | 0505762 | |
| Northing | 7043164 | 7043155 | |
| Elevation (m) | R.L 15.2 | R.L 15.3 | |
| Soil Description | Clayey Sand | Clayey Sand | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 2.13 | 2.12 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 2.15 | 2.15 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | 0.0 | 0.0 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **99.0** | **99.0** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-19** |
| **Issue Number:** | 1 |
| **Date Issued:** | 10/08/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 13813 |
| **Date Sampled:** | 27/07/2021 |
| **Dates Tested:** | 27/07/2021 - 07/08/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13813A | | |
| Date Tested | 27/07/2021 | | |
| Time Tested | 13:10 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0506076 | | |
| Northing | 7043055 | | |
| Elevation (m) | R.L 13.45 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 2.16 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.24 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 0.0 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **96.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-20**
**Issue Number:** 1
**Date Issued:** 10/08/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 13839
**Date Sampled:** 28/07/2021
**Dates Tested:** 28/07/2021 - 07/08/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13839A | SS-13839B | |
| Date Tested | 28/07/2021 | 28/07/2021 | |
| Time Tested | 13:10 | 13:16 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0505856 | 0505874 | |
| Northing | 7043119 | 7043134 | |
| Elevation (m) | R.L 14.9 | R.L 14.9 | |
| Soil Description | Clayey Sand | Clayey Sand | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 2.01 | 2.07 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 1.97 | 2.00 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | 0.5 | 0.0 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **102.0** | **103.5** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-21** |
| **Issue Number:** | 1 |
| **Date Issued:** | 12/08/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 13854 |
| **Date Sampled:** | 29/07/2021 |
| **Dates Tested:** | 29/07/2021 - 11/08/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13854A | | |
| Date Tested | 29/07/2021 | | |
| Time Tested | 13:15 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505861 | | |
| Northing | 7043078 | | |
| Elevation (m) | R.L 14.7 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 2.14 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.21 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 2.5 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **96.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

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

# Material Test Report

Douglas Partners
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Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-22** |
| **Issue Number:** | 1 |
| **Date Issued:** | 11/08/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 13874 |
| **Date Sampled:** | 30/07/2021 |
| **Dates Tested:** | 30/07/2021 - 09/08/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13874A | | |
| Date Tested | 30/07/2021 | | |
| Time Tested | 13:24 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505656 | | |
| Northing | 7043146 | | |
| Elevation (m) | R.L 15.46 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 2.06 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.07 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 0.0 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **99.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-23** |
| **Issue Number:** | 1 |
| **Date Issued:** | 12/08/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 13907 |
| **Date Sampled:** | 02/08/2021 |
| **Dates Tested:** | 02/08/2021 - 11/08/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13907A | | |
| Date Tested | 02/08/2021 | | |
| Time Tested | 13:40 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505637 | | |
| Northing | 7043167 | | |
| Elevation (m) | R.L 15.1 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 1.91 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 1.96 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 4.5 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **97.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-24** |
| **Issue Number:** | 1 |
| **Date Issued:** | 16/08/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 13929 |
| **Date Sampled:** | 03/08/2021 |
| **Dates Tested:** | 03/08/2021 - 12/08/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13929A | | |
| Date Tested | 03/08/2021 | | |
| Time Tested | 14:00 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0505618 | | |
| Northing | 7043161 | | |
| Elevation (m) | R.L 15.2 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 1.98 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 1.95 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | -2.5 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **101.0** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-25** |
| **Issue Number:** | 1 |
| **Date Issued:** | 18/08/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 13998 |
| **Date Sampled:** | 05/08/2021 |
| **Dates Tested:** | 05/08/2021 - 17/08/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-13998A | | |
| Date Tested | 04/08/2021 | | |
| Time Tested | 11:06 | | |
| Test Request #/Location | Bulk Earthworks | | |
| Easting | 0506202 | | |
| Northing | 7043039 | | |
| Elevation (m) | R.L 11.4 | | |
| Soil Description | Clayey Sand | | |
| Test Depth (mm) | 150 | | |
| Sieve used to determine oversize (mm) | 19.0 | | |
| Percentage of Wet Oversize (%) | 0 | | |
| Field Wet Density (FWD) t/m$^3$ | 2.10 | | |
| Field Dry Density (FDD) t/m$^3$ | ** | | |
| Peak Converted Wet Density t/m$^3$ | 2.04 | | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | | |
| Moisture Variation (Wv) % | 2.0 | | |
| Adjusted Moisture Variation % | ** | | |
| Hilf Density Ratio (%) | **102.5** | | |
| Compaction Method | **Standard** | | |
| Report Remarks | ** | | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-26**
**Issue Number:** 1
**Date Issued:** 19/08/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14007
**Date Sampled:** 06/08/2021
**Dates Tested:** 06/08/2021 - 18/08/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-14007A | SS-14007B | SS-14007C | SS-14007D |
| Date Tested | 06/08/2021 | 06/08/2021 | 06/08/2021 | 06/08/2021 |
| Time Tested | 12:44 | 12:52 | 13:00 | 13:06 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505822 | 0505795 | 0505776 | 0505776 |
| Northing | 7043075 | 7043082 | 7043084 | 7043106 |
| Elevation (m) | R.L 14.8 | R.L 14.8 | R.L 14.9 | R.L 14.7 |
| Soil Description | Clay | Clay | Clay | Clay |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 1.94 | 1.97 | 1.98 | 1.98 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 1.99 | 2.09 | 2.08 | 2.08 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -2.5 | -0.5 | -0.5 | -0.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **97.5** | **94.0** | **95.5** | **95.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
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Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-27**
**Issue Number:** 1
**Date Issued:** 30/08/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14059
**Date Sampled:** 11/08/2021
**Dates Tested:** 11/08/2021 - 20/08/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-14059A | SS-14059B | SS-14059C | SS-14059D |
| Date Tested | 11/08/2021 | 11/08/2021 | 11/08/2021 | 11/08/2021 |
| Time Tested | 13:06 | 13:12 | 13:17 | 13:24 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505620 | 0505633 | 0505639 | 0505663 |
| Northing | 7043145 | 7043146 | 7043146 | 7043141 |
| Elevation (m) | R.L 14.7 | R.L 14.5 | R.L 14.4 | R.L 14.6 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.07 | 2.06 | 2.07 | 2.04 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.18 | 2.14 | 2.14 | 2.14 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -0.5 | -0.5 | -0.5 | -0.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **95.0** | **96.0** | **96.5** | **95.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-28** |
| **Issue Number:** | 1 |
| **Date Issued:** | 01/09/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 14119 |
| **Date Sampled:** | 16/08/2021 |
| **Dates Tested:** | 16/08/2021 - 23/08/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-14119A | SS-14119B | SS-14119C |
| Date Tested | 16/08/2021 | 16/08/2021 | 16/08/2021 |
| Time Tested | 13:12 | 13:18 | 13:27 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505928 | 0505927 | 050910 |
| Northing | 7043224 | 7043216 | 7043114 |
| Elevation (m) | R.L 14.2 | R.L 14.1 | R.L 14.1 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.12 | 2.13 | 2.14 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.15 | 2.12 | 2.16 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** |
| Moisture Variation (Wv) % | -1.0 | -0.5 | -0.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | **98.5** | **100.5** | **99.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-29**
**Issue Number:** 1
**Date Issued:** 06/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14162
**Date Sampled:** 18/08/2021
**Dates Tested:** 18/08/2021 - 26/08/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-14162A | SS-14162B | SS-14162C | SS-14162D |
| Date Tested | 18/08/2021 | 18/08/2021 | 18/08/2021 | 18/08/2021 |
| Time Tested | 10:40 | 10:46 | 10:52 | 10:58 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505698 | 0505709 | 0505711 | 0505694 |
| Northing | 7043093 | 7043090 | 7043077 | 7043074 |
| Elevation (m) | R.L 14.1 | R.L 14.1 | R.L 14.1 | R.L 14.8 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.04 | 2.07 | 2.06 | 1.92 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.14 | 2.17 | 2.16 | 2.01 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -2.5 | -2.5 | -2.5 | 0.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **95.5** | **95.5** | **95.5** | **95.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-30** |
| **Issue Number:** | 1 |
| **Date Issued:** | 01/09/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 14192 |
| **Date Sampled:** | 19/08/2021 |
| **Dates Tested:** | 19/08/2021 - 30/08/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-14192A | SS-14192B | |
| Date Tested | 19/08/2021 | 19/08/2021 | |
| Time Tested | 13:05 | 13:12 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0505986 | 0505985 | |
| Northing | 7043114 | 7043150 | |
| Elevation (m) | R.L 13.1 | R.L 13.2 | |
| Soil Description | Clayey Sand | Clayey Sand | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 1.98 | 2.03 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 1.95 | 1.95 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | 1.5 | 2.5 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **101.5** | **104.0** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-31**
**Issue Number:** 1
**Date Issued:** 06/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14227
**Date Sampled:** 20/08/2021
**Dates Tested:** 20/08/2021 - 01/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-14227A | SS-14227B | SS-14227C | SS-14227D |
| Date Tested | 20/08/2021 | 20/08/2021 | 20/08/2021 | 20/08/2021 |
| Time Tested | 12:52 | 13:01 | 13:06 | 13:12 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506076 | 0506098 | 0506012 | 0505982 |
| Northing | 7043110 | 7043105 | 7043086 | 7043085 |
| Elevation (m) | R.L 15.1 | R.L 15.1 | R.L 14.8 | R.L 14.8 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.10 | 2.10 | 2.08 | 2.10 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.14 | 2.18 | 2.18 | 2.20 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -1.0 | -0.5 | -0.5 | -2.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **98.0** | **96.0** | **95.5** | **95.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-32**
**Issue Number:** 1
**Date Issued:** 06/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14288
**Date Sampled:** 24/08/2021
**Dates Tested:** 24/08/2021 - 01/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | SS-14288A | SS-14288B | SS-14288C | SS-14288D | SS-14288E |
| Date Tested | 24/08/2021 | 24/08/2021 | 24/08/2021 | 24/08/2021 | 24/08/2021 |
| Time Tested | 07:33 | ** | ** | ** | ** |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505598 | 0505598 | 0505624 | 0505622 | 0505689 |
| Northing | 7043108 | 7043107 | 7043103 | 7043103 | 7043093 |
| Elevation (m) | R.L 15.7 | R.L 15.4 | R.L 15.7 | R.L 15.4 | R.L 15.6 |
| Soil Description | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.11 | 2.04 | 2.07 | 2.04 | 2.04 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.20 | 2.15 | 2.15 | 2.15 | 2.13 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -3.0 | 1.0 | 0.5 | 0.5 | 0.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **96.0** | **95.5** | **96.5** | **95.0** | **96.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-32**
**Issue Number:** 1
**Date Issued:** 06/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14288
**Date Sampled:** 24/08/2021
**Dates Tested:** 24/08/2021 - 01/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | SS-14288F | SS-14288G | SS-14288H | SS-14288I | SS-14288J |
| Date Tested | 24/08/2021 | 24/08/2021 | 24/08/2021 | 24/08/2021 | 24/08/2021 |
| Time Tested | ** | ** | ** | ** | ** |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505687 | 0505716 | 0505716 | 0505920 | 0505923 |
| Northing | 7043093 | 7043086 | 7043087 | 7043187 | 7043207 |
| Elevation (m) | R.L 15.3 | R.L 15.6 | R.L 15.3 | R.L 15.0 | R.L 15.0 |
| Soil Description | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.07 | 2.07 | 2.01 | 2.01 | 2.01 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.17 | 2.18 | 2.19 | 2.18 | 2.18 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.0 | 0.0 | -1.0 | -0.5 | 0.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **95.5** | **95.5** | **92.0** | **92.5** | **92.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-33**
**Issue Number:** 1
**Date Issued:** 06/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14315
**Date Sampled:** 25/08/2021
**Dates Tested:** 25/08/2021 - 02/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-14315A | SS-14315B | SS-14315C | SS-14315D |
| Date Tested | 25/08/2021 | 25/08/2021 | 25/08/2021 | 25/08/2021 |
| Time Tested | 07:48 | 07:54 | 07:59 | 08:07 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505685 | 0505709 | 0505784 | 0505784 |
| Northing | 7043085 | 7043078 | 7043072 | 7043072 |
| Elevation (m) | R.L 14.7 | R.L 14.6 | R.L 14.5 | R.L 14.7 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.00 | 2.02 | 1.97 | 1.97 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.09 | 2.11 | 2.05 | 2.06 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 1.5 | 2.0 | 2.0 | 2.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **95.5** | **95.5** | **96.0** | **95.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-33**
**Issue Number:** 1
**Date Issued:** 06/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14315
**Date Sampled:** 25/08/2021
**Dates Tested:** 25/08/2021 - 02/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-14315E | SS-14315F | SS-14315G | SS-14315H |
| Date Tested | 25/08/2021 | 25/08/2021 | 25/08/2021 | 25/08/2021 |
| Time Tested | 08:15 | 13:10 | 13:16 | 13:22 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506094 | 0506092 | 0506087 | 0506102 |
| Northing | 7043084 | 7043100 | 7043107 | 7043103 |
| Elevation (m) | R.L 14.8 | R.L 14.8 | R.L 14.8 | R.L 14.8 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 1.99 | 2.04 | 2.02 | 2.03 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.06 | 2.12 | 2.11 | 2.11 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 2.0 | 2.0 | 1.5 | 2.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **96.5** | **96.5** | **95.5** | **96.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-34** |
| **Issue Number:** | 1 |
| **Date Issued:** | 06/09/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 14339 |
| **Date Sampled:** | 26/08/2021 |
| **Dates Tested:** | 26/08/2021 - 03/09/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-14339A | SS-14339B | |
| Date Tested | 26/08/2021 | 26/08/2021 | |
| Time Tested | 13:05 | 13:12 | |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | |
| Easting | 0506134 | 0506149 | |
| Northing | 7043096 | 7043113 | |
| Elevation (m) | R.L 12.7 | R.L 12.4 | |
| Soil Description | Sandy Clay | Sandy Clay | |
| Test Depth (mm) | 150 | 150 | |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | |
| Percentage of Wet Oversize (%) | 0 | 0 | |
| Field Wet Density (FWD) t/m$^3$ | 2.12 | 2.06 | |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | |
| Peak Converted Wet Density t/m$^3$ | 2.16 | 2.14 | |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | |
| Moisture Variation (Wv) % | -2.5 | -1.0 | |
| Adjusted Moisture Variation % | ** | ** | |
| Hilf Density Ratio (%) | **98.0** | **96.5** | |
| Compaction Method | **Standard** | **Standard** | |
| Report Remarks | ** | ** | |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-35**
**Issue Number:** 1
**Date Issued:** 07/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14370
**Date Sampled:** 27/08/2021
**Dates Tested:** 27/08/2021 - 02/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-14370A | SS-14370B | SS-14370C | SS-14370D |
| Date Tested | 27/08/2021 | 27/08/2021 | 27/08/2021 | 27/08/2021 |
| Time Tested | 07:38 | 07:45 | 07:52 | 08:00 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506058 | 0506058 | 0506087 | 0506087 |
| Northing | 7043099 | 7043099 | 7043086 | 7043086 |
| Elevation (m) | R.L 13.7 | R.L 13.7 | R.L 13.4 | R.L 13.4 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.09 | 2.07 | 2.08 | 2.07 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.14 | 2.06 | 2.10 | 2.11 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.0 | 3.0 | 2.0 | -0.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **98.0** | **100.5** | **99.0** | **98.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-36**
**Issue Number:** 1
**Date Issued:** 20/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14448
**Date Sampled:** 31/08/2021
**Dates Tested:** 31/08/2021 - 10/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | SS-14448A | SS-14448B | SS-14448C | SS-14448D | SS-14448E | SS-14448F |
| Date Tested | 31/08/2021 | 31/08/2021 | 31/08/2021 | 31/08/2021 | 31/08/2021 | 31/08/2021 |
| Time Tested | 07:48 | 07:51 | 07:59 | 08:05 | 08:11 | 08:17 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506140 | 0506140 | 0506156 | 0506156 | 0506156 | 0506156 |
| Northing | 7043204 | 7043204 | 7043218 | 7043218 | 7043243 | 7043243 |
| Elevation (m) | R.L 12.8 | R.L 13.1 | R.L 12.8 | R.L 13.1 | R.L 12.8 | R.L 13.1 |
| Soil Description | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.01 | 2.05 | 2.04 | 2.03 | 2.01 | 2.02 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.05 | 2.02 | 2.09 | 2.07 | 2.11 | 2.10 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -0.5 | -1.0 | 1.5 | 1.5 | -0.5 | -0.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **98.0** | **101.5** | **97.5** | **98.0** | **95.5** | **96.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-37**
**Issue Number:** 1
**Date Issued:** 20/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14545
**Date Sampled:** 02/09/2021
**Dates Tested:** 02/09/2021 - 11/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | SS-14545A | SS-14545B | SS-14545C | SS-14545D | SS-14545E | SS-14545F |
| Date Tested | 02/09/2021 | 02/09/2021 | 02/09/2021 | 02/09/2021 | 02/09/2021 | 02/09/2021 |
| Time Tested | 07:39 | 07:45 | 07:49 | 07:55 | 08:02 | 08:07 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0505993 | 0505993 | 0505975 | 0505975 | 0505981 | 0505981 |
| Northing | 7043210 | 7043210 | 7043211 | 7043211 | 7043193 | 7043193 |
| Elevation (m) | R.L 13.4 | R.L 13.7 | R.L 13.4 | R.L 13.7 | R.L 13.4 | R.L 13.7 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.00 | 2.01 | 2.00 | 2.02 | 1.97 | 2.02 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.03 | 2.04 | 2.00 | 2.06 | 2.05 | 2.04 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 5.0 | 5.0 | 5.0 | 2.0 | 5.0 | 2.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **98.5** | **98.5** | **100.0** | **98.0** | **96.0** | **99.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-38**
**Issue Number:** 1
**Date Issued:** 23/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14624
**Date Sampled:** 06/09/2021
**Dates Tested:** 06/09/2021 - 17/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | SS-14624A | SS-14624B | SS-14624C | SS-14624D | SS-14624E | SS-14624F |
| Date Tested | 06/09/2021 | 06/09/2021 | 06/09/2021 | 06/09/2021 | 06/09/2021 | 06/09/2021 |
| Time Tested | ** | ** | ** | ** | ** | ** |
| Test Request #/Location | Buk Earthworks | Buk Earthworks | Buk Earthworks | Buk Earthworks | Buk Earthworks | Buk Earthworks |
| Easting | 0506133 | 0506042 | 0506099 | 0506095 | 0506018 | 0505999 |
| Northing | 7043274 | 7043283 | 7043279 | 7043292 | 7043305 | 7043300 |
| Elevation (m) | R.L 14.2 | R.L 14.2 | R.L 14.1 | R.L 14.1 | R.L 14.2 | R.L 14.2 |
| Soil Description | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.04 | 2.06 | 2.06 | 2.08 | 2.06 | 2.08 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.11 | 2.11 | 2.13 | 2.11 | 2.11 | 2.10 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -0.5 | 0.0 | -0.5 | 0.0 | -0.5 | 0.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **96.5** | **97.5** | **96.5** | **99.0** | **97.5** | **99.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-39**
**Issue Number:** 1
**Date Issued:** 23/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14677
**Date Sampled:** 08/09/2021
**Dates Tested:** 08/09/2021 - 17/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-14677A | SS-14677B | SS-14677C | SS-14677D |
| Date Tested | 07/09/2021 | 07/09/2021 | 07/09/2021 | 07/09/2021 |
| Time Tested | 13:41 | 13:45 | 13:52 | 13:59 |
| Test Request #/Location | Buk Earthworks | Buk Earthworks | Buk Earthworks | Buk Earthworks |
| Easting | 0506164 | 0506155 | 0506137 | 0506113 |
| Northing | 7043328 | 7043328 | 7043315 | 7043314 |
| Elevation (m) | R.L 13.1 | R.L 13.1 | R.L 13.1 | R.L 13.1 |
| Soil Description | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.13 | 2.11 | 2.09 | 2.10 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.12 | 2.13 | 2.09 | 2.13 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.0 | 0.0 | 0.5 | 0.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **100.5** | **99.5** | **99.5** | **98.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-40**
**Issue Number:** 1
**Date Issued:** 23/09/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14769
**Date Sampled:** 09/09/2021
**Dates Tested:** 09/09/2021 - 22/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-14769A | SS-14769B | SS-14769C | SS-14769D |
| Date Tested | 09/09/2021 | 09/09/2021 | 09/09/2021 | 09/09/2021 |
| Time Tested | 13:05 | 13:10 | 13:17 | 13:23 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506105 | 05056077 | 0506079 | 0506077 |
| Northing | 7043311 | 7043304 | 7043258 | 7043233 |
| Elevation (m) | R.L 13.6 | R.L 13.6 | R.L 13.6 | R.L 13.6 |
| Soil Description | Sandy Clay | Sandy Clay | Sandy Clay | Sandy Clay |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.15 | 2.08 | 2.09 | 2.08 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.12 | 2.06 | 2.10 | 2.07 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.0 | 2.5 | 2.0 | 2.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **101.0** | **101.0** | **99.5** | **100.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
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Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-41**
**Issue Number:** 1
**Date Issued:** 01/10/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 14865
**Date Sampled:** 13/09/2021
**Dates Tested:** 13/09/2021 - 25/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | SS-14865A | SS-14865B | SS-14865C | SS-14865D | SS-14865E |
| Date Tested | 13/09/2021 | 13/09/2021 | 13/09/2021 | 13/09/2021 | 13/09/2021 |
| Time Tested | 07:51 | 07:58 | 08:05 | 08:11 | 08:18 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506106 | 0506110 | 0506090 | 0506080 | 0506061 |
| Northing | 7043121 | 7043106 | 7043094 | 7043094 | 7043098 |
| Elevation (m) | R.L 13.4 | R.L 13.4 | R.L 13.3 | R.L 13.3 | R.L 13.3 |
| Soil Description | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.08 | 2.07 | 2.08 | 2.08 | 2.07 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.09 | 2.07 | 2.10 | 2.12 | 2.10 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 4.0 | 3.5 | 3.5 | 3.5 | 3.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **99.5** | **100.0** | **99.0** | **98.5** | **98.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-42**
**Issue Number:** 1
**Date Issued:** 13/10/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 15021
**Date Sampled:** 17/09/2021
**Dates Tested:** 17/09/2021 - 30/09/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | SS-15021A | SS-15021B | SS-15021C | SS-15021D | SS-15021E | SS-15021F |
| Date Tested | 17/09/2021 | 17/09/2021 | 17/09/2021 | 17/09/2021 | 17/09/2021 | 17/09/2021 |
| Time Tested | 07:26 | 07:30 | 07:36 | 07:42 | 07:48 | 07:55 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506202 | 0506202 | 0506198 | 0506198 | 0506196 | 0506196 |
| Northing | 7043226 | 7043226 | 7043209 | 7043209 | 7043199 | 7043199 |
| Elevation (m) | R.L 10.9 | R.L 11.2 | R.L 10.9 | R.L 11.2 | R.L 10.9 | R.L 11.2 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.12 | 2.03 | 2.04 | 2.04 | 2.03 | 2.04 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.04 | 2.03 | 2.02 | 2.04 | 2.01 | 2.04 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 2.5 | 3.0 | 4.0 | 5.0 | 4.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **104.0** | **100.5** | **101.5** | **100.0** | **101.5** | **100.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-43**
**Issue Number:** 1
**Date Issued:** 13/10/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 15085
**Date Sampled:** 21/09/2021
**Dates Tested:** 21/09/2021 - 01/10/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | | |
|---|---|---|---|---|---|---|
| Sample Number | SS-15085A | SS-15085B | SS-15085C | SS-15085D | SS-15085E | SS-15085F |
| Date Tested | 21/09/2021 | 21/09/2021 | 21/09/2021 | 21/09/2021 | 21/09/2021 | 21/09/2021 |
| Time Tested | 11:14 | 11:23 | 11:30 | 11:42 | 11:48 | 11:55 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506092 | 0506092 | 0506056 | 0506056 | 0506043 | 0506043 |
| Northing | 7043263 | 7043235 | 7043189 | 7043189 | 7043184 | 7043184 |
| Elevation (m) | R.L 12.2 | R.L 12.4 | R.L 12.2 | R.L 12.4 | R.L 12.4 | R.L 12.6 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.06 | 2.06 | 2.06 | 2.06 | 2.06 | 2.06 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.14 | 2.09 | 2.09 | 2.09 | 2.12 | 2.11 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 3.5 | 2.5 | 4.0 | 2.5 | 2.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **96.5** | **98.5** | **98.5** | **99.0** | **97.5** | **97.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-44**
**Issue Number:** 1
**Date Issued:** 13/10/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 15119
**Date Sampled:** 22/09/2021
**Dates Tested:** 22/09/2021 - 08/10/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-15119A | SS-15119B | SS-15119C | SS-15119D |
| Date Tested | 22/09/2021 | 22/09/2021 | 22/09/2021 | 22/09/2021 |
| Time Tested | 08:00 | 08:10 | 13:00 | 13:10 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506107 | 0506129 | 0506107 | 0506107 |
| Northing | 7043152 | 7043145 | 7043152 | 7043152 |
| Elevation (m) | R.L 12.2 | R.L 12.2 | R.L 12.4 | R.L 12.4 |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 1.97 | 1.95 | 1.94 | 1.98 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.10 | 2.13 | 2.12 | 2.11 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 1.0 | 2.5 | 2.5 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **94.0** | **91.5** | **92.0** | **93.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Fax: (07) 5351 0499
Email: martin.cook@douglaspartners.com.au

**Report Number:** **204982.00-45**
**Issue Number:** 1
**Date Issued:** 13/10/2021
**Client:** Shadforth Civil Pty Ltd
99 Sandalwood Lane, Forest Glen QLD 4556
**Contact:** Alex Watson
**Project Number:** 204982.00
**Project Name:** Proposed Subdivision
**Project Location:** Release 19 & 20 Bulk Earthworks, Harmony Estate QLD
**Work Request:** 15191
**Date Sampled:** 24/09/2021
**Dates Tested:** 24/09/2021 - 09/10/2021
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
**Specification:** Minimum 95% Standard Hilf Density Ratio
**Location:** Bulk Earthworks
**Material Source:** Onsite

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | |
|---|---|---|---|---|---|
| Sample Number | SS-15191A | SS-15191B | SS-15191C | SS-15191D | SS-15191E |
| Date Tested | 24/09/2021 | 24/09/2021 | 24/09/2021 | 24/09/2021 | 24/09/2021 |
| Time Tested | 12:15 | 12:22 | 12:30 | 12:35 | 12:42 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | 0506196 | 0506208 | 0506204 | 0506193 | 0506178 |
| Northing | 7043137 | 7043136 | 7043127 | 7043127 | 7043132 |
| Elevation (m) | R.L 11.4 | R.L 11.2 | R.L 11.4 | R.L 11.1 | R.L 11.4 |
| Soil Description | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand | Clayey Sand |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.03 | 2.10 | 2.05 | 2.08 | 2.02 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.10 | 2.08 | 2.14 | 2.14 | 2.12 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** | ** |
| Moisture Variation (Wv) % | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **96.5** | **101.0** | **95.5** | **97.0** | **95.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Email: Shae.Harry@douglaspartners.com.au

| | |
|---|---|
| **Report Number:** | **204982.00-46** |
| **Issue Number:** | 2 - *This version supersedes all previous issues* |
| **Reissue Reason:** | *Location Error* |
| **Date Issued:** | 28/10/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 15404 |
| **Date Sampled:** | 06/10/2021 |
| **Dates Tested:** | 06/10/2021 - 15/10/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Shae Harry
Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | |
|---|---|---|---|
| Sample Number | SS-15404A | SS-15404B | SS-15404C |
| Date Tested | 06/10/2021 | 06/10/2021 | 06/10/2021 |
| Time Tested | 13:01 | 13:09 | 13:15 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | Retest | Retest | Retest |
| Northing | SS-14007B | SS-14288I | SS-14288J |
| Elevation (m) | - | - | - |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.14 | 2.00 | 2.08 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.12 | 2.09 | 2.09 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 2.5 | 3.0 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | **101.0** | **96.0** | **99.5** |
| Compaction Method | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** |

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

# Material Test Report

Douglas Partners
Geotechnics / Environment / Groundwater
Douglas Partners Pty Ltd
Sunshine Coast Laboratory
1/28 Kessling Avenue Kunda Park QLD 4556
Phone: (07) 5351 0400
Email: martin.cook@douglaspartners.com.au

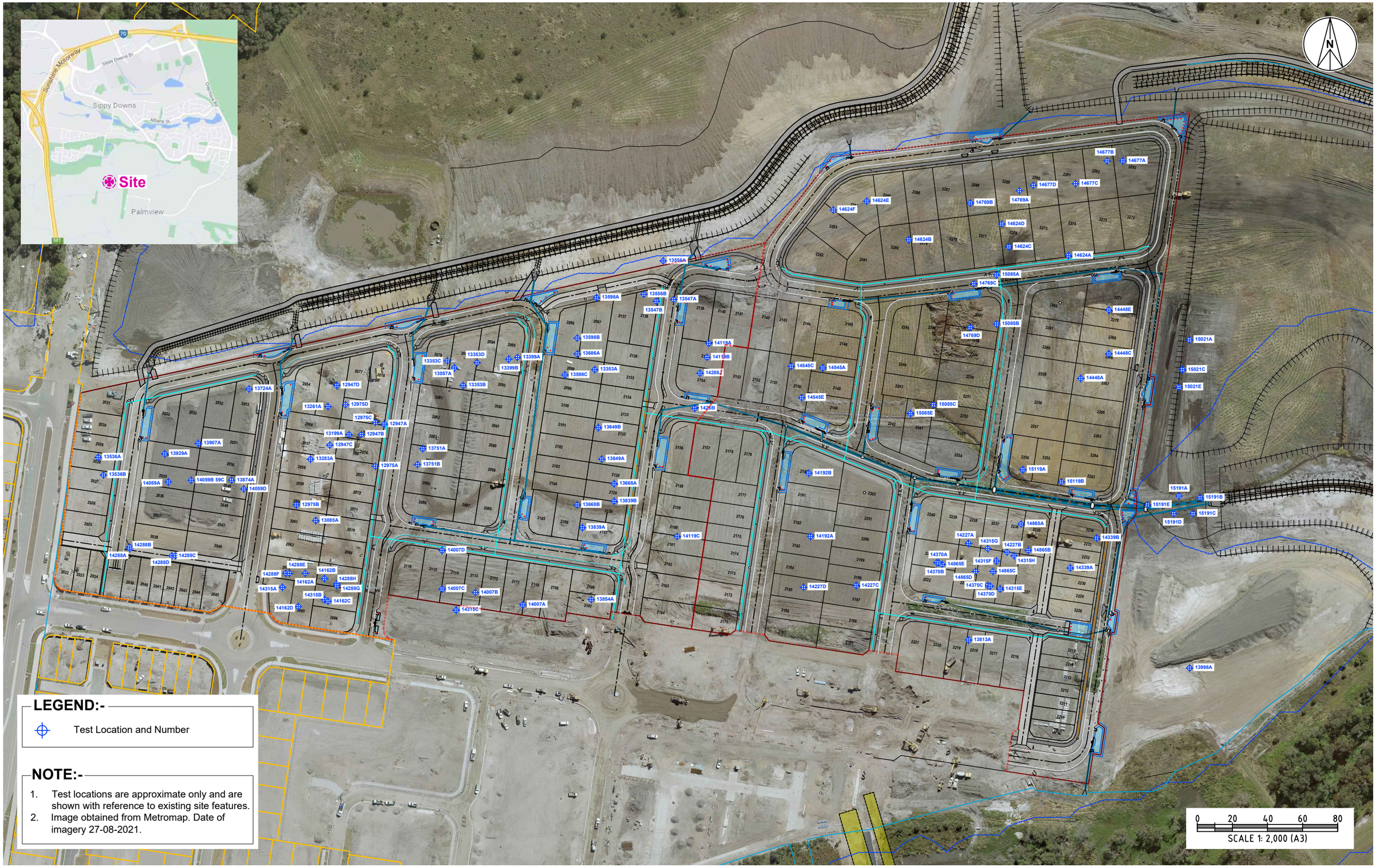
| | |
|---|---|
| **Report Number:** | **204982.00-47** |
| **Issue Number:** | 1 |
| **Date Issued:** | 29/10/2021 |
| **Client:** | Shadforth Civil Pty Ltd |
| | 99 Sandalwood Lane, Forest Glen QLD 4556 |
| **Contact:** | Alex Watson |
| **Project Number:** | 204982.00 |
| **Project Name:** | Proposed Subdivision |
| **Project Location:** | Release 19 & 20 Bulk Earthworks, Harmony Estate QLD |
| **Work Request:** | 15606 |
| **Date Sampled:** | 20/10/2021 |
| **Dates Tested:** | 20/10/2021 - 25/10/2021 |
| **Sampling Method:** | AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted |
| **Specification:** | Minimum 95% Standard Hilf Density Ratio |
| **Location:** | Bulk Earthworks |
| **Material Source:** | Onsite |

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Martin Cook
Assistant Laboratory Manager
Laboratory Accreditation Number: 828

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | |
|---|---|---|---|---|
| Sample Number | SS-15606A | SS-15606B | SS-15606C | SS-15606D |
| Date Tested | 20/10/2021 | 20/10/2021 | 20/10/2021 | 20/10/2021 |
| Time Tested | 08:20 | 08:30 | 08:36 | 08:42 |
| Test Request #/Location | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks | Bulk Earthworks |
| Easting | Retest | Retest | Retest | Retest |
| Northing | SS-15119A | SS-15119B | SS-15119C | SS-15119D |
| Elevation (m) | - | - | - | - |
| 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 |
| Field Wet Density (FWD) t/m$^3$ | 2.10 | 2.09 | 2.07 | 2.08 |
| Field Dry Density (FDD) t/m$^3$ | ** | ** | ** | ** |
| Peak Converted Wet Density t/m$^3$ | 2.10 | 2.08 | 2.04 | 2.08 |
| Adjusted Peak Converted Wet Density t/m$^3$ | ** | ** | ** | ** |
| Moisture Variation (Wv) % | -0.5 | 2.0 | 1.5 | 0.0 |
| Adjusted Moisture Variation % | ** | ** | ** | ** |
| Hilf Density Ratio (%) | **100.0** | **100.0** | **101.5** | **100.0** |
| Compaction Method | **Standard** | **Standard** | **Standard** | **Standard** |
| Report Remarks | ** | ** | ** | ** |

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




Douglas Partners
Geotechnics | Environment | Groundwater

| | | |
|---|---|---|
| CLIENT: Shadforths Civil Pty Ltd | | |
| OFFICE: Sunshine Coast | DRAWN BY: JST | |
| SCALE: As shown | DATE: October 2021 | |

TITLE: **Test Location Plan**
**Proposed Subdivision**
**Release 19 & 20 Bulk Earthworks, Harmony Estate**

| | |
|---|---|
| PROJECT No: | 204982.00 |
| DRAWING No: | 1 |
| REVISION: | 0 |

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