

# 250 Wedge Road Stage 1

## GITA Inspection Verification Report

---

**Prepared For:** Streetworks Pty Ltd

---

**Report Number** P231588A V1

---

**Version Release Date** 10 Oct 2023

---

**Report Released By** C Caulfield

---

**Title** Project Manager

---

**Signature**



**Table of Contents**

1 Introduction ..... 3

2 Scope of Work ..... 3

    2.1 Area of Work ..... 3

    2.2 Specification ..... 3

    2.3 Limitations ..... 4

3 Construction Method ..... 5

    3.1 Subgrade Preparation ..... 5

    3.2 Fill Placement ..... 5

4 Construction Verification ..... 5

5 Statement of Compliance ..... 6

**Appendices**

- Appendix 1 Test Location Plan
- Appendix 2 Compaction Test Register and Test Certificates

## 1 Introduction

*Terra Firma Laboratories* was engaged by Streetworks Pty Ltd as the Geotechnical Inspection and Testing Authority (GITA) to provide Level 1 supervision and testing works on the earthworks component for 250 Wedge Road Stage 1. This work was conducted over the period of 19/09/2023 to 09/10/2023.

This report presents that the allotment earthworks was carried out in accordance with AS3798-2007 *Guidelines for Earthworks for Commercial and Residential Development* and in compliance with the compaction control specifications established by the contractor.

## 2 Scope of Work

### 2.1 Area of Work

The areas of work included Lots 101, 102, 113 to 115 and 120 to 126, bounded by streets Seaberry Promenade, Claymore Street, Hawksburn Road, Punnett Street, Haymount Way, Zamia Way and Tashinny Road. The site will be a Residential development.

The area on which fill was placed is shown on site plan (Appendix 1: *Test Location Plan*) based on drawings prepared by Spiire (Drawing Reference: 308910CR200 and 201) and provided by Streetworks Pty Ltd.

The supervision work by the GITA involved both inspection of sub grade preparation work and full time inspection and testing of fill placement.

### 2.2 Specification

The technical specification (Reference from Drawings) for compaction control requirements was provided by Streetworks Pty Ltd and established that:

Test Rolling is required for all layers of structural fill and materials within 150mm of permanent subgrade level so as to withstand test rolling without visible deformation or springing. Corrective action is required where unstable areas exceed 20% of the area being considered by test rolling.

Section 5.2 of AS3798-2007 (Section 5.2) establishes a specification requirement for a minimum density ratio of not less than 95% noting that soils containing more than 20% of particles coarser than 37.5mm cannot be tested for relative compaction using the procedures of AS1289 5.1.1 and AS1289 5.2.1.

In accordance with Table 8.1 (AS3798), for large scale operations, (greater than 1500m<sup>2</sup>), the minimum testing frequency is 1 test per layer per material type per 2500m<sup>2</sup> or 1 test per 500m<sup>3</sup> distributed reasonable evenly throughout full depth and area or 3 tests per lot. AS3798 defines a lot as “an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work”. All three of these test frequencies must be achieved and this is typically confirmed to have been achieved when 3 tests per visit (day) have been completed.

### 2.3 Limitations

Terra Firma Laboratories cannot verify any works completed by others outside of the time period specified in the introduction. Uncontrolled works may include, but are not limited to trenching for services, cut and fill works for slab preparation or subsequent removal of vegetation and back fill of holes unless specified in section 2.1 of this report.

Terra Firma Laboratories cannot verify that the material used as a filling medium is free from chemical or other contamination. The scope and the period of Terra Firma Laboratories as described in the introduction are subject to restrictions and limitations. Terra Firma Laboratories did not perform a complete assessment of all possible conditions and circumstances that may exist at the site. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Terra Firma Laboratories.

Verification of finished surface level to design levels is outside of the scope of the GITA report.

Any drawings or marked locations presented in this report should be considered only as pictorial evidence of our work. Therefore, unless otherwise stated, any dimensions should not be used for accurate calculations or dimensioning.

Where data has been supplied by the client or a third party, it is assumed that the information is correct unless otherwise stated. No responsibility is accepted by Terra Firma Laboratories for incomplete or inaccurate data supplied by others.

This document is COPYRIGHT, all rights reserved to Terra Firma Laboratories and therefore no part of this document may be reproduced or copied in any form or by means without the written permission of Terra Firma Laboratories. This submission is for the use only of the party to whom it is addressed and for no other purpose. No responsibility is accepted to any third party who may use or rely on the whole or any part of the content of this submission. No responsibility will be taken for this report if it is altered in any way, or not reproduced in full.

### 3 Construction Method

#### 3.1 Subgrade Preparation

At the time of subgrade inspection the following was observed:

- Subgrade preparation involved stripping the site of topsoil, vegetation and organic matter to a depth of approximately 200mm below existing levels.
- The site was cleared of all trees and stumps to the extent necessary for the fill placement to proceed
- The roots of all trees and any debris was removed from site prior to any fill placement

The sub-grade area was then proof-rolled to confirm it was capable of withstanding test rolling without visible deformation or springing and any areas observed to be soft or otherwise unsuitable were rectified. The sub-grade was watered and scarified prior to fill placement to aid layer bonding.

#### 3.2 Fill Placement

The contractor was observed to have suitable construction equipment and plant available on-site during the construction period for use in the fill placement.

All fill was placed in layers of thicknesses not exceeding 300mm. At the completion of a placed layer, compaction testing was performed to confirm appropriate compaction had been achieved and supported the observations made. It should be noted that the compaction tests are representative samples of the fill placed and support the visual assessment of the works completed. Each house lot does not necessarily require a compaction test to have been conducted within the house allotment but may have been verified by testing conducted within up to a 2500m<sup>2</sup> area of the house lot.

Final fill placement levels were verified against design level by others. For the purposes of this report, it was observed that finished levels were in accordance with levels marked on site by survey markers.

The final 150mm of material placed across the site was placed as a topsoil layer or growing medium and should be considered as non-structural, as it was placed in an uncontrolled manner, as allowed by specifications and placement of the final 150mm of material was not observed by the GITA.

### 4 Construction Verification

Compaction Verification testing is summarized in a detailed test register with test certificates attached provided in Appendix 2: *Compaction Test Register and Test Certificates*. A test location

plan (P231588D1, Appendix 1) providing a schematic of test locations across the extent of scope of works for every placed layer of fill is also documented.

A total of 19 density tests (Hilf method in accordance with 1289 5.7.1) were undertaken with 6 failed results. The contractor was notified of any failed tests and the failed areas were ripped, watered, compacted and then re-tested to confirm compliance with the specification. The results summarised in the compaction test register (Appendix 2) confirm that for every layer of fill placed in a specific work area, satisfactory testing was completed.

## 5 Statement of Compliance

The intention of this report is to provide a description of the earthworks construction for Stage 1 at 250 Wedge Road. For completed fill areas of greater than 300mm, and for works completed between 19/09/2023 and 09/10/2023, earthworks construction activities were conducted under the full time supervision of the Geotechnical Inspection and Testing Authority. Inspections and testing of the fill areas at this site indicate that both sub grade preparation and fill placement have been conducted in accordance with the specification. The earthworks construction for Stage 1 of 250 Wedge Road was observed to be constructed in compliance with the requirements of the Technical Specification.

---



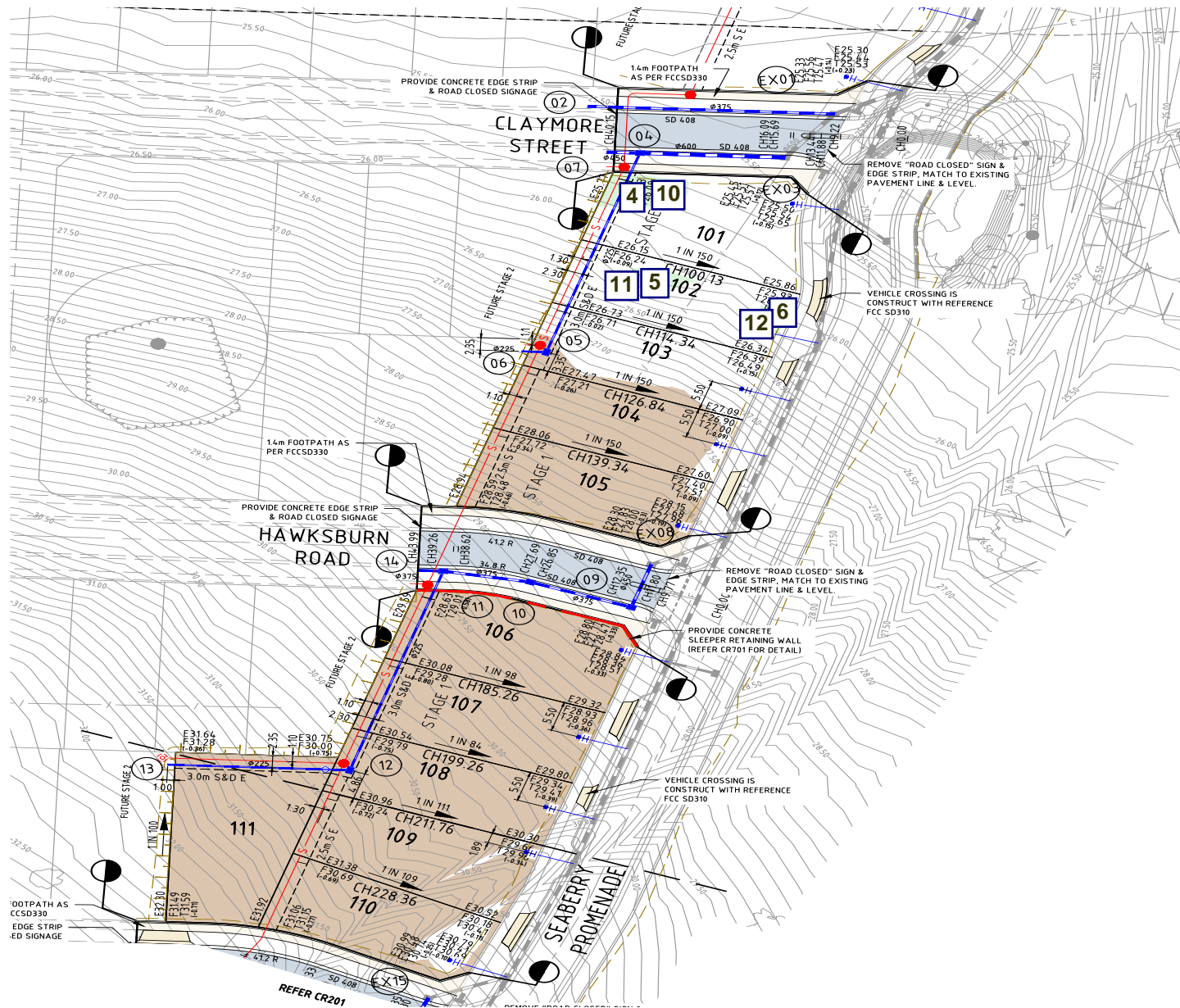
Your Worksite is Our Laboratory.

## Appendix 1: Test Location Plan

Our Head Office  
47 National Ave  
Pakenham, VIC 3810

Our Laboratories  
Pakenham 03 9769 5799  
Deer Park 03 8348 5596  
Bibra Lake 08 9395 7220

TERRAFIRMALABS.COM.AU  
Page 1 of 2



Our Head Office  
47 National Ave  
Pakenham, VIC 3810

Our Laboratories  
Pakenham 03 9769 5799  
Deer Park 03 8348 5596  
Bibra Lake 08 9395 7220

### Test Location Plan

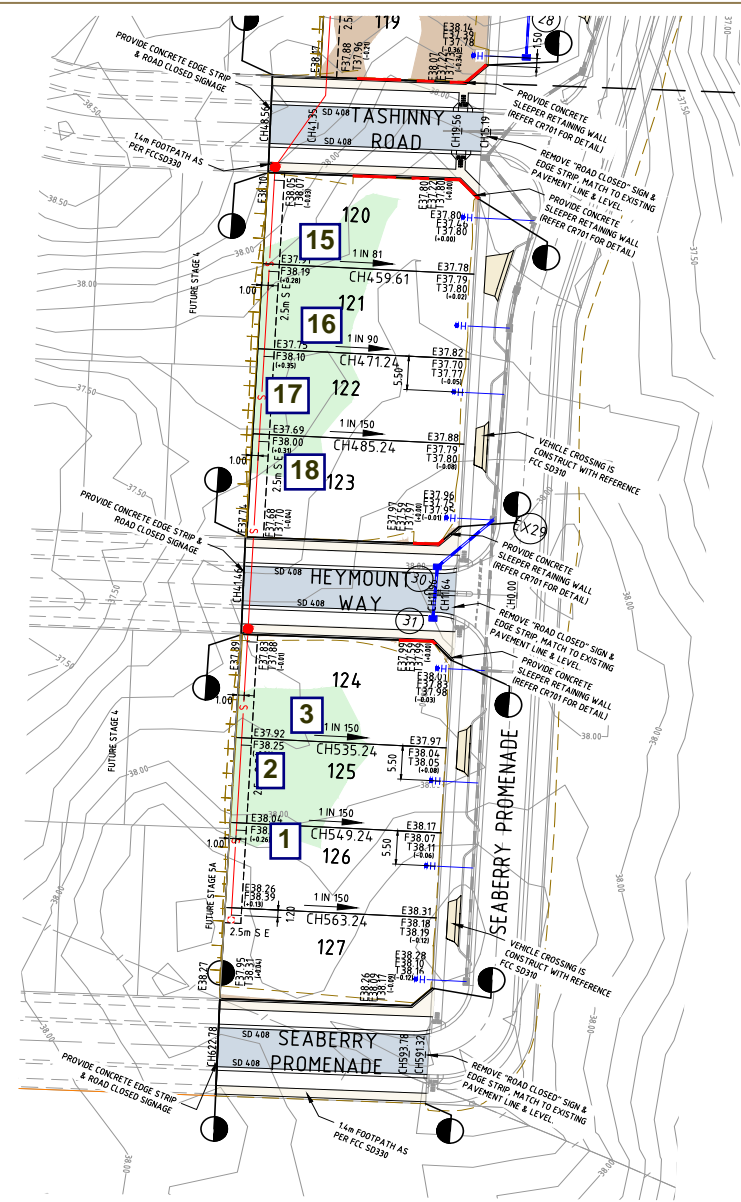
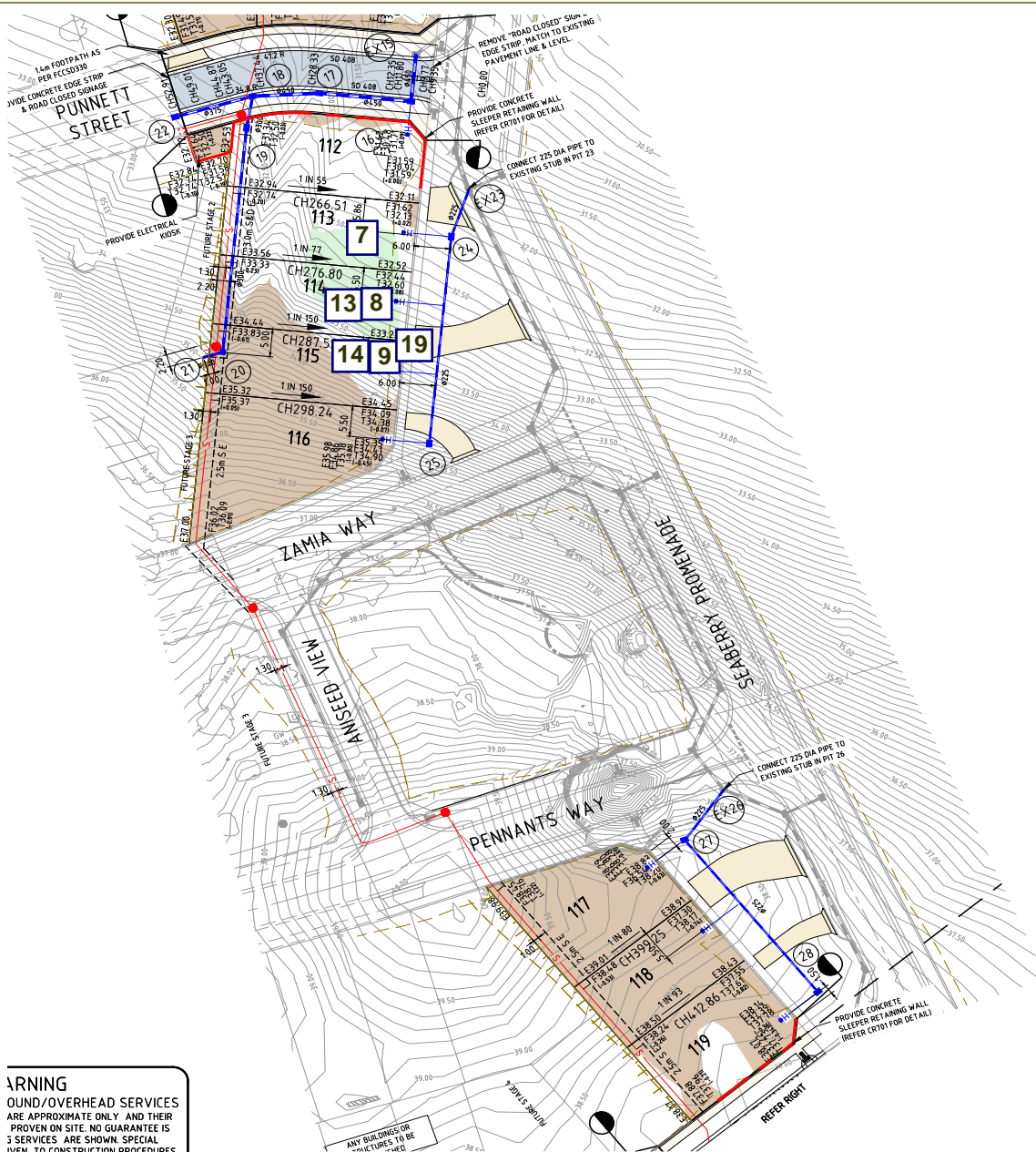
not to scale

Client: Streetworks Pty Ltd

Project: 250 Wedge Road, Stage 1

Reference: P231588 D1





**WARNING**  
 SOUND/OVERHEAD SERVICES  
 ARE APPROXIMATE ONLY. AND THEIR  
 PROVEN ON SITE. NO GUARANTEE IS  
 GIVEN. SPECIAL SERVICES ARE SHOWN. SPECIAL  
 ATTENTION TO COMPETITION OPERATIONS

**Our Head Office**  
 47 National Ave  
 Pakenham, VIC 3810

**Our Laboratories**  
 Pakenham 03 9769 5799  
 Deer Park 03 8348 5596  
 Bibra Lake 08 9395 7220

**Test Location Plan**  
*not to scale*

Client: Streetworks Pty Ltd

Project: 250 Wedge Road, Stage 1

Reference: P231588 D2



**Your Worksite is Our Laboratory.**

## **Appendix 2: Compaction Test Register and Test Certificates**

Our Head Office  
47 National Ave  
Pakenham, VIC 3810

Our Laboratories  
Pakenham 03 9769 5799  
Deer Park 03 8348 5596  
Bibra Lake 08 9395 7220

TERRAFIRMALABS.COM.AU  
Page 2 of 2



## Compaction Test Register

**Client:** Streetworks Pty Ltd  
**Project:** 250 Wedge Road Stage 1

**Project No:** P231588  
**Specification:** 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
19/09/2023	1	Layer 1		102.0%	Pass	Lot 126	P231588-1
19/09/2023	2	Layer 1		95.0%	Pass	Lot 125	P231588-1
19/09/2023	3	Layer 1		95.5%	Pass	Lot 124	P231588-1
25/09/2023	4	Layer 1		93.5%	Fail	Lot 101	P231588-2
25/09/2023	5	Layer 1		93.5%	Fail	Lot 102	P231588-2
25/09/2023	6	Layer 1		89.0%	Fail	Lot 102	P231588-2
25/09/2023	7	Layer 1		98.0%	Pass	Lot 113	P231588-2
25/09/2023	8	Layer 1		93.5%	Fail	Lot 114	P231588-2
25/09/2023	9	Layer 1		92.5%	Fail	Lot 115	P231588-2
5/10/2023	10	Final layer	Test #4	97.5%	Pass	Lot 101	P231588-3
5/10/2023	11	Final layer	Test #5	99.5%	Pass	Lot 102	P231588-3
5/10/2023	12	Final layer	Test #6	96.5%	Pass	Lot 102	P231588-3
5/10/2023	13	Final layer	Test #8	96.5%	Pass	Lot 114	P231588-3
5/10/2023	14	Final layer	Test #9	93.5%	Fail	Lot 115	P231588-3
5/10/2023	15	Final layer		97.0%	Pass	Lot 120	P231588-3
5/10/2023	16	Final layer		96.5%	Pass	Lot 121	P231588-3
5/10/2023	17	Final layer		98.0%	Pass	Lot 122	P231588-3
5/10/2023	18	Final layer		98.5%	Pass	Lot 123	P231588-3
9/10/2023	19	Final layer	Test #14	102.5%	Pass	Lot 115	P231588-4

# Material Test Report

**Report Number:** P231588-1  
**Issue Number:** 1  
**Date Issued:** 28/09/2023  
**Client:** Street Works Pty Ltd  
 45 Commercial Drive, Pakenham Vic 3810  
**Project Number:** P231588  
**Project Name:** 250 Wedge Road Stage 1 Level 1  
**Work Request:** 13457  
**Date Sampled:** 19/09/2023  
**Dates Tested:** 19/09/2023 - 20/09/2023  
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95%  
**Site Selection:** Selected by Client  
**Location:** 250 Wedge Road  
**Material:** Clayey SAND  
**Material Source:** Onsite



Pakenham Laboratory  
 47 National Avenue Pakenham VIC 3810  
 Phone: (03) 9769 5799  
 Email: ccaulfield@terrafirmalabs.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Chris Caulfield  
 Project Manager

NATA Accredited Laboratory Number: 15357

## Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	P23-13457A	P23-13457B	P23-13457C
Test Number	1	2	3
Date Tested	19/09/2023	19/09/2023	19/09/2023
Time Tested	**	**	**
Test Request #/Location	LOT 126	LOT 125	LOT 124
Layer / Reduced Level	Layer 1	Layer 1	Layer 1
Thickness of Layer (mm)	300	300	300
Soil Description	Clayey SAND	Clayey SAND	Clayey SAND
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m <sup>3</sup>	1.88	1.84	1.85
Field Moisture Content %	4.1	6.7	6.8
Field Dry Density (FDD) t/m <sup>3</sup>	1.80	1.72	1.74
Peak Converted Wet Density t/m <sup>3</sup>	1.84	1.93	1.94
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	**
Adj. Field Moisture Content % (AS1289.5.4.1)	4.1	6.7	6.8
Moisture Ratio % (AS1289.5.4.1)	82.5	102.5	81.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	1.0	0.0	1.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	<b>102.0</b>	<b>95.0</b>	<b>95.5</b>
Compaction Method	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>
Report Remarks	**	**	**

### Moisture Variation Note:

Positive values = test is dry of OMC  
 Negative values = test is wet of OMC

# Material Test Report

**Report Number:** P231588-2  
**Issue Number:** 1  
**Date Issued:** 28/09/2023  
**Client:** Street Works Pty Ltd  
 45 Commercial Drive, Pakenham Vic 3810  
**Project Number:** P231588  
**Project Name:** 250 Wedge Road Stage 1 Level 1  
**Work Request:** 13493  
**Date Sampled:** 25/09/2023  
**Dates Tested:** 25/09/2023 - 26/09/2023  
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95%  
**Site Selection:** Selected by Client  
**Location:** 250 Wedge Rd  
**Material:** Clayey SAND  
**Material Source:** Onsite



Pakenham Laboratory  
 47 National Avenue Pakenham VIC 3810  
 Phone: (03) 9769 5799  
 Email: ccaulfield@terrafirmalabs.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Chris Caulfield  
 Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	P23-13493A	P23-13493B	P23-13493C	P23-13493D	P23-13493E	P23-13493F
Test Number	4	5	6	7	8	9
Date Tested	25/09/2023	25/09/2023	25/09/2023	25/09/2023	25/09/2023	25/09/2023
Time Tested	**	**	**	**	**	**
Test Request #/Location	Lot 101	Lot 102	Lot 102	Lot 113	Lot 114	Lot 115
Layer / Reduced Level	Layer 1	Layer 1	Layer 1	Layer 1	Layer 1	Layer 1
Thickness of Layer (mm)	300	300	200	300	300	300
Soil Description	Sandy CLAY	Clayey SAND	Clayey SAND	Clayey SAND	Clayey SAND	Clayey SAND
Test Depth (mm)	275	275	175	275	275	275
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
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**	**	**	**
Field Wet Density (FWD) t/m <sup>3</sup>	1.84	1.83	1.73	1.83	1.82	1.81
Field Moisture Content %	29.8	7.5	7.8	5.2	8.2	8.8
Field Dry Density (FDD) t/m <sup>3</sup>	1.42	1.70	1.61	1.74	1.68	1.66
Peak Converted Wet Density t/m <sup>3</sup>	1.97	1.95	1.94	1.87	1.94	1.96
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	27.3	10.7	10.2	7.1	10.5	10.8
Adj. Field Moisture Content % (AS1289.5.4.1)	29.8	7.5	7.8	5.2	8.2	8.8
Moisture Ratio % (AS1289.5.4.1)	109.0	69.5	77.0	73.0	78.0	82.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	**	**
Moisture Variation (Wv) %	-2.5	3.5	2.5	2.0	2.5	2.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	<b>93.5</b>	<b>93.5</b>	<b>89.0</b>	<b>98.0</b>	<b>93.5</b>	<b>92.5</b>
Compaction Method	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>
Report Remarks	**	**	**	**	**	**

**Moisture Variation Note:**

Positive values = test is dry of OMC  
 Negative values = test is wet of OMC

# Material Test Report

**Report Number:** P231588-3  
**Issue Number:** 1  
**Date Issued:** 09/10/2023  
**Client:** Street Works Pty Ltd  
 45 Commercial Drive, Pakenham Vic 3810  
**Project Number:** P231588  
**Project Name:** 250 Wedge Road Stage 1 Level 1  
**Work Request:** 13555  
**Date Sampled:** 05/10/2023  
**Dates Tested:** 05/10/2023 - 06/10/2023  
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95%  
**Site Selection:** Selected by Client  
**Location:** 250 Wedge Road Stage 1 Level 1  
**Material:** SAND  
**Material Source:** Onsite - Stockpile



Pakenham Laboratory  
 47 National Avenue Pakenham VIC 3810  
 Phone: (03) 9769 5799  
 Email: ccaulfield@terrafirmalabs.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Chris Caulfield  
 Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	P23-13555A	P23-13555B	P23-13555C	P23-13555D	P23-13555E
Test Number	10	11	12	13	14
Date Tested	05/10/2023	05/10/2023	05/10/2023	05/10/2023	05/10/2023
Time Tested	**	**	**	**	**
Test Request #/Location	Lot 101 ( Retest for 4)	Lot 102 ( Retest for 5)	Lot 102 ( Retest for 6)	Lot 115 ( Retest for 8)	Lot 115 ( Retest for 9)
Layer / Reduced Level	Final layer	Final layer	Final layer	Final layer	Final layer
Thickness of Layer (mm)	300	300	300	300	300
Soil Description	SAND	SAND	SAND	SAND	SAND
Test Depth (mm)	275	275	275	275	275
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
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**	**	**
Field Wet Density (FWD) t/m <sup>3</sup>	2.03	2.04	2.04	2.06	1.87
Field Moisture Content %	15.4	15.0	14.7	14.7	11.7
Field Dry Density (FDD) t/m <sup>3</sup>	1.76	1.77	1.78	1.80	1.68
Peak Converted Wet Density t/m <sup>3</sup>	2.09	2.05	2.11	2.14	2.00
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	**	**	**
Adj. Field Moisture Content % (AS1289.5.4.1)	15.4	15.0	14.7	14.7	11.7
Moisture Ratio % (AS1289.5.4.1)	125.0	117.5	124.5	123.5	85.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	**
Moisture Variation (Wv) %	-3.0	-2.5	-3.0	-3.0	2.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	97.5	99.5	96.5	96.5	93.5
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

**Report Number:** P231588-3  
**Issue Number:** 1  
**Date Issued:** 09/10/2023  
**Client:** Street Works Pty Ltd  
 45 Commercial Drive, Pakenham Vic 3810  
**Project Number:** P231588  
**Project Name:** 250 Wedge Road Stage 1 Level 1  
**Work Request:** 13555  
**Date Sampled:** 05/10/2023  
**Dates Tested:** 05/10/2023 - 06/10/2023  
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95%  
**Site Selection:** Selected by Client  
**Location:** 250 Wedge Road Stage 1 Level 1  
**Material:** SAND  
**Material Source:** Onsite - Stockpile



Pakenham Laboratory  
 47 National Avenue Pakenham VIC 3810  
 Phone: (03) 9769 5799  
 Email: ccaulfield@terrafirmalabs.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Chris Caulfield  
 Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	P23-13555F	P23-13555G	P23-13555H	P23-13555I	
Test Number	15	16	17	18	
Date Tested	05/10/2023	05/10/2023	05/10/2023	05/10/2023	
Time Tested	**	**	**	**	
Test Request #/Location	Lot 120	Lot 121	Lot 122	Lot 123	
Layer / Reduced Level	Final layer	Final layer	Final layer	Final layer	
Thickness of Layer (mm)	300	300	300	300	
Soil Description	SAND	SAND	SAND	SAND	
Test Depth (mm)	275	275	275	275	
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	0	0	
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**	**	
Field Wet Density (FWD) t/m <sup>3</sup>	1.90	1.88	1.89	2.02	
Field Moisture Content %	6.5	5.9	6.0	9.3	
Field Dry Density (FDD) t/m <sup>3</sup>	1.78	1.77	1.78	1.85	
Peak Converted Wet Density t/m <sup>3</sup>	1.96	1.94	1.93	2.05	
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**	
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	10.9	**	
Adj. Field Moisture Content % (AS1289.5.4.1)	6.5	5.9	6.0	9.3	
Moisture Ratio % (AS1289.5.4.1)	61.5	56.5	55.5	87.5	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	
Moisture Variation (Wv) %	4.5	5.0	5.0	1.5	
Adjusted Moisture Variation %	**	**	**	**	
Hilf Density Ratio (%)	<b>97.0</b>	<b>96.5</b>	<b>98.0</b>	<b>98.5</b>	
Compaction Method	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	<b>Standard</b>	
Report Remarks	**	**	**	**	

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

# Material Test Report

**Report Number:** P231588-4  
**Issue Number:** 1  
**Date Issued:** 10/10/2023  
**Client:** Street Works Pty Ltd  
 45 Commercial Drive, Pakenham Vic 3810  
**Project Number:** P231588  
**Project Name:** 250 Wedge Road Stage 1 Level 1  
**Work Request:** 13567  
**Date Sampled:** 09/10/2023  
**Dates Tested:** 09/10/2023 - 09/10/2023  
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95%  
**Site Selection:** Selected by Client  
**Location:** 250 Wedge Road Stage 1 Level 1  
**Material:** SAND  
**Material Source:** Onsite - Stockpile



Pakenham Laboratory  
 47 National Avenue Pakenham VIC 3810  
 Phone: (03) 9769 5799  
 Email: ccaulfield@terrafirmalabs.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Chris Caulfield  
 Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13567A		
Test Number	19		
Date Tested	09/10/2023		
Time Tested	**		
Test Request #/Location	Lot 115 Retest #14		
Layer / Reduced Level	Final layer		
Thickness of Layer (mm)	300		
Soil Description	SAND		
Test Depth (mm)	275		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0		
Field Wet Density (FWD) t/m <sup>3</sup>	1.96		
Field Moisture Content %	6.8		
Field Dry Density (FDD) t/m <sup>3</sup>	1.83		
Peak Converted Wet Density t/m <sup>3</sup>	1.91		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	9.1		
Adj. Field Moisture Content % (AS1289.5.4.1)	6.8		
Moisture Ratio % (AS1289.5.4.1)	75.5		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	2.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	<b>102.5</b>		
Compaction Method	<b>Standard</b>		
Report Remarks	**		

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



10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 101

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 101 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a "lot" which is "an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work" (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 102

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 102 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a "lot" which is "an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work" (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 103

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 103 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a "lot" which is "an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work" (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 113

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 113 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a "lot" which is "an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work" (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 114

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 114 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a “lot” which is “an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work” (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 115

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 115 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a “lot” which is “an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work” (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 120

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 120 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a "lot" which is "an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work" (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 121

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 121 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a “lot” which is “an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work” (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager



10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 122

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 122 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a "lot" which is "an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work" (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 123

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 123 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a "lot" which is "an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work" (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 124

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 124 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a “lot” which is “an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work” (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 125

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 125 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a "lot" which is "an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work" (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager

10 Oct 2023

TO WHOM IT MAY CONCERN

Re: 250 Wedge Road Stage 1  
Skye  
Lot 126

*Terra Firma Laboratories was engaged by Streetworks Pty Ltd as the Geotechnical and Inspection Testing Authority (GITA) to provide Level 1 supervision and testing on the earthworks component for 250 Wedge Road, Stage 1, Skye in accordance with Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Development.*

Lot 126 as defined in drawing Ref 308910CR200 and 201 from *Spiire*, provided by the contractor, was included in the scope of works.

With regard to any fill placement please consider the following:

- Controlled fill was placed up to 300mm below finished surface level. The final 150mm material is considered top soil and organic matter and not controlled fill.
- Verification of finished surface level to design levels is outside of the scope of the GITA Inspection and Verification report.
- Compaction tests results documented in a level 1 GITA report verify the construction methods observed on site are satisfactory. Testing is conducted with random sampling across an area of work that is defined in the Australian Standard as a “lot” which is “an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work” (AS 3798-2007). As such, any test completed is representative of an area that may be up to 2500m<sup>2</sup> in area and across several house lots.

A GITA Inspection Verification report (Reference: P231588A) has been published on 10 Oct 2023 and documents that the allotment earthworks were carried out in accordance with AS3798 and in compliance with the project specification provided by the contractor.

For and on behalf of

**Terra Firma Laboratories**



C Caulfield  
Project Manager