

## Five Farms Stage 23

# GITA Inspection Verification Report

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**Prepared For:** Fraser Property

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**Report Number** P231546A V1

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**Version Release Date** 23 Jan 2024

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**Report Released By** C Caulfield

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**Title** Project Manager

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**Signature**



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## 1 Introduction

Terra Firma Laboratories was engaged by Fraser Property as the Geotechnical Inspection and Testing Authority (GITA) to provide Level 1 supervision and testing works on the earthworks component for Five Farms Stage 23. This work was conducted over the period of 09/08/2023 to 23/08/2023.

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 2315 to 2318, 2321, 2322 and 2328 to 2336, bounded by streets Sojoun Street, Companionship Drive and Campi Lane. 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 Beveridge Williams (Drawing Reference: 1702037 23 010 A) and provided by Fraser Property.

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 Fraser Property 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.

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### 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 (P231546D1, 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 2 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 23 at Five Farms. For completed fill areas of greater than 300mm, and for works completed between 09/08/2023 and 23/08/2023, 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 23 of Five Farms was observed to be constructed in compliance with the requirements of the Technical Specification.

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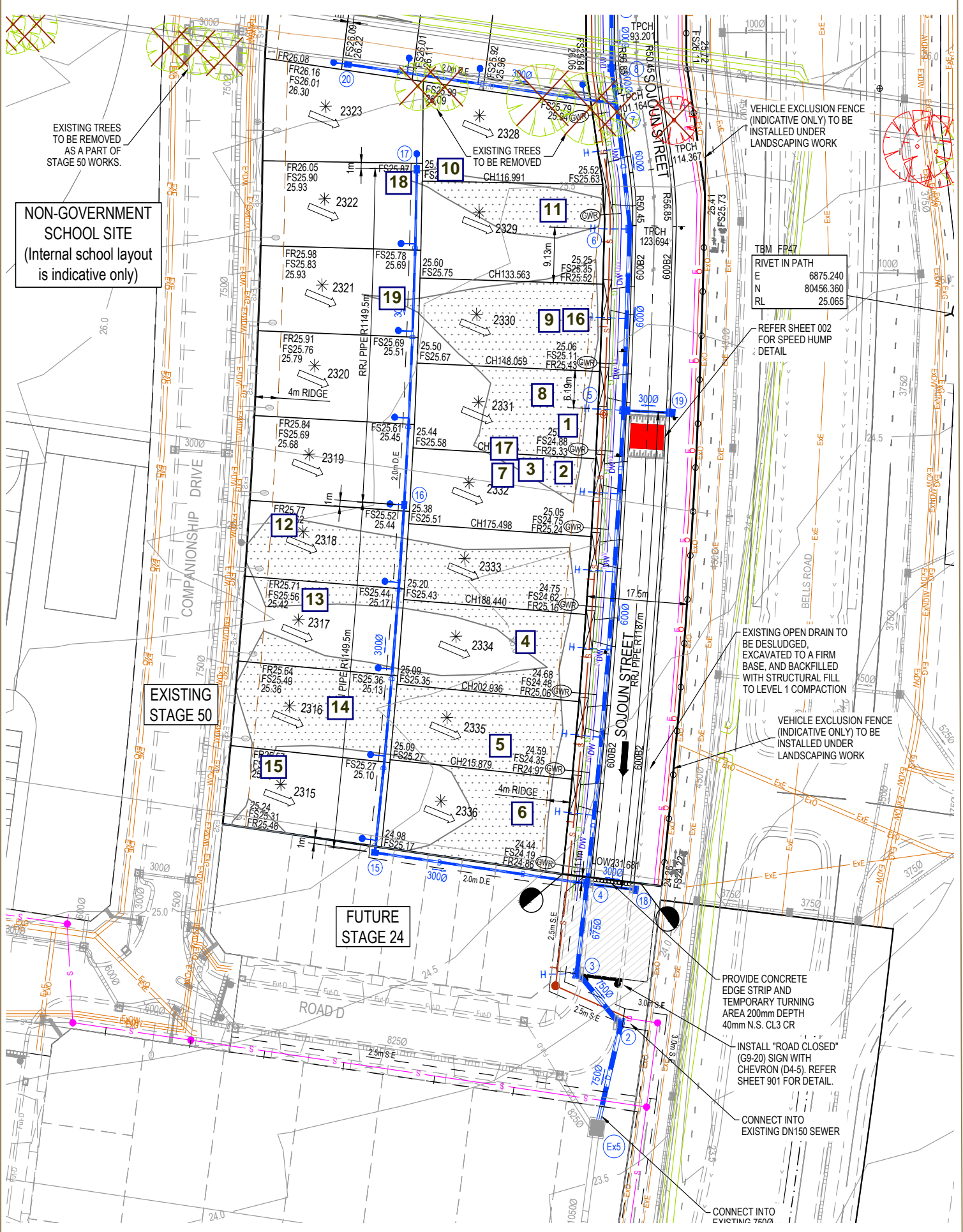
Your Worksite is Our Laboratory.

## 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



NON-GOVERNMENT SCHOOL SITE  
(Internal school layout is indicative only)

VEHICLE EXCLUSION FENCE (INDICATIVE ONLY) TO BE INSTALLED UNDER LANDSCAPING WORK

TBM FP47  
RIVET IN PATH  
E 6875.240  
N 80456.360  
RL 25.065

REFER SHEET 002 FOR SPEED HUMP DETAIL

EXISTING OPEN DRAIN TO BE DESLUDGED, EXCAVATED TO A FIRM BASE, AND BACKFILLED WITH STRUCTURAL FILL TO LEVEL 1 COMPACTION

VEHICLE EXCLUSION FENCE (INDICATIVE ONLY) TO BE INSTALLED UNDER LANDSCAPING WORK

PROVIDE CONCRETE EDGE STRIP AND TEMPORARY TURNING AREA 200mm DEPTH 40mm N.S. CL3 CR

INSTALL "ROAD CLOSED" (G9-20) SIGN WITH CHEVRON (D4-5). REFER SHEET 901 FOR DETAIL.

CONNECT INTO EXISTING DN150 SEWER

CONNECT INTO EXISTING 750mm



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47 National Ave  
Pakenham, VIC 3860  
  
Our Laboratories  
Pakenham 03 9769 5799  
Deer Park 03 8348 5596  
Bibra Lake 08 9395 7220

Test Location Plan  
not to scale

Client: Fraser Property

Project: Five Farms, Stage 23

Reference: P231546 D1





Your Worksite is Our Laboratory.

## Appendix 2: Compaction Test Register and Test Certificates



## Compaction Test Register

**Client:** Fraser Property  
**Project:** Five Farms Stage 23

**Project No:** P231546  
**Specification:** 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
9/08/2023	1	Layer 1		96.5%	Pass	Lot 2331	P231546-1
9/08/2023	2	Layer 1		97.0%	Pass	Lot 2332	P231546-1
10/08/2023	3	Layer 2		101.5%	Pass	Lot 2332	P231546-2
14/08/2023	4	FSL		99.5%	Pass	Lot 2334	P231546-3
14/08/2023	5	FSL		103.5%	Pass	Lot 2335	P231546-3
14/08/2023	6	FSL		104.0%	Pass	Lot 2336	P231546-3
14/08/2023	7	FSL		93.5%	Fail	Lot 2332	P231546-3
14/08/2023	8	FSL		96.5%	Pass	Lot 2331	P231546-3
14/08/2023	9	FSL		94.5%	Fail	Lot 2330	P231546-3
17/08/2023	10	Layer 2		98.5%	Pass	Lot 2328	P231546-4
17/08/2023	11	Layer 2		95.5%	Pass	Lot 2329	P231546-4
17/08/2023	12	Layer 1		98.5%	Pass	Lot 2318	P231546-4
17/08/2023	13	Layer 1		95.5%	Pass	Lot 2317	P231546-4
17/08/2023	14	Layer 1		96.0%	Pass	Lot 2316	P231546-4
17/08/2023	15	Layer 1		97.0%	Pass	Lot 2315	P231546-4
22/08/2023	16	FSL	Test #9	97.0%	Pass	Lot 2330	P231546-5
22/08/2023	17	FSL	Test #7	95.5%	Pass	Lot 2332	P231546-5
23/08/2023	18	FSL		98.5%	Pass	Lot 2322	P231546-6
23/08/2023	19	FSL		96.0%	Pass	Lot 2321	P231546-6

# Material Test Report

**Report Number:** P231546-1  
**Issue Number:** 1  
**Date Issued:** 17/08/2023  
**Client:** Fraser Property



**Project Number:** P231546  
**Project Name:** Five Farms Stage 23 - Level One  
**Project Location:** Clyde  
**Work Request:** 13103  
**Date Sampled:** 09/08/2023  
**Dates Tested:** 09/08/2023 - 16/08/2023  
**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:** Five Farms Future Stage 23 Level One  
**Material:** Sandy silty CLAY  
**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	P23-13103A	P23-13103B	
Test Number	1	2	
Date Tested	09/08/2023	09/08/2023	
Time Tested	10:50	10:58	
Test Request #/Location	Lot 2331	Lot 2332	
Layer / Reduced Level	Layer 1	Layer 1	
Thickness of Layer (mm)	300	300	
Soil Description	Sandy silty CLAY	Sandy silty CLAY	
Test Depth (mm)	275	275	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	
Field Wet Density (FWD) t/m <sup>3</sup>	1.99	2.06	
Field Moisture Content %	17.1	17.2	
Field Dry Density (FDD) t/m <sup>3</sup>	1.70	1.76	
Peak Converted Wet Density t/m <sup>3</sup>	2.06	2.12	
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	
Adj. Optimum Moisture Content % (AS1289.5.4.1)	16.9	16.5	
Adj. Field Moisture Content % (AS1289.5.4.1)	17.1	17.2	
Moisture Ratio % (AS1289.5.4.1)	101.5	104.0	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	
Moisture Variation (Wv) %	0.0	-0.5	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	<b>96.5</b>	<b>97.0</b>	
Compaction Method	<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:** P231546-2  
**Issue Number:** 1  
**Date Issued:** 17/08/2023  
**Client:** Fraser Property



**Project Number:** P231546  
**Project Name:** Five Farms Stage 23 - Level One  
**Project Location:** Clyde  
**Work Request:** 13110  
**Date Sampled:** 10/08/2023  
**Dates Tested:** 10/08/2023 - 16/08/2023  
**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:** Five Farms Stage 23 - Level One  
**Material:** CLAY  
**Material Source:** Onsite

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NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13110A		
Test Number	3		
Date Tested	10/08/2023		
Time Tested	**		
Test Request #/Location	3 Lot 2332		
Layer / Reduced Level	Layer 2		
Thickness of Layer (mm)	300		
Soil Description	CLAY		
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)	**		
Field Wet Density (FWD) t/m <sup>3</sup>	1.96		
Field Moisture Content %	21.2		
Field Dry Density (FDD) t/m <sup>3</sup>	1.62		
Peak Converted Wet Density t/m <sup>3</sup>	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)	21.2		
Moisture Ratio % (AS1289.5.4.1)	93.5		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	1.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	101.5		
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

**Report Number:** P231546-3  
**Issue Number:** 3 - This version supersedes all previous issues  
**Reissue Reason:**  
**Date Issued:** 23/01/2024  
**Client:** Fraser Property



**Project Number:** P231546  
**Project Name:** Five Farms Stage 23 - Level One  
**Project Location:** Clyde  
**Work Request:** 13141  
**Date Sampled:** 14/08/2023 8:30  
**Dates Tested:** 14/08/2023 - 15/08/2023  
**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:** Five Farms Stage 23 - Level One  
**Material:** CLAY  
**Material Source:** Onsite

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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	P23-13141A	P23-13141B	P23-13141C	P23-13141D	P23-13141E	P23-13141F
Test Number	4	5	6	7	8	9
Date Tested	14/08/2023	14/08/2023	14/08/2023	14/08/2023	14/08/2023	14/08/2023
Time Tested	08:50	09:00	09:10	15:14	15:16	15:17
Test Request #/Location	Lot No 2334	Lot No 2335	Lot No 2336	Lot No 2332	Lot No 2331	Lot No 2330
Layer / Reduced Level	F/L	F/L	F/L	F/L	F/L	F/L
Thickness of Layer (mm)	300	300	300	300	300	300
Soil Description	CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
Test Depth (mm)	275	275	275	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)	0	0	0	0	0	0
Field Wet Density (FWD) t/m <sup>3</sup>	2.08	2.16	2.18	1.95	1.98	1.94
Field Moisture Content %	15.8	16.2	15.7	16.9	17.2	18.1
Field Dry Density (FDD) t/m <sup>3</sup>	1.80	1.85	1.89	1.66	1.69	1.65
Peak Converted Wet Density t/m <sup>3</sup>	2.09	2.08	2.10	2.09	2.05	2.06
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	16.2	16.7	16.3	17.0	17.8	18.6
Adj. Field Moisture Content % (AS1289.5.4.1)	15.8	16.2	15.7	16.9	17.2	18.1
Moisture Ratio % (AS1289.5.4.1)	97.0	97.0	96.5	99.5	96.5	97.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	**	**
Moisture Variation (Wv) %	0.5	0.5	0.5	0.0	0.5	0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	<b>99.5</b>	<b>103.5</b>	<b>104.0</b>	<b>93.5</b>	<b>96.5</b>	<b>94.5</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:** P231546-4  
**Issue Number:** 1  
**Date Issued:** 22/08/2023  
**Client:** Fraser Property



**Project Number:** P231546  
**Project Name:** Five Farms Stage 23 - Level One  
**Project Location:** Clyde  
**Work Request:** 13177  
**Date Sampled:** 17/08/2023 13:41  
**Dates Tested:** 17/08/2023 - 21/08/2023  
**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:** Five Farms Stage 23 - Level One  
**Material:** CLAY  
**Material Source:** Onsite

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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	P23-13177A	P23-13177B	P23-13177C	P23-13177E
Test Number	10	11	12	14
Date Tested	17/08/2023	17/08/2023	17/08/2023	17/08/2023
Time Tested	13:41	13:44	15:28	15:31
Test Request #/Location	10 Lot 2328	11 Lot 2329	12 Lot 2318	14 Lot 2316
Layer / Reduced Level	Layer 2	Layer 2	Layer 1	Layer 1
Thickness of Layer (mm)	300	300	300	300
Soil Description	CLAY	CLAY	CLAY	CLAY
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>	1.99	1.99	2.06	2.03
Field Moisture Content %	16.5	15.5	18.4	18.2
Field Dry Density (FDD) t/m <sup>3</sup>	1.71	1.73	1.74	1.72
Peak Converted Wet Density t/m <sup>3</sup>	2.02	2.09	2.09	2.11
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	**	16.0
Adj. Field Moisture Content % (AS1289.5.4.1)	16.5	15.5	18.4	18.2
Moisture Ratio % (AS1289.5.4.1)	99.0	98.5	121.5	114.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**
Moisture Variation (Wv) %	0.0	0.5	-3.5	-2.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	<b>98.5</b>	<b>95.5</b>	<b>98.5</b>	<b>96.0</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:** P231546-4  
**Issue Number:** 1  
**Date Issued:** 22/08/2023  
**Client:** Fraser Property



**Project Number:** P231546  
**Project Name:** Five Farms Stage 23 - Level One  
**Project Location:** Clyde  
**Work Request:** 13177  
**Date Sampled:** 17/08/2023 13:41  
**Dates Tested:** 17/08/2023 - 18/08/2023  
**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:** Five Farms Stage 23 - Level One  
**Material:** CLAY  
**Material Source:** Onsite

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Chris Caulfield  
 Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.1.1 & 5.4.1 & 5.8.1 & 2.1.1			
Sample Number	P23-13177D	P23-13177F	
Test Number	13	15	
Date Tested	17/08/2023	17/08/2023	
Time Tested	15:30	15:34	
Test Request #/Location	13 Lot 2317	15 Lot 2315	
Layer / Reduced Level	Layer 1	Layer 1	
Thickness of Layer (mm)	300	300	
Soil Description	CLAY	CLAY	
Test Depth (mm)	275	275	
Fraction Tested (mm)	19.0	19.0	
Oversize (wet basis) %	0	0	
Oversize (dry basis) %	0	0	
Curing Hours	**	**	
Method used to Determine Plasticity	Visual Assessment	Visual Assessment	
Field Wet Density t/m <sup>3</sup>	2.03	2.06	
Field Moisture Content %	21.1	18.8	
Field Dry Density t/m <sup>3</sup>	1.67	1.73	
Maximum Dry Density t/m <sup>3</sup>	1.76	1.79	
Adjusted Maximum Dry Density t/m <sup>3</sup>	**	**	
Optimum Moisture Content (OMC) %	15.0	14.5	
Adjusted Optimum Moisture Content (OMC) %	**	**	
Moisture Variation %	-6.0	-4.0	
Moisture Ratio %	140.0	129.0	
Density Ratio %	<b>95.5</b>	<b>97.0</b>	
Compaction Method	<b>Standard</b>	<b>Standard</b>	

**Moisture Variation Note:**

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

# Material Test Report

**Report Number:** P231546-5  
**Issue Number:** 3 - This version supersedes all previous issues  
**Reissue Reason:**  
**Date Issued:** 23/01/2024  
**Client:** Fraser Property



**Project Number:** P231546  
**Project Name:** Five Farms Stage 23 - Level One  
**Project Location:** Clyde  
**Work Request:** 13210  
**Date Sampled:** 22/08/2023  
**Dates Tested:** 22/08/2023 - 22/08/2023  
**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:** Five Farms Stage 23 - Level One  
**Material:** CLAY  
**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	P23-13210A	P23-13210B	
Test Number	16	17	
Date Tested	22/08/2023	22/08/2023	
Time Tested	**	**	
Test Request #/Location	16 Lot 2330 Retest #9	17 Lot 2332 Retest #7	
Layer / Reduced Level	Final layer	Final layer	
Thickness of Layer (mm)	300	300	
Soil Description	CLAY	CLAY	
Test Depth (mm)	275	275	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	
Field Wet Density (FWD) t/m <sup>3</sup>	2.08	2.03	
Field Moisture Content %	17.6	18.4	
Field Dry Density (FDD) t/m <sup>3</sup>	1.77	1.71	
Peak Converted Wet Density t/m <sup>3</sup>	2.14	2.12	
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	
Adj. Optimum Moisture Content % (AS1289.5.4.1)	17.7	18.2	
Adj. Field Moisture Content % (AS1289.5.4.1)	17.6	18.4	
Moisture Ratio % (AS1289.5.4.1)	99.5	100.5	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	
Moisture Variation (Wv) %	0.0	0.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	<b>97.0</b>	<b>95.5</b>	
Compaction Method	<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:** P231546-6  
**Issue Number:** 1  
**Date Issued:** 30/08/2023  
**Client:** Fraser Property



**Project Number:** P231546  
**Project Name:** Five Farms Stage 23 - Level One  
**Project Location:** Clyde  
**Work Request:** 13217  
**Date Sampled:** 23/08/2023 15:15  
**Dates Tested:** 23/08/2023 - 29/08/2023  
**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:** Five Farms Stage 23 Level One  
**Material:** Sandy silty CLAY  
**Material Source:** Onsite

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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	P23-13217A	P23-13217B	
Test Number	18	19	
Date Tested	23/08/2023	23/08/2023	
Time Tested	**	**	
Test Request #/Location	Lot 2322	Lot 2321	
Layer / Reduced Level	FSL	FSL	
Thickness of Layer (mm)	300	300	
Soil Description	Sandy silty CLAY	Sandy silty CLAY	
Test Depth (mm)	275	275	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	
Field Wet Density (FWD) t/m <sup>3</sup>	2.03	1.96	
Field Moisture Content %	21.4	21.0	
Field Dry Density (FDD) t/m <sup>3</sup>	1.67	1.62	
Peak Converted Wet Density t/m <sup>3</sup>	2.05	2.04	
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	
Adj. Optimum Moisture Content % (AS1289.5.4.1)	19.1	20.3	
Adj. Field Moisture Content % (AS1289.5.4.1)	21.4	21.0	
Moisture Ratio % (AS1289.5.4.1)	112.5	103.0	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	
Moisture Variation (Wv) %	-2.5	-0.5	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	<b>98.5</b>	<b>96.0</b>	
Compaction Method	<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