

## Five Farms Stage 22

# GITA Inspection Verification Report

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**Prepared For:** Fraser Property

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**Report Number** P231374A V1

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**Version Release Date** 14 Jul 2023

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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 22. This work was conducted over the period of 14/03/2023 to 14/07/2023.

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 2201 and 2218 to 2232, bounded by streets Heart Loop. 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 22 010) 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 underlying silt was removed until the clay subgrade was located
- The same depth of clay was then removed to mirror the silt material that was removed

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.

After the silt and clay was removed from the fill area, the materials were blended together to create a 50/50 silty clay blend material and used to fill the blocks.

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 (P231374D1, 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 22 density tests (Hilf method in accordance with 1289 5.7.1) were undertaken with 5 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 22 at Five Farms. For completed fill areas of greater than 300mm, and for works completed between 14/03/2023 and 14/07/2023, 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 22 of Five Farms was observed to be constructed in compliance with the requirements of the Technical Specification.

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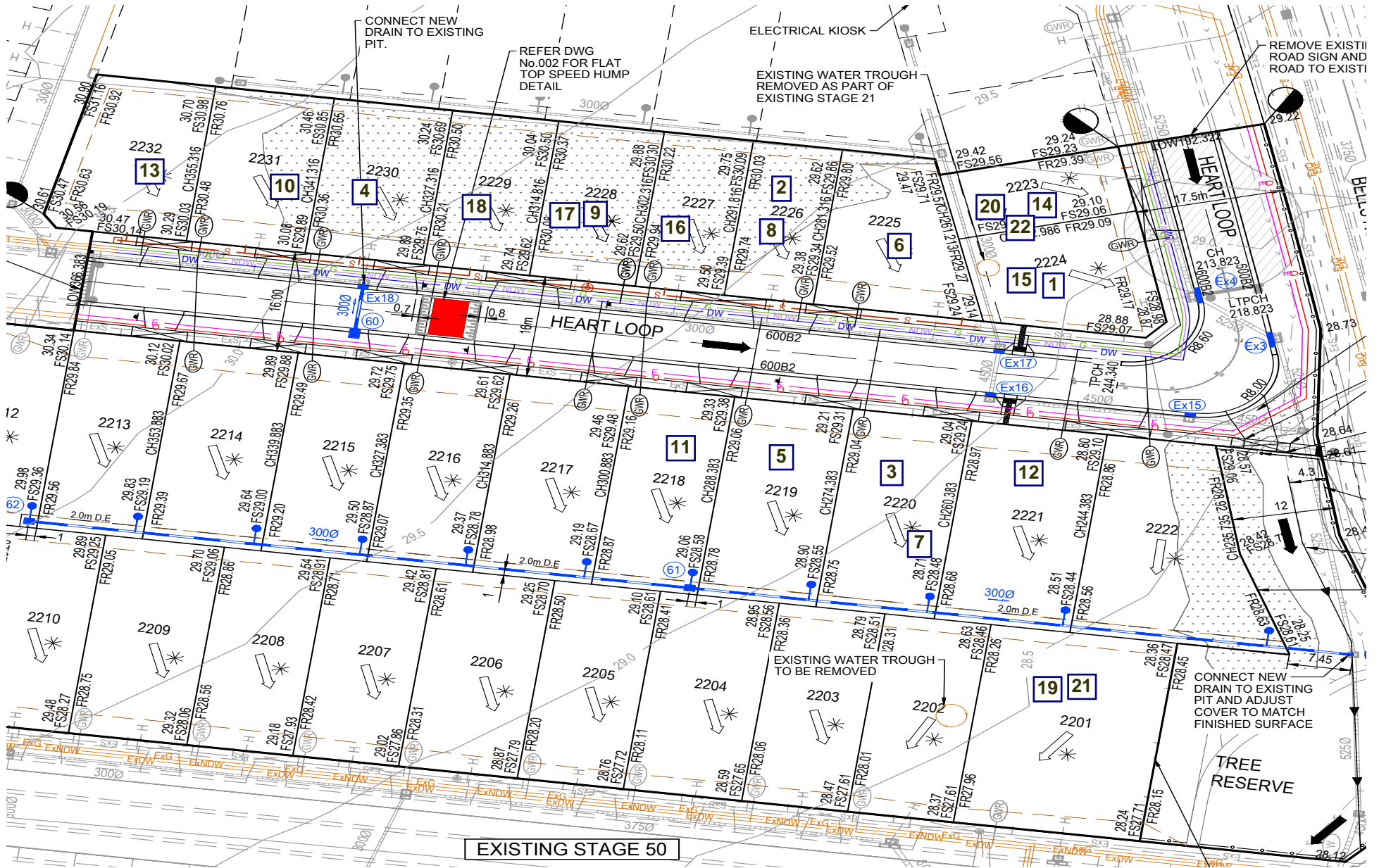
## Appendix 1: Test Location Plan

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

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Our Laboratories  
Pakenham 03 9769 5799  
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### Test Location Plan

not to scale

Client: Fraser Property

Project: Five Farms Stage 22

Reference: P231374 D1





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



## Compaction Test Register

**Client:** Fraser Property  
**Project:** Five Farms Stage 22

**Project No:** P231374  
**Specification:** 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
14/03/2023	1	Layer 1		94.5%	Fail	Lot 2224	P231374-1
15/03/2023	2	Layer 2		96.0%	Pass	Lot 2226	P231374-2
16/03/2023	3	Layer 1		99.5%	Pass	Lot 2220	P231374-3
16/03/2023	4	Layer 3		108.0%	Pass	Lot 2230	P231374-3
16/03/2023	5	Layer 2		97.0%	Pass	Lot 2219	P231374-3
17/03/2023	6	Layer 3		102.0%	Pass	Lot 2225	P231374-4
17/03/2023	7	Layer 2		97.0%	Pass	Lot 2220	P231374-4
18/03/2023	8	Layer 4		95.0%	Pass	Lot 2226	P231374-5
20/03/2023	9	Layer 2		94.0%	Fail	Lot 2228	P231374-6
21/03/2023	10	Layer 3		101.5%	Pass	Lot 2331	P231374-7
22/03/2023	11	Layer 1		97.0%	Pass	Lot 2218	P231374-8
23/03/2023	12	Layer 2		103.5%	Pass	Lot 2221	P231374-9
23/03/2023	13	Layer 4		101.0%	Pass	Lot 2232	P231374-9
27/03/2023	14	FSL		94.0%	Fail	Lot 2223	P231374-10
27/03/2023	15	Layer 1	Test #1	105.0%	Pass	Lot 2224	P231374-10
27/03/2023	16	FSL		97.5%	Pass	Lot 2227	P231374-10
27/03/2023	17	Layer 2	Test #9	96.5%	Pass	Lot 2228	P231374-10
27/03/2023	18	FSL		98.0%	Pass	Lot 2229	P231374-10
5/04/2023	19	Layer 1		93.5%	Fail	Lot 2201	P231374-11
5/04/2023	20	FSL	Test #14	92.0%	Fail	Lot 2223	P231374-11
14/07/2023	21	Layer 1	Test #19	103.0%	Pass	Lot 2201	P231374-12
14/07/2023	22	FSL	Test #20	100.0%	Pass	Lot 2223	P231374-12

# Material Test Report

**Report Number:** P231374-1  
**Issue Number:** 1  
**Date Issued:** 31/03/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 11885  
**Date Sampled:** 14/03/2023 9:00  
**Dates Tested:** 14/03/2023 - 15/03/2023  
**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 22 Level One  
**Material:** Silty CLAY 50/50 Blend  
**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	P23-11885A		
Test Number	1		
Date Tested	14/03/2023		
Time Tested	**		
Test Request #/Location	Lot 2224		
Layer / Reduced Level	Layer 1		
Thickness of Layer (mm)	300		
Soil Description	Silty CLAY 50/50 Blend		
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 %	11.6		
Field Dry Density (FDD) t/m <sup>3</sup>	1.76		
Peak Converted Wet Density t/m <sup>3</sup>	2.08		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	13.1		
Adj. Field Moisture Content % (AS1289.5.4.1)	11.6		
Moisture Ratio % (AS1289.5.4.1)	88.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	1.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	94.5		
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:** P231374-2  
**Issue Number:** 1  
**Date Issued:** 31/03/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 11902  
**Date Sampled:** 15/03/2023 13:00  
**Dates Tested:** 15/03/2023 - 16/03/2023  
**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 22 Level One  
**Material:** Silty CLAY 50/50 Blend  
**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	P23-11902A		
Test Number	2		
Date Tested	15/03/2023		
Time Tested	**		
Test Request #/Location	Lot 2226		
Layer / Reduced Level	Layer 2		
Thickness of Layer (mm)	300		
Soil Description	Silty CLAY 50/50 Blend		
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>	1.97		
Field Moisture Content %	12.9		
Field Dry Density (FDD) t/m <sup>3</sup>	1.75		
Peak Converted Wet Density t/m <sup>3</sup>	2.06		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	14.9		
Adj. Field Moisture Content % (AS1289.5.4.1)	12.9		
Moisture Ratio % (AS1289.5.4.1)	87.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	2.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	<b>96.0</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

# Material Test Report

**Report Number:** P231374-3  
**Issue Number:** 1  
**Date Issued:** 31/03/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 11907  
**Date Sampled:** 16/03/2023 8:45  
**Dates Tested:** 16/03/2023 - 17/03/2023  
**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 22 Level One  
**Material:** Silty CLAY 50/50 Blend  
**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	P23-11907A	P23-11907B	P23-11907C
Test Number	3	4	5
Date Tested	16/03/2023	16/03/2023	16/03/2023
Time Tested	**	**	**
Test Request #/Location	Lot 2220	Lot 2230	Lot 2219
Layer / Reduced Level	Layer 1	Layer 3	Layer 2
Thickness of Layer (mm)	300	300	300
Soil Description	Silty CLAY 50/50 Blend	Silty CLAY 50/50 Blend	Silty CLAY 50/50 Blend
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)	**	**	0
Field Wet Density (FWD) t/m <sup>3</sup>	2.05	2.12	2.06
Field Moisture Content %	12.4	25.4	10.3
Field Dry Density (FDD) t/m <sup>3</sup>	1.82	1.69	1.87
Peak Converted Wet Density t/m <sup>3</sup>	2.06	1.96	2.13
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	12.2
Adj. Field Moisture Content % (AS1289.5.4.1)	12.4	25.4	10.3
Moisture Ratio % (AS1289.5.4.1)	89.0	100.5	84.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	1.5	0.0	2.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	<b>99.5</b>	<b>108.0</b>	<b>97.0</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:** P231374-4  
**Issue Number:** 2 - This version supersedes all previous issues  
**Reissue Reason:** Lot Number Added  
**Date Issued:** 14/07/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Client Reference:** 08817  
**Work Request:** 11924  
**Date Sampled:** 17/03/2023  
**Dates Tested:** 17/03/2023 - 20/03/2023  
**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 22, Clyde - Level One  
**Material:** Silty Clay 50/50 Blend  
**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	P23-11924A	P23-11924B	
Test Number	6	7	
Date Tested	17/03/2023	17/03/2023	
Time Tested	**	**	
Test Request #/Location	Lot No. 2225	Lot No. 2220	
Layer / Reduced Level	Layer 3	Layer 2	
Thickness of Layer (mm)	300	300	
Soil Description	Silty Clay 50/50 Blend	Silty Clay 50/50 Blend	
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)	**	**	
Field Wet Density (FWD) t/m <sup>3</sup>	2.03	2.19	
Field Moisture Content %	24.9	6.2	
Field Dry Density (FDD) t/m <sup>3</sup>	1.63	2.06	
Peak Converted Wet Density t/m <sup>3</sup>	2.00	2.25	
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)	24.9	6.2	
Moisture Ratio % (AS1289.5.4.1)	103.0	86.5	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	
Moisture Variation (Wv) %	-0.5	1.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	<b>102.0</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: P231374-5  
 Issue Number: 1  
 Date Issued: 31/03/2023  
 Client: Fraser Property



Project Number: P231374  
 Project Name: Five Farms Stage 22 Level One  
 Project Location: Clyde  
 Client Reference: 08820  
 Work Request: 11930  
 Date Sampled: 18/03/2023  
 Dates Tested: 18/03/2023 - 20/03/2023  
 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 22 , Clyde - Level One  
 Material: Silty Clay 50/50 Blend  
 Material Source: Onsite

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 Project Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-11930A		
Test Number	8		
Date Tested	18/03/2023		
Time Tested	**		
Test Request #/Location	8 Lot No. 2226		
Layer / Reduced Level	Layer 4		
Thickness of Layer (mm)	300		
Soil Description	Silty 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>	1.88		
Field Moisture Content %	13.1		
Field Dry Density (FDD) t/m <sup>3</sup>	1.66		
Peak Converted Wet Density t/m <sup>3</sup>	1.98		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	16.7		
Adj. Field Moisture Content % (AS1289.5.4.1)	13.1		
Moisture Ratio % (AS1289.5.4.1)	78.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	3.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	<b>95.0</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



# Material Test Report

**Report Number:** P231374-6  
**Issue Number:** 1  
**Date Issued:** 31/03/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 11947  
**Date Sampled:** 20/03/2023 8:45  
**Dates Tested:** 20/03/2023 - 23/03/2023  
**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 22 Level One  
**Material:** Silty CLAY 50/50 Blend  
**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	P23-11947A		
Test Number	9		
Date Tested	20/03/2023		
Time Tested	**		
Test Request #/Location	Lot 2228		
Layer / Reduced Level	Layer 2		
Thickness of Layer (mm)	300		
Soil Description	Silty CLAY 50/50 Blend		
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>	1.92		
Field Moisture Content %	9.7		
Field Dry Density (FDD) t/m <sup>3</sup>	1.75		
Peak Converted Wet Density t/m <sup>3</sup>	2.04		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	12.6		
Adj. Field Moisture Content % (AS1289.5.4.1)	9.7		
Moisture Ratio % (AS1289.5.4.1)	76.5		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	3.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	94.0		
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

**Report Number:** P231374-7  
**Issue Number:** 1  
**Date Issued:** 31/03/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 11960  
**Date Sampled:** 21/03/2023 8:45  
**Dates Tested:** 21/03/2023 - 24/03/2023  
**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 22 Level One  
**Material:** Silty CLAY 50/50 Blend  
**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	P23-11960A		
Test Number	10		
Date Tested	21/03/2023		
Time Tested	**		
Test Request #/Location	Lot 2331		
Layer / Reduced Level	Layer 3		
Thickness of Layer (mm)	300		
Soil Description	Silty Clay 50/50 Blend		
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>	2.06		
Field Moisture Content %	12.8		
Field Dry Density (FDD) t/m <sup>3</sup>	1.83		
Peak Converted Wet Density t/m <sup>3</sup>	2.03		
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	13.8		
Adj. Field Moisture Content % (AS1289.5.4.1)	12.8		
Moisture Ratio % (AS1289.5.4.1)	93.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	1.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	<b>101.5</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

# Material Test Report

**Report Number:** P231374-8  
**Issue Number:** 1  
**Date Issued:** 31/03/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 11978  
**Date Sampled:** 22/03/2023 9:15  
**Dates Tested:** 22/03/2023 - 24/03/2023  
**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 22 Level One  
**Material:** Silty 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	P23-11978A		
Test Number	11		
Date Tested	22/03/2023		
Time Tested	**		
Test Request #/Location	Lot 2218		
Layer / Reduced Level	Layer 1		
Thickness of Layer (mm)	300		
Soil Description	Silty 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>	2.00		
Field Moisture Content %	15.8		
Field Dry Density (FDD) t/m <sup>3</sup>	1.73		
Peak Converted Wet Density t/m <sup>3</sup>	2.06		
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)	15.8		
Moisture Ratio % (AS1289.5.4.1)	90.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	1.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	97.0		
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

**Report Number:** P231374-9  
**Issue Number:** 1  
**Date Issued:** 31/03/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 11993  
**Date Sampled:** 23/03/2023 8:45  
**Dates Tested:** 23/03/2023 - 24/03/2023  
**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 22 Level One  
**Material:** Silty CLAY 50/50 Blend  
**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	P23-11993A	P23-11993B	
Test Number	12	13	
Date Tested	23/03/2023	23/03/2023	
Time Tested	**	**	
Test Request #/Location	Lot 2221	Lot 2232	
Layer / Reduced Level	Layer 2	Layer 4	
Thickness of Layer (mm)	300	300	
Soil Description	Silty CLAY 50/50 Blend	Silty CLAY 50/50 Blend	
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>	2.01	2.08	
Field Moisture Content %	18.5	13.4	
Field Dry Density (FDD) t/m <sup>3</sup>	1.70	1.83	
Peak Converted Wet Density t/m <sup>3</sup>	1.94	2.05	
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.1	15.7	
Adj. Field Moisture Content % (AS1289.5.4.1)	18.5	13.4	
Moisture Ratio % (AS1289.5.4.1)	88.0	85.5	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	
Moisture Variation (Wv) %	2.5	2.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	<b>103.5</b>	<b>101.0</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:** P231374-10  
**Issue Number:** 1  
**Date Issued:** 31/03/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 12036  
**Date Sampled:** 27/03/2023 14:00  
**Dates Tested:** 27/03/2023 - 30/03/2023  
**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 22 Level One  
**Material:** 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	P23-12036A	P23-12036B	P23-12036C	P23-12036D	P23-12036E
Test Number	14	15	16	17	18
Date Tested	27/03/2023	27/03/2023	27/03/2023	27/03/2023	27/03/2023
Time Tested	**	**	**	**	**
Test Request #/Location	Lot 2223	Retest of 1	Lot 2227	Retest of 9	Lot 2229
Layer / Reduced Level	FSL	Layer 1	FSL	Layer 2	FSL
Thickness of Layer (mm)	300	300	300	300	300
Soil Description	Silty CLAY	Silty CLAY	Silty CLAY	Silty CLAY	Silty CLAY
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)	0	0	0	0	0
Field Wet Density (FWD) t/m <sup>3</sup>	1.93	2.15	1.95	1.96	2.05
Field Moisture Content %	11.3	18.3	13.7	12.8	15.4
Field Dry Density (FDD) t/m <sup>3</sup>	1.73	1.81	1.72	1.73	1.77
Peak Converted Wet Density t/m <sup>3</sup>	2.06	2.04	2.00	2.02	2.08
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	13.0	19.7	18.0	15.2	15.0
Adj. Field Moisture Content % (AS1289.5.4.1)	11.3	18.3	13.7	12.8	15.4
Moisture Ratio % (AS1289.5.4.1)	87.0	93.0	76.0	84.5	102.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	**
Moisture Variation (Wv) %	1.5	1.5	4.0	2.5	-0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	<b>94.0</b>	<b>105.0</b>	<b>97.5</b>	<b>96.5</b>	<b>98.0</b>
Compaction Method	<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:** P231374-11  
**Issue Number:** 1  
**Date Issued:** 05/05/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 12117  
**Date Sampled:** 05/04/2023 8:45  
**Dates Tested:** 05/04/2023 - 11/04/2023  
**Sampling Method:** AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted  
**Specification:** 95%  
**Location:** Five Farms Stage 22 - Level One  
**Material:** Silty CLAY  
**Material Source:** Onsite

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Approved Signatory: Janaka Somaratne  
 Lab Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	P23-12117A	P23-12117B	
Test Number	19	20	
Date Tested	05/04/2023	05/04/2023	
Time Tested	**	**	
Test Request #/Location	1 Lot 2201	2 Retest of 14	
Layer / Reduced Level	Layer 1	FSL	
Thickness of Layer (mm)	300	300	
Soil Description	Silty CLAY	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>	1.96	1.86	
Field Moisture Content %	8.6	12.5	
Field Dry Density (FDD) t/m <sup>3</sup>	1.80	1.66	
Peak Converted Wet Density t/m <sup>3</sup>	2.10	2.03	
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	**	**	
Adj. Optimum Moisture Content % (AS1289.5.4.1)	11.4	15.7	
Adj. Field Moisture Content % (AS1289.5.4.1)	8.6	12.5	
Moisture Ratio % (AS1289.5.4.1)	75.5	79.5	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	
Moisture Variation (Wv) %	3.0	3.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	<b>93.5</b>	<b>92.0</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:** P231374-12  
**Issue Number:** 1  
**Date Issued:** 14/07/2023  
**Client:** Fraser Property



**Project Number:** P231374  
**Project Name:** Five Farms Stage 22 Level One  
**Project Location:** Clyde  
**Work Request:** 12837  
**Date Sampled:** 14/07/2023  
**Dates Tested:** 14/07/2023 - 14/07/2023  
**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 22  
**Material:** 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	P23-12837A	P23-12837B	
Test Number	21	22	
Date Tested	14/07/2023	14/07/2023	
Time Tested	10:00	10:15	
Test Request #/Location	Lot 2201 Retest #19	Lot 2223 Retest #20	
Layer / Reduced Level	Layer 1	Layer 1	
Thickness of Layer (mm)	300	300	
Soil Description	Silty Clay	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)	**	**	
Field Wet Density (FWD) t/m <sup>3</sup>	2.05	1.98	
Field Moisture Content %	**	**	
Field Dry Density (FDD) t/m <sup>3</sup>	**	**	
Peak Converted Wet Density t/m <sup>3</sup>	1.99	1.98	
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)	**	**	
Moisture Ratio % (AS1289.5.4.1)	**	**	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	
Moisture Variation (Wv) %	0.0	0.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	<b>103.0</b>	<b>100.0</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