

The Junction Stage 4

GITA Inspection Verification Report

Prepared For: Streetworks Pty Ltd

Report Number P21566A V1

Version Release Date 23 Feb 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 The Junction Stage 4. This work was conducted over the period of 30/03/2021 to 06/02/2023.

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 401 to 433 and lot C, bounded by streets Coral Vine Road, Bandicoot Boulevard and Blue Lily Circuit. 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 Charlton Degg (Drawing Reference: 1432_4/R 04) 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 1500m²), the minimum testing frequency is 1 test per layer per material type per 2500m² or 1 test per 500m³ 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 2500m² 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 300mm 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 300mm 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 (P21566D1, 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 78 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 4 at The Junction. For completed fill areas of greater than 300mm, and for works completed between 30/03/2021 and 06/02/2023, 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 4 of The Junction 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



Your Worksite is Our Laboratory.

Appendix 2: Compaction Test Register and Test Certificates



Compaction Test Register

Client: Streetworks Pty Ltd
Project: The Junction Stage 4

Project No: P21566
Specification: 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
30/03/2021	1	L2		100.0%	Pass	Lot 407	P21566-1
30/03/2021	2	L2		98.0%	Pass	Lot 408	P21566-1
30/03/2021	3	L1		96.0%	Pass	Lot 410	P21566-1
13/04/2022	4	Layer 1		92.5%	Fail	Lot 418	P21566-2
13/04/2022	5	Layer 1		93.0%	Fail	Lot 420	P21566-2
13/04/2022	6	Layer 1		95.0%	Pass	Lot 421	P21566-2
14/04/2022	7	Layer 1	Test #4	99.5%	Pass	Lot 418	P21566-3
14/04/2022	8	Layer 1		97.5%	Pass	Lot 424	P21566-3
14/04/2022	9	Layer 1		95.0%	Pass	Lot 425	P21566-3
28/04/2022	10	Final Layer		99.5%	Pass	Lot 423	P21566-4
28/04/2022	11	Final Layer		96.5%	Pass	Lot 424	P21566-4
28/04/2022	12	Final Layer		97.0%	Pass	Lot 425	P21566-4
29/04/2022	13	Layer 2		96.0%	Pass	Lot 426	P21566-5
29/04/2022	14	Layer 2		97.5%	Pass	Lot 428	P21566-5
29/04/2022	15	Layer 3		97.0%	Pass	Lot 427	P21566-5
2/05/2022	16	Layer 4		97.5%	Pass	Lot 426	P21566-6
2/05/2022	17	Layer 4		97.5%	Pass	Lot 427	P21566-6
2/05/2022	18	Layer 4		96.5%	Pass	Lot 428	P21566-6
6/05/2022	19	Layer 1		97.0%	Pass	Lot 402	P21566-7
6/05/2022	20	Layer 1		97.5%	Pass	Lot 404	P21566-7
6/05/2022	21	Layer 1		99.0%	Pass	Lot 406	P21566-7
8/05/2022	22	F/L		103.0%	Pass	Lot 407	P21566-8
8/05/2022	23	F/L		99.5%	Pass	Lot 405	P21566-8
8/05/2022	24	F/L		104.0%	Pass	Lot 403	P21566-8
8/05/2022	25	F/L		102.5%	Pass	Lot 401	P21566-8
13/05/2022	26	Layer 1		98.0%	Pass	Lot 422	P21566-9
13/05/2022	27	Layer 1		98.5%	Pass	Lot 419	P21566-9
13/05/2022	28	Layer 1	Test #5	98.5%	Pass	Lot 420	P21566-9
13/05/2022	29	Layer 2		98.0%	Pass	Lot 421	P21566-9
13/05/2022	30	Layer 3		97.5%	Pass	Lot 422	P21566-9
16/05/2022	31	Layer 4		97.0%	Pass	Lot 419	P21566-10
16/05/2022	32	Layer 5		98.5%	Pass	Lot 422	P21566-10
16/05/2022	33	Layer 5		97.0%	Pass	Lot 420	P21566-10
20/05/2022	34	Layer 1		97.0%	Pass	Lot 416	P21566-11
20/05/2022	35	Layer 1		95.5%	Pass	Lot 418	P21566-11
20/05/2022	36	Layer 2		98.0%	Pass	Lot 417	P21566-11
20/05/2022	37	Layer 2		97.5%	Pass	Lot 416	P21566-11
20/05/2022	38	Layer 5		95.0%	Pass	Lot 419	P21566-11
20/05/2022	39	Layer 3		93.0%	Fail	Lot 417	P21566-11
23/05/2022	40	Layer 4		96.0%	Pass	Lot 416	P21566-12
23/05/2022	41	Layer 5		96.0%	Pass	Lot 417	P21566-12



Compaction Test Register

Client: Streetworks Pty Ltd
Project: The Junction Stage 4

Project No: P21566
Specification: 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
23/05/2022	42	Layer 5		98.5%	Pass	Lot 418	P21566-12
25/05/2022	43	Layer 3	Test #39	100.5%	Pass	Lot 417	P21566-13
25/05/2022	44	Layer 7		99.0%	Pass	Lot 416	P21566-13
25/05/2022	45	Layer 7		99.0%	Pass	Lot 418	P21566-13
25/05/2022	46	Layer 6		100.0%	Pass	Lot 420	P21566-13
25/05/2022	47	Layer 6		101.5%	Pass	Lot 422	P21566-13
25/05/2022	48	Layer 7		97.0%	Pass	Lot 417	P21566-13
11/10/2022	49	Layer 3		98.0%	Pass	Lot 432	P21566-14
11/10/2022	50	Layer 4		101.5%	Pass	Lot 431	P21566-14
11/10/2022	51	Layer 2		100.0%	Pass	Lot 430	P21566-14
16/12/2022	52	Layer 2		101.0%	Pass	Lot C	P21566-15
16/12/2022	53	Layer 2		102.0%	Pass	Lot 429	P21566-15
16/12/2022	54	FSL		97.5%	Pass	Lot 429	P21566-15
17/12/2022	55	Layer 2		96.0%	Pass	Lot C	P21566-16
17/12/2022	56	Layer 2		94.5%	Fail	Lot C	P21566-16
17/12/2022	57	Layer 2		96.0%	Pass	Lot C	P21566-16
19/12/2022	58	Layer 2	Test #56	98.5%	Pass	Lot C	P21566-17
19/12/2022	59	Layer 3		95.5%	Pass	Lot C	P21566-17
19/12/2022	60	Layer 3		97.5%	Pass	Lot C	P21566-17
20/12/2022	61	Layer 4		97.5%	Pass	Lot C	P21566-18
20/12/2022	62	Layer 4		95.5%	Pass	Lot C	P21566-18
20/12/2022	63	Layer 4		95.0%	Pass	Lot C	P21566-18
13/01/2023	64	Layer 3		99.5%	Pass	Lot C	P21566-19
13/01/2023	65	Layer 4		97.0%	Pass	Lot C	P21566-19
13/01/2023	66	Layer 5		96.0%	Pass	Lot C	P21566-19
20/01/2023	67	Layer 1		100.0%	Pass	Lot 417	P21566-20
20/01/2023	68	Layer 1		94.5%	Fail	Lot 418	P21566-20
20/01/2023	69	Layer 3		102.0%	Pass	Lot 420	P21566-20
1/02/2023	70	Layer 1	Test #68	98.0%	Pass	Lot 418	P21566-21
1/02/2023	71	Layer 3		96.0%	Pass	Lot 412	P21566-21
1/02/2023	72	Layer 1		96.0%	Pass	Lot 413	P21566-21
3/02/2023	73	Layer 2		100.5%	Pass	Lot 412	P21566-22
3/02/2023	74	Layer 1		100.5%	Pass	Lot 414	P21566-22
4/02/2023	75	Layer 2		98.5%	Pass	Lot 414	P21566-23
6/02/2023	76	Layer 2		100.0%	Pass	Lot 413	P21566-24
6/02/2023	77	F/L		95.5%	Pass	Lot 415	P21566-24
6/02/2023	78	F/L		98.5%	Pass	Lot 414	P21566-24

Material Test Report

Report Number: P21566-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 21/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Contact: Phil
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 6093
Work Request: 5689
Date Sampled: 30/03/2021 15:00
Dates Tested: 30/03/2021 - 31/03/2021
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: 45 Craige Road Stage 4 Level One
Material: 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	P21-5689A	P21-5689B	P21-5689C
Test Number	1	2	3
Date Tested	30/03/2021	30/03/2021	30/03/2021
Time Tested	**	**	**
Test Request #/Location	LOT407	LOT408	LOT410
Layer / Reduced Level	L2	L2	L1
Thickness of Layer (mm)	300	300	300
Soil Description	SAND	SAND	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 ³	1.97	1.91	1.89
Field Moisture Content %	7.4	7.5	6.0
Field Dry Density (FDD) t/m ³	1.83	1.78	1.78
Peak Converted Wet Density t/m ³	1.97	1.94	1.97
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	9.4	9.1	9.8
Adj. Field Moisture Content % (AS1289.5.4.1)	7.4	7.5	6.0
Moisture Ratio % (AS1289.5.4.1)	78.5	82.5	61.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	2.0	2.0	4.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	100.0	98.0	96.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-2
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 21/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08153
Work Request: 9117
Date Sampled: 13/04/2022
Dates Tested: 14/04/2022 - 14/04/2022
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: 45 Craige Road Stage 4 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	P22-9117A	P22-9117B	P22-9117C
Test Number	4	5	6
Date Tested	13/04/2022	13/04/2022	13/04/2022
Time Tested	**	**	**
Test Request #/Location	4 Lot 418	5 Lot 420	6 Lot 421
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 ³	1.99	2.00	2.00
Field Moisture Content %	17.7	10.4	11.0
Field Dry Density (FDD) t/m ³	1.69	1.81	1.80
Peak Converted Wet Density t/m ³	2.15	2.16	2.10
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	**
Adj. Field Moisture Content % (AS1289.5.4.1)	17.7	10.4	11.0
Moisture Ratio % (AS1289.5.4.1)	115.0	97.0	98.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-2.5	0.5	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	92.5	93.0	95.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-3
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 21/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08154
Work Request: 9122
Date Sampled: 14/04/2022
Dates Tested: 14/04/2022 - 19/04/2022
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: 45 Craig Rd stage 4- level 1
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	P22-9122A	P22-9122B	P22-9122C
Test Number	7	8	9
Date Tested	14/04/2022	14/04/2022	14/04/2022
Time Tested	**	**	**
Test Request #/Location	Lot 418 Retest #4	8 Lot No. 424	9 Lot No. 425
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 ³	1.98	2.06	2.11
Field Moisture Content %	7.9	12.8	11.9
Field Dry Density (FDD) t/m ³	1.83	1.83	1.89
Peak Converted Wet Density t/m ³	1.99	2.11	2.23
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	**
Adj. Field Moisture Content % (AS1289.5.4.1)	7.9	12.8	11.9
Moisture Ratio % (AS1289.5.4.1)	93.5	96.5	100.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	0.5	0.5	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	99.5	97.5	95.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-4
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 21/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 8352
Work Request: 9198
Date Sampled: 28/04/2022
Dates Tested: 28/04/2022 - 29/04/2022
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: 45 Craig Road Stage 4 Level One
Material: 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	P22-9198A	P22-9198B	P22-9198C
Test Number	10	11	12
Date Tested	28/04/2022	28/04/2022	28/04/2022
Time Tested	**	**	**
Test Request #/Location	Lot 423	Lot 424	Lot 425
Layer / Reduced Level	Final Layer	Final Layer	Final Layer
Thickness of Layer (mm)	300	300	300
Soil Description	SAND	SAND	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 ³	2.06	2.10	2.14
Field Moisture Content %	7.5	8.8	10.6
Field Dry Density (FDD) t/m ³	1.92	1.93	1.94
Peak Converted Wet Density t/m ³	2.07	2.17	2.21
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	5.3	7.4	9.6
Adj. Field Moisture Content % (AS1289.5.4.1)	7.5	8.8	10.6
Moisture Ratio % (AS1289.5.4.1)	141.0	118.5	110.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-2.5	-1.5	-1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	99.5	96.5	97.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-5
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 21/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08035
Work Request: 9215
Date Sampled: 29/04/2022
Dates Tested: 29/04/2022 - 02/05/2022
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: 45 Craig Road Stage 4
Material: 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	P22-9215A	P22-9215B	P22-9215C
Test Number	13	14	15
Date Tested	29/04/2022	29/04/2022	29/04/2022
Time Tested	**	**	**
Test Request #/Location	Lot 426	Lot 428	Lot 427
Layer / Reduced Level	Layer 2	Layer 2	Layer 3
Thickness of Layer (mm)	200	200	200
Soil Description	SAND	SAND	SAND
Test Depth (mm)	175	175	175
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 ³	2.09	2.11	2.11
Field Moisture Content %	11.7	10.7	12.4
Field Dry Density (FDD) t/m ³	1.87	1.91	1.88
Peak Converted Wet Density t/m ³	2.18	2.17	2.17
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	10.7	10.6	11.6
Adj. Field Moisture Content % (AS1289.5.4.1)	11.7	10.7	12.4
Moisture Ratio % (AS1289.5.4.1)	109.5	101.0	107.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-1.0	0.0	-1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	96.0	97.5	97.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-6
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 21/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08036
Work Request: 9232
Date Sampled: 02/05/2022
Dates Tested: 02/05/2022 - 02/05/2022
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: 45 Craig Road
Material: 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

	P22-9232A	P22-9232B	P22-9232C
Sample Number			
Test Number	16	17	18
Date Tested	02/05/2022	02/05/2022	02/05/2022
Time Tested	13:10	13:20	13:30
Test Request #/Location	Lot426	Lot427	Lot428
Layer / Reduced Level	Layer 4	Layer 4	Layer 4
Thickness of Layer (mm)	200	200	200
Soil Description	Sand	Sand	Sand
Test Depth (mm)	175	175	175
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 ³	2.05	1.97	1.95
Field Moisture Content %	11.3	9.8	8.7
Field Dry Density (FDD) t/m ³	1.84	1.80	1.79
Peak Converted Wet Density t/m ³	2.10	2.03	2.02
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	10.5	9.5	9.9
Adj. Field Moisture Content % (AS1289.5.4.1)	11.3	9.8	8.7
Moisture Ratio % (AS1289.5.4.1)	107.0	102.5	88.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-1.0	-0.5	1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	97.5	97.5	96.5
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-7
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 21/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08038
Work Request: 9281
Date Sampled: 06/05/2022
Dates Tested: 06/05/2022 - 09/05/2022
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: 45 Craig Road Stage 4 - Level One
Material: 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

	P22-9281A	P22-9281B	P22-9281C
Sample Number			
Test Number	19	20	21
Date Tested	06/05/2022	06/05/2022	06/05/2022
Time Tested	14:50	15:00	15:10
Test Request #/Location	Lot 402	Lot 404	Lot 406
Layer / Reduced Level	Layer 1	Layer 1	Layer 1
Thickness of Layer (mm)	300	300	300
Soil Description	Sand	Sand	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)	**	0	0
Field Wet Density (FWD) t/m ³	2.06	2.07	2.11
Field Moisture Content %	9.5	9.8	10.0
Field Dry Density (FDD) t/m ³	1.88	1.89	1.92
Peak Converted Wet Density t/m ³	2.12	2.12	2.13
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	9.8	9.7
Adj. Field Moisture Content % (AS1289.5.4.1)	9.5	9.8	10.0
Moisture Ratio % (AS1289.5.4.1)	99.5	101.0	103.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	0.0	0.0	-0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	97.0	97.5	99.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-8
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 07753
Work Request: 9295
Date Sampled: 02/05/2022 9:00
Dates Tested: 09/05/2022 - 10/05/2022
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: 45 Craige Road Stage 4 - Level One Fill
Material: 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	P22-9295A	P22-9295B	P22-9295C	P22-9295D
Test Number	22	23	24	25
Date Tested	08/05/2022	08/05/2022	08/05/2022	08/05/2022
Time Tested	15:30	15:37	15:37	15:37
Test Request #/Location	Lot No 407	Lot No 405	Lot No 403	Lot No 401
Layer / Reduced Level	F/L	F/L	F/L	F/L
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	2	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	**	0	**
Field Wet Density (FWD) t/m ³	2.10	2.09	2.11	2.08
Field Moisture Content %	8.9	10.5	9.2	9.0
Field Dry Density (FDD) t/m ³	1.93	1.90	1.93	1.91
Peak Converted Wet Density t/m ³	2.04	**	2.03	2.03
Adjusted Peak Converted Wet Density t/m ³	**	2.11	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	9.4	10.0	9.6	10.2
Adj. Field Moisture Content % (AS1289.5.4.1)	8.9	10.3	9.2	9.0
Moisture Ratio % (AS1289.5.4.1)	95.0	**	97.0	88.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	102.5	**	**
Moisture Variation (Wv) %	0.5	**	0.5	1.5
Adjusted Moisture Variation %	**	-0.5	**	**
Hilf Density Ratio (%)	103.0	99.5	104.0	102.5
Compaction Method	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**

Moisture Variation Note:

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

Material Test Report


Report Number: P21566-9
Issue Number: 3 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08045
Work Request: 9348
Date Sampled: 13/05/2022
Dates Tested: 13/05/2022 - 16/05/2022
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: 45 Craig Road Stage 4
Material: Sandy 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	P22-9348A		
Test Number	26		
Date Tested	13/05/2022		
Time Tested	**		
Test Request #/Location	Lot 422		
Layer / Reduced Level	Layer 1		
Thickness of Layer (mm)	300		
Soil Description	Sandy 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)	0		
Field Wet Density (FWD) t/m ³	2.11		
Field Moisture Content %	20.9		
Field Dry Density (FDD) t/m ³	1.74		
Peak Converted Wet Density t/m ³	2.15		
Adjusted Peak Converted Wet Density t/m ³	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	18.2		
Adj. Field Moisture Content % (AS1289.5.4.1)	20.9		
Moisture Ratio % (AS1289.5.4.1)	115.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	-2.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	98.0		
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: P21566-9
Issue Number: 3 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08045
Work Request: 9348
Date Sampled: 13/05/2022
Dates Tested: 13/05/2022 - 16/05/2022
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: 45 Craig Road Stage 4
Material: Sandy 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 5.1.1 & 5.4.1 & 5.8.1 & 2.1.1				
Sample Number	P22-9348B	P22-9348C	P22-9348D	P22-9348E
Test Number	27	28	29	30
Date Tested	13/05/2022	13/05/2022	13/05/2022	13/05/2022
Time Tested	**	**	**	**
Test Request #/Location	Lot 419	Lot 420 Retest #5	Lot 421	Lot 422
Layer / Reduced Level	Layer 1	Layer 1	Layer 2	Layer 3
Thickness of Layer (mm)	300	300	300	300
Soil Description	Sandy CLAY	Sandy CLAY	Sandy CLAY	Sandy CLAY
Test Depth (mm)	275	275	275	275
Fraction Tested (mm)	19.0	19.0	19.0	19.0
Oversize (wet basis) %	0	0	0	0
Oversize (dry basis) %	0	0	0	0
Curing Hours	-10.0	2.0	-10.0	2.0
Method used to Determine Plasticity	Visual Assessment	Visual Assessment	Visual Assessment	Visual Assessment
Field Wet Density t/m ³	2.16	2.12	2.09	2.12
Field Moisture Content %	18.1	17.9	16.9	16.4
Field Dry Density t/m ³	1.83	1.80	1.78	1.82
Maximum Dry Density t/m ³	1.86	1.82	1.82	1.87
Adjusted Maximum Dry Density t/m ³	**	**	**	**
Optimum Moisture Content (OMC) %	12.0	14.0	13.5	12.0
Adjusted Optimum Moisture Content (OMC) %	**	**	**	**
Moisture Variation %	-6.0	-4.0	-3.5	-4.5
Moisture Ratio %	147.5	126.5	127.0	135.0
Density Ratio %	98.5	98.5	98.0	97.5
Compaction Method	Standard	Standard	Standard	Standard

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-10
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08047
Work Request: 9364
Date Sampled: 16/05/2022
Dates Tested: 16/05/2022 - 17/05/2022
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: 45 Craig Road Stage 4 Level One
Material: Sandy 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	P22-9364A	P22-9364B	P22-9364C
Test Number	31	32	33
Date Tested	16/05/2022	16/05/2022	16/05/2022
Time Tested	**	**	**
Test Request #/Location	Lot 419	Lot 422	Lot 420
Layer / Reduced Level	Layer 4	Layer 5	Layer 5
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy Clay	Sandy Clay	Sandy Clay
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	0	0
Field Wet Density (FWD) t/m ³	2.08	2.11	2.08
Field Moisture Content %	15.8	15.4	16.9
Field Dry Density (FDD) t/m ³	1.80	1.83	1.78
Peak Converted Wet Density t/m ³	2.15	2.14	2.14
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	13.5	14.7	14.5
Adj. Field Moisture Content % (AS1289.5.4.1)	15.8	15.4	16.9
Moisture Ratio % (AS1289.5.4.1)	117.5	104.5	116.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-2.5	-0.5	-2.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	97.0	98.5	97.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-11
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08049
Work Request: 9420
Date Sampled: 20/05/2022
Dates Tested: 20/05/2022 - 20/05/2022
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: 45 Craig Road Stage 4 Level One
Material: Sandy 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	P22-9420A	P22-9420C	P22-9420D	P22-9420E
Test Number	34	36	37	38
Date Tested	20/05/2022	20/05/2022	20/05/2022	20/05/2022
Time Tested	**	**	**	**
Test Request #/Location	Lot 416	Lot 417	Lot 416	Lot 419
Layer / Reduced Level	Layer 1	Layer 2	Layer 2	Layer 5
Thickness of Layer (mm)	300	300	300	300
Soil Description	Sandy Clay	Sandy Clay	Sandy Clay	Sandy 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)	0	0	0	0
Field Wet Density (FWD) t/m ³	2.04	2.05	2.02	1.98
Field Moisture Content %	24.6	17.5	19.7	22.6
Field Dry Density (FDD) t/m ³	1.64	1.74	1.68	1.62
Peak Converted Wet Density t/m ³	2.11	2.09	2.07	2.09
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	19.6	14.7	16.3	17.6
Adj. Field Moisture Content % (AS1289.5.4.1)	24.6	17.5	19.7	22.6
Moisture Ratio % (AS1289.5.4.1)	125.5	119.0	121.0	128.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**
Moisture Variation (Wv) %	-5.0	-3.0	-3.5	-5.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	97.0	98.0	97.5	95.0
Compaction Method	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-11
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08049
Work Request: 9420
Date Sampled: 20/05/2022
Dates Tested: 20/05/2022 - 20/05/2022
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: 45 Craig Road Stage 4 Level One
Material: Sandy 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 5.1.1 & 5.4.1 & 5.8.1 & 2.1.1

	P22-9420B	P22-9420F	
Sample Number	P22-9420B	P22-9420F	
Test Number	35	39	
Date Tested	20/05/2022	20/05/2022	
Time Tested	**	**	
Test Request #/Location	Lot 418	Lot 417	
Layer / Reduced Level	Layer 1	Layer 3	
Thickness of Layer (mm)	300	300	
Soil Description	Sandy Clay	Sandy 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	**	
Field Wet Density t/m ³	1.97	2.00	
Field Moisture Content %	22.9	26.4	
Field Dry Density t/m ³	1.60	1.58	
Maximum Dry Density t/m ³	1.67	1.70	
Adjusted Maximum Dry Density t/m ³	**	**	
Optimum Moisture Content (OMC) %	17.5	17.0	
Adjusted Optimum Moisture Content (OMC) %	**	**	
Moisture Variation %	-5.0	-9.5	
Moisture Ratio %	129.0	156.5	
Density Ratio %	95.5	93.0	
Compaction Method	Standard	Standard	

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-12
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 06534
Work Request: 9465
Date Sampled: 23/05/2022
Dates Tested: 23/05/2022 - 24/05/2022
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: 45 Craig Road Stage 4 Level One
Material: Sandy 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	P22-9465A	P22-9465B	P22-9465C
Test Number	40	41	42
Date Tested	23/05/2022	23/05/2022	23/05/2022
Time Tested	14:50	14:58	15:06
Test Request #/Location	Lot 416	Lot 417	Lot 418
Layer / Reduced Level	Layer 4	Layer 5	Layer 5
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy Clay	Sandy Clay	Sandy Clay
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 ³	2.08	2.06	2.14
Field Moisture Content %	12.6	12.0	13.7
Field Dry Density (FDD) t/m ³	1.85	1.84	1.88
Peak Converted Wet Density t/m ³	2.16	2.14	2.17
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	**	**	**
Adj. Field Moisture Content % (AS1289.5.4.1)	12.6	12.0	13.7
Moisture Ratio % (AS1289.5.4.1)	106.0	102.5	115.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-0.5	-0.5	-2.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	96.0	96.0	98.5
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report


Report Number: P21566-13
Issue Number: 3 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 06536
Work Request: 9496
Date Sampled: 25/05/2022
Dates Tested: 25/05/2022 - 30/05/2022
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: 45 Craig Road Level One
Material: Sandy 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	P22-9496A	P22-9496B	P22-9496C	P22-9496D	P22-9496E	P22-9496F
Test Number	43	44	45	46	47	48
Date Tested	25/05/2022	25/05/2022	25/05/2022	25/05/2022	25/05/2022	25/05/2022
Time Tested	12:55	13:00	13:10	13:20	13:30	13:50
Test Request #/Location	Lot 417 Retest #39	Lot 416	Lot 418	Lot 420	Lot 422	Lot 417
Layer / Reduced Level	Layer 3	Layer 7	Layer 7	Layer 6	Layer 6	Layer 7
Thickness of Layer (mm)	300	300	300	300	300	300
Soil Description	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Sandy 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 ³	2.21	2.12	2.16	2.15	2.18	2.12
Field Moisture Content %	23.4	15.8	13.1	12.0	12.5	13.0
Field Dry Density (FDD) t/m ³	1.79	1.83	1.91	1.92	1.93	1.87
Peak Converted Wet Density t/m ³	2.19	2.13	2.18	2.15	2.15	2.18
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.8	14.2	11.4	11.4	12.0	12.4
Adj. Field Moisture Content % (AS1289.5.4.1)	23.4	15.8	13.1	12.0	12.5	13.0
Moisture Ratio % (AS1289.5.4.1)	107.5	111.5	115.0	105.5	105.0	105.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	**	**
Moisture Variation (Wv) %	-1.5	-1.5	-1.5	-0.5	-0.5	-0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	100.5	99.0	99.0	100.0	101.5	97.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-14
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 8751
Work Request: 10575
Date Sampled: 11/10/2022 10:00
Dates Tested: 11/10/2022 - 14/10/2022
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: 45 Craig Road Stage 4
Material: 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	P22-10575A	P22-10575B	P22-10575C
Test Number	49	50	51
Date Tested	11/10/2022	11/10/2022	11/10/2022
Time Tested	**	**	**
Test Request #/Location	Lot 432	Lot 431	Lot 430
Layer / Reduced Level	Layer 3	Layer 4	Layer 2
Thickness of Layer (mm)	300	300	300
Soil Description	SAND	SAND	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 ³	2.09	2.08	2.11
Field Moisture Content %	10.3	8.8	10.2
Field Dry Density (FDD) t/m ³	1.89	1.92	1.92
Peak Converted Wet Density t/m ³	2.13	2.05	2.11
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	9.7	8.2	9.2
Adj. Field Moisture Content % (AS1289.5.4.1)	10.3	8.8	10.2
Moisture Ratio % (AS1289.5.4.1)	106.0	107.5	110.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-0.5	-0.5	-1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	98.0	101.5	100.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-15
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 6569
Work Request: 11124
Date Sampled: 16/12/2022 9:30
Dates Tested: 16/12/2022 - 19/12/2022
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: 45 Craig Road Stage 4 Level One
Material: Silty 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	P22-11124A	P22-11124B	P22-11124C
Test Number	52	53	54
Date Tested	16/12/2022	16/12/2022	16/12/2022
Time Tested	11:39	14:08	14:10
Test Request #/Location	Lot C	Lot 429	Lot 429
Layer / Reduced Level	Layer 2	Layer 2	FSL
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy silty CLAY	Silty SAND	Silty 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)	0	0	0
Field Wet Density (FWD) t/m ³	2.20	2.17	2.04
Field Moisture Content %	15.3	9.2	8.7
Field Dry Density (FDD) t/m ³	1.91	1.98	1.88
Peak Converted Wet Density t/m ³	2.18	2.12	2.09
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	12.4	9.4	10.4
Adj. Field Moisture Content % (AS1289.5.4.1)	15.3	9.2	8.7
Moisture Ratio % (AS1289.5.4.1)	123.5	97.5	84.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-3.0	0.0	1.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	101.0	102.0	97.5
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-16
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Work Request: 11129
Date Sampled: 17/12/2022
Dates Tested: 17/12/2022 - 19/12/2022
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: 45 Craige Road Stage 4 Level One
Material: CLAY
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	P22-11129A	P22-11129B	P22-11129C
Test Number	55	56	57
Date Tested	17/12/2022	17/12/2022	17/12/2022
Time Tested	**	**	**
Test Request #/Location	Lot C	Lot C	Lot C
Layer / Reduced Level	Layer 2	Layer 2	Layer 2
Thickness of Layer (mm)	300	300	300
Soil Description	CLAY	CLAY	CLAY
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	0	0
Field Wet Density (FWD) t/m ³	2.05	2.05	2.11
Field Moisture Content %	14.3	13.3	15.9
Field Dry Density (FDD) t/m ³	1.80	1.81	1.82
Peak Converted Wet Density t/m ³	2.14	2.17	2.19
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	12.0	12.1	12.6
Adj. Field Moisture Content % (AS1289.5.4.1)	14.3	13.3	15.9
Moisture Ratio % (AS1289.5.4.1)	119.0	110.0	126.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-2.5	-1.0	-3.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	96.0	94.5	96.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-17
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 06570
Work Request: 11138
Date Sampled: 19/12/2022 9:30
Dates Tested: 19/12/2022 - 20/12/2022
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: 45 Craig Road 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	P22-11138A	P22-11138B	P22-11138C
Test Number	58	59	60
Date Tested	19/12/2022	19/12/2022	19/12/2022
Time Tested	14:30	14:30	14:30
Test Request #/Location	Lot C Retest #56	Lot C	Lot C
Layer / Reduced Level	Layer 2	Layer 3	Layer 3
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy silty CLAY	Sandy silty CLAY	Sandy silty CLAY
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	0	0
Field Wet Density (FWD) t/m ³	2.13	2.12	2.12
Field Moisture Content %	16.0	16.3	15.4
Field Dry Density (FDD) t/m ³	1.84	1.82	1.83
Peak Converted Wet Density t/m ³	2.16	2.22	2.17
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	12.9	13.6	13.8
Adj. Field Moisture Content % (AS1289.5.4.1)	16.0	16.3	15.4
Moisture Ratio % (AS1289.5.4.1)	124.0	119.5	111.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-3.0	-2.5	-1.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	98.5	95.5	97.5
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report


Report Number: P21566-18
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 06571
Work Request: 11156
Date Sampled: 20/12/2022 8:30
Dates Tested: 20/12/2022 - 21/12/2022
Sampling Method: AS 1289.1.3.1 3.1.4 (b) - Open-drive samplers - piston samplers - floating type
Specification: 95%
Site Selection: Selected by Client
Location: 45 Craig Road Stage 4 Level One
Material: Silty 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	P22-11156A	P22-11156B	
Test Number	61	62	
Date Tested	20/12/2022	20/12/2022	
Time Tested	02:15	02:15	
Test Request #/Location	Lot C	Lot C	
Layer / Reduced Level	Layer 4	Layer 4	
Thickness of Layer (mm)	300	300	
Soil Description	Silty SAND	Silty SAND	
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	
Field Wet Density (FWD) t/m ³	1.90	1.78	
Field Moisture Content %	7.1	5.5	
Field Dry Density (FDD) t/m ³	1.78	1.69	
Peak Converted Wet Density t/m ³	1.95	1.87	
Adjusted Peak Converted Wet Density t/m ³	**	**	
Adj. Optimum Moisture Content % (AS1289.5.4.1)	11.3	10.6	
Adj. Field Moisture Content % (AS1289.5.4.1)	7.1	5.5	
Moisture Ratio % (AS1289.5.4.1)	62.5	52.0	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	
Moisture Variation (Wv) %	4.5	5.5	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	97.5	95.5	
Compaction Method	Standard	Standard	
Report Remarks	**	**	

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-18
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 06571
Work Request: 11156
Date Sampled: 20/12/2022 8:30
Dates Tested: 20/12/2022 - 21/12/2022
Sampling Method: AS 1289.1.3.1 3.1.4 (b) - Open-drive samplers - piston samplers - floating type
Specification: 95%
Site Selection: Selected by Client
Location: 45 Craig Road Stage 4 Level One
Material: Silty 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 5.1.1 & 5.4.1 & 5.8.1 & 2.1.1

Sample Number	P22-11156C		
Test Number	63		
Date Tested	20/12/2022		
Time Tested	02:15		
Test Request #/Location	Lot C		
Layer / Reduced Level	Layer 4		
Thickness of Layer (mm)	300		
Soil Description	Silty SAND		
Test Depth (mm)	275		
Fraction Tested (mm)	19.0		
Oversize (wet basis) %	0		
Oversize (dry basis) %	0		
Curing Hours	**		
Method used to Determine Plasticity	Visual Assessment		
Field Wet Density t/m ³	1.79		
Field Moisture Content %	5.7		
Field Dry Density t/m ³	1.69		
Maximum Dry Density t/m ³	1.78		
Adjusted Maximum Dry Density t/m ³	**		
Optimum Moisture Content (OMC) %	11.5		
Adjusted Optimum Moisture Content (OMC) %	**		
Moisture Variation %	5.5		
Moisture Ratio %	50.0		
Density Ratio %	95.0		
Compaction Method	Standard		

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report

Report Number: P21566-19
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 07841
Work Request: 11229
Date Sampled: 13/01/2023 9:00
Dates Tested: 13/01/2023 - 17/01/2023
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: 45 Craig Road Stage 4 - 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	P23-11229A	P23-11229B	P23-11229C
Test Number	64	65	66
Date Tested	13/01/2023	13/01/2023	13/01/2023
Time Tested	09:30	15:00	15:00
Test Request #/Location	Lot C	Lot C	Lot C
Layer / Reduced Level	Layer 3	Layer 4	Layer 5
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy silty CLAY	Sandy silty CLAY	Sandy silty CLAY
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	0	0
Field Wet Density (FWD) t/m ³	2.09	2.12	2.10
Field Moisture Content %	8.8	12.7	10.2
Field Dry Density (FDD) t/m ³	1.92	1.88	1.90
Peak Converted Wet Density t/m ³	2.11	2.19	2.18
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	10.9	10.8	10.4
Adj. Field Moisture Content % (AS1289.5.4.1)	8.8	12.7	10.2
Moisture Ratio % (AS1289.5.4.1)	81.0	117.5	97.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	2.0	-2.0	0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	99.5	97.0	96.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-20
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 8573
Work Request: 11320
Date Sampled: 20/01/2023
Dates Tested: 23/01/2023 - 24/01/2023
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: 45 Craig Road Stage 4 Level One - Retests
Material: Sandy 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	P23-11320A	P23-11320B	P23-11320C
Test Number	67	68	69
Date Tested	20/01/2023	20/01/2023	20/01/2023
Time Tested	**	**	**
Test Request #/Location	Lot 417	Lot 418	Lot 420
Layer / Reduced Level	Layer 1	Layer 1	Layer 3
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy CLAY	Sandy CLAY	Sandy CLAY
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	0	0
Field Wet Density (FWD) t/m ³	2.15	2.04	2.18
Field Moisture Content %	9.1	11.2	9.4
Field Dry Density (FDD) t/m ³	1.97	1.83	2.00
Peak Converted Wet Density t/m ³	2.15	2.16	2.14
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	9.9	11.5	10.1
Adj. Field Moisture Content % (AS1289.5.4.1)	9.1	11.2	9.4
Moisture Ratio % (AS1289.5.4.1)	92.0	97.5	93.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	1.0	0.5	0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	100.0	94.5	102.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-21
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 06594
Work Request: 11407
Date Sampled: 01/02/2023 14:45
Dates Tested: 01/02/2023 - 02/02/2023
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: 45 Craig Road Stage 4 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	P23-11407A	P23-11407B	P23-11407C
Test Number	70	71	72
Date Tested	01/02/2023	01/02/2023	01/02/2023
Time Tested	**	**	**
Test Request #/Location	Lot 418 Retest #68	Lot 412	Lot 413
Layer / Reduced Level	Layer 1	Layer 3	Layer 1
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy silty CLAY	Sandy silty CLAY	Sandy silty CLAY
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	**	**
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	**	**
Field Wet Density (FWD) t/m ³	2.14	2.10	2.07
Field Moisture Content %	12.9	10.9	10.0
Field Dry Density (FDD) t/m ³	1.89	1.89	1.88
Peak Converted Wet Density t/m ³	2.18	2.18	2.15
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	11.9	**	**
Adj. Field Moisture Content % (AS1289.5.4.1)	12.9	**	**
Moisture Ratio % (AS1289.5.4.1)	108.5	96.5	92.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	-1.0	0.5	1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	98.0	96.0	96.0
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-22
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Work Request: 11439
Date Sampled: 03/02/2023 8:30
Dates Tested: 03/02/2023 - 06/02/2023
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: 45 Craig Road Stage 4 Level One
Material: Sandy silty CLAY
Material Source: Imported



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	P23-11439A	P23-11439B	
Test Number	73	74	
Date Tested	03/02/2023	03/02/2023	
Time Tested	**	**	
Test Request #/Location	1 Lot 412	2 Lot 414	
Layer / Reduced Level	Layer 2	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 ³	2.21	2.19	
Field Moisture Content %	13.6	12.7	
Field Dry Density (FDD) t/m ³	1.94	1.95	
Peak Converted Wet Density t/m ³	2.20	2.18	
Adjusted Peak Converted Wet Density t/m ³	**	**	
Adj. Optimum Moisture Content % (AS1289.5.4.1)	13.2	11.6	
Adj. Field Moisture Content % (AS1289.5.4.1)	13.6	12.7	
Moisture Ratio % (AS1289.5.4.1)	103.0	109.5	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	
Moisture Variation (Wv) %	-0.5	-1.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	100.5	100.5	
Compaction Method	Standard	Standard	
Report Remarks	**	**	

Moisture Variation Note:

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

Material Test Report

Report Number: P21566-23
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08804
Work Request: 11441
Date Sampled: 04/02/2023 12:58
Dates Tested: 04/02/2023 - 06/02/2023
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: 45 Craig Road Junction Village - Level One
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	P23-11441A		
Test Number	75		
Date Tested	04/02/2023		
Time Tested	12:58		
Test Request #/Location	1 Lot 414		
Layer / Reduced Level	Layer 2		
Thickness of Layer (mm)	300		
Soil Description	Sandy 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)	0		
Field Wet Density (FWD) t/m ³	2.19		
Field Moisture Content %	11.0		
Field Dry Density (FDD) t/m ³	1.97		
Peak Converted Wet Density t/m ³	2.22		
Adjusted Peak Converted Wet Density t/m ³	**		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	9.4		
Adj. Field Moisture Content % (AS1289.5.4.1)	11.0		
Moisture Ratio % (AS1289.5.4.1)	117.0		
Adjusted Moisture Ratio % (AS1289.5.4.1)	**		
Moisture Variation (Wv) %	-1.5		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	98.5		
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: P21566-24
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 23/02/2023
Client: Street Works Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: P21566
Project Name: 45 Craig Road Stage 4 Level One
Project Location: Junction Village
Client Reference: 08805
Work Request: 11458
Date Sampled: 06/02/2023 8:41
Dates Tested: 07/02/2023 - 07/02/2023
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: 45 Craig Road Stage 4 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	P23-11458A	P23-11458B	P23-11458C
Test Number	76	77	78
Date Tested	06/02/2023	06/02/2023	06/02/2023
Time Tested	07:34	08:30	08:49
Test Request #/Location	1 Lot No. 413	2 Lot No. 415	3 Lot No. 414
Layer / Reduced Level	Layer 2	F/L	F/L
Thickness of Layer (mm)	300	300	300
Soil Description	Sandy silty CLAY	Sandy silty CLAY	Sandy silty CLAY
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	4	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	0
Field Wet Density (FWD) t/m ³	2.18	2.17	2.19
Field Moisture Content %	11.3	10.3	-0.5
Field Dry Density (FDD) t/m ³	1.96	1.98	2.20
Peak Converted Wet Density t/m ³	2.18	**	2.23
Adjusted Peak Converted Wet Density t/m ³	**	2.27	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	11.5	9.7	-2.3
Adj. Field Moisture Content % (AS1289.5.4.1)	11.3	9.8	-0.5
Moisture Ratio % (AS1289.5.4.1)	99.0	**	19.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	101.5	**
Moisture Variation (Wv) %	0.0	**	-2.0
Adjusted Moisture Variation %	**	-0.5	**
Hilf Density Ratio (%)	100.0	95.5	98.5
Compaction Method	Standard	Standard	Standard
Report Remarks	**	**	**

Moisture Variation Note:

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