

Acacia Estate Stage 10

GITA Inspection Verification Report

Prepared For: Streetworks PtyLtd

Report Number 10543A V4

Version Release Date 20 April 2020

Report Released By C Caulfield

Title Project Manager

Signature



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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 Acacia Estate Stage 10. This work was conducted over the period of 25/09/18 to 29/10/18, 1 day of fill on the 2/04/2019, with a further test taken on 1/07/2019 and 24/02/2020.

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 1001 through to 1010, 1012, 1016 through to 1024, 1026, 1028 through to 1032. The site will be a residential estate.

The area on which fill was placed is shown on site plan (Appendix 1: *Test Location Plan*) based on drawings prepared by GPR Consulting, drawing reference 0055-10-R02 and provided by *Streetworks Pty Ltd* (updated plans received on 20/04/2020).

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.

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3 Construction Method

3.1 Subgrade Preparation

At the time of subgrade inspection the following was observed:

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

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

3.2 Fill Placement

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

All fill was placed in layers of thicknesses not exceeding 300mm. At the completion of a placed layer, compaction testing was performed to confirm appropriate compaction had been achieved and supported the observations made. It should be noted that the compaction tests are representative samples of the fill placed and support the visual assessment of the works completed. Each house lot does not necessarily require a compaction test to have been conducted within the house allotment but may have been verified by testing conducted within up to a 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 fill 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 fill 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 (10543D1, 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 28 density tests (Hilf method in accordance with 1289 5.7.1) were undertaken. 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 10 at Acacia Estate. For completed fill areas of greater than 300mm, and for works completed between 25/09/18 to 29/10/18, on the 2/04/2019, on the 1/07/2019 and on the 24/02/2020, 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 10 of Acacia Estate was observed to be constructed in compliance with the requirements of the Technical Specification.



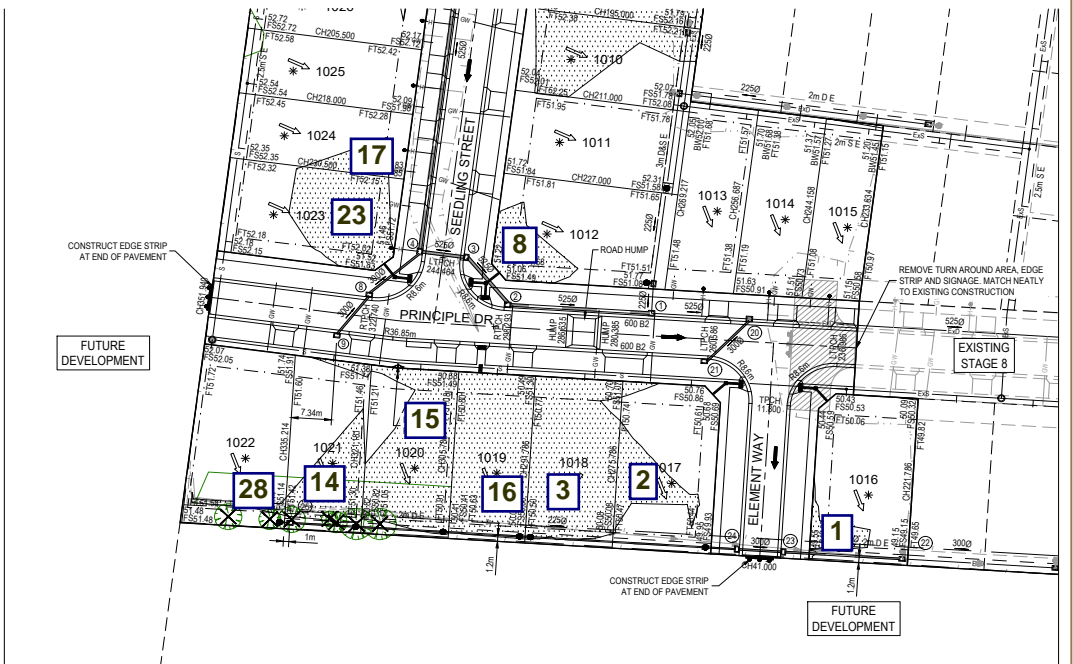
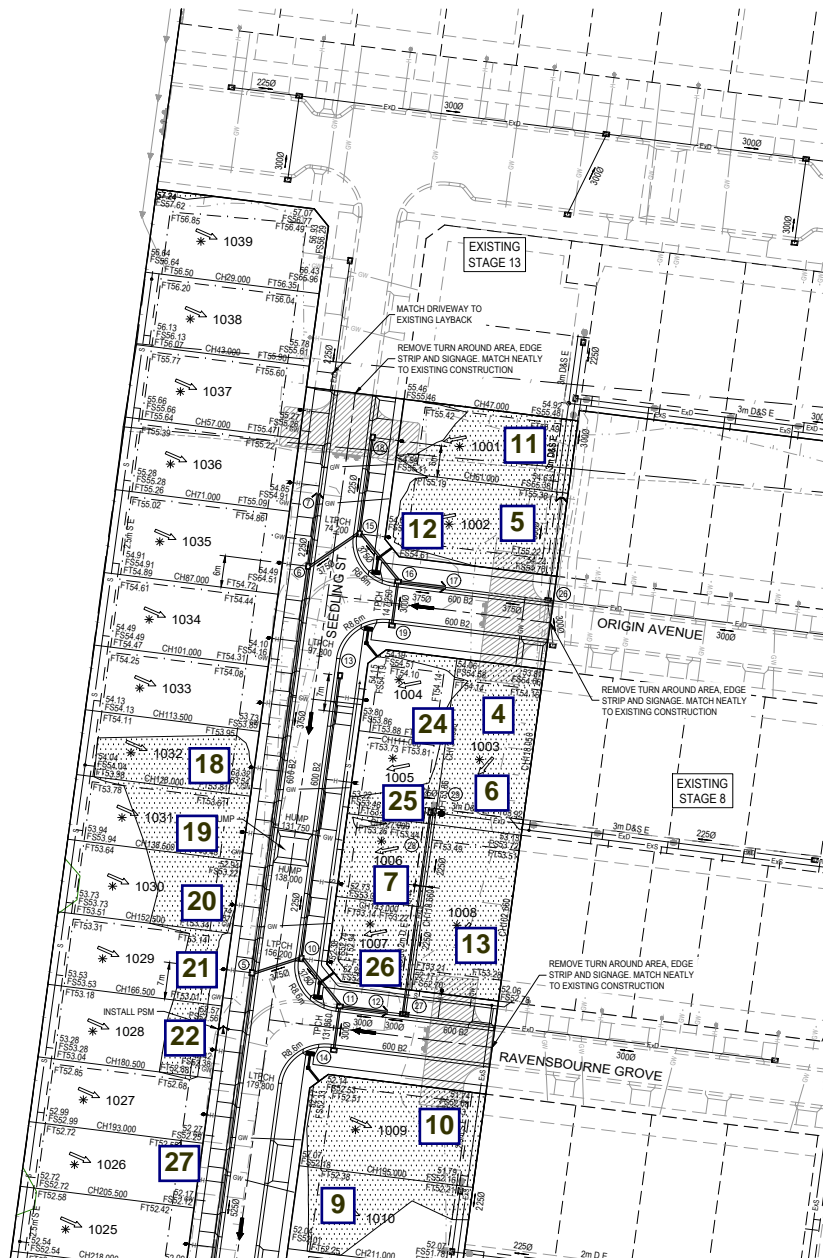
Your Worksite is Our Laboratory.

Appendix 1: Test Location Plan

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Pakenham, VIC 3810

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

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Page 1 of 2



SERVICES OFFSET SCHEDULE									
STREET NAME	ROAD RESERVE	BACK OF KERB	SEWER	GAS	NON DRINKING WATER	DRINKING WATER	COMMUNICATIONS	ELECTRICITY	LIGHT POLES
ELEMENT WAY	18.00	5.20	-	2.10 W	2.60 W	3.10 W	1.85 E	2.60 E	4.40 E
ORIGIN AVENUE	18.00	5.20	-	2.10 N	2.60 N	3.10 N	1.85 S	2.60 S	4.30 S
PRINCIPLE DRIVE (LOT 1015 TO 1012)	18.00	5.20	1.00 S	2.10 N	2.60 N	3.10 N	1.85 S	2.60 S	4.30 S
PRINCIPLE DRIVE (LOT 1023)	18.00	5.20	1.00 S	2.00 N	2.50 N	3.00 N	1.85 S	2.60 S	4.30 S
RAVENSBOROUGH GROVE	18.00	5.20	-	2.10 N	2.60 N	3.10 N	1.85 S	2.60 S	4.30 S
SEEDING STREET	18.00	5.20	-	2.10 W	2.60 W	3.10 W	1.85 E	2.60 E	4.40 E

NOTE: EXISTING DRAINAGE
REMOVE EXISTING 2250 DRAIN AND TWO JUNCTION PITS BETWEEN PITS 27 AND 28.

NOTE: OPEN DRAINS
EXISTING OPEN DRAINS TO BE EXCAVATED TO A SOUND BASE AND FILLED AS SPECIFIED.

NOTE: HOUSE DRAINS
1. DRAINAGE CONNECTIONS TO LOTS 1003, 1008, 1011 TO 1015 & 1037 TO BE CONNECTED TO EXISTING DRAINAGE.
2. HOUSE DRAIN TO LOT 1006 IS TO BE OFFSET 2.5m FROM SIDE BOUNDARY.
3. HOUSE DRAINS TO LOTS 1004, 1005 & 1014 ARE TO BE OFFSET 6.0m FROM SIDE BOUNDARY.

NOTE: TREES
EXISTING TREE TO BE REMOVED

WARNING
BEWARE OF UNDERGROUND SERVICES
The locations of underground services are approximate only and their exact position should be proven on site.
No guarantee is given that all existing services are shown.
Locate all underground services before commencement of works.
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Our Laboratories
Pakenham 03 9769 5799
Deer Park 03 8348 5596
Bibra Lake 08 9395 7220

Test Location Plan

not to scale

Client: Streetworks Pty Ltd

Project: Acacia Stage 10 V3

Reference: 10543 D1



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Appendix 2: Compaction Test Register and Test Certificates



Compaction Test Register

Client: Streetworks Pty Ltd **Project No:** 10543
Project: Acacia Estate Stage 10 **Specification:** 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
24/09/2018	1	Layer 1		96.5	Pass	Lot 1016	10543-1
26/09/2018	2	Layer 1		96.5	Pass	Lot 1017	10543-2
26/09/2018	3	Layer 1		97.5	Pass	Lot 1018	10543-2
26/09/2018	4	Layer 1		98.5	Pass	Lot 1003	10543-2
27/09/2018	5	Layer 1		103	Pass	Lot 1002	10543-3
27/09/2018	6	Layer 2		103	Pass	Lot 1003	10543-3
27/09/2018	7	Layer 2		98.5	Pass	Lot 1006	10543-3
1/10/2018	8	Layer 1		102.5	Pass	Lot 1012	10543-4
1/10/2018	9	Layer 1		100	Pass	Lot 1010	10543-4
1/10/2018	10	Layer 1		100.5	Pass	Lot 1009	10543-4
1/10/2018	11	Layer 1		100.5	Pass	Lot 1011	10543-4
1/10/2018	12	Layer 1		100	Pass	Lot 1002	10543-4
29/10/2018	13	FSL		102.5	Pass	Lot 1008	10543-5
29/10/2018	14	FSL		103	Pass	Lot 1021	10543-5
29/10/2018	15	FSL		98	Pass	Lot 1020	10543-5
29/10/2018	16	FSL		102.5	Pass	Lot 1019	10543-5
2/04/2019	17	Layer 1		101	Pass	Lot 1024	10543-6
2/04/2019	18	Layer 1		95	Pass	Lot 1032	10543-6
2/04/2019	19	Layer 1		96.5	Pass	Lot 1031	10543-6
2/04/2019	20	Layer 1		100.5	Pass	Lot 1030	10543-6
2/04/2019	21	Layer 1		101	Pass	Lot 1029	10543-6
2/04/2019	22	Layer 1		100	Pass	Lot 1028	10543-6
2/04/2019	23	Layer 2		101.5	Pass	Lot 1023	10543-6
2/04/2019	24	Layer 2		101.5	Pass	Lot 1006	10543-6
2/04/2019	25	Layer 2		100.5	Pass	Lot 1005	10543-6
2/04/2019	26	Layer 2		104.5	Pass	Lot 1007	10543-6
1/07/2019	27	Layer 1		96.5	Pass	Lot 1026	10543-7
24/02/2020	28	Layer 1		98.5	Pass	Lot 1022	10543-8

Material Test Report

Report Number: 10543-1
Issue Number: 7 - This version supersedes all previous issues
Reissue Reason: drawings updated- lot number changed
Date Issued: 20/04/2020
Client: Streetworks Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: 10543
Project Name: Acacia Stage 10
Project Location: Cranbourne
Client Reference: 05855
Work Request: 203
Date Sampled: 24/09/2018 15:30
Dates Tested: 25/09/2018 - 26/09/2018
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Material: Mudstone



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	P18-203B				
Test Number	1				
Date Tested	24/09/2018				
Time Tested	15:30				
Test Request #/Location	Lot 1016				
Chainage (m)	**				
Location Offset (m)	**				
Layer / Reduced Level	Layer 1				
Thickness of Layer (mm)	300				
Soil Description	Mudstone				
Test Depth (mm)	275				
Sieve used to determine oversize (mm)	19.0				
Percentage of Wet Oversize (%)	0.0				
Field Wet Density (FWD) t/m ³	1.96				
Field Moisture Content %	18.6				
Field Dry Density (FDD) t/m ³	1.65				
Peak Converted Wet Density t/m ³	2.03				
Adjusted Peak Converted Wet Density t/m ³	**				
Moisture Ratio % (AS 1289.5.4.1)	104.5				
Adjusted Moisture Ratio % (AS 1289.5.4.1)	**				
Moisture Variation (Wv) %	-1.0				
Adjusted Moisture Variation %	**				
Hilf Density Ratio (%)	96.5				
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: 10543-2
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: drawings updated- lot numbers changed
Date Issued: 20/04/2020
Client: Streetworks Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: 10543
Project Name: Acacia Stage 10
Project Location: Cranbourne
Client Reference: 05268
Work Request: 223
Date Sampled: 26/09/2018 15:15
Dates Tested: 26/09/2018 - 27/09/2018
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Material: Silty Clay



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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	P18-223A	P18-223B	P18-223C			
Test Number	2	3	4			
Date Tested	26/09/2018	26/09/2018	26/09/2018			
Time Tested	15:10	15:10	15:10			
Test Request #/Location	Lot 1017	Lot 1018	Lot 1003			
Chainage (m)	**	**	**			
Location Offset (m)	**	**	**			
Layer / Reduced Level	Layer 1	Layer 1	Layer 1			
Thickness of Layer (mm)	300	300	300			
Soil Description	Silty Clay	Silty Clay	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	0.0	0.0			
Field Wet Density (FWD) t/m ³	1.94	1.94	1.94			
Field Moisture Content %	22.7	21.5	22.4			
Field Dry Density (FDD) t/m ³	1.58	1.60	1.59			
Peak Converted Wet Density t/m ³	2.00	1.99	1.98			
Adjusted Peak Converted Wet Density t/m ³	**	**	**			
Moisture Ratio % (AS 1289.5.4.1)	104.5	105.5	100.0			
Adjusted Moisture Ratio % (AS 1289.5.4.1)	**	**	**			
Moisture Variation (Wv) %	-1.0	-1.0	0.0			
Adjusted Moisture Variation %	**	**	**			
Hilf Density Ratio (%)	96.5	97.5	98.5			
Compaction Method	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: 10543-3
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: drawings updated- lot number changed
Date Issued: 20/04/2020
Client: Streetworks Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: 10543
Project Name: Acacia Stage 10
Project Location: Cranbourne
Client Reference: 05271
Work Request: 232
Date Sampled: 27/09/2018 15:30
Dates Tested: 27/09/2018 - 01/10/2018
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Material: Silty Clay



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NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	P18-232A	P18-232B	P18-232C			
Test Number	5	6	7			
Date Tested	27/09/2018	27/09/2018	27/09/2018			
Time Tested	15:30	15:30	15:30			
Test Request #/Location	Lot 1002	Lot 1003	Lot 1006			
Chainage (m)	**	**	**			
Location Offset (m)	**	**	**			
Layer / Reduced Level	Layer 1	Layer 2	Layer 2			
Thickness of Layer (mm)	300	300	300			
Soil Description	silty Clay	silty Clay	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	0.0	0.0			
Field Wet Density (FWD) t/m ³	2.05	2.06	1.94			
Field Moisture Content %	26.3	28.1	27.6			
Field Dry Density (FDD) t/m ³	1.62	1.61	1.52			
Peak Converted Wet Density t/m ³	1.98	1.99	1.96			
Adjusted Peak Converted Wet Density t/m ³	**	**	**			
Moisture Ratio % (AS 1289.5.4.1)	104.0	101.5	110.5			
Adjusted Moisture Ratio % (AS 1289.5.4.1)	**	**	**			
Moisture Variation (Wv) %	-1.0	-0.5	-2.5			
Adjusted Moisture Variation %	**	**	**			
Hilf Density Ratio (%)	103.0	103.0	98.5			
Compaction Method	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: 10543-4
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: drawings updated- lot numbers changed
Date Issued: 20/04/2020
Client: Streetworks Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: 10543
Project Name: Acacia Stage 10
Project Location: Cranbourne
Client Reference: 2790 and 2792
Work Request: 248
Date Sampled: 01/10/2018
Dates Tested: 01/10/2018 - 02/10/2018
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Material: Mudstone



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NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	P18-248A	P18-248B	P18-248C	P18-248D	P18-248E	
Test Number	8	9	10	11	12	
Date Tested	01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018	
Time Tested	14:03	14:30	14:30	14:30	14:30	
Test Request #/Location	Lot 1012	Lot 1010	Lot 1009	Lot 1001	Lot 1002	
Chainage (m)	**	**	**	**	**	
Location Offset (m)	**	**	**	**	**	
Layer / Reduced Level	Layer 1	Layer 1	Layer 1	Layer 1	Layer 1	
Thickness of Layer (mm)	300	300	300	300	300	
Soil Description	Mudstone	Mudstone	Mudstone	Mudstone	Mudstone	
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	0.0	0.0	0.0	
Field Wet Density (FWD) t/m ³	2.06	2.04	2.05	1.95	1.94	
Field Moisture Content %	18.4	22.6	21.9	26.5	24.2	
Field Dry Density (FDD) t/m ³	1.74	1.66	1.68	1.54	1.56	
Peak Converted Wet Density t/m ³	2.02	2.03	2.04	1.94	1.94	
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	
Moisture Ratio % (AS 1289.5.4.1)	102.0	110.0	111.0	107.5	103.0	
Adjusted Moisture Ratio % (AS 1289.5.4.1)	**	**	**	**	**	
Moisture Variation (Wv) %	-0.5	-2.0	-2.0	-2.0	-0.5	
Adjusted Moisture Variation %	**	**	**	**	**	
Hilf Density Ratio (%)	102.5	100.0	100.5	100.5	100.0	
Compaction Method	Standard	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: 10543-5
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: drawings updated - lot numbers changed
Date Issued: 20/04/2020
Client: Streetworks Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: 10543
Project Name: Acacia Stage 10
Project Location: Cranbourne
Client Reference: 5877
Work Request: 481
Date Sampled: 29/10/2018 15:15
Dates Tested: 30/10/2018 - 01/11/2018
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Material: Mudstone
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	P18-481A	P18-481B	P18-481C	P18-481D		
Test Number	13	14	15	16		
Date Tested	29/10/2018	29/10/2018	29/10/2018	29/10/2018		
Time Tested	15:15	15:15	15:15	15:15		
Test Request #/Location	1008	1021	1020	1019		
Chainage (m)	**	**	**	**		
Location Offset (m)	**	**	**	**		
Layer / Reduced Level	FSL	FSL	FSL	FSL		
Thickness of Layer (mm)	300	300	300	300		
Soil Description	Mudstone	Mudstone	Mudstone	Mudstone		
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	0.0	0.0		
Field Wet Density (FWD) t/m ³	2.02	2.09	1.83	1.98		
Field Moisture Content %	14.2	11.9	15.3	15.9		
Field Dry Density (FDD) t/m ³	1.77	1.87	1.59	1.71		
Peak Converted Wet Density t/m ³	1.97	2.03	1.87	1.94		
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**		
Moisture Ratio % (AS 1289.5.4.1)	87.0	78.0	75.5	85.0		
Adjusted Moisture Ratio % (AS 1289.5.4.1)	**	**	**	**		
Moisture Variation (Wv) %	2.0	3.5	5.0	3.0		
Adjusted Moisture Variation %	**	**	**	**		
Hilf Density Ratio (%)	102.5	103.0	98.0	102.5		
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: 10543-6
Issue Number: 3 - This version supersedes all previous issues
Reissue Reason: drawings updated - lot numbers changed
Date Issued: 20/04/2020
Client: Streetworks Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: 10543
Project Name: Acacia Stage 10
Project Location: Cranbourne
Client Reference: 5705
Work Request: 1562
Date Sampled: 02/04/2019
Dates Tested: 02/04/2019 - 03/04/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
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	P19-1562A	P19-1562B	P19-1562C	P19-1562D	P19-1562E	P19-1562F
Test Number	17	18	19	20	21	22
Date Tested	02/04/2019	02/04/2019	02/04/2019	02/04/2019	02/04/2019	02/04/2019
Time Tested	09:00	11:30	11:30	11:30	11:30	11:30
Test Request #/Location	Lot 1024	Lot 1032	Lot 1031	Lot 1030	Lot 1029	Lot 1028
Chainage (m)	**	**	**	**	**	**
Location Offset (m)	**	**	**	**	**	**
Layer / Reduced Level	Layer 1	Layer 1	Layer 1	Layer 1	Layer 1	Layer 1
Thickness of Layer (mm)	225	225	225	225	225	225
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay
Test Depth (mm)	200	200	200	200	200	200
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	0.0
Field Wet Density (FWD) t/m ³	1.98	2.00	2.00	2.05	1.99	1.99
Field Moisture Content %	18.5	21.9	21.3	24.1	22.4	22.0
Field Dry Density (FDD) t/m ³	1.67	1.64	1.65	1.65	1.62	1.63
Peak Converted Wet Density t/m ³	1.96	2.10	2.07	2.04	1.97	2.00
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Ratio % (AS 1289.5.4.1)	90.0	116.5	108.0	104.0	101.5	98.0
Adjusted Moisture Ratio % (AS 1289.5.4.1)	**	**	**	**	**	**
Moisture Variation (Wv) %	2.0	-3.0	-1.5	-1.0	-0.5	0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	101.0	95.0	96.5	100.5	101.0	100.0
Compaction Method	Standard	Standard	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: 10543-6
Issue Number: 3 - This version supersedes all previous issues
Reissue Reason: drawings updated - lot numbers changed
Date Issued: 20/04/2020
Client: Streetworks Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: 10543
Project Name: Acacia Stage 10
Project Location: Cranbourne
Client Reference: 5705
Work Request: 1562
Date Sampled: 02/04/2019
Dates Tested: 02/04/2019 - 03/04/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Material: Silty Clay
Material Source: Onsite



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Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	P19-1562G	P19-1562H	P19-1562I	P19-1562J	
Test Number	23	24	25	26	
Date Tested	02/04/2019	02/04/2019	02/04/2019	02/04/2019	
Time Tested	02:45	03:00	03:00	03:00	
Test Request #/Location	Lot 1023	Lot 1004	Lot 1005	Lot 1007	
Chainage (m)	**	**	**	**	
Location Offset (m)	**	**	**	**	
Layer / Reduced Level	Layer 2	Layer 2	Layer 2	Layer 2	
Thickness of Layer (mm)	225	300	300	300	
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	
Test Depth (mm)	200	275	275	275	
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	
Percentage of Wet Oversize (%)	**	**	**	0.0	
Field Wet Density (FWD) t/m ³	2.03	1.96	2.02	1.96	
Field Moisture Content %	16.1	16.7	19.4	16.4	
Field Dry Density (FDD) t/m ³	1.75	1.68	1.70	1.68	
Peak Converted Wet Density t/m ³	2.01	1.93	2.01	1.87	
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	
Moisture Ratio % (AS 1289.5.4.1)	88.0	79.0	90.0	77.0	
Adjusted Moisture Ratio % (AS 1289.5.4.1)	**	**	**	**	
Moisture Variation (Wv) %	2.0	4.5	2.0	5.0	
Adjusted Moisture Variation %	**	**	**	**	
Hilf Density Ratio (%)	101.5	101.5	100.5	104.5	
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: 10543-7
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: drawings updated - lot number changed
Date Issued: 20/04/2020
Client: Streetworks Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: 10543
Project Name: Acacia Stage 10
Project Location: Cranbourne
Work Request: 2004
Date Sampled: 01/07/2019
Dates Tested: 01/07/2019 - 03/07/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Material: gravelly silty clay
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	P19-2004A					
Test Number	27					
Date Tested	01/07/2019					
Time Tested	14:40					
Test Request #/Location	Lot 1026					
Chainage (m)	**					
Location Offset (m)	**					
Layer / Reduced Level	Layer 1					
Thickness of Layer (mm)	300					
Soil Description	Gravelly Silty Clay					
Test Depth (mm)	275					
Sieve used to determine oversize (mm)	19.0					
Percentage of Wet Oversize (%)	4.3					
Field Wet Density (FWD) t/m ³	2.00					
Field Moisture Content %	18.0					
Field Dry Density (FDD) t/m ³	1.70					
Peak Converted Wet Density t/m ³	**					
Adjusted Peak Converted Wet Density t/m ³	2.07					
Moisture Ratio % (AS 1289.5.4.1)	**					
Adjusted Moisture Ratio % (AS 1289.5.4.1)	103.0					
Moisture Variation (Wv) %	**					
Adjusted Moisture Variation %	0.0					
Hilf Density Ratio (%)	96.5					
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: 10543-8
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason: drawings updated - lot numbers changed
Date Issued: 20/04/2020
Client: Streetworks Pty Ltd
 45 Commercial Drive, Pakenham Vic 3810
Project Number: 10543
Project Name: Acacia Stage 10
Project Location: Cranbourne
Work Request: 3228
Date Sampled: 24/02/2020 11:00
Dates Tested: 24/02/2020 - 24/02/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95%
Material: Silty Clay
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	P20-3228A		
Test Number	28		
Date Tested	24/02/2020		
Time Tested	11:00		
Test Request #/Location	Lot 1022		
Chainage (m)	**		
Location Offset (m)	**		
Layer / Reduced Level	Layer 1		
Thickness of Layer (mm)	200		
Soil Description	Silty Clay		
Test Depth (mm)	175		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	**		
Field Wet Density (FWD) t/m ³	1.98		
Field Moisture Content %	18.8		
Field Dry Density (FDD) t/m ³	1.66		
Peak Converted Wet Density t/m ³	2.01		
Adjusted Peak Converted Wet Density t/m ³	**		
Moisture Ratio % (AS 1289.5.4.1)	99.0		
Adjusted Moisture Ratio % (AS 1289.5.4.1)	**		
Moisture Variation (Wv) %	0.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	98.5		
Compaction Method	Standard		

Moisture Variation Note:

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