

Opalia Estate Stage 7

GITA Inspection Verification Report

Prepared For: Lojac Civil Pty Ltd

Report Number D21672A V1

Version Release Date 31 Mar 2022

Report Released By C Caulfield

Title Project Manager

Signature



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1 Introduction

Terra Firma Laboratories was engaged by Lojac Civil Pty Ltd as the Geotechnical Inspection and Testing Authority (GITA) to provide Level 1 supervision and testing works on the earthworks component for Opalia Estate Stage 7. This work was conducted over the period of 07/09/2021 to 03/02/2022.

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 701 through to 756, bounded by streets Metroon Drive and Gansha Street. 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 Breese Pitt Dixon Pty Ltd (Drawing Reference: 6751 E/7R) and provided by Lojac Civil 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 Lojac Civil 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 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

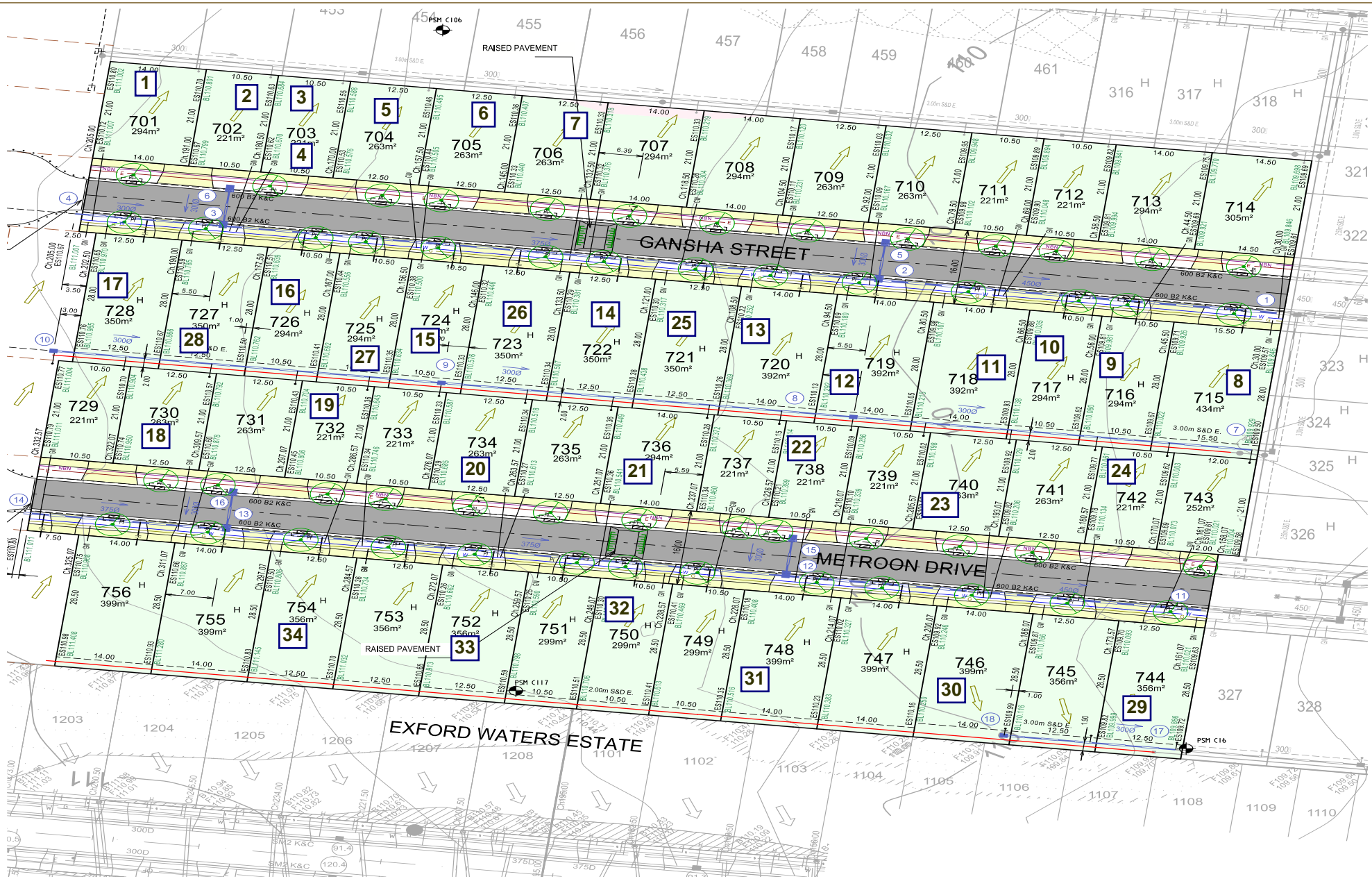
plan (D21672D1, Appendix 1) providing a schematic of test locations across the extent of scope of works for every placed layer of fill is also documented.

A total of 34 density tests (Hilf method in accordance with 1289 5.7.1) were undertaken with 0 failed results. 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 7 at Opalia Estate. For completed fill areas of greater than 300mm, and for works completed between 07/09/2021 and 03/02/2022, 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 7 of Opalia Estate was observed to be constructed in compliance with the requirements of the Technical Specification.

Appendix 1: Test Location Plan



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47 National Ave
Pakenham, VIC 3810

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

Test Location Plan

not to scale

Client: Lojac Civil Pty Ltd

Project: Opalia Estate, Stage 7

Reference: D21672 D1

Appendix 2: Compaction Test Register and Test Certificates



Compaction Test Register

Client: Lojac Civil Pty Ltd
Project: Opalia Estate Stage 7

Project No: D21672
Specification: 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
7/09/2021	1	Layer 1		104.5%	Pass	Lot 701	D21672-1
7/09/2021	2	Layer 1		104.0%	Pass	Lot 702	D21672-1
7/09/2021	3	Layer 1		104.0%	Pass	Lot 703	D21672-1
7/09/2021	4	Layer 1		102.0%	Pass	Lot 703	D21672-1
7/09/2021	5	Layer 1		102.5%	Pass	Lot 704	D21672-1
7/09/2021	6	Layer 1		104.0%	Pass	Lot 705	D21672-1
7/09/2021	7	Layer 1		102.0%	Pass	Lot 706	D21672-1
20/01/2022	8	Layer 1		96.0%	Pass	Lot 715	D21672-2
20/01/2022	9	Layer 1		99.5%	Pass	Lot 716	D21672-2
20/01/2022	10	Layer 1		99.5%	Pass	Lot 717	D21672-2
20/01/2022	11	Layer 1		100.5%	Pass	Lot 718	D21672-2
20/01/2022	12	Layer 1		104.5%	Pass	Lot 719	D21672-2
20/01/2022	13	Layer 1		105.0%	Pass	Lot 720	D21672-2
21/01/2022	14	Layer 1		99.0%	Pass	Lot 722	D21672-3
21/01/2022	15	Layer 1		100.5%	Pass	Lot 724	D21672-3
21/01/2022	16	Layer 1		103.0%	Pass	Lot 726	D21672-3
21/01/2022	17	Layer 1		101.0%	Pass	Lot 728	D21672-3
21/01/2022	18	Layer 1		103.0%	Pass	Lot 730	D21672-3
21/01/2022	19	Layer 1		103.5%	Pass	Lot 732	D21672-3
21/01/2022	20	Layer 1		101.5%	Pass	Lot 734	D21672-3
21/01/2022	21	Layer 1		97.0%	Pass	Lot 736	D21672-3
21/01/2022	22	Layer 1		104.0%	Pass	Lot 738	D21672-3
21/01/2022	23	Layer 1		98.5%	Pass	Lot 740	D21672-3
21/01/2022	24	Layer 1		103.5%	Pass	Lot 742	D21672-3
24/01/2022	25	Layer 2		103.5%	Pass	Lot 721	D21672-4
24/01/2022	26	Layer 2		100.0%	Pass	Lot 723	D21672-4
24/01/2022	27	Layer 2		104.5%	Pass	Lot 725	D21672-4
24/01/2022	28	Layer 2		100.0%	Pass	Lot 727	D21672-4
3/02/2022	29	Layer 1		100.0%	Pass	Lot 744	D21672-5
3/02/2022	30	Layer 1		96.5%	Pass	Lot 746	D21672-5
3/02/2022	31	Layer 1		99.5%	Pass	Lot 748	D21672-5
3/02/2022	32	Layer 1		99.0%	Pass	Lot 750	D21672-5
3/02/2022	33	Layer 1		97.5%	Pass	Lot 752	D21672-5
3/02/2022	34	Layer 1		100.5%	Pass	Lot 754	D21672-5

Material Test Report

Report Number: D21672-1
Issue Number: 1
Date Issued: 09/09/2021
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D21672
Project Name: Opalia estate stage 7 - Level one
Project Location: Melton South
Client Reference: Eski
Work Request: 3705
Date Sampled: 07/09/2021 2:00
Dates Tested: 07/09/2021 - 08/09/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Opalia estate stage 7 - Level one
Material: Silty Clay
Material Source: On site



Deer Park Laboratory
 Factory 1 80-82 Rebecca Drive Ravenhall VIC 3023
 Phone: 0435 751 756
 Email: ehippola@terrafirmalabs.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Eranda Hippola
 Snr lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D21-3705A	D21-3705B	D21-3705C	D21-3705D
Test Number	1	2	3	4
Date Tested	07/09/2021	07/09/2021	07/09/2021	07/09/2021
Time Tested	14:01	14:00	14:00	14:00
Test Request #/Location	LOT 701	LOT 702	LOT 703	LOT 703
Layer / Reduced Level	Layer 1	Layer 1	Layer 1	Layer 1
Thickness of Layer (mm)	300	300	300	300
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty 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
Field Wet Density (FWD) t/m ³	2.12	2.11	2.12	2.10
Field Moisture Content %	22.0	21.4	21.5	21.3
Field Dry Density (FDD) t/m ³	1.73	1.74	1.75	1.73
Peak Converted Wet Density t/m ³	2.02	2.03	2.04	2.06
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	2.0	2.5	2.5	2.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	104.5	104.0	104.0	102.0
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: D21672-1
Issue Number: 1
Date Issued: 09/09/2021
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D21672
Project Name: Opalia estate stage 7 - Level one
Project Location: Melton South
Client Reference: Eski
Work Request: 3705
Date Sampled: 07/09/2021 2:00
Dates Tested: 07/09/2021 - 08/09/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Opalia estate stage 7 - Level one
Material: Silty Clay
Material Source: On site



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 Snr lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D21-3705E	D21-3705F	D21-3705G	
Test Number	5	6	7	
Date Tested	07/09/2021	07/09/2021	07/09/2021	
Time Tested	14:00	14:00	14:00	
Test Request #/Location	LOT 704	LOT705	LOT 706	
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	
Field Wet Density (FWD) t/m ³	2.11	2.13	2.10	
Field Moisture Content %	20.1	20.9	18.9	
Field Dry Density (FDD) t/m ³	1.75	1.76	1.77	
Peak Converted Wet Density t/m ³	2.06	2.05	2.06	
Adjusted Peak Converted Wet Density t/m ³	**	**	**	
Moisture Variation (Wv) %	2.0	2.5	2.5	
Adjusted Moisture Variation %	**	**	**	
Hilf Density Ratio (%)	102.5	104.0	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: D21672-2
Issue Number: 1
Date Issued: 24/01/2022
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D21672
Project Name: Opalia estate stage 7 - Level one
Project Location: Melton South
Work Request: 4151
Date Sampled: 20/01/2022
Dates Tested: 20/01/2022 - 21/01/2022
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Opalia Estate stage 7
Material: Clay
Material Source: On Site



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Approved Signatory: Eranda Hippola
 Laboratory Manager
 NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D22-4151A	D22-4151B	D22-4151C	D22-4151D	D22-4151E	D22-4151F
Test Number	8	9	10	11	12	13
Date Tested	20/01/2022	20/01/2022	20/01/2022	20/01/2022	20/01/2022	20/01/2022
Time Tested	13:11	13:11	13:11	13:12	13:12	13:12
Test Request #/Location	Lot 715	Lot 716	Lot 717	Lot 718	Lot 719	Lot 720
Layer / Reduced Level	Layer 1	Layer 1	Layer 1	Layer 1	Layer 1	Layer 1
Thickness of Layer (mm)	300	300	300	300	300	300
Soil Description	Clay	Clay	Clay	Clay	Clay	Clay
Test Depth (mm)	275	275	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	9	7
Field Wet Density (FWD) t/m ³	1.71	1.79	1.79	1.82	2.04	2.05
Field Moisture Content %	17.4	18.7	19.1	18.9	17.3	22.4
Field Dry Density (FDD) t/m ³	1.46	1.51	1.51	1.53	1.74	1.67
Peak Converted Wet Density t/m ³	1.78	1.80	1.80	1.81	**	**
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	1.95	1.95
Moisture Variation (Wv) %	0.0	0.5	-0.5	-1.0	**	**
Adjusted Moisture Variation %	**	**	**	**	1.0	1.0
Hilf Density Ratio (%)	96.0	99.5	99.5	100.5	104.5	105.0
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: D21672-3
Issue Number: 1
Date Issued: 25/01/2022
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D21672
Project Name: Opalia estate stage 7 - Level one
Project Location: Melton South
Work Request: 4159
Date Sampled: 21/01/2022 15:30
Dates Tested: 21/01/2022 - 25/01/2022
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Opalia Estate stage 7- Level One
Material: Clay
Material Source: On Site



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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Eranda Hippola
 Laboratory Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D22-4159A	D22-4159B	D22-4159C	D22-4159D	D22-4159E	D22-4159F
Test Number	14	15	16	17	18	19
Date Tested	21/01/2022	21/01/2022	21/01/2022	21/01/2022	21/01/2022	21/01/2022
Time Tested	10:00	10:15	10:30	10:45	11:00	11:15
Test Request #/Location	Lot 722	Lot 724	Lot 726	Lot 728	Lot 730	Lot 732
Layer / Reduced Level	Layer 01	Layer 01	Layer 01	Layer 01	Layer 01	Layer 01
Thickness of Layer (mm)	300	300	300	300	300	300
Soil Description	Clay	Clay	Clay	Clay	Clay	Clay
Test Depth (mm)	275	275	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	5	0	0	5
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	**	0	0	**
Field Wet Density (FWD) t/m ³	1.86	1.89	1.97	1.90	1.93	2.00
Field Moisture Content %	17.2	17.6	17.9	17.6	17.2	**
Field Dry Density (FDD) t/m ³	1.59	1.61	1.69	1.62	1.64	**
Peak Converted Wet Density t/m ³	1.88	1.88	**	1.88	1.87	**
Adjusted Peak Converted Wet Density t/m ³	**	**	1.92	**	**	1.93
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.6	21.8	19.2	22.4	21.7	16.5
Adj. Field Moisture Content % (AS1289.5.4.1)	17.2	17.6	17.0	17.6	17.2	**
Moisture Ratio % (AS1289.5.4.1)	79.5	81.0	**	78.5	79.5	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	88.5	**	**	85.0
Moisture Variation (Wv) %	4.5	4.0	**	4.5	4.5	**
Adjusted Moisture Variation %	**	**	2.0	**	**	2.5
Hilf Density Ratio (%)	99.0	100.5	103.0	101.0	103.0	103.5
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: D21672-3
Issue Number: 1
Date Issued: 25/01/2022
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D21672
Project Name: Opalia estate stage 7 - Level one
Project Location: Melton South
Work Request: 4159
Date Sampled: 21/01/2022 15:30
Dates Tested: 21/01/2022 - 25/01/2022
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Opalia Estate stage 7- Level One
Material: Clay
Material Source: On Site



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Approved Signatory: Eranda Hippola
 Laboratory Manager
 NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D22-4159G	D22-4159H	D22-4159I	D22-4159J	D22-4159K	
Test Number	20	21	22	23	24	
Date Tested	21/01/2022	21/01/2022	21/01/2022	21/01/2022	21/01/2022	
Time Tested	11:30	11:15	12:00	12:15	12:30	
Test Request #/Location	Lot 734	Lot 736	Lot 738	Lot 740	Lot 742	
Layer / Reduced Level	Layer 01	Layer 01	Layer 01	Layer 01	Layer 01	
Thickness of Layer (mm)	300	300	300	300	300	
Soil Description	Clay	Clay	Clay	Clay	Clay	
Test Depth (mm)	275	275	275	275	275	
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	7	0	6	
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	**	**	**	
Field Wet Density (FWD) t/m ³	1.88	1.80	1.98	1.84	2.00	
Field Moisture Content %	18.1	17.7	18.1	**	18.1	
Field Dry Density (FDD) t/m ³	1.60	1.53	1.69	**	1.71	
Peak Converted Wet Density t/m ³	1.86	1.86	**	1.87	**	
Adjusted Peak Converted Wet Density t/m ³	**	**	1.90	**	1.93	
Adj. Optimum Moisture Content % (AS1289.5.4.1)	22.3	22.2	20.8	22.1	20.1	
Adj. Field Moisture Content % (AS1289.5.4.1)	18.1	17.7	16.9	**	17.0	
Moisture Ratio % (AS1289.5.4.1)	81.5	80.0	**	**	**	
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	81.5	**	84.5	
Moisture Variation (Wv) %	4.0	4.5	**	4.5	**	
Adjusted Moisture Variation %	**	**	4.0	**	3.0	
Hilf Density Ratio (%)	101.5	97.0	104.0	98.5	103.5	
Compaction Method	Standard	Standard	Standard	Standard	Standard	
Report Remarks	**	**	**	**	**	

Moisture Variation Note:

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

Material Test Report

Report Number: D21672-4
Issue Number: 1
Date Issued: 27/01/2022
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D21672
Project Name: Opalia estate stage 7 - Level one
Project Location: Melton South
Work Request: 4163
Date Sampled: 24/01/2022 12:00
Dates Tested: 24/01/2022 - 25/01/2022
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Opalia Estate stage 7 - Level One
Material: Silty Clay
Material Source: On Site



Deer Park Laboratory
 17 Walhalla Way Ravenhall VIC 3023
 Phone: 0435 751 756
 Email: ehippola@terrafirmalabs.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Eranda Hippola
 Laboratory Manager
 NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D22-4163A	D22-4163B	D22-4163C	D22-4163D
Test Number	25	26	27	28
Date Tested	24/01/2022	24/01/2022	24/01/2022	24/01/2022
Time Tested	12:00	12:15	12:30	12:45
Test Request #/Location	Lot 721	Lot 723	Lot 725	Lot 727
Layer / Reduced Level	Layer 02	Layer 02	Layer 02	Layer 02
Thickness of Layer (mm)	100	100	100	100
Soil Description	Clay	Clay	Clay	Clay
Test Depth (mm)	75	75	75	75
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	1.92	1.85	1.95	1.84
Field Moisture Content %	20.6	19.7	19.8	20.1
Field Dry Density (FDD) t/m ³	1.59	1.54	1.63	1.53
Peak Converted Wet Density t/m ³	1.85	1.85	1.86	1.84
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	25.7	24.3	25.1	24.4
Adj. Field Moisture Content % (AS1289.5.4.1)	20.6	19.7	19.8	20.1
Moisture Ratio % (AS1289.5.4.1)	80.0	81.5	79.0	82.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**
Moisture Variation (Wv) %	5.0	4.5	5.0	4.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	103.5	100.0	104.5	100.0
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: D21672-5
Issue Number: 1
Date Issued: 07/02/2022
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D21672
Project Name: Opalia estate stage 7 - Level one
Project Location: Melton South
Work Request: 4205
Date Sampled: 03/02/2022 13:40
Dates Tested: 03/02/2022 - 04/02/2022
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Opalia estate stage 7 - Level one
Material: Silty Clay
Material Source: On Site



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Approved Signatory: Eranda Hippola
 Laboratory Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D22-4205A	D22-4205B	D22-4205C	D22-4205D	D22-4205E	D22-4205F
Test Number	29	30	31	32	33	34
Date Tested	03/02/2022	03/02/2022	03/02/2022	03/02/2022	03/02/2022	03/02/2022
Time Tested	12:00	12:15	12:30	12:45	13:00	13:15
Test Request #/Location	LOT 744	LOT 746	LOT 748	LOT 750	LOT 752	LOT 754
Layer / Reduced Level	Layer 01	Layer 01	Layer 01	Layer 01	Layer 01	Layer 01
Thickness of Layer (mm)	300	300	300	300	300	300
Soil Description	Clay	Clay	Clay	Clay	Clay	Clay
Test Depth (mm)	275	275	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	4	0	0	5	0	6
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	0	0	**	0	**
Field Wet Density (FWD) t/m ³	1.91	1.81	1.87	1.89	1.82	1.95
Field Moisture Content %	18.9	18.7	19.9	20.5	19.6	19.9
Field Dry Density (FDD) t/m ³	1.61	1.52	1.56	1.58	1.52	1.64
Peak Converted Wet Density t/m ³	**	1.88	1.89	**	1.87	**
Adjusted Peak Converted Wet Density t/m ³	1.91	**	**	1.91	**	1.93
Adj. Optimum Moisture Content % (AS1289.5.4.1)	20.5	20.7	21.2	22.2	22.8	19.9
Adj. Field Moisture Content % (AS1289.5.4.1)	18.2	18.7	19.9	19.4	19.6	18.7
Moisture Ratio % (AS1289.5.4.1)	**	90.5	94.0	**	86.0	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	89.0	**	**	87.5	**	94.0
Moisture Variation (Wv) %	**	2.0	1.5	**	3.0	**
Adjusted Moisture Variation %	2.0	**	**	2.5	**	1.0
Hilf Density Ratio (%)	100.0	96.5	99.5	99.0	97.5	100.5
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