

Cobble Springs Estate Stage 2

GITA Inspection Verification Report

Prepared For: Lojac Civil Pty Ltd

Report Number D231083A V1

Version Release Date 10 Apr 2024

Report Released By Eranda Hippola

Title Laboratory 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	Fill Placement	5
4	Construction Verification.....	6
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 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 Cobble Springs Estate Stage 2. This work was conducted over the period of 12/09/2023 to 06/02/2024.

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 Lot 138 - Lot 148, Lot 162 - Lot 181 and Lot 209 - Lot 213 and Wetland Drainage Reserve, bounded by streets Stonecrop Drive, Sieberi Circuit, Yarrow Street and Nutans Crescent. 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 Peakurban (Drawing Reference: 22-0097-02RD02) 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 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.

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 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 200mm 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 200mm of material was not observed by the GITA.

4 Construction Verification

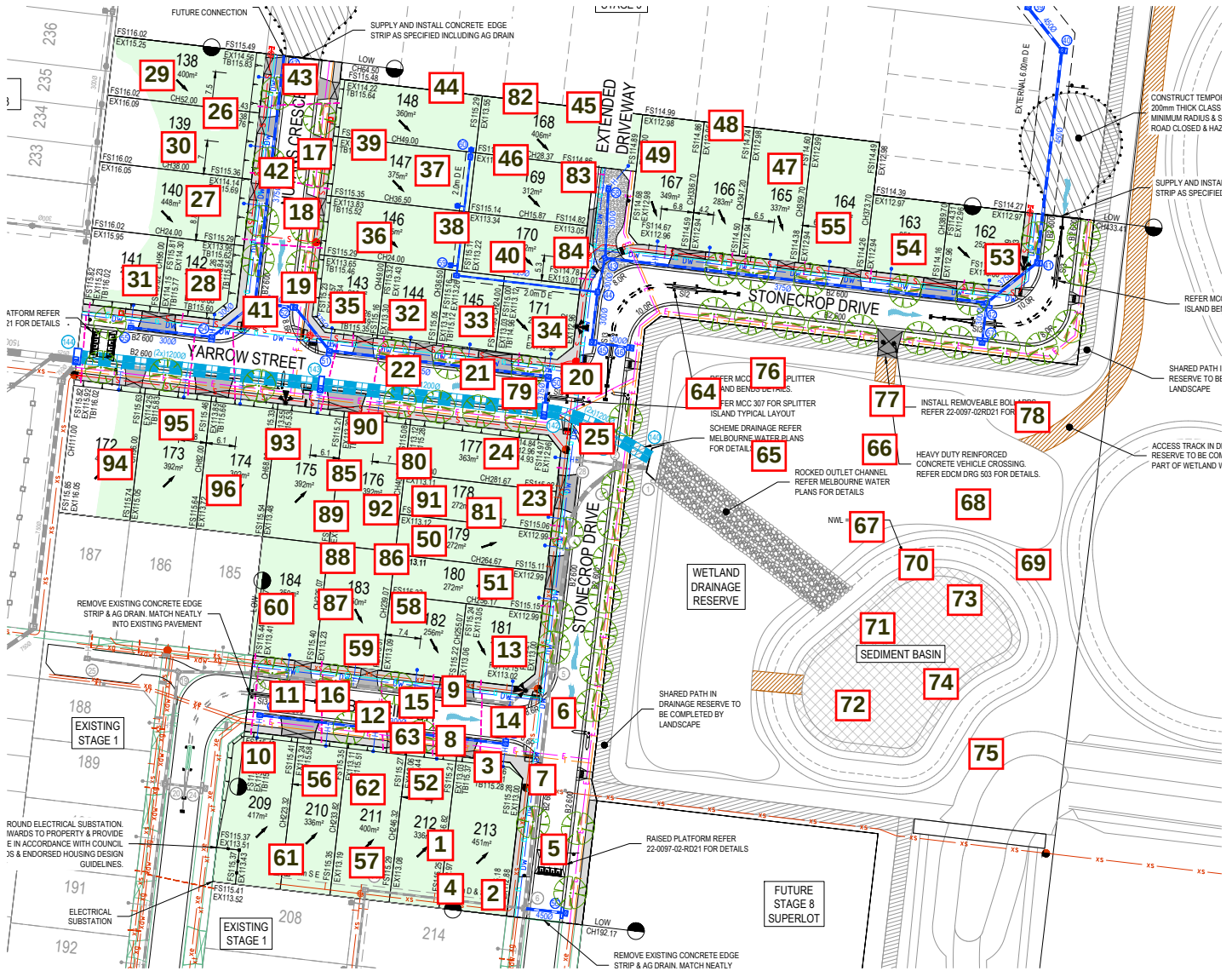
Compaction Verification testing is summarized in a detailed test register with test certificates attached provided in Appendix 2: *Compaction Test Register and Test Certificates*. A test location plan (D231083D1, Appendix 1) providing a schematic of test locations across the extent of scope of works for every placed layer of fill is also documented.

A total of 96 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 2 at Cobble Springs Estate. For completed fill areas of greater than 300mm, and for works completed between 12/09/2023 and 06/02/2024, 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 2 of Cobble Springs Estate was observed to be constructed in compliance with the requirements of the Technical Specification.

Appendix 1: Test Location Plan



Appendix 2: Compaction Test Register and Test Certificates



Compaction Test Register

Client: Lojac Civil Pty Ltd
Project: Cobble Springs Estate Stage 2

Project No: D231083
Specification: 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
22/09/2023	1	Layer 3		100.0%	Pass	Lot 213	D231083-1
22/09/2023	2	Layer 3		100.5%	Pass	onecrop Dri	D231083-1
22/09/2023	3	Layer 3		99.0%	Pass	Sieberi Circui	D231083-1
25/09/2023	4	Layer 3		100.0%	Pass	Lot 213	D231083-2
25/09/2023	5	Layer 3		100.0%	Pass	onecrop Dri	D231083-2
25/09/2023	6	Layer 3		99.5%	Pass	Sieberi Circui	D231083-2
26/09/2023	7	Layer 3		100.0%	Pass	onecrop Dri	D231083-3
26/09/2023	8	Layer 3		100.5%	Pass	Sieberi Circui	D231083-3
26/09/2023	9	Layer 3		99.5%	Pass	Sieberi Circui	D231083-3
27/09/2023	10	Layer 2		107.0%	Pass	Lot 209	D231083-4
27/09/2023	11	Layer 2		103.5%	Pass	Sieberi Circui	D231083-4
27/09/2023	12	Layer 2		104.0%	Pass	Sieberi Circui	D231083-4
02/10/2023	13	Layer 3		102.5%	Pass	Lot 181	D231083-5
11/10/2023	14	Layer 1		103.5%	Pass	Yarrow Stree	D231083-6
11/10/2023	15	Layer 1		100.5%	Pass	Yarrow Stree	D231083-6
11/10/2023	16	Layer 1		104.5%	Pass	Yarrow Stree	D231083-6
13/10/2023	17	Layer 1		100.0%	Pass	utans Cresce	D231083-7
13/10/2023	18	Layer 1		99.5%	Pass	utans Cresce	D231083-7
13/10/2023	19	Layer 1		100.5%	Pass	utans Cresce	D231083-7
17/10/2023	20	Layer 2		99.5%	Pass	Yarrow Stree	D231083-8
17/10/2023	21	Layer 2		99.5%	Pass	Yarrow Stree	D231083-8
17/10/2023	22	Layer 2		100.0%	Pass	Yarrow Stree	D231083-8
18/10/2023	23	Layer 3		100.0%	Pass	Lot 178	D231083-9
18/10/2023	24	Layer 3		101.0%	Pass	Lot 177	D231083-9
18/10/2023	25	Layer 3		99.0%	Pass	Yarrow Stree	D231083-9
20/10/2023	26	Layer 1		95.5%	Pass	Lot 139	D231083-10
20/10/2023	27	Layer 1		96.0%	Pass	Lot 140	D231083-10
20/10/2023	28	Layer 1		97.0%	Pass	Lot 142	D231083-10
23/10/2023	29	Layer 3		102.5%	Pass	Lot 138	D231083-11
23/10/2023	30	Layer 3		96.0%	Pass	Lot 130	D231083-11
23/10/2023	31	Layer 3		98.5%	Pass	Lot 141	D231083-11
24/10/2023	32	Layer 3		99.0%	Pass	Lot 144	D231083-12
24/10/2023	33	Layer 3		100.5%	Pass	Lot 145	D231083-12
24/10/2023	34	Layer 3		99.5%	Pass	Lot 171	D231083-12
27/10/2023	35	Layer 3		100.0%	Pass	Lot 143	D231083-13
27/10/2023	36	Layer 3		98.5%	Pass	Lot 146	D231083-13
27/10/2023	37	Layer 3		100.5%	Pass	Lot 147	D231083-13
30/10/2023	38	Layer 3		97.5%	Pass	Lot 146	D231083-14
30/10/2023	39	Layer 3		98.0%	Pass	Lot 147	D231083-14
30/10/2023	40	Layer 3		97.5%	Pass	Lot 170	D231083-14
31/10/2023	41	Layer 3		101.5%	Pass	utans cresce	D231083-15



Compaction Test Register

Client: Lojac Civil Pty Ltd
Project: Cobble Springs Estate Stage 2

Project No: D231083
Specification: 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
31/10/2023	42	Layer 3		101.5%	Pass	utans cresce	D231083-15
31/10/2023	43	Layer 3		101.5%	Pass	utans cresce	D231083-15
08/11/2023	44	Layer 3		102.0%	Pass	Lot 148	D231083-16
08/11/2023	45	Layer 2		102.0%	Pass	Lot 168	D231083-16
08/11/2023	46	Layer 2		101.5%	Pass	Lot 169	D231083-16
15/11/2023	47	Layer 2		99.5%	Pass	Lot 165	D231083-17
15/11/2023	48	Layer 2		100.5%	Pass	Lot 166	D231083-17
15/11/2023	49	Layer 2		100.5%	Pass	Lot 167	D231083-17
15/11/2023	50	Layer 3		101.0%	Pass	Lot 179	D231083-17
15/11/2023	51	Layer 3		102.0%	Pass	Lot 180	D231083-17
15/11/2023	52	Layer 3		102.0%	Pass	Lot 212	D231083-17
20/11/2023	53	Layer 2		97.5%	Pass	Lot 162	D231083-18
20/11/2023	54	Layer 2		98.5%	Pass	Lot 163	D231083-18
20/11/2023	55	Layer 2		99.0%	Pass	Lot 164	D231083-18
22/11/2023	56	Layer 1		100.5%	Pass	Lot 210	D231083-19
22/11/2023	57	Layer 1		100.5%	Pass	Lot 211	D231083-19
22/11/2023	58	Layer 3		100.5%	Pass	Lot 182	D231083-19
22/11/2023	59	Layer 3		100.5%	Pass	Lot 183	D231083-19
22/11/2023	60	Layer 3		101.0%	Pass	Lot 184	D231083-19
23/11/2023	61	Layer 3		101.0%	Pass	Lot 210	D231083-20
23/11/2023	62	Layer 3		102.5%	Pass	Lot 211	D231083-20
23/11/2023	63	Layer 3		99.0%	Pass	Sieberi Circui	D231083-20
28/11/2023	64	Layer 1		97.0%	Pass	d Drainage F	D231083-21
28/11/2023	65	Layer 1		96.0%	Pass	d Drainage F	D231083-21
28/11/2023	66	Layer 1		97.5%	Pass	d Drainage F	D231083-21
28/11/2023	67	Layer 1		95.0%	Pass	d Drainage F	D231083-21
28/11/2023	68	Layer 1		99.5%	Pass	d Drainage F	D231083-21
28/11/2023	69	Layer 1		97.0%	Pass	d Drainage F	D231083-21
04/12/2023	70	Layer 1		99.5%	Pass	ediment Bas	D231083-22
04/12/2023	71	Layer 1		98.0%	Pass	ediment Bas	D231083-22
04/12/2023	72	Layer 1		100.0%	Pass	ediment Bas	D231083-22
05/12/2023	73	Layer 1		96.0%	Pass	ediment Bas	D231083-23
05/12/2023	74	Layer 1		96.5%	Pass	ediment Bas	D231083-23
05/12/2023	75	Layer 1		96.5%	Pass	ediment Bas	D231083-23
06/12/2023	76	Layer 2		97.5%	Pass	d Drainage F	D231083-24
06/12/2023	77	Layer 2		98.0%	Pass	d Drainage F	D231083-24
06/12/2023	78	Layer 2		98.0%	Pass	d Drainage F	D231083-24
25/01/2024	79	Layer 3		100.0%	Pass	arrow Stree	D231083-25
25/01/2024	80	Layer 3		98.5%	Pass	Lot 177	D231083-25
25/01/2024	81	Layer 3		99.0%	Pass	Lot 178	D231083-25
29/01/2024	82	Layer 3		101.0%	Pass	Lot 168	D231083-26



Compaction Test Register

Client: Lojac Civil Pty Ltd

Project No: D231083

Project: Cobble Springs Estate Stage 2

Specification: 95%

Date:	Test No:	Layer:	Retest of:	Density:	Pass/Fail:	Lot No:	Report No:
29/01/2024	83	Layer 3		100.0%	Pass	Lot 169	D231083-26
29/01/2024	84	Layer 3		99.5%	Pass	Lot 170	D231083-26
31/01/2024	85	Layer 1		100.0%	Pass	Lot 176	D231083-27
31/01/2024	86	Layer 1		99.0%	Pass	Lot 180	D231083-27
31/01/2024	87	Layer 1		99.5%	Pass	Lot 183	D231083-27
01/02/2024	88	Layer 4		96.5%	Pass	Lot 183	D231083-28
01/02/2024	89	Layer 4		97.5%	Pass	Lot 176	D231083-28
01/02/2024	90	Layer 4		99.0%	Pass	Lot 176	D231083-28
05/02/2024	91	Layer 5		97.0%	Pass	Lot 178	D231083-29
05/02/2024	92	Layer 5		100.5%	Pass	Lot 176	D231083-29
05/02/2024	93	Layer 5		100.5%	Pass	Lot 175	D231083-29
06/02/2024	94	Layer 4		97.5%	Pass	Lot 172	D231083-30
06/02/2024	95	Layer 4		98.5%	Pass	Lot 173	D231083-30
06/02/2024	96	Layer 4		97.5%	Pass	Lot 174	D231083-30

Material Test Report

Report Number: D231083-1
Issue Number: 1
Date Issued: 26/09/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6559
Date Sampled: 22/09/2023
Dates Tested: 22/09/2023 - 25/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6559A	D23-6559B	D23-6559C
Test Number	1	2	3
Date Tested	22/09/2023	22/09/2023	22/09/2023
Time Tested	14:45	14:55	15:07
Test Request #/Location	1 Lot 213	2 STONECROP DRIVE Road	3 SEIBERI CIRCUIT Road
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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	1.94	1.91	1.95
Field Moisture Content %	12.8	12.5	11.4
Field Dry Density (FDD) t/m ³	1.72	1.70	1.75
Peak Converted Wet Density t/m ³	1.94	1.91	1.97
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	14.8	14.6	11.3
Adj. Field Moisture Content % (AS1289.5.4.1)	12.8	12.5	11.4
Moisture Ratio % (AS1289.5.4.1)	86.5	86.0	101.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	2.0	2.0	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	100.0	100.5	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: D231083-2
Issue Number: 1
Date Issued: 27/09/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6573
Date Sampled: 25/09/2023
Dates Tested: 25/09/2023 - 26/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6573A	D23-6573B	D23-6573C
Test Number	4	5	6
Date Tested	25/09/2023	25/09/2023	25/09/2023
Time Tested	15:00	15:10	15:20
Test Request #/Location	Lot 213	STONECROP DRIVE road	SIEBERI CIRCUIT road
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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 (%)	5	5	5
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	2.04	2.02	2.05
Field Moisture Content %	14.6	15.3	15.9
Field Dry Density (FDD) t/m ³	1.79	1.77	1.78
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.04	2.03	2.05
Adj. Optimum Moisture Content % (AS1289.5.4.1)	18.4	18.9	19.7
Adj. Field Moisture Content % (AS1289.5.4.1)	13.9	14.5	15.1
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	76.0	76.5	77.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	4.5	4.0	4.5
Hilf Density Ratio (%)	100.0	100.0	99.5
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: D231083-3
Issue Number: 1
Date Issued: 02/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6581
Date Sampled: 26/09/2023
Dates Tested: 26/09/2023 - 28/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6581A	D23-6581B	D23-6581C
Test Number	7	8	9
Date Tested	26/09/2023	26/09/2023	26/09/2023
Time Tested	15:30	15:40	15:50
Test Request #/Location	"STONECROP DRIVE" road	"SIEBERI CIRCUIT" road	SIEBERI CIRCUIT" road
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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 (%)	7	6	7
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	2.00	2.02	1.98
Field Moisture Content %	18.1	19.3	15.7
Field Dry Density (FDD) t/m ³	1.71	1.71	1.73
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.00	2.00	1.99
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.4	22.6	19.3
Adj. Field Moisture Content % (AS1289.5.4.1)	16.8	18.1	14.5
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	78.5	80.0	75.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	4.5	4.0	4.5
Hilf Density Ratio (%)	100.0	100.5	99.5
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: D231083-4
Issue Number: 1
Date Issued: 03/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6590
Date Sampled: 27/09/2023
Dates Tested: 27/09/2023 - 02/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6590A	D23-6590B	D23-6590C
Test Number	10	11	12
Date Tested	27/09/2023	27/09/2023	27/09/2023
Time Tested	14:30	14:30	14:30
Test Request #/Location	Lot 209	Sieberi Circuit	Sieberi Circuit
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 (%)	15	14	14
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.98	2.01	2.02
Field Moisture Content %	13.1	13.3	13.9
Field Dry Density (FDD) t/m ³	1.78	1.80	1.80
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.85	1.94	1.94
Adj. Optimum Moisture Content % (AS1289.5.4.1)	15.4	15.5	16.4
Adj. Field Moisture Content % (AS1289.5.4.1)	11.2	11.4	12.0
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	72.5	73.5	73.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	4.5	4.0	4.5
Hilf Density Ratio (%)	107.0	103.5	104.0
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: D231083-5
Issue Number: 1
Date Issued: 05/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6606
Date Sampled: 02/10/2023 14:30
Dates Tested: 02/10/2023 - 03/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Spring Stage 2 -Level One
Lot Number: 181
Material: Clay
Material Source: Imported



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	D23-6606A		
Test Number	13		
Date Tested	02/10/2023		
Time Tested	14:30		
Test Request #/Location	Lot 181		
Layer / Reduced Level	Layer 3		
Thickness of Layer (mm)	300mm		
Soil Description	Clay		
Test Depth (mm)	275mm		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	10		
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**		
Field Wet Density (FWD) t/m ³	2.02		
Field Moisture Content %	13.6		
Field Dry Density (FDD) t/m ³	1.80		
Peak Converted Wet Density t/m ³	**		
Adjusted Peak Converted Wet Density t/m ³	1.97		
Adj. Optimum Moisture Content % (AS1289.5.4.1)	17.0		
Adj. Field Moisture Content % (AS1289.5.4.1)	12.2		
Moisture Ratio % (AS1289.5.4.1)	**		
Adjusted Moisture Ratio % (AS1289.5.4.1)	72.0		
Moisture Variation (Wv) %	**		
Adjusted Moisture Variation %	4.5		
Hilf Density Ratio (%)	102.5		
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: D231083-6
Issue Number: 1
Date Issued: 16/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6645
Date Sampled: 11/10/2023 13:30
Dates Tested: 11/10/2023 - 13/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2
Lot Number: Yarrow road
Material: Clay
Material Source: Imported



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	D23-6645A	D23-6645B	D23-6645C
Test Number	14	15	16
Date Tested	11/10/2023	11/10/2023	11/10/2023
Time Tested	**	**	**
Test Request #/Location	Yarrow road	Yarrow road	Yarrow road
Layer / Reduced Level	Layer 1	Layer 1	Layer 1
Thickness of Layer (mm)	300mm	300mm	300mm
Soil Description	Clay	Clay	Clay
Test Depth (mm)	275mm	275mm	275mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	7	3	13
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	2.01	1.95	2.10
Field Moisture Content %	25.6	23.6	24.7
Field Dry Density (FDD) t/m ³	1.62	1.59	1.73
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.94	1.94	2.01
Adj. Optimum Moisture Content % (AS1289.5.4.1)	28.3	25.6	25.5
Adj. Field Moisture Content % (AS1289.5.4.1)	23.8	23.0	21.5
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	84.0	90.0	84.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	4.0	2.5	3.5
Hilf Density Ratio (%)	103.5	100.5	104.5
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: D231083-7
Issue Number: 1
Date Issued: 18/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6658
Date Sampled: 13/10/2023 08:30
Dates Tested: 13/10/2023 - 17/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Signature

Approved Signatory: Nalaka Bandara
 Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D23-6658A	D23-6658B	D23-6658C
Test Number	17	18	19
Date Tested	13/10/2023	13/10/2023	13/10/2023
Time Tested	14:30	14:40	14:54
Test Request #/Location	NUTANS CRESCENT Road	NUTANS CRESCENT Road	NUTANS CRESCENT Road
Layer / Reduced Level	Layer 1	Layer 1	Layer 1
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 (%)	4	8	6
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	2.02	2.03	2.02
Field Moisture Content %	22.1	21.6	20.8
Field Dry Density (FDD) t/m ³	1.67	1.69	1.69
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.02	2.04	2.01
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.4	19.2	19.2
Adj. Field Moisture Content % (AS1289.5.4.1)	21.2	19.9	19.7
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	99.5	103.5	102.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	0.0	-0.5	-0.5
Hilf Density Ratio (%)	100.0	99.5	100.5
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: D231083-8
Issue Number: 1
Date Issued: 24/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6673
Date Sampled: 18/10/2023 8:00
Dates Tested: 18/10/2023 - 23/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Signature

Approved Signatory: Nalaka Bandara
 Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D23-6673A	D23-6673B	D23-6673C
Test Number	23	24	25
Date Tested	18/10/2023	18/10/2023	18/10/2023
Time Tested	14:30	14:40	14:57
Test Request #/Location	Lot 178	Lot 177	YARROW STREET road
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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 (%)	5	8	10
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	2.00	1.99	2.04
Field Moisture Content %	10.2	10.1	10.8
Field Dry Density (FDD) t/m ³	1.82	1.82	1.86
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.00	1.97	2.06
Adj. Optimum Moisture Content % (AS1289.5.4.1)	11.7	11.2	12.1
Adj. Field Moisture Content % (AS1289.5.4.1)	9.7	9.3	9.7
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	83.0	82.5	80.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	2.0	2.0	2.5
Hilf Density Ratio (%)	100.0	101.0	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: D231083-9
Issue Number: 1
Date Issued: 25/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6668
Date Sampled: 17/10/2023 8:30
Dates Tested: 17/10/2023 - 24/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6668A	D23-6668B	D23-6668C
Test Number	20	21	22
Date Tested	17/10/2023	17/10/2023	17/10/2023
Time Tested	14:45	14:55	15:09
Test Request #/Location	YARROW STREET	YARROW STREET	YARROW STREET
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 (%)	7	7	6
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	2.02	2.04	2.05
Field Moisture Content %	20.9	22.3	19.6
Field Dry Density (FDD) t/m ³	1.69	1.69	1.73
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.03	2.05	2.04
Adj. Optimum Moisture Content % (AS1289.5.4.1)	22.2	22.2	20.4
Adj. Field Moisture Content % (AS1289.5.4.1)	19.4	20.7	18.4
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	88.0	93.5	90.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	2.5	1.5	2.0
Hilf Density Ratio (%)	99.5	99.5	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: D231083-10
Issue Number: 1
Date Issued: 25/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6697
Date Sampled: 20/10/2023 8:30
Dates Tested: 20/10/2023 - 24/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6697A	D23-6697B	D23-6697C
Test Number	26	27	28
Date Tested	20/10/2023	20/10/2023	20/10/2023
Time Tested	09:30	09:39	09:49
Test Request #/Location	Lot 139	Lot 140	Lot 142
Layer / Reduced Level	Layer 1	Layer 1	Layer 1
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	1.90	1.90	1.90
Field Moisture Content %	19.0	21.2	19.2
Field Dry Density (FDD) t/m ³	1.59	1.57	1.59
Peak Converted Wet Density t/m ³	1.99	1.98	1.95
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	19.6	21.2	21.5
Adj. Field Moisture Content % (AS1289.5.4.1)	19.0	21.2	19.2
Moisture Ratio % (AS1289.5.4.1)	97.0	100.0	89.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	0.5	0.0	2.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	95.5	96.0	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: D231083-11
Issue Number: 1
Date Issued: 26/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6710
Date Sampled: 23/10/2023 08:30
Dates Tested: 23/10/2023 - 25/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Spring Estate Stage 2 - Level one
Material: Clay
Material Source: Imported



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	D23-6710A	D23-6710B	D23-6710C
Test Number	29	30	31
Date Tested	23/10/2023	23/10/2023	23/10/2023
Time Tested	14:00	14:14	14:25
Test Request #/Location	29 Lot 138	30 Lot 130	31 Lot 141
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
Thickness of Layer (mm)	300	300	300
Soil Description	Gravelly Clay	Gravelly Clay	Gravelly 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
Field Wet Density (FWD) t/m ³	1.90	1.91	1.91
Field Moisture Content %	23.7	23.7	24.9
Field Dry Density (FDD) t/m ³	1.53	1.55	1.53
Peak Converted Wet Density t/m ³	1.85	**	1.94
Adjusted Peak Converted Wet Density t/m ³	**	1.99	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	26.0	23.2	26.8
Adj. Field Moisture Content % (AS1289.5.4.1)	23.7	22.8	24.9
Moisture Ratio % (AS1289.5.4.1)	91.0	**	93.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	98.0	**
Moisture Variation (Wv) %	2.5	**	1.5
Adjusted Moisture Variation %	**	0.5	**
Hilf Density Ratio (%)	102.5	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: D231083-12
Issue Number: 1
Date Issued: 26/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6724
Date Sampled: 24/10/2023 8:30
Dates Tested: 24/10/2023 - 25/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6724A	D23-6724B	D23-6724C
Test Number	32	33	34
Date Tested	24/10/2023	24/10/2023	24/10/2023
Time Tested	14:15	14:33	14:43
Test Request #/Location	Lot 144	Lot 145	Lot 171
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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	1.90	1.92	1.92
Field Moisture Content %	18.7	19.7	17.9
Field Dry Density (FDD) t/m ³	1.60	1.60	1.63
Peak Converted Wet Density t/m ³	1.92	1.90	1.93
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.3	22.4	20.3
Adj. Field Moisture Content % (AS1289.5.4.1)	18.7	19.7	17.9
Moisture Ratio % (AS1289.5.4.1)	87.5	88.0	88.0
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**
Moisture Variation (Wv) %	2.5	2.5	2.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	99.0	100.5	99.5
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: D231083-13
Issue Number: 1
Date Issued: 31/10/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6745
Date Sampled: 27/10/2023 7:30
Dates Tested: 27/10/2023 - 30/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6745A	D23-6745B	D23-6745C
Test Number	35	36	37
Date Tested	27/10/2023	27/10/2023	27/10/2023
Time Tested	13:30	13:45	13:56
Test Request #/Location	Lot 143	Lot 146	Lot 147
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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 (%)	8	14	14
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.96	1.96	1.96
Field Moisture Content %	17.2	16.0	17.1
Field Dry Density (FDD) t/m ³	1.69	1.72	1.71
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.95	1.99	1.95
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.0	18.4	19.4
Adj. Field Moisture Content % (AS1289.5.4.1)	15.8	13.7	14.7
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	75.0	75.0	76.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	5.0	4.5	4.5
Hilf Density Ratio (%)	100.0	98.5	100.5
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: D231083-14
Issue Number: 1
Date Issued: 01/11/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6761
Date Sampled: 30/10/2023 8:30
Dates Tested: 30/10/2023 - 31/10/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Nalaka Bandara

Approved Signatory: Nalaka Bandara
 Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D23-6761A	D23-6761B	D23-6761C
Test Number	38	39	40
Date Tested	30/10/2023	30/10/2023	30/10/2023
Time Tested	15:00	15:11	15:21
Test Request #/Location	Lot 146	Lot 147	Lot 170
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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 (%)	5	4	5
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.94	1.93	1.95
Field Moisture Content %	16.4	16.7	14.8
Field Dry Density (FDD) t/m ³	1.68	1.66	1.71
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.99	1.97	1.99
Adj. Optimum Moisture Content % (AS1289.5.4.1)	17.9	18.5	16.4
Adj. Field Moisture Content % (AS1289.5.4.1)	15.6	16.0	14.0
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	87.0	86.5	85.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	2.5	2.5	2.5
Hilf Density Ratio (%)	97.5	98.0	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: D231083-15
Issue Number: 1
Date Issued: 03/11/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6772
Date Sampled: 31/10/2023 8:30
Dates Tested: 31/10/2023 - 02/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6772A	D23-6772B	D23-6772C
Test Number	41	42	43
Date Tested	31/10/2023	31/10/2023	31/10/2023
Time Tested	15:00	15:15	15:30
Test Request #/Location	Nutans crescent road	Nutans crescent road	Nutans crescent road
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
Thickness of Layer (mm)	300mm	300mm	300mm
Soil Description	Clay	Clay	Clay
Test Depth (mm)	275mm	275mm	275mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	8	9	8
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.96	1.98	1.98
Field Moisture Content %	15.2	15.6	14.4
Field Dry Density (FDD) t/m ³	1.72	1.73	1.75
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.93	1.95	1.95
Adj. Optimum Moisture Content % (AS1289.5.4.1)	19.0	19.2	18.1
Adj. Field Moisture Content % (AS1289.5.4.1)	13.9	14.2	13.2
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	73.5	73.5	73.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	5.0	5.0	5.0
Hilf Density Ratio (%)	101.5	101.5	101.5
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: D231083-16
Issue Number: 1
Date Issued: 10/11/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6815
Date Sampled: 08/11/2023 8:30
Dates Tested: 08/11/2023 - 09/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Nalaka Bandara

Approved Signatory: Nalaka Bandara
 Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D23-6815A	D23-6815B	D23-6815C
Test Number	44	45	46
Date Tested	08/11/2023	08/11/2023	08/11/2023
Time Tested	14:30	14:45	14:55
Test Request #/Location	Lot 148	Lot 168	Lot 169
Layer / Reduced Level	Layer 3	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 (%)	8	7	7
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.96	1.93	1.95
Field Moisture Content %	25.0	25.1	25.4
Field Dry Density (FDD) t/m ³	1.59	1.56	1.58
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.91	1.89	1.91
Adj. Optimum Moisture Content % (AS1289.5.4.1)	28.3	28.1	28.4
Adj. Field Moisture Content % (AS1289.5.4.1)	23.0	23.3	23.5
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	81.0	83.0	82.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	5.0	4.5	4.5
Hilf Density Ratio (%)	102.0	102.0	101.5
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: D231083-17
Issue Number: 1
Date Issued: 16/11/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6852
Date Sampled: 14/11/2023 8:30
Dates Tested: 14/11/2023 - 16/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Nalaka Bandara

Approved Signatory: Nalaka Bandara
 Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D23-6852A	D23-6852B	D23-6852C	D23-6852D	D23-6852E	D23-6852F
Test Number	47	48	49	50	51	52
Date Tested	15/11/2023	15/11/2023	15/11/2023	15/11/2023	15/11/2023	15/11/2023
Time Tested	15:00	15:10	15:15	15:25	15:35	15:45
Test Request #/Location	Lot 165	Lot 166	Lot 167	Lot 179	Lot 180	Lot 212
Layer / Reduced Level	Layer 2	Layer 2	Layer 2	Layer 3	Layer 3	Layer 3
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 (%)	3	7	4	8	6	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**	**	**	0
Field Wet Density (FWD) t/m ³	1.91	1.94	1.92	1.96	1.97	1.94
Field Moisture Content %	18.0	17.1	18.1	18.9	18.3	17.4
Field Dry Density (FDD) t/m ³	1.63	1.67	1.64	1.67	1.68	1.66
Peak Converted Wet Density t/m ³	**	**	**	**	**	1.91
Adjusted Peak Converted Wet Density t/m ³	1.92	1.93	1.91	1.94	1.93	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	22.1	20.0	22.6	21.9	22.5	21.9
Adj. Field Moisture Content % (AS1289.5.4.1)	17.6	15.8	17.3	17.4	17.3	17.4
Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	**	79.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	79.5	79.0	76.5	79.0	77.0	**
Moisture Variation (Wv) %	**	**	**	**	**	4.5
Adjusted Moisture Variation %	4.5	4.0	5.0	4.5	5.0	**
Hilf Density Ratio (%)	99.5	100.5	100.5	101.0	102.0	102.0
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: D231083-18
Issue Number: 1
Date Issued: 27/11/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6891
Date Sampled: 20/11/2023 8:30
Dates Tested: 20/11/2023 - 24/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Nalaka Bandara

Approved Signatory: Nalaka Bandara
 Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D23-6891A	D23-6891B	D23-6891C
Test Number	53	54	55
Date Tested	20/11/2023	20/11/2023	20/11/2023
Time Tested	14:00	14:15	14:30
Test Request #/Location	Lot 162	Lot 163	Lot 164
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 (%)	7	7	8
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.95	1.96	1.97
Field Moisture Content %	20.8	14.3	18.6
Field Dry Density (FDD) t/m ³	1.63	1.73	1.68
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.00	1.99	1.99
Adj. Optimum Moisture Content % (AS1289.5.4.1)	23.8	17.4	21.2
Adj. Field Moisture Content % (AS1289.5.4.1)	19.4	13.3	17.1
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	81.5	76.5	80.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	4.0	4.0	4.0
Hilf Density Ratio (%)	97.5	98.5	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: D231083-19
Issue Number: 1
Date Issued: 27/11/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6915
Date Sampled: 22/11/2023 8:30
Dates Tested: 22/11/2023 - 24/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Nalaka Bandara

Approved Signatory: Nalaka Bandara
 Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	D23-6915A	D23-6915B	D23-6915C	D23-6915D	D23-6915E
Test Number	56	57	58	59	60
Date Tested	22/11/2023	22/11/2023	22/11/2023	22/11/2023	22/11/2023
Time Tested	15:00	15:10	15:20	15:25	15:30
Test Request #/Location	Lot 210	Lot 211	Lot 182	Lot 183	Lot 184
Layer / Reduced Level	Layer 1	Layer 1	Layer 3	Layer 3	Layer 3
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 (%)	4	4	4	4	3
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.89	1.89	1.90	1.91	1.91
Field Moisture Content %	18.9	18.7	18.6	18.9	18.7
Field Dry Density (FDD) t/m ³	1.60	1.60	1.61	1.61	1.62
Peak Converted Wet Density t/m ³	**	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.89	1.88	1.89	1.89	1.89
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.2	20.8	20.8	20.6	20.7
Adj. Field Moisture Content % (AS1289.5.4.1)	18.2	18.0	17.9	18.1	18.1
Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	86.0	86.5	86.0	87.5	87.5
Moisture Variation (Wv) %	**	**	**	**	**
Adjusted Moisture Variation %	3.0	3.0	3.0	2.5	2.5
Hilf Density Ratio (%)	100.5	100.5	100.5	100.5	101.0
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: D231083-20
Issue Number: 1
Date Issued: 29/11/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6918
Date Sampled: 23/11/2023 8:30
Dates Tested: 23/11/2023 - 24/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Nalaka Bandara

Approved Signatory: Nalaka Bandara
 Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D23-6918A	D23-6918B	D23-6918C
Test Number	61	62	63
Date Tested	23/11/2023	23/11/2023	23/11/2023
Time Tested	15:00	15:15	15:25
Test Request #/Location	Lot 210	Lot 211	Road
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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	3	10
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	**	**
Field Wet Density (FWD) t/m ³	1.93	1.93	1.94
Field Moisture Content %	22.0	19.2	18.2
Field Dry Density (FDD) t/m ³	1.58	1.63	1.67
Peak Converted Wet Density t/m ³	1.90	**	**
Adjusted Peak Converted Wet Density t/m ³	**	1.88	1.96
Adj. Optimum Moisture Content % (AS1289.5.4.1)	25.0	23.1	20.3
Adj. Field Moisture Content % (AS1289.5.4.1)	22.0	18.6	16.4
Moisture Ratio % (AS1289.5.4.1)	88.0	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	80.5	81.0
Moisture Variation (Wv) %	3.0	**	**
Adjusted Moisture Variation %	**	4.5	4.0
Hilf Density Ratio (%)	101.0	102.5	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: D231083-21
Issue Number: 1
Date Issued: 01/12/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6955
Date Sampled: 28/11/2023 8:30
Dates Tested: 28/11/2023 - 30/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Nalaka Bandara

Approved Signatory: Nalaka Bandara
 Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D23-6955A	D23-6955B	D23-6955C	D23-6955D	D23-6955E	D23-6955F
Test Number	64	65	66	67	68	69
Date Tested	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Time Tested	14:00	14:10	14:15	14:20	14:25	14:30
Test Request #/Location	Wetland Drainage Reserve	Wetland Drainage Reserve	Wetland Drainage Reserve	Wetland Drainage Reserve	Wetland Drainage Reserve	Wetland Drainage Reserve
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	0	0
Percentage of Dry Oversize (%) (AS1289.5.4.1)	0	0	0	0	0	0
Field Wet Density (FWD) t/m ³	1.84	1.84	1.85	1.84	1.87	1.86
Field Moisture Content %	25.4	24.5	25.0	25.0	23.4	25.0
Field Dry Density (FDD) t/m ³	1.47	1.48	1.48	1.47	1.51	1.49
Peak Converted Wet Density t/m ³	1.90	1.92	1.90	1.93	1.88	1.92
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Adj. Optimum Moisture Content % (AS1289.5.4.1)	27.2	24.1	27.0	24.2	25.3	24.6
Adj. Field Moisture Content % (AS1289.5.4.1)	25.4	24.5	25.0	25.0	23.4	25.0
Moisture Ratio % (AS1289.5.4.1)	93.5	102.0	92.5	103.5	92.5	101.5
Adjusted Moisture Ratio % (AS1289.5.4.1)	**	**	**	**	**	**
Moisture Variation (Wv) %	1.5	-0.5	2.0	-1.0	2.0	-0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	97.0	96.0	97.5	95.0	99.5	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: D231083-22
Issue Number: 1
Date Issued: 06/12/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6975
Date Sampled: 04/12/2023 08:30
Dates Tested: 04/12/2023 - 05/12/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6975A	D23-6975B	D23-6975C
Test Number	70	71	72
Date Tested	04/12/2023	04/12/2023	04/12/2023
Time Tested	15:00	15:15	15:25
Test Request #/Location	Sediment Basin	Sediment Basin	Sediment Basin
Layer / Reduced Level	Layer 1	Layer 1	Layer 1
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 (%)	5	6	5
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.98	1.96	1.98
Field Moisture Content %	27.3	25.9	25.4
Field Dry Density (FDD) t/m ³	1.57	1.58	1.60
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.99	2.00	1.98
Adj. Optimum Moisture Content % (AS1289.5.4.1)	24.3	22.8	24.2
Adj. Field Moisture Content % (AS1289.5.4.1)	25.8	24.3	24.2
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	106.5	107.0	100.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	-1.5	-1.5	0.0
Hilf Density Ratio (%)	99.5	98.0	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: D231083-23
Issue Number: 1
Date Issued: 08/12/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6980
Date Sampled: 05/12/2023 8:30
Dates Tested: 05/12/2023 - 07/12/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6980A	D23-6980B	D23-6980C
Test Number	73	74	75
Date Tested	05/12/2023	05/12/2023	05/12/2023
Time Tested	15:00	15:15	15:25
Test Request #/Location	Sediment Basin	Sediment Basin	Sediment Basin
Layer / Reduced Level	Layer 1	Layer 1	Layer 1
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 (%)	4	4	3
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.86	1.87	1.85
Field Moisture Content %	21.3	18.0	21.9
Field Dry Density (FDD) t/m ³	1.54	1.60	1.53
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.93	1.94	1.92
Adj. Optimum Moisture Content % (AS1289.5.4.1)	23.3	20.1	24.3
Adj. Field Moisture Content % (AS1289.5.4.1)	20.5	17.3	21.2
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	87.5	86.0	87.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	2.5	3.0	3.0
Hilf Density Ratio (%)	96.0	96.5	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: D231083-24
Issue Number: 1
Date Issued: 11/12/2023
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 6992
Date Sampled: 06/12/2023 8:30
Dates Tested: 06/12/2023 - 08/12/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D23-6992A	D23-6992B	D23-6992C
Test Number	76	77	78
Date Tested	06/12/2023	06/12/2023	06/12/2023
Time Tested	15:00	15:15	15:25
Test Request #/Location	Wetland Drainage Reserve	Wetland Drainage Reserve	Wetland Drainage Reserve
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 (%)	4	3	3
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	2.01	2.00	1.99
Field Moisture Content %	13.8	15.8	16.1
Field Dry Density (FDD) t/m ³	1.78	1.73	1.72
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.06	2.04	2.03
Adj. Optimum Moisture Content % (AS1289.5.4.1)	15.6	17.8	17.9
Adj. Field Moisture Content % (AS1289.5.4.1)	13.3	15.3	15.6
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	85.0	86.5	87.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	2.5	2.5	2.0
Hilf Density Ratio (%)	97.5	98.0	98.0
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: D231083-25
Issue Number: 1
Date Issued: 31/01/2024
Client: Lojac Civil Pty Ltd
35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 7101
Date Sampled: 25/01/2024 8:30
Dates Tested: 25/01/2024 - 29/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Nalaka Bandara
Lab Tech

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

Sample Number	D24-7101A	D24-7101B	D24-7101C
Test Number	79	80	81
Date Tested	25/01/2024	25/01/2024	25/01/2024
Time Tested	13:00	13:15	13:25
Test Request #/Location	YARROW STREET Road	Lot 177	Lot 178
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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 (%)	3	4	4
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.90	1.91	1.92
Field Moisture Content %	19.4	18.1	15.0
Field Dry Density (FDD) t/m ³	1.60	1.63	1.68
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.90	1.94	1.94
Adj. Optimum Moisture Content % (AS1289.5.4.1)	22.0	20.5	17.6
Adj. Field Moisture Content % (AS1289.5.4.1)	18.7	17.3	14.4
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	85.0	84.5	82.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	3.5	3.0	3.0
Hilf Density Ratio (%)	100.0	98.5	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: D231083-26
Issue Number: 1
Date Issued: 02/02/2024
Client: Lojac Civil Pty Ltd
35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 7108
Date Sampled: 29/01/2024 8:30
Dates Tested: 29/01/2024 - 01/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D24-7108A	D24-7108B	D24-7108C
Test Number	82	83	84
Date Tested	29/01/2024	29/01/2024	29/01/2024
Time Tested	15:00	15:20	15:32
Test Request #/Location	Lot 168	Lot 169	Lot 170
Layer / Reduced Level	Layer 3	Layer 3	Layer 3
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 (%)	4	4	3
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.92	1.91	1.90
Field Moisture Content %	19.7	20.3	21.2
Field Dry Density (FDD) t/m ³	1.61	1.60	1.58
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.90	1.91	1.91
Adj. Optimum Moisture Content % (AS1289.5.4.1)	24.1	24.6	25.7
Adj. Field Moisture Content % (AS1289.5.4.1)	19.0	19.5	20.5
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	79.0	79.5	80.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	5.0	5.0	5.0
Hilf Density Ratio (%)	101.0	100.0	99.5
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: D231083-27
Issue Number: 1
Date Issued: 02/02/2024
Client: Lojac Civil Pty Ltd
 35/148 Chesterville Road, Moorabbin Vic 3189
Contact: Shannon
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 7120
Date Sampled: 31/01/2024 8:30
Dates Tested: 31/01/2024 - 01/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: Clay
Material Source: Imported



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	D24-7120A	D24-7120B	D24-7120C
Test Number	85	86	87
Date Tested	31/01/2024	31/01/2024	31/01/2024
Time Tested	11:30	11:40	11:50
Test Request #/Location	Lot 176	Lot 180	Lot 183
Layer / Reduced Level	Layer 1	Layer 1	Layer 1
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 (%)	3	4	5
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.92	1.93	1.89
Field Moisture Content %	20.3	20.5	21.2
Field Dry Density (FDD) t/m ³	1.60	1.62	1.57
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.91	1.95	1.90
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.9	22.6	22.5
Adj. Field Moisture Content % (AS1289.5.4.1)	19.6	19.6	20.3
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	89.5	87.0	90.0
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	2.0	3.0	2.0
Hilf Density Ratio (%)	100.0	99.0	99.5
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: D231083-28
Issue Number: 1
Date Issued: 02/02/2024
Client: Lojac Civil Pty Ltd
35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 7126
Date Sampled: 01/02/2024
Dates Tested: 01/02/2024 - 02/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 -Level One
Material: 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	D24-7126A	D24-7126B	D24-7126C
Test Number	88	89	90
Date Tested	01/02/2024	01/02/2024	01/02/2024
Time Tested	**	**	**
Test Request #/Location	Lot 183	Lot 176	Lot 176
Layer / Reduced Level	Layer 4	Layer 4	Layer 4
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 (%)	7	7	7
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.85	1.82	1.93
Field Moisture Content %	14.1	11.8	17.1
Field Dry Density (FDD) t/m ³	1.64	1.65	1.67
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.92	1.87	1.95
Adj. Optimum Moisture Content % (AS1289.5.4.1)	17.9	15.1	19.7
Adj. Field Moisture Content % (AS1289.5.4.1)	13.1	10.9	15.9
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	73.5	72.5	80.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	5.0	4.5	4.0
Hilf Density Ratio (%)	96.5	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: D231083-29
Issue Number: 1
Date Issued: 06/02/2024
Client: Lojac Civil Pty Ltd
35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 7139
Date Sampled: 05/02/2024 11:30
Dates Tested: 05/02/2024 - 05/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Estate Stage 2 - Level One
Material: 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	D24-7139A	D24-7139B	D24-7139C
Test Number	91	92	93
Date Tested	05/02/2024	05/02/2024	05/02/2024
Time Tested	11:30	11:45	11:55
Test Request #/Location	Lot 178	Lot 176	Lot 175
Layer / Reduced Level	Layer 5	Layer 5	Layer 5
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 (%)	3	8	5
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.95	1.93	1.93
Field Moisture Content %	22.8	24.3	21.4
Field Dry Density (FDD) t/m ³	1.59	1.57	1.61
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.01	1.92	1.93
Adj. Optimum Moisture Content % (AS1289.5.4.1)	21.6	24.3	22.4
Adj. Field Moisture Content % (AS1289.5.4.1)	22.1	22.5	20.2
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	102.0	92.5	90.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	-0.5	2.0	2.0
Hilf Density Ratio (%)	97.0	100.5	100.5
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: D231083-30
Issue Number: 2 - This version supersedes all previous issues
Reissue Reason:
Date Issued: 08/04/2024
Client: Lojac Civil Pty Ltd
35/148 Chesterville Road, Moorabbin Vic 3189
Project Number: D231083
Project Name: Cobble Springs Estate Stage 2 - Level One
Project Location: Cobble Bank
Work Request: 7143
Date Sampled: 06/02/2024
Dates Tested: 06/02/2024 - 07/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Cobble Springs Stage 2 -Level One
Material: Clay
Material Source: Imported



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	D24-7143A	D24-7143B	D24-7143C
Test Number	94	95	96
Date Tested	06/02/2024	06/02/2024	06/02/2024
Time Tested	**	**	**
Test Request #/Location	LOT 172	LOT 173	LOT 174
Layer / Reduced Level	Layer 4	Layer 4	Layer 4
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 (%)	5	5	6
Percentage of Dry Oversize (%) (AS1289.5.4.1)	**	**	**
Field Wet Density (FWD) t/m ³	1.94	1.94	1.92
Field Moisture Content %	23.4	20.6	20.5
Field Dry Density (FDD) t/m ³	1.59	1.62	1.61
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	1.99	1.97	1.97
Adj. Optimum Moisture Content % (AS1289.5.4.1)	22.5	20.0	20.3
Adj. Field Moisture Content % (AS1289.5.4.1)	22.2	19.5	19.3
Moisture Ratio % (AS1289.5.4.1)	**	**	**
Adjusted Moisture Ratio % (AS1289.5.4.1)	99.0	97.5	95.5
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	0.0	0.5	1.0
Hilf Density Ratio (%)	97.5	98.5	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