Lucas Estate Stage E3
Alfredton

Earthworks Supervision Report for Sovereign Civil

Report 19C 0996-2
June 2021

GTS
GEOTECHNICAL TESTING SERVICES

Lucas Estate Stage E3
Alfredton

Earthworks Supervision Report
for
Sovereign Civil

Revision

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1 INTRODUCTION

Sovereign Civil commissioned Geotechnical Testing Services (GTS) to undertake Level 1 Supervision and testing (*AS3798-2007*) for the earthworks at Lucas Estate Stage E3, Alfredton.

Level 1 testing was generally performed in line with *AS3798-2007 Guidelines on Earthworks for Commercial and Residential Development* and provides inspection of the construction of controlled fill and compaction testing in accordance with *AS1289 Methods of Testing Soils for Engineering Purposes.* The Level 1 testing was undertaken by geotechnicians with supervision provided by a geotechnical engineer from GTS.

2 SCOPE OF WORKS

2.1 Area of Work

GTS provided Level 1 inspection and testing of the engineered fill placed to raise the surface of Lots 1567 to 1590. Lots 1583 to 1590 were filled in January to February 2019 after which it is noted that the fill plan was amended to reduce the final surface level, with excess fill placed over lots 1588 to 1590 being removed to below the original 600mmBFSL layer. Reports for Lots 1583 to 1587 have been amended to reflect the new fill plan depths. Lots 1567 to 1582 were filled in November 2019 to February 2020 according to the amended fill plan.

Following completion of the original filling program in February 2020, a drainage trench was excavated over the winter of 2020 across Lots 1583, 1586, 1587, 1588 and 1590. The trench was filled and compacted during April to June 2021, with this report revision (*19C 0996-2*) to add the Level 1 inspection and testing and inspection of the trench backfill.

The depth of fill across the site varied from none to 2.7 metres in Lot 1573 with approximate locations shown on the attached site plan. It is noted that sites with less than 0.3 metres were not included in the controlled fill.

2.2 Placement Specification

The placement of the fill and associated works generally followed the recommendations outlined in *AS3798-2007 Guidelines for Earthworks for Commercial and Residential Developments* and the construction specification.

In summary, the earthworks comply with the following:

- The layers for residential lots are to be compacted to at least 95% of the density ratio in accordance with *AS1289 5.1.1 (or 5.7.1),* based on Standard compaction.

In accordance with Table 8.1 of *AS3798-2007*, the original site filling program would be considered large scale (greater than 1500m^2). Therefore, a minimum of 1 test per 2500m^2 per layer or 3 tests per visit are required.

It is noted that layers were generally between 2500m^2 to 7500m^2 and 3 to 8 tests per layer were conducted, which exceeds the minimum requirement.

For the trench backfill, in accordance with Table 8.1 of *AS3798-2007*, the testing requirement is 1 test per 2 layers per 40 linear metres. It is noted that the trench was approximated 135 metres long and 2 to 3 tests were conducted per layer, which exceeds the minimum requirement.

3 INSPECTION AND TESTING

Inspections of the excavated base was conducted by a senior geotechnician or a geotechnical engineer and it was observed that the unsuitable material (vegetation, topsoil/silt) had been removed with the base consisting of a natural Silty Clay material of good strength.

The inspection of the drainage trench was conducted by a geotechnical engineer and it was observed that the excavation was approximately 1.2 metres deep through the previously placed fill, with the base consisting of the natural Silty Clay material of good strength. Washed silty material and residual standing water were removed from the base of the trench prior to filling operations commencing.

Level 1 inspection and testing was undertaken by a geotechnician from GTS who nominated the timing and location of the in-situ density tests. The approximate location of each test is recorded on the test reports and attached fill plan.

Laboratory compaction testing was undertaken on a one to one basis at our Ballarat laboratory. A summary of the results of the compaction control testing is presented in a table below with the full NATA endorsed test reports included in the Appendix.

4 SUMMARY OF TEST RESULTS

A summary of the test results is included in the following table with the full NATA accredited reports included in the Appendix.

Project No.	Sample No.	Test Date	Location	Reduced Level (mm)	Moisture Variation % O.M.C.	Hilf Density Ratio %
1	D19-868A	25/01/2019	Lot 1585	700	5.0 dry	108.0
2	D19-868B	25/01/2019	Lot 1585	300	4.0 dry	105.5
3	D19-868C	25/01/2019	Lot 1585	FSL	6.0 dry	104.5
4	D19-868D	25/01/2019	Lot 1584	700	5.0 dry	110.5
5	D19-868E	25/01/2019	Lot 1584	300	3.0 dry	108.5
6	D19-868F	25/01/2019	Lot 1584	FSL	2.0 dry	109.5
7	D19-868G	25/01/2019	Lot 1583	700	3.5 dry	107.5
8	D19-868H	25/01/2019	Lot 1583	300	3.0 dry	104.5
9	D19-868I	25/01/2019	Lot 1583	FSL	3.0 dry	105.5
10	D19-868J	25/01/2019	Lot 1586	300	3.0 dry	105.5
11	D19-868K	25/01/2019	Lot 1586	FSL	5.5 dry	110.0
12	D19-868L	25/01/2019	Lot 1586	600	4.5 dry	103.0
13	D19-868M	25/01/2019	Lot 1587	300	3.0 dry	108.5
14	D19-868N	25/01/2019	Lot 1587	FSL	0.5 dry	107.0
15	D19-868O	25/01/2019	Lot 1588	1200	3.5 dry	108.0
16	D19-868P	25/01/2019	Lot 1588	900	0.5 dry	99.0
17	D19-868Q	25/01/2019	Lot 1589	1200	4.5 dry	109.5
18	D19-868R	25/01/2019	Lot 1589	900	4.0 dry	106.0

Project No.	Sample No.	Test Date	Location	Reduced Level (mm)	Moisture Variation % O.M.C.	Hilf Density Ratio %
19	D19-868S	25/01/2019	Lot 1590	1200	2.0 dry	114.0
20	D19-868T	25/01/2019	Lot 1590	900	0.5 dry	96.5
21*	D19-892A	5/02/2019	Lot 1588	FSL	2.5 dry	103.0
22*	D19-892B	5/02/2019	Lot 1588	300	0.5 dry	100.5
23*	D19-892C	5/02/2019	Lot 1588	600	0.0	96.0
24*	D19-892D	5/02/2019	Lot 1589	FSL	2.0 dry	99.0
25*	D19-892E	5/02/2019	Lot 1589	300	0.5 wet	98.5
26*	D19-892F	5/02/2019	Lot 1589	600	1.0 wet	110.5
27*	D19-892G	5/02/2019	Lot 1590	FSL	2.5 dry	105.5
28*	D19-892H	5/02/2019	Lot 1590	300	0.5 dry	93.5
29*	D19-892I	5/02/2019	Lot 1590	600	1.5 dry	93.0
30	D19-1416A	19/11/2019	Lot 1574	2100	0.5 dry	98.5
31	D19-1416B	19/11/2019	Lot 1573	2400	0.0	102.0
32	D19-1416C	19/11/2019	Lot 1572	2100	0.0	101.0
33	D19-1416D	19/11/2019	Lot 1571	2100	0.0	96.5
34	D19-1416E	19/11/2019	Lot 1570	1800	0.0	99.5
35	D19-1416F	19/11/2019	Lot 1569	1500	0.5 dry	103.0
36	D19-1422A	20/11/2019	Lot 1574	1800	3.5 dry	104.0
37	D19-1422B	20/11/2019	Lot 1576	1800	1.0 dry	95.0
38	D19-1422C	20/11/2019	Lot 1570	1500	0.0	99.0
39	D19-1424A	21/11/2019	Lot 1575	1500	0.0	100.5
40	D19-1424B	21/11/2019	Lot 1577	1500	1.0 wet	103.0
41	D19-1424C	21/11/2019	Lot 1579	1500	2.0 dry	100.5
42	D19-1427A	22/11/2019	Lot 1578	1200	1.0 dry	102.0
43	D19-1427B	22/11/2019	Lot 1568	1500	0.5 dry	99.5
44	D19-1427C	22/11/2019	Lot 1572	1200	0.5 wet	100.5
45	D19-1431A	4/12/2019	Lot 1579	800	4.5 dry	105.0
46	D19-1431B	4/12/2019	Lot 1568	1200	3.0 dry	105.0
47	D19-1431C	4/12/2019	Lot 1577	1000	0.0	97.5
48	D19-1431D	4/12/2019	Lot 1574	1400	1.5 dry	102.0
49	D19-1431F	4/12/2019	Lot 1570	1200	0.0	95.5
50	D20-1531A	21/01/2020	Lot 1574	920	2.5 dry	104.5
51	D20-1531B	21/01/2020	Lot 1576	850	4.0 dry	98.5
52	D20-1531C	21/01/2020	Lot 1578	1000	2.5 dry	102.0
53	D20-1531D	21/01/2020	Lot 1580	1000	2.5 dry	103.5
54	D20-1531E	21/01/2020	Lot 1572	970	3.0 dry	108.0
55	D20-1531F	21/01/2020	Lot 1570	870	2.0 dry	95.5
56	D20-1531G	21/01/2020	Lot 1568	850	2.5 dry	100.5
57	D20-1534A	28/01/2020	Lot 1573	570	3.0 dry	104.5
58	D20-1534B	28/01/2020	Lot 1575	740	3.5 dry	106.0
59	D20-1534C	28/01/2020	Lot 1577	600	5.0 dry	106.0
60	D20-1534D	28/01/2020	Lot 1579	700	3.5 dry	101.0
61	D20-1534E	28/01/2020	Lot 1569	500	2.5 dry	104.0
62	D20-1534F	28/01/2020	Lot 1571	640	3.0 dry	105.0
63	D20-1537A	5/02/2020	Lot 1570	300	1.5 dry	102.0
64	D20-1537B	5/02/2020	Lot 1574	300	5.0 dry	105.0
65	D20-1537C	5/02/2020	Lot 1576	300	5.0 dry	106.5
66	D20-1537D	5/02/2020	Lot 1578	300	3.0 dry	106.0
67	D20-1537E	5/02/2020	Lot 1580	300	4.5 dry	105.0
68	D20-1537F	5/02/2020	Lot 1568	300	1.0 dry	107.5
69	D20-1537G	5/02/2020	Lot 1572	300	3.0 dry	111.5
70	D20-1597A	19/02/2020	Lot 1571	FSL	4.5 dry	103.0
71	D20-1597B	19/02/2020	Lot 1573	FSL	4.0 dry	98.5

Project No.	Sample No.	Test Date	Location	Reduced Level (mm)	Moisture Variation % O.M.C.	Hilf Density Ratio %
72	D20-1597C	19/02/2020	Lot 1575	FSL	2.5 dry	95.5
73	D20-1597D	19/02/2020	Lot 1577	FSL	2.0 dry	100.5
74	D20-1597E	19/02/2020	Lot 1579	FSL	2.0 dry	96.0
75	D20-1597F	19/02/2020	Lot 1581	FSL	2.0 dry	99.5
76	D20-1597G	19/02/2020	Lot 1582	FSL	5.0 dry	104.0
77	D20-1597H	19/02/2020	Lot 1569	FSL	2.0 dry	104.0
78^	D21-2231A	26/04/2021	Lot 1590	900	0.0	93.5
79^	D21-2231B	26/04/2021	Lot 1587	900	0.0	96.5
80^	D21-2231C	26/04/2021	Lot 1583	900	2.0 wet	102.5
81^ (RT78)	D21-2236A	27/04/2021	Lot 1590	900	3.0 dry	105.5
82^	D21-2250A	30/04/2021	Lot 1588	600	3.0 dry	98.0
83^	D21-2250B	30/04/2021	Lot 1586	600	0.5 dry	101.0
84^	D21-2267A	12/05/2021	Lot 1590	300	0.0	98.5
85^	D21-2267B	12/05/2021	Lot 1587	300	0.5 dry	101.0
86^	D21-2267C	12/05/2021	Lot 1583	300	3.0 wet	99.00
87^	D21-2303A	04/06/2021	Lot 1588	FSL	0.0	103.0
88^	D21-2303B	04/06/2021	Lot 1586	FSL	0.5 wet	102.0

* These layers were subsequently removed under the amended fill plan.
^ These tests are the trench backfill program.

5 STATEMENT OF COMPLIANCE

GTS personnel have provided Level 1 inspection and testing services during the placement of material for the filling of Lots 1567 to 1590, and the subsequent backfilling of the drainage trench across Lots 1583, 1586, 1587, 1588 and 1590. The placement of fill and construction techniques adopted was observed throughout the project.

Based on observations made by GTS personnel and the results of field and laboratory tests, we consider that the fill has been placed and compacted and is considered to be engineered or controlled fill. Therefore, subject to residential site classifications, the controlled fill material is deemed a suitable founding medium for future residential buildings.

Prepared by

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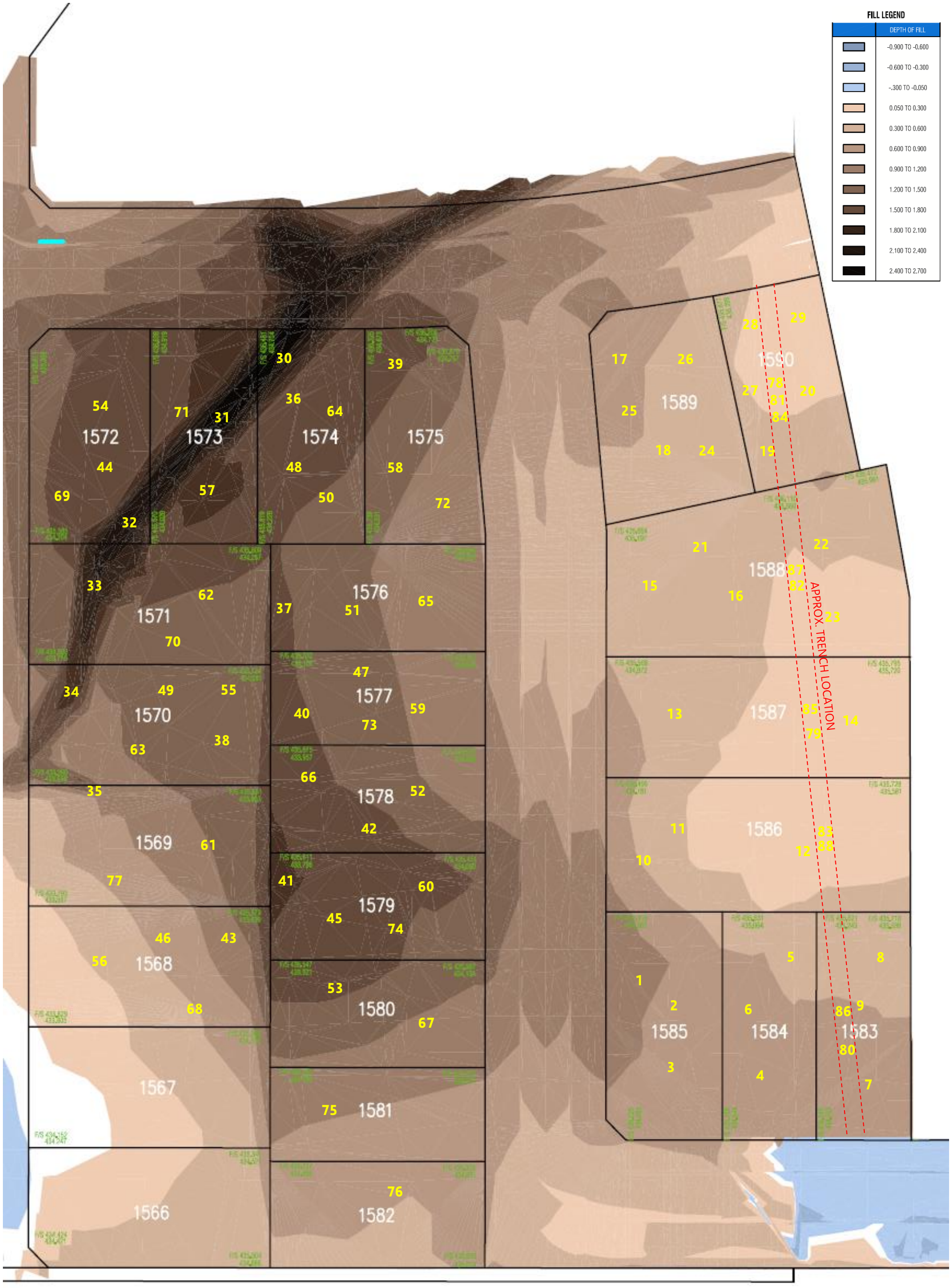
Senior Geologist

APPENDIX


FILL LEGEND
DEPTH OF FILL
-0.900 TO -0.600
-0.600 TO -0.300
-.300 TO -0.050
0.050 TO 0.300
0.300 TO 0.600
0.600 TO 0.900
0.900 TO 1.200
1.200 TO 1.500
1.500 TO 1.800
1.800 TO 2.100
2.100 TO 2.400
2.400 TO 2.700
APPROX. TRENCH LOCATION
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Material Test Report

Report Number: **P19126-1**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Update Levels on Report*
Date Issued: 28/04/2020
Client: Integra Land
Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P19126
Project Name: Lucas Estate - Stage E3
Project Location: Alfredton
Work Request: 868
Date Sampled: 25/01/2019
Dates Tested: 18/01/2019 - 31/01/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard

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Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	D19-868A	D19-868B	D19-868C	D19-868D	D19-868E	D19-868F
Date Tested	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019
Time Tested	07:46	07:51	07:54	07:58	07:59	08:02
Test Request #/Location	House Lot No 1585	House Lot No 1585	House Lot No 1585	House Lot No 1584	House Lot No 1584	House Lot No 1584
Easting	54H 744773	54H 744780	54H 744777	54H 744788	54H 744787	54H 744787
Northing	5840515	5840511	5840517	5840516	5840513	5840515
Elevation (m)	700mm BFSL	300mm BFSL	FSL	700mm BFSL	300mm BFSL	FSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200	200	200	200	200	200
Soil Description	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay
Test Depth (mm)	175	175	175	175	175	175
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	3.4	0.0	0.0
Field Wet Density (FWD) t/m^3	1.97	1.84	1.81	1.89	1.88	1.83
Field Dry Density (FDD) t/m^3	**	**	**	**	**	**
Peak Converted Wet Density t/m^3	1.82	1.74	1.74	**	1.73	1.68
Adjusted Peak Converted Wet Density t/m^3	**	**	**	1.71	**	**
Moisture Variation (Wv) %	5.0	4.0	6.0	**	3.0	2.0
Adjusted Moisture Variation %	**	**	**	5.0	**	**
Hilf Density Ratio (%)	**108.0**	**105.5**	**104.5**	**110.5**	**108.5**	**109.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19126-1**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Update Levels on Report*
Date Issued: 28/04/2020
Client: Integra Land
Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P19126
Project Name: Lucas Estate - Stage E3
Project Location: Alfredton
Work Request: 868
Date Sampled: 25/01/2019
Dates Tested: 18/01/2019 - 31/01/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard

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Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	D19-868G	D19-868H	D19-868I	D19-868J	D19-868K	D19-868L
Date Tested	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019
Time Tested	08:10	08:14	08:16	08:22	08:28	08:36
Test Request #/Location	House Lot No 1583	House Lot No 1583	House Lot No 1583	House Lot No 1586	House Lot No 1586	House Lot No 1586
Easting	54H 744794	54H 744797	54H 744796	54H 744787	54H 744799	54H 744789
Northing	5840507	5840502	5840508	5840539	5840535	5840539
Elevation (m)	700mm BFSL	300mm BFSL	FSL	300mm BFSL	FSL	600mm BFSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200	200	200	200	200	200
Soil Description	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay
Test Depth (mm)	175	175	175	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	7.4	19.8	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	1.84	1.82	1.87	1.84	1.85	1.76
Field Dry Density (FDD) t/m^3	**	**	**	**	**	**
Peak Converted Wet Density t/m^3	1.71	**	**	1.74	1.68	1.71
Adjusted Peak Converted Wet Density t/m^3	**	1.74	1.77	**	**	**
Moisture Variation (Wv) %	3.5	**	**	3.0	5.5	4.5
Adjusted Moisture Variation %	**	3.0	3.0	**	**	**
Hilf Density Ratio (%)	**107.5**	**104.5**	**105.5**	**105.5**	**110.0**	**103.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19126-1**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Update Levels on Report*
Date Issued: 28/04/2020
Client: Integra Land
Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P19126
Project Name: Lucas Estate - Stage E3
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Date Sampled: 25/01/2019
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Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	D19-868M	D19-868N	D19-868O	D19-868P	D19-868Q	D19-868R
Date Tested	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019
Time Tested	08:40	08:45	08:49	08:55	09:10	09:15
Test Request #/Location	House Lot No 1587	House Lot No 1587	House Lot No 1588	House Lot No 1588	House Lot No 1589	House Lot No 1589
Easting	54H 744791	54H 744792	54H 744795	54H 744802	54H 744798	54H 744793
Northing	5840559	5840559	5840572	5840572	5840597	5840599
Elevation (m)	300mm BFSL	FSL	1200mm BFSL	900mm BFSL	1200mm BFSL	900mm BFSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200	200	200	200	200	200
Soil Description	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay
Test Depth (mm)	175	175	175	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	1.85	1.82	1.86	1.74	1.87	1.98
Field Dry Density (FDD) t/m^3	**	**	**	**	**	**
Peak Converted Wet Density t/m^3	1.71	1.71	1.72	1.76	1.70	1.87
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	3.0	0.5	3.5	0.5	4.5	4.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**108.5**	**107.0**	**108.0**	**99.0**	**109.5**	**106.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19126-1**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Update Levels on Report*
Date Issued: 28/04/2020
Client: Integra Land
Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P19126
Project Name: Lucas Estate - Stage E3
Project Location: Alfredton
Work Request: 868
Date Sampled: 25/01/2019
Dates Tested: 18/01/2019 - 31/01/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	D19-868S	D19-868T				
Date Tested	25/01/2019	25/01/2019				
Time Tested	09:25	09:29				
Test Request #/Location	House Lot No 1590	House Lot No 1590				
Easting	54H 744810	54H 744803				
Northing	5840602	5840601				
Elevation (m)	1200mm BFSL	900mm BFSL				
Layer / Reduced Level	Filling	Filling				
Thickness of Layer (mm)	200	200				
Soil Description	Orange Brown Sandy Clay	Orange Brown Sandy Clay				
Test Depth (mm)	175	175				
Sieve used to determine oversize (mm)	19.0	19.0				
Percentage of Wet Oversize (%)	0.0	0.0				
Field Wet Density (FWD) t/m^3	1.99	1.76				
Field Dry Density (FDD) t/m^3	**	**				
Peak Converted Wet Density t/m^3	1.75	1.82				
Adjusted Peak Converted Wet Density t/m^3	**	**				
Moisture Variation (Wv) %	2.0	0.5				
Adjusted Moisture Variation %	**	**				
Hilf Density Ratio (%)	**114.0**	**96.5**				
Compaction Method	**Standard**	**Standard**				

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: P19126-2
Issue Number: 1
Date Issued: 08/02/2019
Client: Integra Land
Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P19126
Project Name: Lucas Estate - Stage E3
Project Location: Alfredton
Work Request: 892
Date Sampled: 05/02/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	D19-892A	D19-892B	D19-892C	D19-892D	D19-892E	D19-892F
Date Tested	05/02/2019	05/02/2019	05/02/2019	05/02/2019	05/02/2019	05/02/2019
Time Tested	09:05	09:09	09:14	09:32	09:35	09:37
Test Request #/Location	House Lot 1588	House Lot 1588	House Lot 1588	House Lot 1589	House Lot 1589	House Lot 1589
Easting	54H 744795	54H 744796	54H 744795	54H 744789	54H 744788	54H 744788
Northing	5840585	5840583	5840583	5840595	5840601	5840603
Elevation (m)	FSL	300mm BFSL	600mm BFSL	FSL	300mm BFSL	600mm BFSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200	200	200	200	200	200
Soil Description	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay
Test Depth (mm)	175	175	175	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	1.85	1.82	1.71	1.76	1.81	1.88
Field Dry Density (FDD) t/m^3	**	**	**	**	**	**
Peak Converted Wet Density t/m^3	1.80	1.81	1.78	1.77	1.84	1.70
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	2.5	0.5	0.0	2.0	-0.5	-1.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**103.0**	**100.5**	**96.0**	**99.0**	**98.5**	**110.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19126-2**
Issue Number: 1
Date Issued: 08/02/2019
Client: Integra Land
Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P19126
Project Name: Lucas Estate - Stage E3
Project Location: Alfredton
Work Request: 892
Date Sampled: 05/02/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: bryanm@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1			
Sample Number	D19-892G	D19-892H	D19-892I
Date Tested	05/02/2019	05/02/2019	05/02/2019
Time Tested	08:40	08:46	09:00
Test Request #/Location	House Lot 1590	House Lot 1590	House Lot 1590
Easting	54H 744801	54H 744799	54H 744799
Northing	5840597	5840596	5840597
Elevation (m)	FSL	300mm BFSL	600mm BFSL
Layer / Reduced Level	Filling	Filling	Filling
Thickness of Layer (mm)	200	200	200
Soil Description	Orange Brown Sandy Clay	Orange Brown Sandy Clay	Orange Brown Sandy Clay
Test Depth (mm)	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	1.83	1.70	1.64
Field Dry Density (FDD) t/m^3	**	**	**
Peak Converted Wet Density t/m^3	1.74	1.82	1.77
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	2.5	0.5	1.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**105.5**	**93.5**	**93.0**
Compaction Method	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: P19226-1
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *New Levels needed to be Put In*
Date Issued: 28/04/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1416
Date Sampled: 19/11/2019
Dates Tested: 19/11/2019 - 20/11/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D19-1416A	D19-1416B	D19-1416C	D19-1416D	D19-1416E	D19-1416F
Date Tested	19/11/2019	19/11/2019	19/11/2019	19/11/2019	19/11/2019	19/11/2019
Time Tested	14:10	14:29	14:47	15:09	15:35	16:15
Test Request #/Location	House Lot No. 1574 Creek Area	House Lot No. 1573 Creek Area	House Lot No. 1572 Creek Area	House Lot No. 1571 Creek Area	House Lot No. 1570 Creek Area	House Lot No. 1569 Creek Area
Easting	54H 744731	54H 745713	54H 744718	54H 744707	54H 745389	54H 744686
Northing	5840613	5840317	5840609	5840588	5840458	5840568
Elevation (m)	2100mm BFSL	2400mm BFSL	2100mm BFSL	2100mm BFSL	1800mm BFSL	1500mm BFSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	300	300	300	300	300	300
Soil Description	Gravelly silty brown clay	Gravelly silty brown clay	Gravelly silty brown clay	Gravelly silty brown clay	Gravelly silty brown clay	Gravelly silty brown 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	6.0	8.4	5.8	6.9	4.9
Field Wet Density (FWD) t/m^3	2.01	2.14	2.12	2.01	2.08	2.10
Field Moisture Content %	21.5	21.5	19.4	21.1	22.9	22.0
Field Dry Density (FDD) t/m^3	1.65	1.76	1.78	1.66	1.69	1.72
Peak Converted Wet Density t/m^3	2.04	**	**	**	**	**
Adjusted Peak Converted Wet Density t/m^3	**	2.09	2.10	2.08	2.09	2.04
Moisture Variation (Wv) %	0.5	**	**	**	**	**
Adjusted Moisture Variation %	**	0.0	0.0	0.0	0.0	0.5
Hilf Density Ratio (%)	**98.5**	**102.0**	**101.0**	**96.5**	**99.5**	**103.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-2**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *New Levels Needed to be put In*
Date Issued: 28/04/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1422
Date Sampled: 20/11/2019
Dates Tested: 20/11/2019 - 21/11/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
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Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D19-1422A	D19-1422B	D19-1422C
Date Tested	20/11/2019	20/11/2019	20/11/2019
Time Tested	15:59	16:21	16:28
Test Request #/Location	House Lot No. 1574	House Lot No. 1576	House Lot No. 1570
Easting	54H 744739	54H 744730	54H 744708
Northing	5840619	5840583	5840574
Elevation (m)	1800mm BFSL	1800mm BFSL	1500mm BFSL
Layer / Reduced Level	Filling	Filling	Filling
Thickness of Layer (mm)	300	300	300
Soil Description	Gravelly silty brown clay	Gravelly silty brown clay	Gravelly silty brown clay
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	1.96	1.94	2.09
Field Moisture Content %	23.8	18.9	20.6
Field Dry Density (FDD) t/m^3	1.58	1.63	1.73
Peak Converted Wet Density t/m^3	1.88	2.04	2.11
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	3.5	1.0	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**104.0**	**95.0**	**99.0**
Compaction Method	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-3**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *New levels Needed to be put in*
Date Issued: 28/04/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1424
Date Sampled: 21/11/2019
Dates Tested: 21/11/2019 - 22/11/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D19-1424A	D19-1424B	D19-1424C
Date Tested	21/11/2019	21/11/2019	21/11/2019
Time Tested	16:10	16:32	16:44
Test Request #/Location	House Lot No. 75	House Lot No. 77	House Lot No. 79
Easting	54H 744755	54H 744734	54H 744726
Northing	5840632	5840598	5840567
Elevation (m)	1500mm BFSL	1500mm BFSL	1500mm BFSL
Layer / Reduced Level	Filling	Filling	Filling
Thickness of Layer (mm)	300	300	300
Soil Description	Gravelly Silty Clay Brown	Gravelly Silty Clay Brown	Gravelly Silty Clay Brown
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	0.0	0.0
Field Wet Density (FWD) t/m^3	2.10	2.11	2.05
Field Moisture Content %	22.3	26.0	20.2
Field Dry Density (FDD) t/m^3	1.72	1.68	1.71
Peak Converted Wet Density t/m^3	2.09	2.05	2.04
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	0.0	-1.0	2.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**100.5**	**103.0**	**100.5**
Compaction Method	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: P19226-4
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *New Levels Needed tp be put in*
Date Issued: 28/04/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1427
Date Sampled: 22/11/2019
Dates Tested: 22/11/2019 - 25/11/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
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Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D19-1427A	D19-1427B	D19-1427C
Date Tested	22/11/2019	22/11/2019	22/11/2019
Time Tested	15:42	15:53	16:02
Test Request #/Location	House Lot No. 78	House Lot No. 68	House Lot No. 72
Easting	54H 744726	54H 744725	54H 744719
Northing	5840580	5840571	5840626
Elevation (m)	1200mm BFSL	1500mm BFSL	1200mm BFSL
Layer / Reduced Level	Filling	Filling	Filling
Thickness of Layer (mm)	300	300	300
Soil Description	Gravelly Silty Clay Brown	Gravelly Silty Clay Brown	Gravelly Silty Clay Brown
Test Depth (mm)	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	2.10	2.12	2.04
Field Moisture Content %	20.7	19.9	25.6
Field Dry Density (FDD) t/m^3	1.74	1.76	1.62
Peak Converted Wet Density t/m^3	2.06	2.13	2.03
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	1.0	0.5	-0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**102.0**	**99.5**	**100.5**
Compaction Method	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-5**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *New Levels needed to be put in*
Date Issued: 28/04/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1431
Date Sampled: 04/12/2019
Dates Tested: 04/12/2019 - 05/12/2019
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
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Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	D19-1431A	D19-1431B	D19-1431C	D19-1431D	D19-1431F
Date Tested	04/12/2019	04/12/2019	04/12/2019	04/12/2019	04/12/2019
Time Tested	12:10	12:31	12:45	13:00	13:14
Test Request #/Location	House Lot No 1579	House Lot No 1568	House Lot No 1577	House Lot No 1574	House Lot No 1570
Easting	54H 744710	54H 744688	54H 744716	54H 744818	54H 744697
Northing	5840551	5840544	5840571	5840664	5840576
Elevation (m)	800mm BFSL	1200mm BFSL	1000mm BFSL	1400mm BFSL	1200mm BFSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	300	300	300	300	300
Soil Description	Orange brown gravelly clay	Orange brown gravelly clay	Orange brown gravelly clay	Orange brown gravelly clay	Orange brown gravelly clay
Test Depth (mm)	275	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0	18.4	11.7
Field Wet Density (FWD) t/m^3	2.20	2.26	2.07	2.13	2.06
Field Moisture Content %	11.9	13.7	19.2	18.6	21.2
Field Dry Density (FDD) t/m^3	1.96	1.99	1.74	1.80	1.70
Peak Converted Wet Density t/m^3	2.09	2.15	2.13	**	**
Adjusted Peak Converted Wet Density t/m^3	**	**	**	2.09	2.15
Moisture Variation (Wv) %	4.5	3.0	0.0	**	**
Adjusted Moisture Variation %	**	**	**	1.5	0.0
Hilf Density Ratio (%)	**105.0**	**105.0**	**97.5**	**102.0**	**95.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-6**
Issue Number: 1
Date Issued: 22/01/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1531
Date Sampled: 21/01/2020
Dates Tested: 21/01/2020 - 22/01/2020
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D20-1531A	D20-1531B	D20-1531C	D20-1531D
Date Tested	21/01/2020	21/01/2020	21/01/2020	21/01/2020
Time Tested	11:24	11:34	11:45	11:53
Test Request #/Location	House Lot No. 1574	House Lot No. 1576	House Lot No. 1578	House Lot No. 1580
Easting	54H 744736	54H 744740	54H 744732	54H 744721
Northing	5840615	5840591	5840563	5840546
Elevation (m)	920mm BFSL	850mm BFSL	1000mm BFSL	1300 BFSL
Layer / Reduced Level	Layer No. 1	Layer No. 1	Layer No. 1	Layer No. 1
Thickness of Layer (mm)	200	200	200	200
Soil Description	Orange brown silty clay	Orange brown silty clay	Orange brown silty clay	Orange brown silty clay
Test Depth (mm)	175	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	3.5	5.9	14.3	**
Field Wet Density (FWD) t/m^3	2.04	1.95	2.10	2.06
Field Moisture Content %	20.0	16.4	18.9	17.7
Field Dry Density (FDD) t/m^3	1.70	1.68	1.76	1.75
Peak Converted Wet Density t/m^3	**	**	**	1.99
Adjusted Peak Converted Wet Density t/m^3	1.95	1.98	2.06	**
Moisture Variation (Wv) %	**	**	**	2.5
Adjusted Moisture Variation %	2.5	4.0	2.5	**
Hilf Density Ratio (%)	**104.5**	**98.5**	**102.0**	**103.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-6**
Issue Number: 1
Date Issued: 22/01/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1531
Date Sampled: 21/01/2020
Dates Tested: 21/01/2020 - 22/01/2020
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D20-1531E	D20-1531F	D20-1531G	
Date Tested	21/01/2020	21/01/2020	21/01/2020	
Time Tested	12:11	12:28	12:39	
Test Request #/Location	House Lot No. 1572	House Lot No. 1570	House Lot No. 1568	
Easting	54H 744709	54H 744722	54H 7447696	
Northing	5840608	5840565	5840549	
Elevation (m)	970mm BFSL	570mm BFSL	850mm BFSL	
Layer / Reduced Level	Layer No. 1	Layer No. 1	Layer No. 1	
Thickness of Layer (mm)	200	200	200	
Soil Description	Orange brown silty clay	Orange brown silty clay	Orange brown silty clay	
Test Depth (mm)	175	175	175	
Sieve used to determine oversize (mm)	19.0	19.0	19.0	
Percentage of Wet Oversize (%)	2.1	19.3	1.7	
Field Wet Density (FWD) t/m^3	2.10	1.98	2.00	
Field Moisture Content %	17.9	18.9	18.3	
Field Dry Density (FDD) t/m^3	1.78	1.66	1.70	
Peak Converted Wet Density t/m^3	**	**	**	
Adjusted Peak Converted Wet Density t/m^3	1.94	2.07	1.99	
Moisture Variation (Wv) %	**	**	**	
Adjusted Moisture Variation %	3.0	2.0	2.5	
Hilf Density Ratio (%)	**108.0**	**95.5**	**100.5**	
Compaction Method	**Standard**	**Standard**	**Standard**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-7**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *New Levels Needed to be put in*
Date Issued: 28/04/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1534
Date Sampled: 28/01/2020
Dates Tested: 28/01/2020 - 29/01/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected By Tester
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D20-1534A	D20-1534B	D20-1534C	D20-1534D	D20-1534E	D20-1534F
Date Tested	28/01/2020	28/01/2020	28/01/2020	28/01/2020	28/01/2020	28/01/2020
Time Tested	09:08	09:40	09:29	09:58	10:14	10:26
Test Request #/Location	House Lot No. 1573 e: 54H 744721 n: 5840605	House Lot No. 1575 e: 54H 744746 n: 5840607	House Lot No. 1577 e: 54H 744737 n: 5840570	House Lot No. 1579 e: 54H 744733 n: 5840552	House Lot No. 1569 e: 54H 744722 n: 5840582	House Lot No. 1571 e: 54H 744729 n: 5840600
Easting	54H 744721	54H 744746	54H 744737	54H 744733	54H 744722	54H 744729
Northing	5840605	5840607	5840570	5840552	5840582	5840600
Elevation (m)	570mm BFSL	740mm BFSL	600mm BFSL	700mm BFSL	500mm BFSL	640mm BFSL
Layer / Reduced Level	Layer 2	Layer 2	Layer 2	Layer 2	Layer 2	Layer 2
Thickness of Layer (mm)	200	200	200	200	200	200
Soil Description	Orange brown gravelly clay	Orange brown gravelly clay	Orange brown gravelly clay	Orange brown gravelly clay	Orange brown gravelly clay	Orange brown gravelly clay
Test Depth (mm)	175	175	175	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	5.3	**	0.0	8.9	0.0
Field Wet Density (FWD) t/m^3	2.11	2.03	1.99	2.00	2.14	2.11
Field Moisture Content %	18.7	18.7	18.0	16.9	18.8	19.2
Field Dry Density (FDD) t/m^3	1.78	1.71	1.69	1.71	1.80	1.77
Peak Converted Wet Density t/m^3	2.02	**	1.88	1.98	**	2.02
Adjusted Peak Converted Wet Density t/m^3	**	1.92	**	**	2.06	**
Moisture Variation (Wv) %	3.0	**	5.0	3.5	**	3.0
Adjusted Moisture Variation %	**	3.5	**	**	2.5	**
Hilf Density Ratio (%)	**104.5**	**106.0**	**106.0**	**101.0**	**104.0**	**105.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-8**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Fix House Lot No.*
Date Issued: 28/04/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1537
Date Sampled: 05/02/2020
Dates Tested: 05/02/2020 - 13/02/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D20-1537A	D20-1537B	D20-1537C	D20-1537D
Date Tested	05/02/2020	05/02/2020	05/02/2020	05/02/2020
Time Tested	16:37	17:06	17:17	17:29
Test Request #/Location	House Lot No. 1570 e: 54H 744708 n: 5840609	House Lot No. 1574 e: 54H 744751 n: 5840625	House Lot No. 1576 e: 54H 744746 n: 5840595	House Lot No. 1578 e: 54H 744747 n: 5840574
Easting	54H 744708	54H 744751	54H 744746	54H 744747
Northing	5840609	5840625	5840595	5840574
Elevation (m)	300mm BFSL	300mm BFSL	300mm BFSL	300mm BFSL
Layer / Reduced Level	Layer No 3	Layer No 3	Layer No 3	Layer No 3
Thickness of Layer (mm)	200	200	200	200
Soil Description	Orange brown rocky clay	Orange brown rocky clay	Orange brown rocky clay	Orange brown rocky clay
Test Depth (mm)	175	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	11.8	7.5	0.0	0.0
Field Wet Density (FWD) t/m^3	2.01	1.98	2.02	2.05
Field Moisture Content %	21.1	16.9	15.7	18.5
Field Dry Density (FDD) t/m^3	1.66	1.70	1.75	1.73
Peak Converted Wet Density t/m^3	**	**	1.90	1.93
Adjusted Peak Converted Wet Density t/m^3	1.97	1.88	**	**
Moisture Variation (Wv) %	**	**	5.0	3.0
Adjusted Moisture Variation %	1.5	5.0	**	**
Hilf Density Ratio (%)	**102.0**	**105.0**	**106.5**	**106.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-8**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Fix House Lot No.*
Date Issued: 28/04/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1537
Date Sampled: 05/02/2020
Dates Tested: 05/02/2020 - 13/02/2020
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: matthewa@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Matt Allen
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D20-1537E	D20-1537F	D20-1537G	
Date Tested	05/02/2020	05/02/2020	05/02/2020	
Time Tested	17:42	17:55	18:08	
Test Request #/Location	House Lot No. 1580 e: 54H 744712 n: 5840549	House Lot No. 1568 e: 54H 744712 n: 5840583	House Lot No. 1572 e: 54H 744729 n: 5840622	
Easting	54H 744712	54H 744712	54H 744729	
Northing	5840549	5840583	5840622	
Elevation (m)	300mm BFSL	300mm BFSL	300mm BFSL	
Layer / Reduced Level	Layer No 3	Layer No 3	Layer No 3	
Thickness of Layer (mm)	200	200	200	
Soil Description	Orange brown rocky clay	Orange brown rocky clay	Orange brown rocky clay	
Test Depth (mm)	175	175	175	
Sieve used to determine oversize (mm)	19.0	19.0	19.0	
Percentage of Wet Oversize (%)	0.0	0.0	0.0	
Field Wet Density (FWD) t/m^3	2.05	2.02	2.15	
Field Moisture Content %	17.5	24.8	22.0	
Field Dry Density (FDD) t/m^3	1.75	1.62	1.76	
Peak Converted Wet Density t/m^3	1.96	1.88	1.93	
Adjusted Peak Converted Wet Density t/m^3	**	**	**	
Moisture Variation (Wv) %	4.5	1.0	3.0	
Adjusted Moisture Variation %	**	**	**	
Hilf Density Ratio (%)	**105.0**	**107.5**	**111.5**	
Compaction Method	**Standard**	**Standard**	**Standard**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-9**
Issue Number: 1
Date Issued: 24/02/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1597
Date Sampled: 19/02/2020
Dates Tested: 19/02/2020 - 19/02/2020
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: bryanm@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D20-1597A	D20-1597B	D20-1597C	D20-1597D
Date Tested	19/02/2020	19/02/2020	19/02/2020	19/02/2020
Time Tested	08:44	09:00	09:09	09:17
Test Request #/Location	House Lot No. 1571	House Lot No. 1573	House Lot No. 1575	House Lot No. 1577
Easting	54H 744697	54H 744881	54H 744755	54H 744746
Northing	5840613	5840657	5840620	5840599
Elevation (m)	FSL	FSL	FSL	FSL
Layer / Reduced Level	Layer 4	Layer 4	Layer 4	Layer 4
Thickness of Layer (mm)	200	200	200	200
Soil Description	Orange Brown Silty Clay some rock	Orange Brown Silty Clay some rock	Orange Brown Silty Clay some rock	Orange Brown Silty Clay some rock
Test Depth (mm)	175	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	3.8	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	1.90	1.82	1.80	1.84
Field Moisture Content %	21.6	22.5	25.7	29.8
Field Dry Density (FDD) t/m^3	1.56	1.48	1.43	1.42
Peak Converted Wet Density t/m^3	**	1.85	1.89	1.83
Adjusted Peak Converted Wet Density t/m^3	1.84	**	**	**
Moisture Variation (Wv) %	**	4.0	2.5	2.0
Adjusted Moisture Variation %	4.5	**	**	**
Hilf Density Ratio (%)	**103.0**	**98.5**	**95.5**	**100.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-9**
Issue Number: 1
Date Issued: 24/02/2020
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 1597
Date Sampled: 19/02/2020
Dates Tested: 19/02/2020 - 19/02/2020
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
Site Selection: Selected by Client
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: bryanm@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D20-1597E	D20-1597F	D20-1597G	D20-1597H
Date Tested	19/02/2020	19/02/2020	19/02/2020	19/02/2020
Time Tested	09:34	09:43	09:57	10:14
Test Request #/Location	House Lot No. 1579	House Lot No. 1581	House Lot No. 1583	House Lot No. 1569
Easting	54H 744739	54H 744727	54H 744695	54H 744690
Northing	5840558	5840542	5840551	5840591
Elevation (m)	FSL	FSL	FSL	FSL
Layer / Reduced Level	Layer 4	Layer 4	Layer 4	Layer 4
Thickness of Layer (mm)	200	200	200	200
Soil Description	Orange Brown Silty Clay some rock	Orange Brown Silty Clay some rock	Orange Brown Silty Clay some rock	Orange Brown Silty Clay some rock
Test Depth (mm)	175	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	8.8	0.0	0.0	0.0
Field Wet Density (FWD) t/m^3	1.86	1.85	1.89	1.96
Field Moisture Content %	24.1	28.1	23.4	26.6
Field Dry Density (FDD) t/m^3	1.50	1.44	1.53	1.55
Peak Converted Wet Density t/m^3	**	1.86	1.82	1.88
Adjusted Peak Converted Wet Density t/m^3	1.93	**	**	**
Moisture Variation (Wv) %	**	2.0	5.0	2.0
Adjusted Moisture Variation %	2.0	**	**	**
Hilf Density Ratio (%)	**96.0**	**99.5**	**104.0**	**104.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-10**
Issue Number: 1
Date Issued: 28/04/2021
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 2231
Date Sampled: 26/04/2021
Dates Tested: 26/04/2021 - 27/04/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Location: Lucas
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: bryanm@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D21-2231A	D21-2231B	D21-2231C
Date Tested	26/04/2021	26/04/2021	26/04/2021
Time Tested	12:55	12:58	13:03
Test Request #/Location	House Lot No 1590	House Lot No 1587	House Lot No 1583
Easting	54h 744812	54h 744811	54h 744804
Northing	5840598	5840556	5840525
Elevation (m)	-900	-900	-900
Layer / Reduced Level	Lift 1	Lift 1	Lift 1
Thickness of Layer (mm)	300	300	300
Soil Description	Brown Silty Clay	Brown Silty Clay	Brown 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	1.82	1.84	1.91
Field Moisture Content %	27.8	26.6	37.5
Field Dry Density (FDD) t/m^3	1.42	1.45	1.39
Peak Converted Wet Density t/m^3	1.94	1.91	1.87
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	0.0	0.0	-2.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**93.5**	**96.5**	**102.5**
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: **P19226-11**
Issue Number: 1
Date Issued: 28/04/2021
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 2236
Date Sampled: 27/04/2021
Dates Tested: 27/04/2021 - 28/04/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Location: Lucas
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: bryanm@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D21-2236A		
Date Tested	27/04/2021		
Time Tested	14:15		
Test Request #/Location	House Lot No 1590		
Easting	54H 744815		
Northing	5840594		
Elevation (m)	-900		
Layer / Reduced Level	Lift 1		
Thickness of Layer (mm)	300		
Soil Description	Brown Silty Clay		
Test Depth (mm)	275		
Sieve used to determine oversize (mm)	19.0		
Percentage of Wet Oversize (%)	0		
Field Wet Density (FWD) t/m^3	1.93		
Field Moisture Content %	23.7		
Field Dry Density (FDD) t/m^3	1.56		
Peak Converted Wet Density t/m^3	1.83		
Adjusted Peak Converted Wet Density t/m^3	**		
Moisture Variation (Wv) %	3.0		
Adjusted Moisture Variation %	**		
Hilf Density Ratio (%)	**105.5**		
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: **P19226-12**
Issue Number: 1
Date Issued: 04/05/2021
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 2250
Date Sampled: 30/04/2021
Dates Tested: 30/04/2021 - 30/04/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected By Tester
Location: Lucas
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: bryanm@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D21-2250A	D21-2250B	
Date Tested	30/04/2021	30/04/2021	
Time Tested	11:05	10:52	
Test Request #/Location	House Lot No. 1588	House Lot No. 1586	
Easting	54H 744812	54H 744812	
Northing	5840584	5840540	
Elevation (m)	-600mm BFSL	-600mm BFSL	
Thickness of Layer (mm)	300	300	
Soil Description	Brown Silty Clay	Brown Silty Clay	
Test Depth (mm)	275	275	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	
Field Wet Density (FWD) t/m^3	1.83	2.09	
Field Moisture Content %	22.9	18.8	
Field Dry Density (FDD) t/m^3	1.49	1.76	
Peak Converted Wet Density t/m^3	1.86	2.07	
Adjusted Peak Converted Wet Density t/m^3	**	**	
Moisture Variation (Wv) %	3.0	0.5	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	**98.0**	**101.0**	
Compaction Method	**Standard**	**Standard**	
Report Remarks	**	**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **P19226-13**
Issue Number: 1
Date Issued: 14/05/2021
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 2267
Date Sampled: 12/05/2021
Dates Tested: 12/05/2021 - 12/05/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected By Tester
Location: Lucas Stage E3
Material Source: Test Location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D21-2267A	D21-2267B	D21-2267C
Date Tested	12/05/2021	12/05/2021	12/05/2021
Time Tested	09:12	09:14	09:16
Test Request #/Location	House Lot No 1590	House Lot No 1587	House Lot No 1583
Easting	54h 744816	54h 744827	54h 744813
Northing	5840602	5840574	5840522
Layer / Reduced Level	-300	-300	-300
Thickness of Layer (mm)	300	300	300
Soil Description	Brown Silty Clay	Brown Silty Clay	Brown 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	1.97	1.99	1.98
Field Moisture Content %	22.5	23.0	25.5
Field Dry Density (FDD) t/m^3	1.61	1.62	1.58
Peak Converted Wet Density t/m^3	2.00	1.97	2.00
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	0.0	0.5	-3.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**98.5**	**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: **P19226-14**
Issue Number: 1
Date Issued: 07/06/2021
Client: Sovereign Civil Pty Ltd
P.o Box 4001, Alfredton Victoria 3350
Contact: Billie Cody
Project Number: P19226
Project Name: Lucas Stage E3
Project Location: Alfredton
Work Request: 2303
Date Sampled: 04/06/2021
Dates Tested: 04/06/2021 - 04/06/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected By Tester
Location: Lucas
Material Source: Test location

Geotechnical Testing Services (Southern)
Ballarat Soil and Concrete Testing Laboratory
Unit 6, 33 Laidlaw Drive Delacombe VIC 3356
Phone: (03) 5335 6494
Email: joshl@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Josh Lagodzki
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D21-2303A	D21-2303B	
Date Tested	04/06/2021	04/06/2021	
Time Tested	11:16	11:18	
Test Request #/Location	House Lot No. 1588	House Lot No. 1586	
Easting	54h 744808	54h 744809	
Northing	5840579	5840544	
Layer / Reduced Level	FSL	FSL	
Thickness of Layer (mm)	300	300	
Soil Description	Brown Silty Clay	Brown Silty Clay	
Test Depth (mm)	275	275	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	
Field Wet Density (FWD) t/m^3	2.02	2.02	
Field Moisture Content %	19.8	19.5	
Field Dry Density (FDD) t/m^3	1.69	1.69	
Peak Converted Wet Density t/m^3	1.96	1.98	
Adjusted Peak Converted Wet Density t/m^3	**	**	
Moisture Variation (Wv) %	0.0	-0.5	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	**103.0**	**102.0**	
Compaction Method	**Standard**	**Standard**	
Report Remarks	**	**	

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC