

Ballymanus Estate Stage N, Lucas

Earthworks Supervision Report for Integra Land

Report 19C 0350
May, 2019

Ballymanus Estate Stage N Lucas

Earthworks Supervision Report for Integra Land

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1 INTRODUCTION

Integra Land commissioned Geotechnical Testing Services (GTS) to undertake Level 1 Supervision and testing (AS3798-2007) for the earthworks at Ballymanus Estate Stage N, Lucas.

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

Geotechnical Testing Services provided Level 1 inspection and testing of the engineered fill placed to raise the surface of Lots N1 to N15 and N25 to N41. It is noted that Stages N & P were merged to create this Stage N. The test reports still reference the initial lot numbers with the updated lot numbers included in the table and site plan.

The depth of fill across the site varied from none to around 1.2 metres in the centre of the stage.

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 site would be considered large scale (greater than 1500m²). Therefore, a minimum of 1 test per 2500m² per layer or 3 tests per visit are required. It is noted that 1 test per lot per layer was conducted which exceeds the minimum requirement.

3 INSPECTION AND TESTING

Inspection of the excavated base was conducted by a Geotechnician and it was observed that the unsuitable material (vegetation, top soil/silt) had been removed with the base consisting of a Silty Clay material of good strength.

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 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	D18-82A	18/1/18	Lot N25 (P1)	300	4.0 dry	95.5
2	D18-82B	18/1/18	Lot N26 (P2)	600	2.5 dry	102.0
3	D18-82C	18/1/18	Lot N41 (N21)	300	4.5 dry	107.0
4	D18-82D	18/1/18	Lot N40 (N20)	300	2.5 dry	106.0
5	D18-82E	18/1/18	Lot N39 (N19)	900	0.0	102.0
6	D18-82F	18/1/18	Lot N38 (N18)	900	2.5 wet	97.0
7	D18-82G	18/1/18	Lot N37 (N17)	900	2.5 wet	97.0
8	D18-82H	18/1/18	Lot N29 (N5)	900	3.0 dry	104.5
9	D18-82I	18/1/18	Lot N28 (N4)	900	0.0	98.0
10	D18-82J	18/1/18	Lot N27 (N3)	900	0.5 dry	96.5
11	D18-82K	18/1/18	Lot N30 (N6)	600	0.0	96.5
12	D18-82L	18/1/18	Lot N31 (N7)	300	1.0 dry	96.0
13	D18-82M	18/1/18	Lot N32 (N8)	300	2.5 dry	100.5
14	D18-82N	18/1/18	Lot N33 (N13)	700	2.5 dry	99.5
15	D18-82O	18/1/18	Lot N34 (N14)	800	2.0 dry	99.5
16	D18-82P	18/1/18	Lot N35 (N15)	800	1.5 wet	96.0
17	D18-82Q	18/1/18	Lot N36 (N16)	800	3.5 wet	96.5
18	D18-93A	23/1/18	Lot N37 (N17)	600	1.0 wet	100.0

Project No.	Sample No.	Test Date.	Location.	Reduced Level (mm)	Moisture Variation %O.M.C	Hilf Density Ratio %
19	D18-93B	23/1/18	Lot N38 (N18)	600	3.0 wet	99.0
20	D18-93C	23/1/18	Lot N39 (N19)	600	1.5 dry	100.0
21	D18-93D	23/1/18	Lot N27 (P3)	600	0.5 wet	99.5
22	D18-93E	23/1/18	Lot N28 (P4)	600	3.5 wet	101.0
23	D18-93F	23/1/18	Lot N29 (P5)	600	0.5 wet	105.0
24	D18-94A	24/1/18	Lot N36 (N16)	600	1.5 wet	102.5
25	D18-94B	24/1/18	Lot N36 (N16)	300	2.0 wet	102.0
26	D18-94C	24/1/18	Lot N35 (N15)	300	1.5 wet	98.0
27	D18-94D	24/1/18	Lot N34 (N14)	300	3.5 wet	102.0
28	D18-94E	24/1/18	Lot N33 (N13)	300	2.5 wet	101.0
29	D18-94F	24/1/18	Lot N32 (P8)	FSL	0.5 wet	101.0
30	D18-94G	24/1/18	Lot N31 (P7)	FSL	3.0 wet	99.5
31	D18-94H	24/1/18	Lot N30 (P6)	FSL	0.0	101.5
32	D18-94I	24/1/18	Lot N30 (P6)	300	2.5 wet	100.0
33	D18-103A	30/1/18	Lot N29 (P5)	300	1.0 wet	103.5
34	D18-103B	30/1/18	Lot N28 (P4)	300	0.5 dry	100.5
35	D18-103C	30/1/18	Lot N27 (P3)	300	0.5 wet	101.0
36	D18-103D	30/1/18	Lot N26 (P2)	300	0.5 wet	103.0
37	D18-103E	30/1/18	Lot N25 (P1)	300	1.0 wet	97.0
38	D18-103F	30/1/18	Lot N41 (N21)	300	0.5 wet	96.0
39	D18-103G	30/1/18	Lot N40 (N20)	300	1.0 dry	106.0
40	D18-103H	30/1/18	Lot N39 (N19)	300	0.5 wet	100.5
41	D18-103I	30/1/18	Lot N38 (N18)	300	0.0	104.0
42	D18-103J	30/1/18	Lot N37 (N17)	300	1.0 dry	96.5
43	D18-103K	30/1/18	Lot N1/2 (N1)	FSL	2.0 dry	100.5
44	D18-103L	30/1/18	Lot N3 (N2)	600	2.5 wet	102.0
45	D18-103M	30/1/18	Lot N4 (N3)	600	3.0 dry	99.5
46	D18-103N	30/1/18	Lot N5 (N4)	600	3.0 dry	98.0
47	D18-103O	30/1/18	Lot N6 (N5)	600	3.0 dry	101.0
48	D18-103P	30/1/18	Lot N7 (N6)	600	3.0 dry	95.0
49	D18-115A	7/2/18	Lot N3 (N2)	300	2.5 dry	104.0
50	D18-115B	7/2/18	Lot N4 (N3)	300	3.0 dry	101.0
51	D18-115C	7/2/18	Lot N5 (N4)	300	5.0 dry	99.5
52	D18-115D	7/2/18	Lot N6 (N5)	300	3.0 dry	99.5
53	D18-115E	7/2/18	Lot N7 (N6)	300	0.5 wet	93.0
54	D18-115F	7/2/18	Lot N8 (N7)	300	2.0 dry	95.5
55	D18-109A	1/2/18	Lot N25 (P1)	FSL	3.0 dry	102.0
56	D18-109B	1/2/18	Lot N26 (P2)	FSL	2.5 dry	99.5
57	D18-109C	1/2/18	Lot N27 (P3)	FSL	3.5 dry	99.0

Project No.	Sample No.	Test Date.	Location.	Reduced Level (mm)	Moisture Variation %O.M.C	Hilf Density Ratio %
58	D18-109D	1/2/18	Lot N28 (P4)	FSL	2.0 dry	102.0
59	D18-109E	1/2/18	Lot N29 (P5)	FSL	1.0 dry	102.0
60	D18-109F	1/2/18	Lot N33 (N13)	FSL	5.0 dry	98.0
61	D18-109G	1/2/18	Lot N34 (N14)	FSL	0.5 wet	104.5
62	D18-109H	1/2/18	Lot N35 (N15)	FSL	1.0 wet	99.5
63	D18-109I	1/2/18	Lot N36 (N16)	FSL	1.0 wet	101.5
64	D18-109J	1/2/18	Lot N37 (N17)	FSL	3.5 dry	109.5
65	D18-109K	1/2/18	Lot N38 (N18)	FSL	3.0 dry	106.5
66	D18-109L	1/2/18	Lot N39 (N19)	FSL	5.0 dry	102.5
67	D18-109M	1/2/18	Lot N40 (N20)	FSL	0.5 dry	104.5
68	D18-109N	1/2/18	Lot N41 (N21)	FSL	0.5 wet	101.5
69	D18-109O	1/2/18	Lot N14 (P9)	600	1.0 dry	100.0
70	D18-109P	1/2/18	Lot N13 (N12)	600	0.0	96.5
71	D18-109Q	1/2/18	Lot N12 (N11)	600	3.0 dry	103.0
72	D18-135A	9/2/18	Lot N14 (P9)	300	0.0	100.5
73	D18-135B	9/2/18	Lot N13 (N12)	300	3.5 dry	102.5
74	D18-135C	9/2/18	Lot N12 (N11)	300	4.0 dry	105.5
75	D18-135D	9/2/18	Lot N11 (N10)	300	1.5 dry	101.5
76	D18-135E	9/2/18	Lot N10 (N9)	300	2.5 dry	95.5
77	D18-135F	9/2/18	Lot N9 (N8)	300	3.0 dry	101.0
78 (RT53)	D18-135G	9/2/18	Lot N7 (N6)	300	3.0 dry	99.5
79	D18-142A	13/2/18	Lot N3 (N2)	FSL	0.5 wet	102.0
80	D18-142B	13/2/18	Lot N4 (N3)	FSL	2.5 dry	98.0
81	D18-142C	13/2/18	Lot N5 (N4)	FSL	6.0 dry	103.0
82	D18-142D	13/2/18	Lot N6 (N5)	FSL	2.5 dry	101.5
83	D18-142E	13/2/18	Lot N7 (N6)	FSL	3.0 dry	97.0
84	D18-142F	13/2/18	Lot N8 (N7)	FSL	3.0 dry	101.5
85	D18-148A	14/2/18	Lot N9 (N8)	FSL	1.0 dry	101.0
86	D18-148B	14/2/18	Lot N10 (N9)	FSL	0.5 dry	99.0
87	D18-148C	14/2/18	Lot N11 (N10)	FSL	1.5 wet	101.5
88	D18-148D	14/2/18	Lot N12 (N11)	FSL	5.5 dry	102.0
89	D18-148E	14/2/18	Lot N13 (N12)	FSL	0.5 dry	106.0
90	D18-148F	14/2/18	Lot N14 (P9)	FSL	1.0 wet	103.5
91	D18-788A	11/12/18	Lot N15 (286)	600	3.0 dry	107.0
92	D18-788B	11/12/18	Lot N15 (286)	900	3.5 dry	102.5
93	D18-788C	11/12/18	Lot N15 (286)	300	0.5 dry	95.5

5 STATEMENT OF COMPLIANCE

GTS personnel have provided Level 1 inspection and testing services during the placement of material for the filling of Lots N1 to N15 and N25 to N41. 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



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Principal Geotechnical Engineer

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APPENDIX

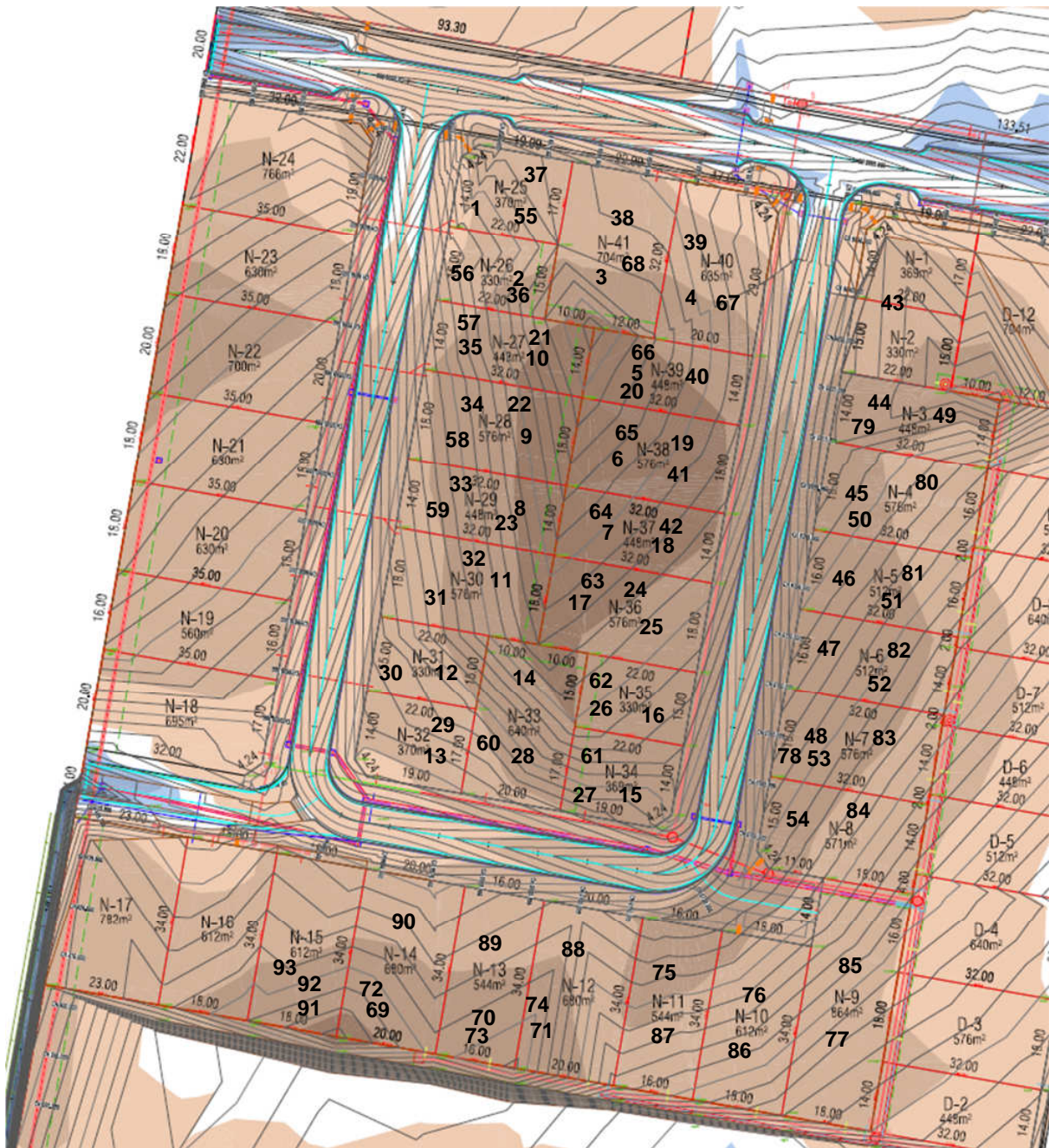


Fig 1: Site Plan

Compaction Control Test Report

Report Number: P18015-1
Issue Number: 1
Date Issued: 24/01/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: chrism@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 82
Date Sampled: 18/01/2018 07:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Specification: 95% Standard



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Chris Milne

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-82A	D18-82B	D18-82C	D18-82D	D18-82E
Date Tested	18/01/2018	18/01/2018	18/01/2018	18/01/2018	18/01/2018
Time Tested	07:29	07:35	07:45	07:55	08:12
Test Request #/Location	House lot P1	House lot P2	House lot N21	House lot N20	House lot N19
Easting	54H 746701	54H 746702	54H 746724	54H 746726	54H 747080
Northing	5838772	5838754	5838661	5838762	5839239
Elevation (m)	Lift 1	Lift 1	Lift 1	Lift 1	Lift 1
Layer / Reduced Level	300mm BFL	600mm BFL	300mm BFL	300mm BFL	900mm BFL
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Red Brown Gravelly Clay	Red Brown Gravelly Clay	Red Brown Gravelly Clay	Red Brown Gravelly Clay	Grey silty Clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.85	2.14	2.18	2.21	1.96
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.94	2.10	2.03	2.08	1.92
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	4.0	2.5	4.5	2.5	0.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	95.5	102.0	107.0	106.0	102.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-1
Issue Number: 1
Date Issued: 24/01/2018
Client: Integra Land



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 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

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Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 82
Date Sampled: 18/01/2018 07:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Specification: 95% Standard

Accredited for compliance with ISO/IEC 17025 - Testing



Chris Milne

Approved Signatory: Chris Milne

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-82F	D18-82G	D18-82H	D18-82I	D18-82J
Date Tested	18/01/2018	18/01/2018	18/01/2018	18/01/2018	18/01/2018
Time Tested	08:24	08:32	08:41	08:51	09:03
Test Request #/Location	House lot N18	House lot N17	House lot N5	House lot N4	House lot N3
Easting	54H 746733	54H 746730	54H 746705	54H 746702	54H 746699
Northing	5838722	5838705	5838703	5838722	5838734
Elevation (m)	Lift 1	Lift 1	Lift 1	Lift 1	Lift 1
Layer / Reduced Level	900mm BFL	900mm BFL	900mm BFL	900mm BFL	900mm BFL
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Grey silty Clay	Grey Brown Gravelly Clay	Red Brown Gravelly Clay	Red Brown Gravelly Clay	Red Brown Gravelly Clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.88	1.85	1.95	1.95	1.92
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.94	1.91	1.87	1.99	1.99
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	-2.5	-2.5	3.0	0.0	0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	97.0	97.0	104.5	98.0	96.5
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-1
Issue Number: 1
Date Issued: 24/01/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: chrism@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 82
Date Sampled: 18/01/2018 07:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Specification: 95% Standard



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Chris Milne

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-82K	D18-82L	D18-82M	D18-82N	D18-82O
Date Tested	18/01/2018	18/01/2018	18/01/2018	18/01/2018	18/01/2018
Time Tested	09:17	09:25	09:35	09:49	09:58
Test Request #/Location	House lot N6	House lot N7	House lot N8	House lot N13	House lot N14
Easting	54H 746688	54H 746697	54H 746681	54H 746714	54H 746728
Northing	5838683	5838683	5838675	5838658	5838661
Elevation (m)	Lift 1	Lift 1	Lift 1	Lift 1	Lift 1
Layer / Reduced Level	600mm BFL	300mm BFL	300mm BFL	700mm BFL	800mm BFL
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Red Brown Gravelly Clay	Grey Brown Gravelly Clay	Orange Brown Gravelly Clay	Orange Brown Gravelly Clay	Orange Brown Gravelly Clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.96	1.86	1.88	1.81	1.82
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	2.04	1.94	1.87	1.82	1.83
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	0.0	1.0	2.5	2.5	2.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	96.5	96.0	100.5	99.5	99.5
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-1
Issue Number: 1
Date Issued: 24/01/2018
Client: Integra Land

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 82
Date Sampled: 18/01/2018 07:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Specification: 95% Standard



Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: chrism@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Chris Milne

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1

Sample Number	D18-82P	D18-82Q
Date Tested	18/01/2018	18/01/2018
Time Tested	10:09	10:19
Test Request #/Location	House lot N15	House lot N16
Easting	54H 746730	54H 746885
Northing	5838674	5839282
Elevation (m)	Lift 1	Lift 1
Layer / Reduced Level	800mm BFL	800mm BFL
Thickness of Layer (mm)	200mm	200mm
Soil Description	Grey brown silty clay	Grey Brown silty clay
Test Depth (mm)	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	**	**
Field Wet Density (FWD) t/m ³	1.82	1.84
Field Dry Density (FDD) t/m ³	**	**
Peak Converted Wet Density t/m ³	1.89	1.90
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	-1.5	-3.5
Adjusted Moisture Variation %	**	**
Hilf Density Ratio (%)	96.0	96.5
Compaction Method	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-2
Issue Number: 1
Date Issued: 29/01/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: chrism@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 93
Date Sampled: 23/01/2018 07:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Chris Milne

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-93A	D18-93B	D18-93C	D18-93D	D18-93E
Date Tested	23/01/2018	23/01/2018	23/01/2018	23/01/2018	23/01/2018
Time Tested	07:53	08:01	08:09	08:20	08:30
Test Request #/Location	House Lot No N17	House Lot No N18	House Lot No N19	House Lot No P3	House Lot No P4
Easting	54H 746723	54H 746727	54H 746728	54H 746718	54H 746698
Northing	5838706	5838718	5838732	5838743	5838727
Elevation (m)	600mm BFL	600mm BFL	600mm BFL	600mm BFL	600mm BFL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Grey Brown silty Clay	Grey Brown silty Clay	Grey Brown silty Clay	Grey Brown silty Clay	Grey Brown silty Clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.91	1.92	1.96	1.93	1.91
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.91	1.94	1.96	1.94	1.89
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	-1.0	-3.0	1.5	-0.5	-3.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	100.0	99.0	100.0	99.5	101.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-2
Issue Number: 1
Date Issued: 29/01/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
Gate 7, Sharon Street Bendigo VIC 3550
Phone: (03) 5441 4881
Email: chrism@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 93
Date Sampled: 23/01/2018 07:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
Geotechnical Testing Services (Southern)
Ballarat Soil & Concrete Testing Branch Laboratory
Unit 6, Laidlaw Drive
Delacombe, 3356

Specification: 95% Standard



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Chris Milne
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1

Sample Number	D18-93F
Date Tested	23/01/2018
Time Tested	08:41
Test Request #/Location	House Lot No P5
Easting	54H 746697
Northing	5838708
Elevation (m)	600mm BFL
Layer / Reduced Level	Filling
Thickness of Layer (mm)	200mm
Soil Description	Grey Brown silty Clay
Test Depth (mm)	175mm
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	**
Field Wet Density (FWD) t/m ³	2.04
Field Dry Density (FDD) t/m ³	**
Peak Converted Wet Density t/m ³	1.94
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	-0.5
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	105.0
Compaction Method	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-3
Issue Number: 1
Date Issued: 31/01/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550
 Phone: (03) 5441 4881
 Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 94
Date Sampled: 24/01/2018 08:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard



Accredited for compliance with ISO/IEC 17025 - Testing

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Approved Signatory: Josh Lagodzki
 NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-94A	D18-94B	D18-94C	D18-94D	D18-94E
Date Tested	24/01/2018	24/01/2018	24/01/2018	24/01/2018	24/01/2018
Time Tested	08:51	08:59	09:06	09:13	09:21
Test Request #/Location	House Lot No N16	House Lot No N16	House Lot No N15	House Lot No N14	House Lot No N13
Easting	54H 746728	54H 746730	54H 746731	54H 746728	54H 746710
Northing	5838695	5838691	5838669	5838660	5838670
Elevation (m)	600mm BFL	300mm BFL	300mm BFL	300mm BFL	300mm BFL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Grey brown silty clay	Grey brown silty clay	Grey brown silty clay	Grey brown silty clay	Grey brown silty clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.99	1.99	1.86	1.95	1.98
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.94	1.95	1.90	1.90	1.96
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	-1.5	-2.0	-1.5	-3.5	-2.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	102.5	102.0	98.0	102.0	101.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

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

Compaction Control Test Report

Report Number: P18015-3
Issue Number: 1
Date Issued: 31/01/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 94
Date Sampled: 24/01/2018 08:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard



Accredited for compliance with ISO/IEC 17025 - Testing

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Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1				
Sample Number	D18-94F	D18-94G	D18-94H	D18-94I
Date Tested	24/01/2018	24/01/2018	24/01/2018	24/01/2018
Time Tested	09:34	09:41	09:51	09:57
Test Request #/Location	House Lot No P8	House Lot No P7	House Lot No P6	House Lot No P6
Easting	54H 746688	54H 746692	54H 746694	54H 746699
Northing	5838663	5838667	5838698	5838695
Elevation (m)	FL	FL	FL	300mm BFL
Layer / Reduced Level	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm
Soil Description	Grey brown silty clay	Grey brown silty clay	Grey brown silty clay	Grey brown silty clay
Test Depth (mm)	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**
Field Wet Density (FWD) t/m ³	1.92	1.93	1.95	1.94
Field Dry Density (FDD) t/m ³	**	**	**	**
Peak Converted Wet Density t/m ³	1.90	1.94	1.92	1.94
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	-0.5	-3.0	0.0	-2.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	101.0	99.5	101.5	100.0
Compaction Method	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-4
Issue Number: 1
Date Issued: 01/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 103
Date Sampled: 30/01/2018 16:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted



Accredited for compliance with ISO/IEC 17025 - Testing

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Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard
Site Selection: Selected by Client

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-103A	D18-103B	D18-103C	D18-103D	D18-103E
Date Tested	30/01/2018	30/01/2018	30/01/2018	30/01/2018	30/01/2018
Time Tested	16:40	16:43	16:47	16:53	16:58
Test Request #/Location	House lot no P5	House lot no P4	House lot no P3	House lot no P2	House lot no P1
Easting	54H 746698	54H 746703	54H 746698	54H 746702	54H 746705
Northing	5838719	5838734	5838745	5838756	5838767
Elevation (m)	300mm BFL	300mm BFL	300mm BFL	300mm BFL	300mm BFL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Grey Brown silty clay	Grey Brown silty clay	Grey Brown silty clay	Grey Brown silty clay	Grey Brown silty clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	0.0	0.0	**
Field Wet Density (FWD) t/m ³	1.95	1.92	1.92	1.94	1.82
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.88	1.90	1.90	1.89	1.88
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	-1.0	0.5	-0.5	-0.5	-1.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	103.5	100.5	101.0	103.0	97.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-4
Issue Number: 1
Date Issued: 01/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 103
Date Sampled: 30/01/2018 16:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted



Accredited for compliance with ISO/IEC 17025 - Testing

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Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard

Site Selection: Selected by Client

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-103F	D18-103G	D18-103H	D18-103I	D18-103J
Date Tested	30/01/2018	30/01/2018	30/01/2018	30/01/2018	30/01/2018
Time Tested	17:03	17:10	17:20	17:24	17:30
Test Request #/Location	House lot no N21	House lot no N20	House lot no N19	House lot no N18	House lot no N17
Easting	54H 746728	54H 746745	54H 746736	54H 746734	54H 746729
Northing	5838756	5838752	5838737	5838720	5838710
Elevation (m)	300mm BFL	300mm BFL	300mm BFL	300mm BFL	300mm BFL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Grey Brown silty clay	Grey Brown silty clay	Grey Brown silty clay	Grey Brown silty clay	Grey Brown silty clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	0.0	**	**	**
Field Wet Density (FWD) t/m ³	1.80	1.99	1.87	1.95	1.86
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.87	1.88	1.86	1.88	1.92
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	-0.5	1.0	0.5	0.0	1.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	96.0	106.0	100.5	104.0	96.5
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-4
Issue Number: 1
Date Issued: 01/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 103
Date Sampled: 30/01/2018 16:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard

Site Selection: Selected by Client



Accredited for compliance with ISO/IEC 17025 - Testing

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Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-103K	D18-103L	D18-103M	D18-103N	D18-103O
Date Tested	30/01/2018	30/01/2018	30/01/2018	30/01/2018	30/01/2018
Time Tested	17:39	17:45	17:52	17:59	18:03
Test Request #/Location	House lot no N1	House lot no N2	House lot no N3	House lot no N4	House lot no N5
Easting	54H 746775	54H 746780	54H 746777	54H 746771	54H 746767
Northing	5838747	5838734	5838716	5838697	5838683
Elevation (m)	FL	600mm BFL	600mm BFL	600mm BFL	600mm BFL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Grey Brown silty clay	Grey Brown silty clay	Grey Brown silty clay	Grey Brown silty clay	Grey Brown silty clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.83	1.96	1.85	1.81	1.83
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.82	1.93	1.86	1.85	1.81
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	2.0	-2.5	3.0	3.0	3.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	100.5	102.0	99.5	98.0	101.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-4
Issue Number: 1
Date Issued: 01/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
Gate 7, Sharon Street Bendigo VIC 3550
Phone: (03) 5441 4881
Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 103
Date Sampled: 30/01/2018 16:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
Geotechnical Testing Services (Southern)
Ballarat Soil & Concrete Testing Branch Laboratory
Unit 6, Laidlaw Drive
Delacombe, 3356

Specification: 95% Standard
Site Selection: Selected by Client



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

Sample Number	D18-103P
Date Tested	30/01/2018
Time Tested	18:13
Test Request #/Location	House lot no N6
Easting	54H 746770
Northing	5838676
Elevation (m)	600mm BFL
Layer / Reduced Level	Filling
Thickness of Layer (mm)	200mm
Soil Description	Grey Brown silty clay
Test Depth (mm)	175mm
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	**
Field Wet Density (FWD) t/m ³	1.75
Field Dry Density (FDD) t/m ³	**
Peak Converted Wet Density t/m ³	1.84
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	3.0
Adjusted Moisture Variation %	**
Hill Density Ratio (%)	95.0
Compaction Method	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-5
Issue Number: 1
Date Issued: 08/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 115
Date Sampled: 02/02/2018 14:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard
Site Selection: Selected by Client



Accredited for compliance with ISO/IEC 17025 - Testing

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Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-115A	D18-115B	D18-115C	D18-115D	D18-115E
Date Tested	07/02/2018	07/02/2018	07/02/2018	07/02/2018	07/02/2018
Time Tested	08:09	08:18	08:27	08:35	08:43
Test Request #/Location	House Lot No N2	House Lot No N3	House Lot No N4	House Lot No N5	House Lot No N6
Easting	54H 746781	54H 746776	54H 746776	54H 746772	54H 746769
Northing	5838723	5838711	5838693	5838680	5838668
Elevation (m)	-300mm	-300mm	-300mm	-300mm	-300mm
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Grey Brown Silty Clay	Grey Brown Silty Clay	Grey Brown Silty Clay	Grey Brown Silty Clay	Grey Brown Silty Clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.96	1.84	1.78	1.81	1.72
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.88	1.83	1.78	1.81	1.85
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	2.5	3.0	5.0	3.0	-0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	104.0	101.0	99.5	99.5	93.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-5
Issue Number: 1
Date Issued: 08/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 115
Date Sampled: 02/02/2018 14:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
Geotechnical Testing Services (Southern)
Ballarat Soil & Concrete Testing Branch Laboratory
Unit 6, Laidlaw Drive
Delacombe, 3356

Specification: 95% Standard

Site Selection: Selected by Client



Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1

Sample Number	D18-115F
Date Tested	07/02/2018
Time Tested	08:55
Test Request #/Location	House Lot No N7
Easting	54H 746767
Northing	5838649
Elevation (m)	-300mm
Layer / Reduced Level	Filling
Thickness of Layer (mm)	200mm
Soil Description	Grey Brown Silty Clay
Test Depth (mm)	175mm
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	**
Field Wet Density (FWD) t/m ³	1.78
Field Dry Density (FDD) t/m ³	**
Peak Converted Wet Density t/m ³	1.85
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	2.0
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	95.5
Compaction Method	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-6
Issue Number: 1
Date Issued: 13/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550
 Phone: (03) 5441 4881
 Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 109
Date Sampled: 01/02/2018 14:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted



Accredited for compliance with ISO/IEC 17025 - Testing

TL

Approved Signatory: Josh Lagodzki
 NATA Accredited Laboratory Number: 19506

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard
Site Selection: Selected by Client

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-109A	D18-109B	D18-109C	D18-109D	D18-109E
Date Tested	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Time Tested	14:35	14:38	14:40	14:43	14:46
Test Request #/Location	House Lot No P1	House Lot No P2	House Lot No P3	House Lot No P4	House Lot No P5
Easting	54H 746704	54H 746698	54H 746701	54H 746710	54H 746697
Northing	5838768	5838759	5838764	5838729	5838714
Elevation (m)	FL	FL	FL	FL	FL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Orange grey brown silty Clay	Orange grey brown silty Clay	Orange grey brown silty Clay	Orange grey brown silty Clay	Orange grey brown silty Clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.84	1.92	1.80	1.90	2.03
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.81	1.93	1.82	1.86	1.99
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	3.0	2.5	3.5	2.0	1.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	102.0	99.5	99.0	102.0	102.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

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

Compaction Control Test Report

Report Number: P18015-6
Issue Number: 1
Date Issued: 13/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 109
Date Sampled: 01/02/2018 14:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted



Accredited for compliance with ISO/IEC 17025 - Testing

TL

Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard

Site Selection: Selected by Client

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-109F	D18-109G	D18-109H	D18-109I	D18-109J
Date Tested	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Time Tested	14:50	14:53	14:57	15:00	15:02
Test Request #/Location	House Lot No N13	House Lot No N14	House Lot No N15	House Lot No N16	House Lot No N17
Easting	54H 746704	54H 746722	54H 746725	54H 746729	54H 746731
Northing	5838669	5838660	5838674	5838693	5838699
Elevation (m)	FL	FL	FL	FL	FL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Orange grey brown silty Clay	Orange grey brown silty Clay	Orange grey brown silty Clay	Orange grey brown silty Clay	Orange grey brown silty Clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.78	1.93	1.88	1.90	2.01
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.81	1.85	1.89	1.87	1.83
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	5.0	-0.5	-1.0	-1.0	3.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	98.0	104.5	99.5	101.5	109.5
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-6
Issue Number: 1
Date Issued: 13/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 109
Date Sampled: 01/02/2018 14:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard

Site Selection: Selected by Client



Accredited for compliance with ISO/IEC 17025 - Testing

TL

Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-109K	D18-109L	D18-109M	D18-109N	D18-109O
Date Tested	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Time Tested	15:05	15:09	15:11	15:15	15:50
Test Request #/Location	House Lot No N18	House Lot No N19	House Lot No N20	House Lot No N21	House Lot No P9
Easting	54H 746728	54H 746730	54H 746744	54 H 746728	54H 746679
Northing	5838724	5838730	5838754	5838763	5838616
Elevation (m)	FL	FL	FL	FL	600mm BFL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Orange grey brown silty Clay	Orange grey brown silty Clay	Orange grey brown silty Clay	Orange grey brown silty Clay	Orange grey brown silty Clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.99	1.83	1.94	1.84	1.84
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.87	1.79	1.86	1.81	1.84
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	3.0	5.0	0.5	-0.5	1.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	106.5	102.5	104.5	101.5	100.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-6
Issue Number: 1
Date Issued: 13/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 109
Date Sampled: 01/02/2018 14:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
Geotechnical Testing Services (Southern)
Ballarat Soil & Concrete Testing Branch Laboratory
Unit 6, Laidlaw Drive
Delacombe, 3356

Specification: 95% Standard

Site Selection: Selected by Client



Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1

Sample Number	D18-109P	D18-109Q
Date Tested	01/02/2018	01/02/2018
Time Tested	15:55	15:58
Test Request #/Location	House Lot No N12	House Lot No N11
Easting	54H 746697	54H 746708
Northing	5838621	5838623
Elevation (m)	600mm BFL	600mm BFL
Layer / Reduced Level	Filling	Filling
Thickness of Layer (mm)	200mm	200mm
Soil Description	Orange grey brown silty Clay	Orange grey brown silty Clay
Test Depth (mm)	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	**	**
Field Wet Density (FWD) t/m ³	1.80	1.89
Field Dry Density (FDD) t/m ³	**	**
Peak Converted Wet Density t/m ³	1.87	1.84
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	0.0	3.0
Adjusted Moisture Variation %	**	**
Hill Density Ratio (%)	96.5	103.0
Compaction Method	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-7
Issue Number: 1
Date Issued: 14/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 135
Date Sampled: 09/02/2018 07:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted



Accredited for compliance with ISO/IEC 17025 - Testing

TL

Approved Signatory: Josh Lagodzki

NATA Accredited Laboratory Number: 19506

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard

Site Selection: Selected by Client

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-135A	D18-135B	D18-135C	D18-135D	D18-135E
Date Tested	09/02/2018	09/02/2018	09/02/2018	09/02/2018	09/02/2018
Time Tested	07:39	07:51	08:01	08:10	08:29
Test Request #/Location	House lot No P9	House lot No N 12	House lot No N11	House lot No N10	House lot No N9
Easting	54H 746681	54H 746706	54H 746715	54H 746736	54H 746755
Northing	5838624	5838632	5838619	5838614	5838609
Elevation (m)	300m BFL	300mm BFL	300mm BFL	300mm BFL	300mm BFL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Grey brown silty clay	Grey brown silty clay	Grey brown silty clay	Grey brown silty clay	Grey brown silty clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.92	1.86	1.90	1.86	1.74
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.91	1.81	1.80	1.83	1.82
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	0.0	3.5	4.0	1.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	100.5	102.5	105.5	101.5	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

Compaction Control Test Report

Report Number: P18015-7
Issue Number: 1
Date Issued: 14/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
Gate 7, Sharon Street Bendigo VIC 3550
Phone: (03) 5441 4881
Email: joshl@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 135
Date Sampled: 09/02/2018 07:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
Geotechnical Testing Services (Southern)
Ballarat Soil & Concrete Testing Branch Laboratory
Unit 6, Laidlaw Drive
Delacombe, 3356

Specification: 95% Standard
Site Selection: Selected by Client



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

Sample Number	D18-135F	D18-135G
Date Tested	09/02/2018	09/02/2018
Time Tested	08:37	08:48
Test Request #/Location	House lot No N8	House lot No N6 Retest
Easting	54H 746768	54H 746779
Northing	5838606	5838659
Elevation (m)	300mm BFL	300mm BFL
Layer / Reduced Level	Filling	Filling
Thickness of Layer (mm)	200mm	200mm
Soil Description	Grey brown silty clay	Grey brown silty clay
Test Depth (mm)	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	**	**
Field Wet Density (FWD) t/m ³	1.88	1.84
Field Dry Density (FDD) t/m ³	**	**
Peak Converted Wet Density t/m ³	1.86	1.85
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	3.0	3.0
Adjusted Moisture Variation %	**	**
Hilf Density Ratio (%)	101.0	99.5
Compaction Method	Standard	Standard

Moisture Variation Note:

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

Compaction Control Test Report

Report Number: P18015-8
Issue Number: 1
Date Issued: 16/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550
 Phone: (03) 5441 4881
 Email: bryanm@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 142
Date Sampled: 13/02/2018 07:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard
Material: Grey Brown Silty Clay



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	D18-142A	D18-142B	D18-142C	D18-142D	D18-142E
Date Tested	13/02/2018	13/02/2018	13/02/2018	13/02/2018	13/02/2018
Time Tested	08:15	08:22	08:31	08:39	08:47
Test Request #/Location	House Lot No N2	House Lot No N3	House Lot No N4	House Lot No N5	House Lot No N6
Easting	54H 746781	54H 746776	54H 746780	54H 746775	54H 746773
Northing	5838728	5838710	5838693	5838674	5838662
Elevation (m)	FSL	FSL	FSL	FSL	FSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Grey Brown Silty Clay	Grey Brown Silty Clay	Grey Brown Silty Clay	Grey Brown Silty Clay	Grey Brown Silty Clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.84	1.83	1.83	1.82	1.80
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.80	1.87	1.77	1.79	1.86
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	-0.5	2.5	6.0	2.5	3.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	102.0	98.0	103.0	101.5	97.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

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

Compaction Control Test Report

Report Number: P18015-8
Issue Number: 1
Date Issued: 16/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
Gate 7, Sharon Street Bendigo VIC 3550
Phone: (03) 5441 4881
Email: bryanm@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 142
Date Sampled: 13/02/2018 07:00
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted

Remarks: Testing Performed at:
Geotechnical Testing Services (Southern)
Ballarat Soil & Concrete Testing Branch Laboratory
Unit 6, Laidlaw Drive
Delacombe, 3356

Specification: 95% Standard

Material: Grey Brown Silty Clay



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	D18-142F
Date Tested	13/02/2018
Time Tested	08:55
Test Request #/Location	House Lot No N7
Easting	54H 746771
Northing	5838639
Elevation (m)	FSL
Layer / Reduced Level	Filling
Thickness of Layer (mm)	200mm
Soil Description	Grey Brown Silty Clay
Test Depth (mm)	175mm
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	**
Field Wet Density (FWD) t/m ³	1.82
Field Dry Density (FDD) t/m ³	**
Peak Converted Wet Density t/m ³	1.79
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	3.0
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	101.5
Compaction Method	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Compaction Control Test Report

Report Number: P18015-9
Issue Number: 1
Date Issued: 18/02/2018
Client: Integra Land



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 Gate 7, Sharon Street Bendigo VIC 3550
 Phone: (03) 5441 4881
 Email: bryanm@gts.com.au

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 148
Date Sampled: 14/02/2018 13:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Specification: 95% Standard



Accredited for compliance with ISO/IEC 17025 - Testing

Bryan Mott

Approved Signatory: Bryan Mott
 NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-148A	D18-148B	D18-148C	D18-148D	D18-148E
Date Tested	14/02/2018	14/02/2018	14/02/2018	14/02/2018	14/02/2018
Time Tested	13:45	13:56	14:04	14:12	14:19
Test Request #/Location	House Lot No N8	House Lot No N9	House Lot No N10	House Lot No N11	House Lot No N12
Easting	54H 746772	54H 746753	54H 746735	54H 746718	54H 746701
Northing	5838614	5838609	5838614	5838615	5838618
Elevation (m)	FL	FL	FL	FL	FL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200mm	200mm	200mm	200mm	200mm
Soil Description	Orange brown silty clay	Orange brown silty clay	Orange brown silty clay	Orange brown silty clay	Orange brown silty clay
Test Depth (mm)	175mm	175mm	175mm	175mm	175mm
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.86	1.86	1.83	1.84	1.90
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.84	1.88	1.81	1.80	1.80
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	1.0	0.5	-1.5	5.5	0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	101.0	99.0	101.5	102.0	106.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

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

Compaction Control Test Report

Report Number: P18015-9
Issue Number: 1
Date Issued: 18/02/2018
Client: Integra Land

Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 148
Date Sampled: 14/02/2018 13:30
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/compacted
Specification: 95% Standard



Geotechnical Testing Services (Southern)
Bendigo Soil and Concrete Testing Laboratory
Gate 7, Sharon Street Bendigo VIC 3550

Phone: (03) 5441 4881

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	D18-148F
Date Tested	14/02/2018
Time Tested	14:27
Test Request #/Location	House Lot No P9
Easting	54H 746682
Northing	5838620
Elevation (m)	FL
Layer / Reduced Level	Filling
Thickness of Layer (mm)	200mm
Soil Description	Orange brown silty clay
Test Depth (mm)	175mm
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	**
Field Wet Density (FWD) t/m ³	1.98
Field Dry Density (FDD) t/m ³	**
Peak Converted Wet Density t/m ³	1.92
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	-1.0
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	103.5
Compaction Method	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report

Report Number: P18015-11
Issue Number: 1
Date Issued: 13/12/2018
Client: Integra Land
Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 788
Date Sampled: 11/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
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



Bryan Mott

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1

Sample Number	D18-788A	D18-788B
Date Tested	11/12/2018	11/12/2018
Time Tested	08:15	08:24
Test Request #/Location	House Lot 286	House Lot 286
Easting	54H 746656	54H 746654
Northing	5838623	5838620
Elevation (m)	600 BFSL	900 BFSL
Layer / Reduced Level	Lift 2	Lift 1
Thickness of Layer (mm)	200	200
Soil Description	Brown Silty Clay	Brown Silty 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	2.01	1.87
Field Dry Density (FDD) t/m ³	**	**
Peak Converted Wet Density t/m ³	1.88	1.83
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	3.0	3.5
Adjusted Moisture Variation %	**	**
Hilf Density Ratio (%)	107.0	102.5
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: P18015-12
Issue Number: 1
Date Issued: 17/12/2018
Client: Integra Land
Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Project Number: P18015
Project Name: Ballymanus Estate Stage N
Project Location: Alfredton
Work Request: 799
Date Sampled: 12/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard
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



Bryan Mott

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1

Sample Number	D18-799A
Date Tested	12/12/2018
Time Tested	10:45
Test Request #/Location	House Lot 286
Easting	54H 746662
Northing	5838636
Elevation (m)	300mm BFSL
Layer / Reduced Level	Filling
Thickness of Layer (mm)	200
Soil Description	Orange Brown Sandy Clay
Test Depth (mm)	175
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	**
Field Wet Density (FWD) t/m ³	1.85
Field Dry Density (FDD) t/m ³	**
Peak Converted Wet Density t/m ³	1.93
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	0.5
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	95.5
Compaction Method	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC