

Ballymanus Estate Stages J & Y Alfredton

Earthworks Supervision Report for Integra Land

Report 20C 0223
March 2020

Ballymanus Estate Stages J & Y Alfredton

Earthworks Supervision Report for Integra Land

Revision

Revision	Date	Authorised
20C 0223	22/04/2020	BAB

Distribution (this version only)

Recipient	Format	Date
GTS	On file	22/04/2020
Integra Land	Email PDF	22/04/2020



TABLE OF CONTENTS

1	INTRODUCTION	2
2	SCOPE OF WORKS	2
	2.1 AREA OF WORK	2
	2.2 PLACEMENT SPECIFICATION	2
3	INSPECTION AND TESTING	3
4	SUMMARY OF TEST RESULTS	3
5	STATEMENT OF COMPLIANCE	6

APPENDIX

Site plan
Test Reports

1 INTRODUCTION

Integra Land commissioned Geotechnical Testing Services (GTS) to undertake Level 1 Supervision and testing (AS3798-2007) for the earthworks at Ballymanus Estate Stages J & Y, 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 468 (Y12), 481 to 487 (J1 to J7) and 492 to 502 (J18 to J28). It is noted that the lot numbers were changed during the period of construction with the initial numbers as noted on the test reports included in brackets.

The depth of fill across the site varied from none to 1.2 metres in Lots 481, 492 and 499 to 502, 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 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 generally 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, topsoil/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 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	D18-433A	16/07/2018	J2 (Lot 482)	600	1.5 dry	103.0
2	D18-433B	16/07/2018	J3 (Lot 483)	600	0.5 dry	104.0
3	D18-433C	16/07/2018	J4 (Lot 484)	600	0.5 wet	104.5
4	D18-433D	16/07/2018	J5 (Lot 485)	300	0.0	108.0
5	D18-433E	16/07/2018	J6 (Lot 486)	300	1.5 wet	101.5
6	D18-433F	16/07/2018	J7 (Lot 487)	300	2.5 dry	99.0
7	D18-437A	18/07/2018	J2 (Lot 482)	300	0.5 wet	102.0
8	D18-437B	18/07/2018	J3 (Lot 483)	300	1.5 wet	101.0
9	D18-437C	18/07/2018	J4 (Lot 484)	300	0.0	98.0
10	D18-437D	18/07/2018	J5 (Lot 485)	300	2.0 wet	99.0
11	D18-437E	18/07/2018	J5 (Lot 485)	FSL	0.0	100.0
12	D18-437F	18/07/2018	J6 (Lot 486)	FSL	1.0 wet	98.5
13	D18-437G	18/07/2018	J7 (Lot 487)	FSL	0.5 wet	97.0
14	D18-440A	19/07/2018	J2 (Lot 482)	FSL	2.0 wet	100.5
15	D18-440B	19/07/2018	J3 (Lot 483)	FSL	0.5 dry	103.5
16	D18-440C	19/07/2018	J4 (Lot 484)	FSL	3.0 wet	98.5
17	D18-538A	10/09/2018	J28 (Lot 502)	900	2.5 dry	101.0
18	D18-538B	10/09/2018	J28 (Lot 502)	600	2.5 dry	106.5
19	D18-538C	10/09/2018	J28 (Lot 502)	300	2.5 dry	103.0
20	D18-538D	10/09/2018	J28 (Lot 502)	FSL	3.0 dry	107.0
21	D18-538E	10/09/2018	J27 (Lot 501)	900	0.5 dry	102.5
22	D18-538F	10/09/2018	J27 (Lot 501)	600	1.0 wet	103.0
23	D18-538G	10/09/2018	J27 (Lot 501)	300	2.5 dry	106.0
24	D18-538H	10/09/2018	J27 (Lot 501)	FSL	2.0 dry	117.0
25	D18-538I	10/09/2018	J26 (Lot 500)	900	3.0 dry	107.5
26	D18-538J	10/09/2018	J26 (Lot 500)	600	2.5 dry	104.5
27	D18-538K	10/09/2018	J26 (Lot 500)	300	3.5 dry	107.5
28	D18-538L	10/09/2018	J26 (Lot 500)	FSL	3.0 dry	105.0
29	D18-538M	10/09/2018	J25 (Lot 499)	900	1.5 dry	106.0
30	D18-538N	10/09/2018	J25 (Lot 499)	600	2.0 dry	104.0
31	D18-538O	10/09/2018	J25 (Lot 499)	300	1.0 dry	104.5

Project No.	Sample No.	Test Date	Location	Reduced Level (mm)	Moisture Variation % O.M.C.	Hilf Density Ratio %
33	D18-538Q	10/09/2018	J24 (Lot 498)	600	2.5 dry	104.5
34	D18-538R	10/09/2018	J24 (Lot 498)	300	3.0 dry	103.0
35	D18-538S	10/09/2018	J24 (Lot 498)	FSL	3.5 dry	108.5
36	D18-538T	10/09/2018	J23 (Lot 497)	600	3.0 dry	102.5
37	D18-538U	10/09/2018	J23 (Lot 497)	300	2.5 dry	102.5
38	D18-538V	10/09/2018	J23 (Lot 497)	FSL	5.0 dry	104.0
39	D18-538W	10/09/2018	J22 (Lot 496)	300	3.5 dry	106.0
40	D18-538X	10/09/2018	J22 (Lot 496)	FSL	2.5 dry	104.0
41	D18-538Y	10/09/2018	J21 (Lot 495)	FSL	3.0 dry	111.5
42	D18-538Z	10/09/2018	J20 (Lot 494)	FSL	0.5 dry	108.0
43	D18-538AA	10/09/2018	J19 (Lot 493)	FSL	0.0	101.5
44	D18-592A	2/10/2018	J1 (Lot 481)	300	0.0	94.5
45	D18-592B	2/10/2018	J1 (Lot 481)	600	1.0 dry	96.0
46	D18-592C	2/10/2018	J1 (Lot 481)	900	1.0 dry	98.0
47 (RT 44)	D18-630L	11/10/2018	J1 (Lot 481)	300	0.5 wet	104.0
48	D18-668E	2/10/2018	J1 (Lot 481)	FSL	0.5 dry	103.5
49	D18-724O	20/11/2018	Y12 (Lot 468)	FSL	4.0 dry	102.0
50	D18-724P	20/11/2018	Y12 (Lot 468)	300	6.0 dry	112.0
51	D18-724Q	20/11/2018	Y12 (Lot 468)	600	3.5 dry	108.0
52	D18-724R	20/11/2018	Y12 (Lot 468)	900	2.5 dry	103.0
53	D18-724S	20/11/2018	J18 (Lot 492)	FSL	5.0 dry	107.0
54	D18-724T	20/11/2018	J18 (Lot 492)	300	2.5 dry	107.5
55	D18-724U	20/11/2018	J18 (Lot 492)	600	5.5 dry	112.5
56	D18-724V	20/11/2018	J18 (Lot 492)	900	3.0 dry	106.0

5 STATEMENT OF COMPLIANCE

GTS personnel have provided Level 1 inspection and testing services during the placement of material for the filling of Lots 468 (Y12), 481 to 487 (J1 to J7) and 493 to 502 (J19 to J28). 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



Benj Beatty BA/BSc (Hons), MPA, MAusIMM
Senior Geologist

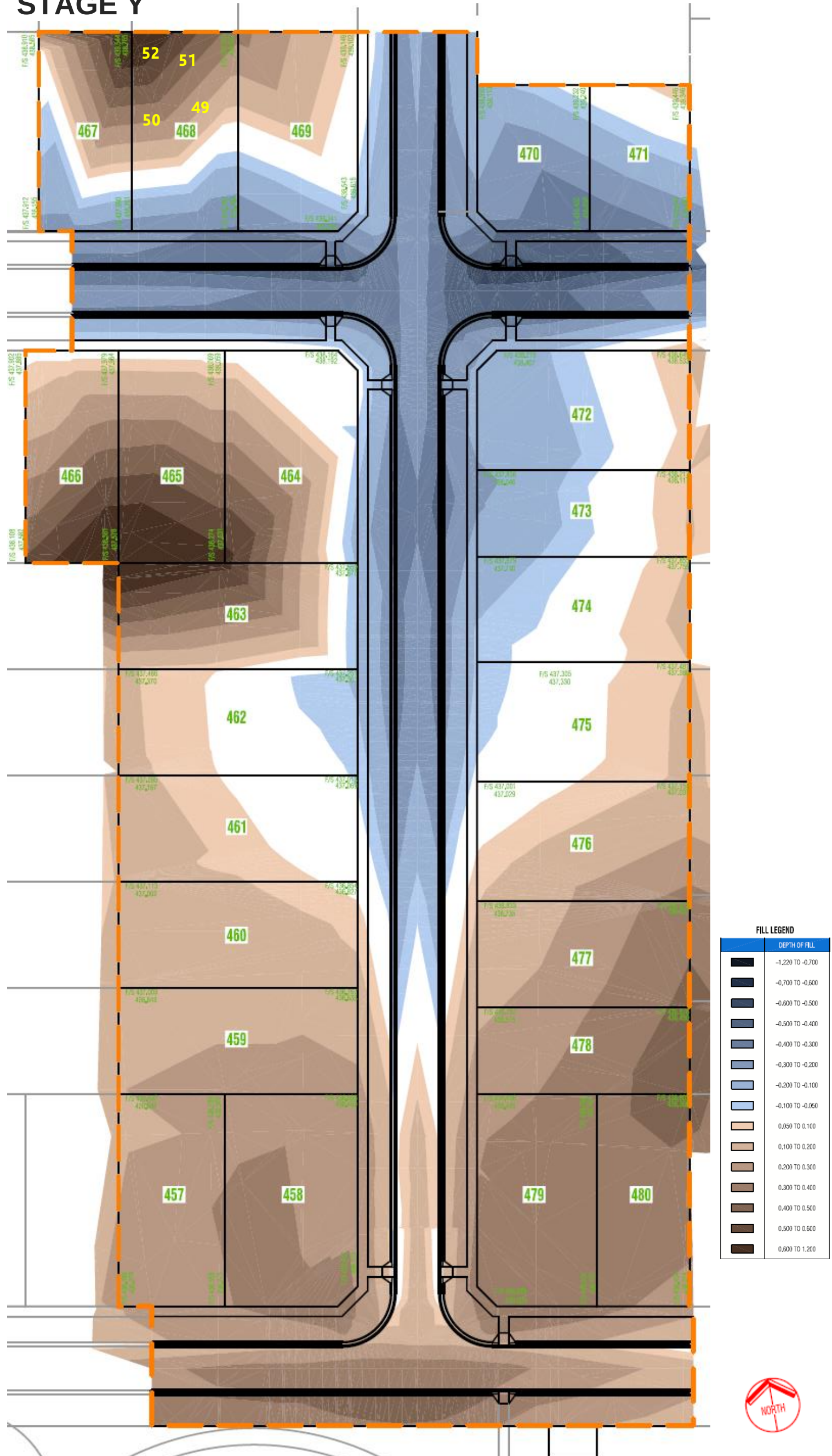
Reviewed by

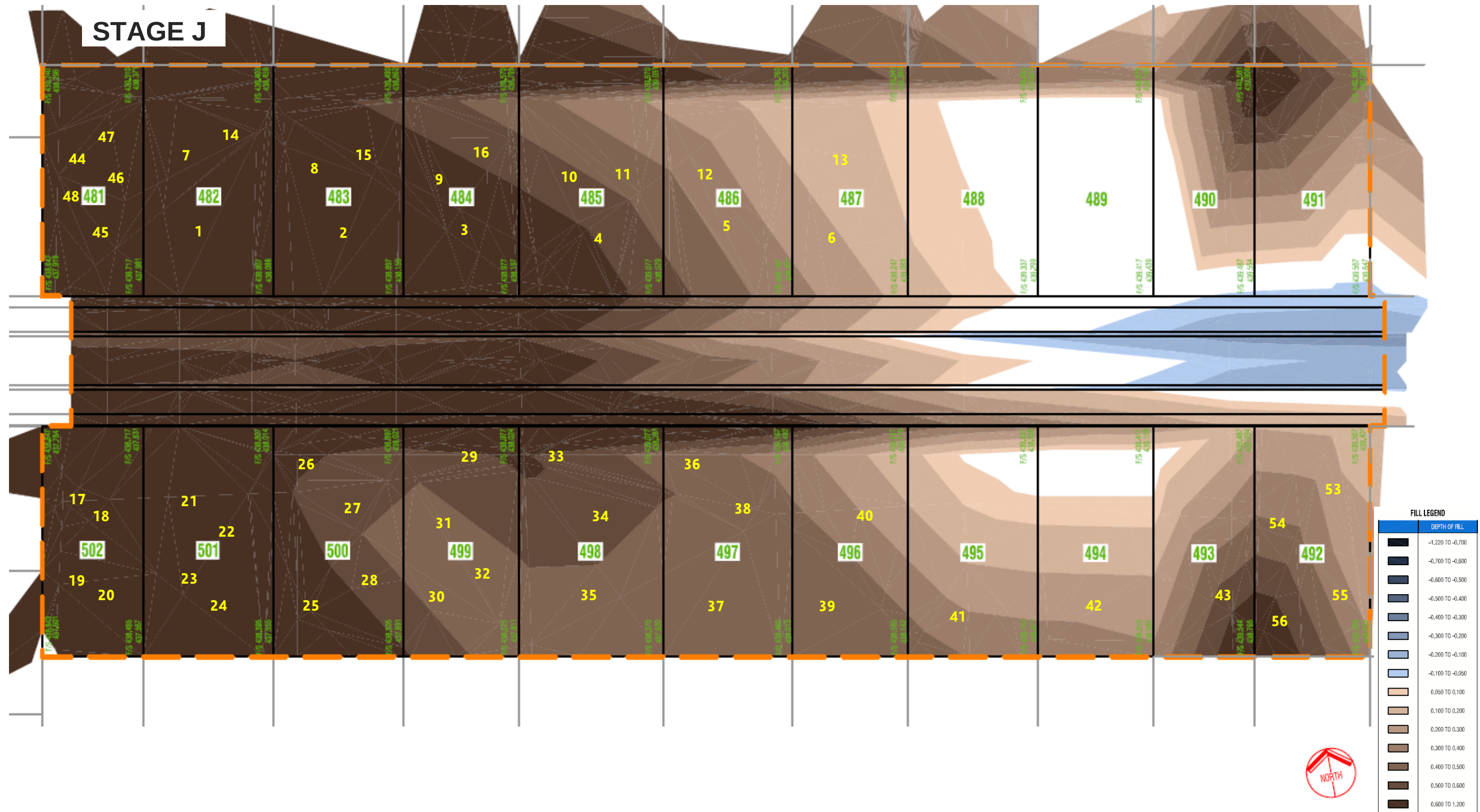


Shane Hampton BE (Hons), MIEAust
Principal Geotechnical Engineer

APPENDIX

STAGE Y





Compaction Control Test Report

Report Number: P18059-3
Issue Number: 1
Date Issued: 26/07/2018
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

Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 440
Date Sampled: 19/07/2018 12:30
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

Bryan Mott

Approved Signatory: Bryan Mott
 NATA Accredited Laboratory Number: 19506

Remarks: Testing Performed at:
 Geotechnical Testing Services (Southern)
 Ballarat Soil & Concrete Testing Branch Laboratory
 Unit 6, 33 Laidlaw Drive
 Delacombe, 3356

Specification: 95% Standard

Compaction Control AS 1289 5.7.1 & 5.8.1			
Sample Number	D18-440A	D18-440B	D18-440C
Date Tested	19/07/2018	19/07/2018	19/07/2018
Time Tested	12:27	12:35	12:56
Test Request #/Location	House Lot J2	House Lot J3	House Lot J4
Easting	54H 747168	54H 747188	54H 747197
Northing	5838774	5838771	5838769
Elevation (m)	**	**	**
Layer / Reduced Level	FSL	FSL	FSL
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 (%)	**	**	**
Field Wet Density (FWD) t/m ³	1.97	2.00	1.96
Field Dry Density (FDD) t/m ³	**	**	**
Peak Converted Wet Density t/m ³	1.96	1.93	1.99
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	-2.0	0.5	-3.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	100.5	103.5	98.5
Compaction Method	Standard	Standard	Standard

Moisture Variation Note:

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

Material Test Report

Report Number: P18059-4
Issue Number: 1
Date Issued: 25/09/2018
Client: Integra Land



Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 538
Date Sampled: 10/09/2018
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/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	D18-538A	D18-538B	D18-538C	D18-538D	D18-538E	D18-538F
Date Tested	10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018
Time Tested	12:58	13:00	13:03	13:07	13:13	13:16
Test Request #/Location	House Lot No J28	House Lot No J28	House Lot No J28	House Lot No J28	House Lot No J27	House Lot No J27
Easting	54H 747145	54H 747143	54H 747138	54H 747138	54H 747154	54H 747155
Northing	5838727	5838730	5838732	5838731	5838726	5838727
Elevation (m)	900mm BFSL	600mm BFSL	300mm BFSL	FSL	900mm 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	1.94	2.03	1.96	1.97	1.93	1.92
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.93	1.91	1.91	1.84	1.88	1.86
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	2.5	2.5	2.5	3.0	0.5	-1.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	101.0	106.5	103.0	107.0	102.5	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: P18059-4
Issue Number: 1
Date Issued: 25/09/2018
Client: Integra Land



Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 538
Date Sampled: 10/09/2018
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/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	D18-538G	D18-538H	D18-538I	D18-538J	D18-538K	D18-538L
Date Tested	10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018
Time Tested	13:19	13:22	13:27	13:31	13:34	13:37
Test Request #/Location	House Lot No J27	House Lot No J27	House Lot No J26	House Lot No J26	House Lot No J26	House Lot No J26
Easting	54H 747147	54H 747158	54H 747176	54H 747176	54H 747176	54H 747179
Northing	5838725	5838725	5838729	5838724	5838724	5838729
Elevation (m)	300mm BFSL	FSL	900mm BFSL	600mm 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.93	2.12	2.01	1.95	1.92	1.97
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.82	1.81	1.87	1.87	1.79	1.87
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	2.5	2.0	3.0	2.5	3.5	3.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	106.0	117.0	107.5	104.5	107.5	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: P18059-4
Issue Number: 1
Date Issued: 25/09/2018
Client: Integra Land



Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 538
Date Sampled: 10/09/2018
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/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	D18-538M	D18-538N	D18-538O	D18-538P	D18-538Q	D18-538R
Date Tested	10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018
Time Tested	13:42	13:46	13:49	13:52	14:10	14:20
Test Request #/Location	House Lot No J25	House Lot No J25	House Lot No J25	House Lot No J25	House Lot No J24	House Lot No J24
Easting	54H 747200	54H 747192	54H 747196	54H 747198	54H 747211	54H 747209
Northing	5838715	5838715	5838715	5838721	5838721	5838719
Elevation (m)	900mm BFSL	600mm BFSL	300mm BFSL	FSL	600mm BFSL	300mm 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	2.07	2.02	2.07	2.06	1.96	1.97
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.95	1.94	1.98	1.95	1.88	1.91
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	1.5	2.0	1.0	1.0	2.5	3.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	106.0	104.0	104.5	105.5	104.5	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: P18059-4
Issue Number: 1
Date Issued: 25/09/2018
Client: Integra Land



Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 538
Date Sampled: 10/09/2018
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/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	D18-538S	D18-538T	D18-538U	D18-538V	D18-538W	D18-538X
Date Tested	10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018	10/09/2018
Time Tested	14:24	14:29	14:32	14:35	14:39	14:42
Test Request #/Location	House Lot No J24	House Lot No J23	House Lot No J23	House Lot No J23	House Lot No J22	House Lot No J22
Easting	54H 747212	54H 747222	54H 747227	54H 747225	54H 747240	54H 747247
Northing	5838725	5838713	5838716	5838718	5838713	5838701
Elevation (m)	FSL	600mm BFSL	300mm BFSL	FSL	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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	2.01	1.95	1.95	1.94	1.96	1.90
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.85	1.90	1.90	1.87	1.85	1.83
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	3.5	3.0	2.5	5.0	3.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	108.5	102.5	102.5	104.0	106.0	104.0
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: P18059-4
Issue Number: 1
Date Issued: 25/09/2018
Client: Integra Land



Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 538
Date Sampled: 10/09/2018
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/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



Bryan Mott

Approved Signatory: Bryan Mott
 NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1			
Sample Number	D18-538Y	D18-538Z	D18-538AA
Date Tested	10/09/2018	10/09/2018	10/09/2018
Time Tested	14:47	14:53	14:58
Test Request #/Location	House Lot No J21	House Lot No J20	House Lot No J19
Easting	54H 747267	54H 747280	54H 747291
Northing	5838707	5838709	5838707
Elevation (m)	FSL	FSL	FSL
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	2.06	2.06	1.89
Field Dry Density (FDD) t/m ³	**	**	**
Peak Converted Wet Density t/m ³	1.85	1.91	1.86
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	3.0	0.5	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	111.5	108.0	101.5
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: P18059-5
Issue Number: 1
Date Issued: 09/10/2018
Client: Integra Land

Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 592
Date Sampled: 02/10/2018
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



Bryan Mott

Approved Signatory: Bryan Mott
NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1

Sample Number	D18-592A	D18-592B	D18-592C
Date Tested	02/10/2018	02/10/2018	02/10/2018
Time Tested	07:55	08:01	08:22
Test Request #/Location	House Lot No J1	House Lot No J1	House Lot No J1
Easting	54H 747150	54H 747148	54H 747147
Northing	5838777	5838777	5838778
Elevation (m)	300mm BFSL	600mm BFSL	900mm BFSL
Layer / Reduced Level	Filling	Filling	Filling
Thickness of Layer (mm)	200	200	200
Soil Description	Orange Brown Clay	Orange Brown Clay	Orange Brown 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	1.81	1.81	1.81
Field Dry Density (FDD) t/m ³	**	**	**
Peak Converted Wet Density t/m ³	1.91	1.88	1.85
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	0.0	1.0	1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	94.5	96.0	98.0
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: P18076-7
Issue Number: 1
Date Issued: 01/11/2018
Client: Integra Land



Contact: Wayne Sherriden
Project Number: P18076
Project Name: Balymanus Estate Stage G
Project Location: Alfredton
Work Request: 630
Date Sampled: 11/10/2018
Sampling Method: AS1289 1.2.1 6.4 - Sampling from layers in earthworks or pavement - uncompacted/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	D18-630A	D18-630B	D18-630C	D18-630D	D18-630E	D18-630F
Date Tested	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018
Time Tested	14:04	14:02	14:06	14:29	14:32	14:34
Test Request #/Location	House Lot G32 Retest	House Lot G32 Retest	House Lot G32 Retest	House Lot G31 Retest	House Lot G31 Retest	House Lot G31 Retest
Easting	54H 747143	54H 747151	54H 747155	54H 747137	54H 747134	54H 747126
Northing	5838866	5838862	5838856	5838821	5838819	5838822
Elevation (m)	600mm BFSL	300mm BFSL	FSL	900mm BFSL	600mm BFSL	FSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200	200	200	200	200	200
Soil Description	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay	Brown Silty 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	1.94	2.05	1.98	1.92	1.90	1.89
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.90	1.92	1.97	1.82	1.82	1.80
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.5	1.5	0.0	0.0	-1.0	1.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	102.0	106.5	100.0	105.0	104.5	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: P18076-7
Issue Number: 1
Date Issued: 01/11/2018
Client: Integra Land



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

Contact: Wayne Sherriden
Project Number: P18076
Project Name: Balymanus Estate Stage G
Project Location: Alfredton
Work Request: 630
Date Sampled: 11/10/2018
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	D18-630G	D18-630H	D18-630I	D18-630J	D18-630K	D18-630L
Date Tested	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018
Time Tested	15:03	15:05	15:19	15:21	15:23	15:45
Test Request #/Location	House Lot G29 Retest	House Lot G29 Retest	House Lot G28 Retest	House Lot G28 Retest	House Lot G28 Retest	House Lot J1 Retest
Easting	54H 747130	54H 747130	54H 747123	54H 747124	54H 747123	54H 747137
Northing	5838790	5838782	5838787	5838781	5838785	5838778
Elevation (m)	900mm BFSL	600mm BFSL	900mm BFSL	600mm BFSL	300mm BFSL	300mm FSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	200	200	200	200	200	200
Soil Description	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay	Brown Silty Clay	Brown Silty 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	1.96	1.95	1.96	1.91	1.92	1.96
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.87	1.89	1.86	1.82	1.85	1.88
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	2.0	0.5	2.5	2.5	1.0	-0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	105.0	103.0	105.0	105.0	103.5	104.0
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: P18076-7
Issue Number: 1
Date Issued: 01/11/2018
Client: Integra Land



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

Contact: Wayne Sherriden
Project Number: P18076
Project Name: Balymanus Estate Stage G
Project Location: Alfredton
Work Request: 630
Date Sampled: 11/10/2018
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	D18-630M	D18-630N
Date Tested	11/10/2018	11/10/2018
Time Tested	16:07	16:02
Test Request #/Location	House Lot G24 Retest	House Lot G25 Retest
Easting	54H 747120	54H 747111
Northing	5838703	5838700
Elevation (m)	900mm BFSL	900mm BFSL
Layer / Reduced Level	Filling	Filling
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	1.87	1.91
Field Dry Density (FDD) t/m ³	**	**
Peak Converted Wet Density t/m ³	1.77	1.82
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	1.0	0.5
Adjusted Moisture Variation %	**	**
Hilf Density Ratio (%)	106.0	105.0
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: P18076-9
Issue Number: 1
Date Issued: 07/11/2018
Client: Integra Land



Contact: Wayne Sherriden
Project Number: P18076
Project Name: Balymanus Estate Stage G
Project Location: Alfredton
Work Request: 668
Date Sampled: 25/10/2018
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

Approved Signatory: Bryan Mott
 NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1					
Sample Number	D18-668A	D18-668B	D18-668C	D18-668D	D18-668E
Date Tested	25/10/2018	25/10/2018	25/10/2018	25/10/2018	25/10/2018
Time Tested	08:10	08:13	08:16	08:19	08:27
Test Request #/Location	House Lot G31	House Lot G30	House Lot G29	House Lot G28	House Lot J1
Easting	54H 747133	54H 747133	54H 747124	54H 747133	54H 747146
Northing	5838822	5838809	5838798	5838789	5838791
Elevation (m)	FSL	FSL	FSL	FSL	FSL
Layer / Reduced Level	Filling	Filling	Filling	Filling	Filling
Thickness of Layer (mm)	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
Test Depth (mm)	175	175	175	175	175
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	1.94	1.94	1.88
Field Dry Density (FDD) t/m ³	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.85	1.87	1.80	1.83	1.82
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	-1.0	-2.0	0.5	0.0	0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	103.5	102.5	108.0	106.5	103.5
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: P18058-2
Issue Number: 1
Date Issued: 26/11/2018
Client: Integra Land
Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P18058
Project Name: Ballymanus Estate Stage H
Project Location: Alfredton
Work Request: 724
Date Sampled: 20/11/2018
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 5.1.1 & 5.4.1 & 5.8.1 & 2.1.1

Sample Number	D18-724A
Date Tested	20/11/2018
Time Tested	07:44
Test Request #/Location	House Lot H25
Easting	54H 747206
Northing	5838799
Elevation (m)	FSL
Layer / Reduced Level	Filling
Thickness of Layer (mm)	200
Soil Description	Orange Brown Sandy Clay
Test Depth (mm)	175
Oversize (wet basis) %	0
Oversize (dry basis) %	0
Fraction Tested (mm)	19.0
Field Wet Density t/m ³	1.81
Field Moisture Content %	19.9
Field Dry Density t/m ³	1.51
Maximum Dry Density t/m ³	1.52
Adjusted Maximum Dry Density t/m ³	**
Optimum Moisture Content (OMC) %	24.0
Adjusted Optimum Moisture Content (OMC) %	**
Moisture Variation %	4.5
Moisture Ratio %	82.0
Density Ratio %	99.5
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: P18058-2
Issue Number: 1
Date Issued: 26/11/2018
Client: Integra Land
 Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P18058
Project Name: Ballymanus Estate Stage H
Project Location: Alfredton
Work Request: 724
Date Sampled: 20/11/2018
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

Approved Signatory: Bryan Mott
 NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	D18-724B	D18-724C	D18-724D	D18-724E	D18-724F	D18-724G
Date Tested	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018
Time Tested	07:50	07:52	07:56	08:19	08:22	08:24
Test Request #/Location	House Lot H25	House Lot H25	House Lot H25	House Lot H24	House Lot H24	**
Easting	54H 747207	54H 747204	54H 747093	54H 747999	54H 747158	54H 747098
Northing	5838804	5838801	5838934	5838566	5839101	5838926
Elevation (m)	-300	-600	-900	FSL	-300	-600
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	1.98	1.94	1.93	1.91	1.93	1.86
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.83	1.81	1.84	1.83	1.79	1.78
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	3.5	3.0	3.0	4.0	6.0	6.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	108.5	107.5	105.0	104.5	107.5	104.5
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: P18058-2
Issue Number: 1
Date Issued: 26/11/2018
Client: Integra Land
 Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P18058
Project Name: Ballymanus Estate Stage H
Project Location: Alfredton
Work Request: 724
Date Sampled: 20/11/2018
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	D18-724H	D18-724I	D18-724J	D18-724K	D18-724L	D18-724M
Date Tested	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018
Time Tested	08:27	09:04	09:07	09:12	09:33	09:35
Test Request #/Location	House Lot H24	House Lot H23	House Lot H23	House Lot H23	House Lot H22	House Lot H22
Easting	54H 747098	54H 747098	54H 747239	54H 747250	54H 747261	54H 747098
Northing	5838927	5838926	5838797	5838794	5838801	5838926
Elevation (m)	-900	FSL	-300	-600	FSL	-300
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	2.03	2.00	1.99	2.02	1.95	1.97
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.85	1.92	1.82	1.90	1.81	1.77
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	4.5	3.0	5.5	1.0	5.5	5.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	109.5	104.5	109.5	106.0	107.5	111.0
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: P18058-2
Issue Number: 1
Date Issued: 26/11/2018
Client: Integra Land
 Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P18058
Project Name: Ballymanus Estate Stage H
Project Location: Alfredton
Work Request: 724
Date Sampled: 20/11/2018
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	D18-724N	D18-724O	D18-724P	D18-724Q	D18-724R	D18-724S
Date Tested	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018
Time Tested	09:38	10:17	10:19	10:21	10:23	10:59
Test Request #/Location	House Lot H22	House Lot Y12	House Lot Y12	House Lot Y12	House Lot Y12	House Lot J18
Easting	54H 747161	54H 747003	54H 747303	54H 747071	54H 747277	54H 747304
Northing	5838707	5838570	5838677	5838594	5838360	5838699
Elevation (m)	-600	FSL	-300	-600	-900	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	0.0	0.0
Field Wet Density (FWD) t/m ³	1.94	1.92	2.00	2.02	1.93	1.94
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.80	1.89	1.79	1.86	1.88	1.82
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	3.5	4.0	6.0	3.5	2.5	5.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	107.5	102.0	112.0	108.0	103.0	107.0
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: P18058-2
Issue Number: 1
Date Issued: 26/11/2018
Client: Integra Land
 Level 1 / 1728 Sturt Street, Alfredton VIC 3350
Contact: Wayne Sherriden
Project Number: P18058
Project Name: Ballymanus Estate Stage H
Project Location: Alfredton
Work Request: 724
Date Sampled: 20/11/2018
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	D18-724T	D18-724U	D18-724V
Date Tested	20/11/2018	20/11/2018	20/11/2018
Time Tested	11:01	11:02	11:04
Test Request #/Location	House Lot J18	House Lot J18	House Lot J18
Easting	54H 747117	54H 747172	54H 747225
Northing	5838618	5838641	5838662
Elevation (m)	-300	-600	-900
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	1.99	2.02	1.95
Field Dry Density (FDD) t/m ³	**	**	**
Peak Converted Wet Density t/m ³	1.84	1.80	1.84
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	2.5	5.5	3.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	107.5	112.5	106.0
Compaction Method	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: P18059-1
Issue Number: 1
Date Issued: 18/07/2018
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

Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 433
Date Sampled: 16/07/2018
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, 33 Laidlaw Drive
 Delacombe, 3356

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	D18-433A	D18-433B	D18-433C	D18-433D	D18-433E	D18-433F
Date Tested	16/07/2018	16/07/2018	16/07/2018	16/07/2018	16/07/2018	16/07/2018
Time Tested	14:14	14:24	14:37	14:46	14:58	15:10
Test Request #/Location	House Lot J2	House Lot J3	House Lot J4	House Lot J5	House Lot J6	House Lot J7
Easting	54H 747170	54H 747182	54H 747201	54H 747216	54H 747237	54H 747251
Northing	5838781	5838773	5838774	5838771	5838770	5838763
Elevation (m)	**	**	**	**	**	**
Layer / Reduced Level	-600mm BFSL	-600mm BFSL	-600mm BFSL	-300mm BFSL	-300mm BFSL	-300mm BFSL
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 (%)	**	**	**	**	**	**
Field Wet Density (FWD) t/m ³	1.92	1.95	2.01	2.03	1.97	1.97
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.87	1.88	1.92	1.88	1.94	1.99
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	1.5	0.5	-0.5	0.0	-1.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	103.0	104.0	104.5	108.0	101.5	99.0
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

Compaction Control Test Report

Report Number: P18059-2
Issue Number: 1
Date Issued: 26/07/2018
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

Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 437
Date Sampled: 18/07/2018 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, 33 Laidlaw Drive
 Delacombe, 3356

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	D18-437A	D18-437B	D18-437C	D18-437D	D18-437E	D18-437F
Date Tested	18/07/2018	18/07/2018	18/07/2018	18/07/2018	18/07/2018	18/07/2018
Time Tested	15:01	15:06	15:10	15:13	15:18	15:22
Test Request #/Location	House Lot J2	House Lot J3	House Lot J4	House Lot J5	House Lot J5	House Lot J6
Easting	54H 747164	54H 747179	54H 747184	54H 747193	54H 747210	54H 747231
Northing	5838774	5838773	5838772	5838770	5838771	5838764
Elevation (m)	**	**	**	**	**	**
Layer / Reduced Level	-300mm BFSL	-300mm BFSL	-300mm BFSL	-300mm BFSL	FSL	FSL
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 (%)	**	**	**	**	**	**
Field Wet Density (FWD) t/m ³	2.01	1.96	1.95	1.96	1.99	1.92
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	1.97	1.94	1.99	1.98	1.98	1.95
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	-0.5	-1.5	0.0	-2.0	0.0	-1.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	102.0	101.0	98.0	99.0	100.0	98.5
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

Compaction Control Test Report

Report Number: P18059-2
Issue Number: 1
Date Issued: 26/07/2018
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

Contact: Wayne Sherriden
Project Number: P18059
Project Name: Ballymanus Estate Stage J
Project Location: Alfredton
Work Request: 437
Date Sampled: 18/07/2018 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, 33 Laidlaw Drive
Delacombe, 3356

Specification: 95% Standard



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	D18-437G
Date Tested	18/07/2018
Time Tested	15:27
Test Request #/Location	House Lot J7
Easting	54H 747250
Northing	5838756
Layer / Reduced Level	FSL
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	1.94
Field Dry Density (FDD) t/m ³	**
Peak Converted Wet Density t/m ³	1.99
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	-0.5
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	97.0
Compaction Method	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC