

Viewpoint Estate Stage F5 Huntly

Earthworks Supervision Report for DPJ Civil

Report 23C 0046 F5
July, 2023

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Earthworks Supervision Report

for
DPJ Civil

Revision

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TABLE OF CONTENTS

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

APPENDIX

Site Plan
Test Reports

1 INTRODUCTION

DPJ Civil commissioned Geotechnical Testing Services (GTS) to undertake Level 1 Supervision and testing (AS3798-2007) for the earthworks for the residential subdivision Viewpoint Estate Stage F5, Huntly.

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 in Lots 662 to 673.

The depth of fill across the site varied from none to around 400mm at its deepest with the approximate locations shown on the attached site plan. It is noted that sites with 300mm or less were not included in the controlled fill operations.

2.2 PLACEMENT SPECIFICATION

Whilst there was no earthworks specification compiled for this project, 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.

Therefore, in accordance with Table 8.1 of AS3798-2007, the filling may be considered a large scale (greater than 1500m²) and therefore a minimum of 1 test per 2500m² or 3 tests per visit are required. It is noted that under this scale, not every lot required testing, however was generally conducted at 1 test per layer per lot which exceeds the minimum requirement.

3 INSPECTION AND TESTING

Inspection of the excavated base was conducted by a Senior Geotechnical Engineer and it was observed that the unsuitable material (vegetation, topsoil/silt) had been removed with the base consisting of a Silty Clay material of suitable 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 Bendigo 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	Density Ratio %
1	B22-11564A	6/07/2022	Lot 673	FSL	2.0	102.0
2	B22-11564B	6/07/2022	Lot 672	FSL	2.0	105.0
3	B22-11564C	6/07/2022	Lot 671	FSL	1.5	102.0
4	B22-11564D	6/07/2022	Lot 670	FSL	1.0	104.5
5	B22-11564E	6/07/2022	Lot 669	FSL	1.5	97.0
6	B22-11564F	6/07/2022	Lot 668	FSL	2.0	96.5
7	B22-11564G	6/07/2022	Lot 662	FSL	2.5	112.0
8	B22-11564H	6/07/2022	Lot 663	FSL	2.5	108.0
9	B22-11564I	6/07/2022	Lot 664	FSL	2.0	104.5
10	B22-11564J	6/07/2022	Lot 665	FSL	0.5	101.0
11	B22-11564K	6/07/2022	Lot 666	FSL	1.5	105.5
12	B23-12364A	12/01/2023	Lot 668	FSL	3.0	98.5
13	B23-12364B	12/01/2023	Lot 669	FSL	4.5	102.0
14	B23-12364C	12/01/2023	Lot 670	FSL	1.0	101.0
15	B23-12364D	12/01/2023	Lot 671	FSL	1.0	100.0
16	B23-12364E	12/01/2023	Lot 672	FSL	1.0	103.5

Project No.	Sample No.	Test Date	Location	Reduced Level (mm)	Moisture Variation %O.M.C	Density Ratio %
17	B23-12364F	12/01/2023	Lot 673	FSL	4.5	105.5
18	B23-12403A	19/01/2023	Lot 662	FSL	4.5	109.5
19	B23-12403B	19/01/2023	Lot 663	FSL	5.0	105.5
20	B23-12403C	19/01/2023	Lot 664	FSL	4.5	108.5
21	B23-12403D	19/01/2023	Lot 665	FSL	4.5	111.5

5 STATEMENT OF COMPLIANCE

GTS personnel have provided Level 1 inspection and testing services during the placement of material for the filling of Lots 662 to 673. 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. It is noted that topsoil material may be spread across the sites following completion of these earthworks and that this topsoil material is not considered controlled fill.



Shane Hampton BE (Hons), MIEAust
Principal Geotechnical Engineer

APPENDIX



Fig 1: Site Plan

Material Test Report

Report Number: P18615-73
Issue Number: 1
Date Issued: 06/07/2022
Client: DPJ Civil Pty Ltd
 24 Jewell Court , Bendigo VIC 3550
Project Number: P18615
Project Name: View Point Estate
Project Location: View Point
Work Request: 11564
Date Sampled: 06/07/2022
Dates Tested: 06/07/2022 - 06/07/2022
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Material Source: Test location



Geotechnical Testing Services (Southern)
 Bendigo Soil and Concrete Testing Laboratory
 13 Alstonvale Court East Bendigo VIC 3550
 Phone: (03) 5441 4881
 Email: joshl@gts.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Josh Lagodzki
 CMT Manager

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	B22-11564A	B22-11564B	B22-11564C	B22-11564D	B22-11564E	B22-11564F
Date Tested	06/07/2022	06/07/2022	06/07/2022	06/07/2022	06/07/2022	06/07/2022
Time Tested	11:21	11:31	11:41	11:56	12:04	12:10
Test Request #/Location	House Blocks Lot 673	House Blocks Lot 672	House Blocks Lot 671	House Blocks Lot 670	House Blocks Lot 669	House Blocks Lot 668
Easting	263490	263500	2635403	263505	263509	263510
Northing	5939074	5939062	5939048	5939033	5939018	5939000
Layer / Reduced Level	FSL	FSL	FSL	FSL	FSL	FSL
Thickness of Layer (mm)	230	230	250	270	180	300
Soil Description	Silty Gravelly Clay	Silty Gravelly Clay	Silty Gravelly Clay	Silty Gravelly Clay	Silty Gravelly Clay	Silty Gravelly Clay
Test Depth (mm)	200	200	225	250	150	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m ³	2.18	2.21	2.18	2.28	2.07	2.04
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	2.14	2.11	2.14	2.19	2.13	2.12
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	2.0	2.0	1.5	1.0	1.5	2.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	102.0	105.0	102.0	104.5	97.0	96.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:

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

Material Test Report

Report Number: P18615-73
Issue Number: 1
Date Issued: 06/07/2022
Client: DPJ Civil Pty Ltd
 24 Jewell Court , Bendigo VIC 3550
Project Number: P18615
Project Name: View Point Estate
Project Location: View Point
Work Request: 11564
Date Sampled: 06/07/2022
Dates Tested: 06/07/2022 - 06/07/2022
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Material Source: Test location



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 CMT Manager

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	B22-11564G	B22-11564H	B22-11564I	B22-11564J	B22-11564K	B22-11564L
Date Tested	06/07/2022	06/07/2022	06/07/2022	06/07/2022	06/07/2022	06/07/2022
Time Tested	12:18	12:28	12:40	12:49	12:56	13:05
Test Request #/Location	House Blocks Lot 662	House Blocks Lot 663	House Blocks Lot 664	House Blocks Lot 665	House Blocks Lot 666	House Blocks Lot 667
Easting	263519	263532	263547	263560	263596	163610
Northing	5938964	5938970	5938974	5938981	5938996	5939004
Layer / Reduced Level	FSL	FSL	FSL	FSL	FSL	FSL
Thickness of Layer (mm)	300	270	300	300	300	300
Soil Description	Silty Gravelly Clay	Silty Gravelly Clay	Silty Gravelly Clay	Silty Gravelly Clay	Silty Gravelly Clay	Silty Gravelly Clay
Test Depth (mm)	275	250	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m ³	2.32	2.32	2.25	2.18	2.28	2.21
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	2.07	2.15	2.15	2.15	2.16	2.13
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	2.5	2.5	2.0	0.5	1.5	1.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	112.0	108.0	104.5	101.0	105.5	103.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:

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

Material Test Report



Report Number: P18615-87
Issue Number: 1
Date Issued: 13/01/2023
Client: DPJ Civil Pty Ltd
 24 Jewell Court , Bendigo VIC 3550
Project Number: P18615
Project Name: View Point Estate
Project Location: Stage F5
Work Request: 12364
Date Sampled: 12/01/2023
Dates Tested: 12/01/2023 - 13/01/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Material Source: Test Location

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 CMT Manager

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Compaction Control AS 1289 5.7.1 & 5.8.1						
Sample Number	B23-12364A	B23-12364B	B23-12364C	B23-12364D	B23-12364E	B23-12364F
Date Tested	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
Time Tested	11:55	12:02	12:14	12:20	12:27	12:32
Test Request #/Location	House blocks Block 668	House blocks Block 669	House blocks Block 670	House blocks Block 671	House blocks Block 672	House blocks Block 673
Easting	263518	263517	263516	263508	263505	263506
Northing	5939019 (Zone 55H), 183 m	263517, 5939025 (Zone 55H), 184 m	263516, 5939035 (Zone 55H), 182 m	263508, 5939057 (Zone 55H), 182 m	5939070 (Zone 55H), 180 m	5939082 (Zone 55H), 181 m
Layer / Reduced Level	FSL	FSL	FSL	FSL	FSL	FSL
Thickness of Layer (mm)	300	300	300	300	300	300
Soil Description	Sandy Gravelly Clay	Sandy Gravelly Clay	Sandy Gravelly Clay	Sandy Gravelly Clay	Sandy Gravelly Clay	Sandy Gravelly Clay
Test Depth (mm)	275	275	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	3	0	1	1	0	0
Field Wet Density (FWD) t/m ³	2.08	2.11	2.14	2.09	2.20	2.16
Field Dry Density (FDD) t/m ³	**	**	**	**	**	**
Peak Converted Wet Density t/m ³	**	2.07	**	**	2.13	2.05
Adjusted Peak Converted Wet Density t/m ³	2.12	**	2.11	2.09	**	**
Moisture Variation (Wv) %	**	4.5	**	**	1.0	4.5
Adjusted Moisture Variation %	3.0	**	1.0	1.0	**	**
Hilf Density Ratio (%)	98.5	102.0	101.0	100.0	103.5	105.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:

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

Material Test Report



Report Number: P18615-88
Issue Number: 1
Date Issued: 21/01/2023
Client: DPJ Civil Pty Ltd
 24 Jewell Court , Bendigo VIC 3550
Project Number: P18615
Project Name: View Point Estate
Project Location: Stage F5
Work Request: 12403
Date Sampled: 19/01/2023
Dates Tested: 19/01/2023 - 20/01/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Material Source: Test Location

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Approved Signatory: Josh Lagodzki
 CMT Manager

NATA Accredited Laboratory Number: 19506

Compaction Control AS 1289 5.7.1 & 5.8.1				
Sample Number	B23-12403A	B23-12403B	B23-12403C	B23-12403D
Date Tested	19/01/2023	19/01/2023	19/01/2023	19/01/2023
Time Tested	08:47	08:54	08:58	09:01
Test Request #/Location	House Block Lot 662	House Block Lot 663	House Block Lot 664	House Block Lot 665
Chainage (m)	Centre	Centre	Centre	Centre
Location Offset (m)	**	**	**	**
Layer / Reduced Level	FSL	FSL	FSL	FSL
Thickness of Layer (mm)	300	300	300	300
Soil Description	Gravelly Silty Clay	Gravelly Silty Clay	Gravelly Silty Clay	Gravelly Silty Clay
Test Depth (mm)	275	275	275	275
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0
Field Wet Density (FWD) t/m ³	2.26	2.15	2.28	2.26
Field Dry Density (FDD) t/m ³	**	**	**	**
Peak Converted Wet Density t/m ³	2.06	2.04	2.09	2.03
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	4.5	5.0	4.5	4.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	109.5	105.5	108.5	111.5
Compaction Method	Standard	Standard	Standard	Standard
Report Remarks	**	**	**	**

Moisture Variation Note:

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