

Imagine Estate Stages 12 Strathfieldsaye

Earthworks Supervision Report for BildGroup

Report 22C 1017-3
February 2023

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1 INTRODUCTION

BildGroup commissioned Geotechnical Testing Services (GTS) to undertake Level 1 Supervision and testing (AS3798-2007) for the earthworks for the residential subdivision at Imagine Estate Stage 12, Strathfieldsaye.

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 1213 to 1215.

The depth of fill across the site varied from none to around 0.9 metres. Sites with less than 300mm of fill were not included in the Level 1 earthworks.

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.

In accordance with Table 8.1 of AS3798-2007, the filling may generally be considered small scale (less than 1500m²) and therefore a minimum of 1 test per layer per 1000m² or 1 test per residential lot per layer is required. The testing conducted meets the minimum requirements.

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, and low strength fill) had been removed with the base generally consisting of (Gravelly) Silty with suitable strength.

Level 1 inspection and testing was undertaken by a geotechnician from GTS who nominated the 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 S % O.M.C | Hilf Density Ratio % |
|-------------|------------|------------|----------|--------------------|--------------------|----------------------|
| 1 | B21-9976A | 28/09/2021 | Lot 1214 | 300 | 1.0 dry | 106.5 |
| 2 | B21-9976B | 28/09/2021 | Lot 1214 | 600 | 2.0 dry | 98.0 |
| 3 | B21-9976C | 28/09/2021 | Lot 1215 | 300 | 1.0 dry | 101.0 |
| 4 | B21-9976D | 28/09/2021 | Lot 1215 | 600 | 0.5 dry | 101.0 |
| 5 | B21-9976E | 28/09/2021 | Lot 1213 | 300 | 2.5 dry | 102.0 |

5 STATEMENT OF COMPLIANCE

GTS personnel have provided Level 1 inspection and testing services during the placement of material for the filling in Lots 1213 to 1215. 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. It is noted that the top 300mm is not considered controlled fill. Therefore, subject to residential site classifications, the controlled fill material is deemed a suitable founding medium for future residential buildings.

Should you have any further queries, please contact the undersigned in our Bendigo office.

A handwritten signature in black ink, appearing to read 'Shane Hampton', written in a cursive style.

Shane Hampton (BE (Hons)) MIEAust
Principal Geotechnical Engineer

APPENDIX

| Levels Table | | | |
|--------------|-----------|-----------|---|
| No. | Min. Fill | Max. Fill | Colour |
| 1 | 0.3 | 0.6 |  |
| 2 | 0.6 | 1.0 |  |
| 3 | 1.0 | 2.0 |  |

NOTES: FILL DEPTHS ARE A COMPARISON BETWEEN EXISTING SURFACE & BULK EARTHWORKS CONCEPT DESIGN SURFACE



Figure 1: Site plan with lot testing

Material Test Report

Report Number: P211525-1
Issue Number: 1
Date Issued: 28/09/2021
Client: BildGroup
 P.O Box 437, Somerton Vic 3062
Contact: Barry Lyons
Project Number: P211525
Project Name: Imagine
Project Location: Strathfieldsaye
Work Request: 9976
Date Sampled: 28/09/2021
Dates Tested: 28/09/2021 - 28/09/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by Client
Location: Stage 12
Material Source: Test Locations



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
 NATA Accredited Laboratory Number: 19506

| Compaction Control AS 1289 5.7.1 & 5.8.1 | | | | | |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|
| Sample Number | B21-9976A | B21-9976B | B21-9976C | B21-9976D | B21-9976E |
| Date Tested | 28/09/2021 | 28/09/2021 | 28/09/2021 | 28/09/2021 | 28/09/2021 |
| Time Tested | 09:17 | 09:21 | 09:26 | 09:30 | 09:40 |
| Test Request #/Location | Lot 1214 | Lot 1214 | Lot 1215 | Lot 1215 | Lot 1213 |
| Chainage (m) | Refer to map | Refer to map | Refer to map | Refer to map | Refer to map |
| Location Offset (m) | ** | ** | ** | ** | ** |
| Layer / Reduced Level | -300 | -600 | -300 | -600 | -300 |
| Thickness of Layer (mm) | 300 | 300 | 300 | 300 | 300 |
| Soil Description | Gravelly Silty Clay | Gravelly Silty Clay | Gravelly Silty Clay | Gravelly Silty Clay | Gravelly Silty Clay |
| Test Depth (mm) | 250 | 250 | 250 | 250 | 250 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 6 | 2 | 3 | 4 | 0 |
| Field Wet Density (FWD) t/m ³ | 2.18 | 2.10 | 2.17 | 2.19 | 2.03 |
| Field Dry Density (FDD) t/m ³ | ** | ** | ** | ** | ** |
| Peak Converted Wet Density t/m ³ | ** | ** | ** | ** | 2.00 |
| Adjusted Peak Converted Wet Density t/m ³ | 2.05 | 2.15 | 2.15 | 2.17 | ** |
| Moisture Variation (Wv) % | ** | ** | ** | ** | 2.5 |
| Adjusted Moisture Variation % | 1.0 | 2.0 | 1.0 | 0.5 | ** |
| Hilf Density Ratio (%) | 106.5 | 98.0 | 101.0 | 101.0 | 102.0 |
| Compaction Method | Standard | Standard | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** | ** | ** |

Moisture Variation Note:

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

Sample Locations Plan

