

Riverwalk Stage 38

GITA Inspection Verification Report

Prepared For: Excell Gray Bruni

Report Number D231081A V1

Version Release Date 15 Feb 2024

Report Released By C Caulfield

Title Laboratory Manager

Signature



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1 Introduction

Terra Firma Laboratories was engaged by Excell Gray Bruni as the Geotechnical Inspection and Testing Authority (GITA) to provide Level 1 supervision and testing works on the earthworks component for Riverwalk Stage 38. This work was conducted over the period of 28/08/2023 to 19/09/2023.

This report presents that the allotment earthworks was carried out in accordance with AS3798-2007 *Guidelines for Earthworks for Commercial and Residential Development* and in compliance with the compaction control specifications established by the contractor.

2 Scope of Work

2.1 Area of Work

The areas of work included lots 3801 to 3817, bounded by streets Aviatot Street and Farm Road. The site will be a Residential development.

The area on which fill was placed is shown on site plan (Appendix 1: *Test Location Plan*) based on drawings prepared by Dalton Consulting Engineers (Drawing Reference: 10870FP05) and provided by Excell Gray Bruni.

The supervision work by the GITA involved both inspection of sub grade preparation work and full time inspection and testing of fill placement.

2.2 Specification

The technical specification (Reference from Drawings) for compaction control requirements was provided by Excell Gray Bruni and established that:

Test Rolling is required for all layers of structural fill and materials within 150mm of permanent subgrade level so as to withstand test rolling without visible deformation or springing. Corrective action is required where unstable areas exceed 20% of the area being considered by test rolling.

Section 5.2 of AS3798-2007 (Section 5.2) establishes a specification requirement for a minimum density ratio of not less than 95% noting that soils containing more than 20% of particles coarser than 37.5mm cannot be tested for relative compaction using the procedures of AS1289 5.1.1 and AS1289 5.2.1.

In accordance with Table 8.1 (AS3798), for large scale operations, (greater than 1500m²), the minimum testing frequency is 1 test per layer per material type per 2500m² or 1 test per 500m³ distributed reasonable evenly throughout full depth and area or 3 tests per lot. AS3798 defines a lot as “an area of work that is essentially homogenous in relation to material type and moisture condition, rolling response and compaction technique, and which has been used for the assessment of the relative compaction of an area of work”. All three of these test frequencies must be achieved and this is typically confirmed to have been achieved when 3 tests per visit (day) have been completed.

2.3 Limitations

Terra Firma Laboratories cannot verify any works completed by others outside of the time period specified in the introduction. Uncontrolled works may include, but are not limited to trenching for services, cut and fill works for slab preparation or subsequent removal of vegetation and back fill of holes unless specified in section 2.1 of this report.

Terra Firma Laboratories cannot verify that the material used as a filling medium is free from chemical or other contamination. The scope and the period of Terra Firma Laboratories as described in the introduction are subject to restrictions and limitations. Terra Firma Laboratories did not perform a complete assessment of all possible conditions and circumstances that may exist at the site. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Terra Firma Laboratories.

Verification of finished surface level to design levels is outside of the scope of the GITA report.

Any drawings or marked locations presented in this report should be considered only as pictorial evidence of our work. Therefore, unless otherwise stated, any dimensions should not be used for accurate calculations or dimensioning.

Where data has been supplied by the client or a third party, it is assumed that the information is correct unless otherwise stated. No responsibility is accepted by Terra Firma Laboratories for incomplete or inaccurate data supplied by others.

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3 Construction Method

3.1 Subgrade Preparation

At the time of subgrade inspection the following was observed:

- Subgrade preparation involved stripping the site of topsoil, vegetation and organic matter to a depth of approximately 200mm below existing levels.
- The site was cleared of all trees and stumps to the extent necessary for the fill placement to proceed
- The roots of all trees and any debris was removed from site prior to any fill placement
- A trench was located between lots 3804 and 3805. Unsuitable material was removed, the base of the trench was inspected and given the ok to backfill.

The sub-grade area was then proof-rolled to confirm it was capable of withstanding test rolling without visible deformation or springing and any areas observed to be soft or otherwise unsuitable were rectified. The sub-grade was watered and scarified prior to fill placement to aid layer bonding.

3.2 Fill Placement

The contractor was observed to have suitable construction equipment and plant available on-site during the construction period for use in the fill placement.

Lots 3801 to 3803 were filled and tested under level 1 supervision during the filling of stage 39. Reference level 1 report D231062A Riverwalk Stage 39.

All fill was placed in layers of thicknesses not exceeding 300mm. At the completion of a placed layer, compaction testing was performed to confirm appropriate compaction had been achieved and supported the observations made. It should be noted that the compaction tests are representative samples of the fill placed and support the visual assessment of the works completed. Each house lot does not necessarily require a compaction test to have been conducted within the house allotment but may have been verified by testing conducted within up to a 2500m² area of the house lot.

Final fill placement levels were verified against design level by others. For the purposes of this report, it was observed that finished levels were in accordance with levels marked on site by survey markers.

The final 150mm of material placed across the site was placed as a topsoil layer or growing medium and should be considered as non-structural, as it was placed in an uncontrolled manner, as allowed by specifications and placement of the final 150mm of material was not observed by the GITA.

4 Construction Verification

Compaction Verification testing is summarized in a detailed test register with test certificates attached provided in Appendix 2: *Compaction Test Register and Test Certificates*. A test location plan (D231081D1, Appendix 1) providing a schematic of test locations across the extent of scope of works for every placed layer of fill is also documented.

A total of 30 density tests (Hilf method in accordance with 1289 5.7.1) were undertaken with 0 failed results. The results summarised in the compaction test register (Appendix 2) confirm that for every layer of fill placed in a specific work area, satisfactory testing was completed.

5 Statement of Compliance

The intention of this report is to provide a description of the earthworks construction for Stage 38 at Riverwalk. For completed fill areas of greater than 300mm, and for works completed between 28/08/2023 and 19/09/2023, earthworks construction activities were conducted under the full time supervision of the Geotechnical Inspection and Testing Authority. Inspections and testing of the fill areas at this site indicate that both sub grade preparation and fill placement have been conducted in accordance with the specification. The earthworks construction for Stage 38 of Riverwalk was observed to be constructed in compliance with the requirements of the Technical Specification.



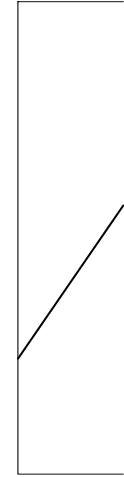
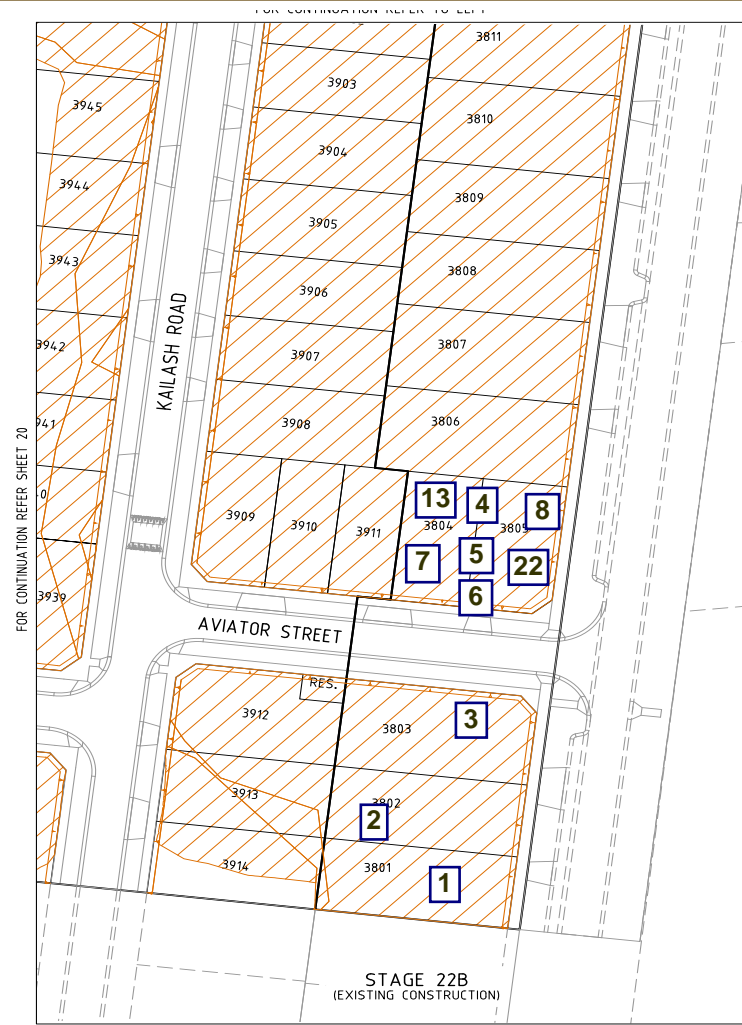
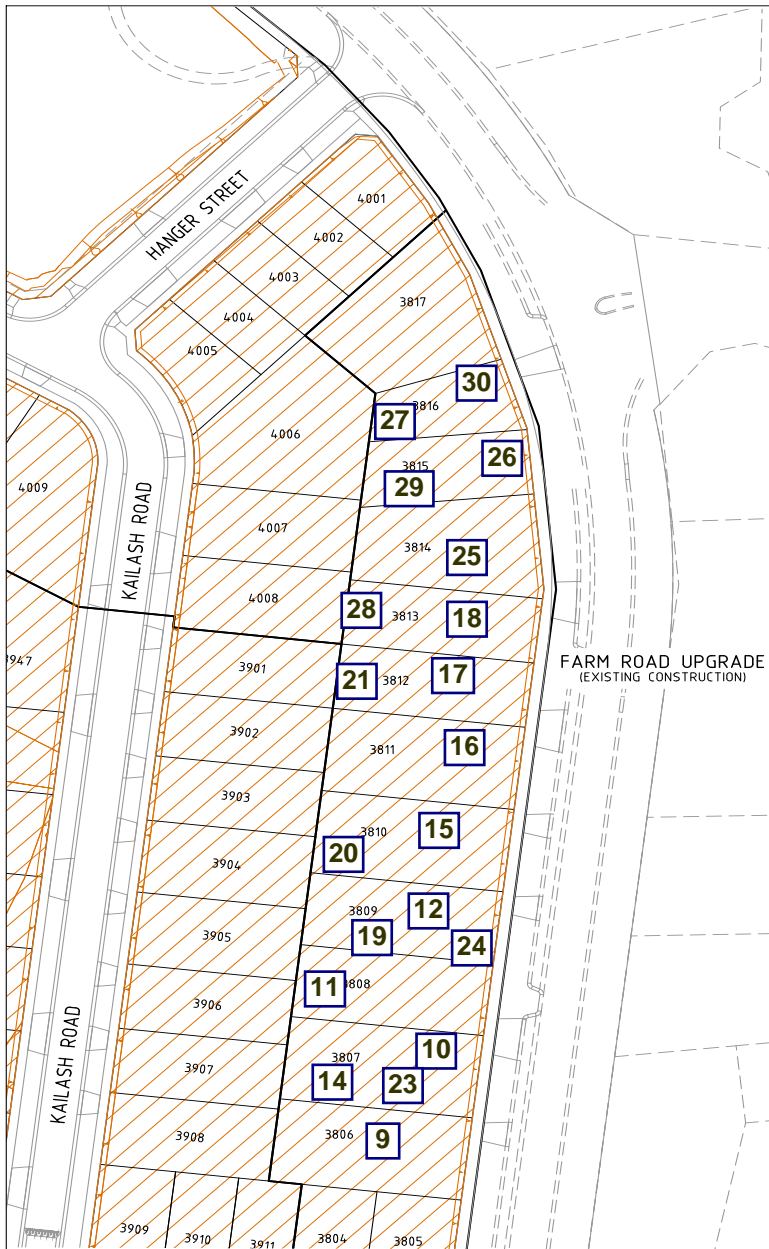
Your Worksite is Our Laboratory.

Appendix 1: Test Location Plan

Our Head Office
47 National Ave
Pakenham, VIC 3810

Our Laboratories
Pakenham 03 9769 5799
Deer Park 03 8348 5596
Bibra Lake 08 9395 7220

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Our Head Office
47 National Ave
Pakenham, VIC 3810

Our Laboratories
Pakenham 03 9769 5799
Deer Park 03 8348 5596
Bibra Lake 08 9395 7220

Test Location Plan

not to scale

Client: Excell Gray Bruni

Project: Riverwalk, Stage 38

Reference: P231081 D1



Your Worksite is Our Laboratory.

Appendix 2: Compaction Test Register and Test Certificates

Our Head Office
47 National Ave
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Compaction Test Register

Client: Excell Gray Bruni
Project: Riverwalk Stage 38

Project No: D231081
Specification: 95%

| Date: | Test No: | Layer: | Retest of: | Density: | Pass/Fail: | Lot No: | Report No: |
|------------|----------|---------|------------|----------|------------|----------|------------|
| 29/08/2023 | 1 | Layer 7 | | 101.0% | Pass | Lot 3801 | D231081-1 |
| 29/08/2023 | 2 | Layer 7 | | 101.5% | Pass | Lot 3802 | D231081-1 |
| 29/08/2023 | 3 | Layer 7 | | 101.5% | Pass | Lot 3803 | D231081-1 |
| 30/08/2023 | 4 | Layer 4 | | 99.5% | Pass | Trench | D231081-2 |
| 30/08/2023 | 5 | Layer 6 | | 98.0% | Pass | Trench | D231081-2 |
| 30/08/2023 | 6 | Layer 8 | | 98.5% | Pass | Trench | D231081-2 |
| 1/09/2023 | 7 | Layer 2 | | 99.0% | Pass | Lot 3804 | D231081-3 |
| 1/09/2023 | 8 | Layer 2 | | 96.5% | Pass | Lot 3805 | D231081-3 |
| 1/09/2023 | 9 | Layer 2 | | 100.0% | Pass | Lot 3806 | D231081-3 |
| 4/09/2023 | 10 | Layer 3 | | 95.5% | Pass | Lot 3807 | D231081-4 |
| 4/09/2023 | 11 | Layer 3 | | 103.0% | Pass | Lot 3808 | D231081-4 |
| 4/09/2023 | 12 | Layer 3 | | 103.0% | Pass | Lot 3809 | D231081-4 |
| 5/09/2023 | 13 | Layer 4 | | 104.0% | Pass | Lot 3804 | D231081-5 |
| 5/09/2023 | 14 | Layer 4 | | 103.0% | Pass | Lot 3807 | D231081-5 |
| 5/09/2023 | 15 | Layer 4 | | 98.5% | Pass | Lot 3810 | D231081-5 |
| 6/09/2023 | 16 | Layer 5 | | 100.5% | Pass | Lot 3811 | D231081-6 |
| 6/09/2023 | 17 | Layer 5 | | 101.5% | Pass | Lot 3812 | D231081-6 |
| 6/09/2023 | 18 | Layer 5 | | 100.5% | Pass | Lot 3813 | D231081-6 |
| 8/09/2023 | 19 | Layer 6 | | 100.5% | Pass | Lot 3809 | D231081-7 |
| 8/09/2023 | 20 | Layer 6 | | 100.0% | Pass | Lot 3810 | D231081-7 |
| 8/09/2023 | 21 | Layer 6 | | 101.0% | Pass | Lot 3812 | D231081-7 |
| 11/09/2023 | 22 | Layer 7 | | 96.0% | Pass | Lot 3805 | D231081-8 |
| 11/09/2023 | 23 | Layer 7 | | 96.5% | Pass | Lot 3807 | D231081-8 |
| 11/09/2023 | 24 | Layer 7 | | 101.5% | Pass | Lot 3809 | D231081-8 |
| 14/09/2023 | 25 | Layer 4 | | 96.0% | Pass | Lot 3814 | D231081-9 |
| 14/09/2023 | 26 | Layer 4 | | 100.5% | Pass | Lot 3815 | D231081-9 |
| 14/09/2023 | 27 | Layer 4 | | 100.0% | Pass | Lot 3816 | D231081-9 |
| 19/09/2023 | 28 | Layer 7 | | 98.0% | Pass | Lot 3813 | D231081-10 |
| 19/09/2023 | 29 | Layer 7 | | 99.0% | Pass | Lot 3815 | D231081-10 |
| 19/09/2023 | 30 | Layer 7 | | 98.0% | Pass | Lot 3816 | D231081-10 |

Material Test Report


Report Number: D231081-1
Issue Number: 1
Date Issued: 31/08/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6367
Date Sampled: 29/08/2023
Dates Tested: 29/08/2023 - 30/08/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk Estate Stage 38 - Level One
Material: Clay
Material Source: On Site



Deer Park Laboratory
 17 Walhalla Way Ravenhall VIC 3023
 Phone: 0435 751 756
 Email: ehippola@terrafirmalabs.com.au



Accredited for compliance with ISO/IEC 17025 - Testing


 Approved Signatory: Eranda Hippola
 Laboratory Manager
 NATA Accredited Laboratory Number: 15357

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|--|-----------------|-----------------|-----------------|
| Sample Number | D23-6367A | D23-6367B | D23-6367C |
| Test Number | 1 | 2 | 3 |
| Date Tested | 29/08/2023 | 29/08/2023 | 29/08/2023 |
| Time Tested | ** | ** | ** |
| Test Request #/Location | LOT 3801 | LOT 3802 | LOT 3803 |
| Layer / Reduced Level | Layer 7 | Layer 7 | Layer 7 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Clay | Clay | Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 1.93 | 1.84 | 1.86 |
| Field Moisture Content % | 10.2 | 10.4 | 10.5 |
| Field Dry Density (FDD) t/m ³ | 1.75 | 1.66 | 1.68 |
| Peak Converted Wet Density t/m ³ | 1.91 | 1.81 | 1.83 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 15.4 | 15.3 | 15.4 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 10.2 | 10.4 | 10.5 |
| Moisture Ratio % (AS1289.5.4.1) | 66.0 | 68.0 | 68.5 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 5.5 | 5.0 | 5.0 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 101.0 | 101.5 | 101.5 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

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

Material Test Report


Report Number: D231081-2
Issue Number: 1
Date Issued: 05/09/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6377
Date Sampled: 30/08/2023
Dates Tested: 30/08/2023 - 04/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk Estate Stage 38 - Level One
Material: Clay
Material Source: On Site



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 Approved Signatory: Eranda Hippola
 Laboratory Manager
 NATA Accredited Laboratory Number: 15357

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|--|------------------|------------------|------------------|
| Sample Number | D23-6377A | D23-6377B | D23-6377C |
| Test Number | 4 | 5 | 6 |
| Date Tested | 30/08/2023 | 30/08/2023 | 30/08/2023 |
| Time Tested | ** | ** | ** |
| Test Request #/Location | Trench Back fill | Trench Back fill | Trench Back fill |
| Layer / Reduced Level | Layer 4 | Layer 6 | Layer 8 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Clay | Clay | Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 2.00 | 1.97 | 2.00 |
| Field Moisture Content % | 12.8 | 12.8 | 12.9 |
| Field Dry Density (FDD) t/m ³ | 1.77 | 1.75 | 1.77 |
| Peak Converted Wet Density t/m ³ | 2.00 | 2.01 | 2.03 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 15.3 | 15.1 | 14.2 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 12.8 | 12.8 | 12.9 |
| Moisture Ratio % (AS1289.5.4.1) | 83.5 | 84.5 | 91.0 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 2.5 | 1.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 99.5 | 98.0 | 98.5 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

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

Material Test Report


Report Number: D231081-3
Issue Number: 1
Date Issued: 07/09/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6397
Date Sampled: 01/09/2023
Dates Tested: 01/09/2023 - 06/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk Estate Stage 38 - Level One
Material: Clay
Material Source: On Site



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 Approved Signatory: Eranda Hippola
 Laboratory Manager
 NATA Accredited Laboratory Number: 15357

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|--|-----------------|-----------------|-----------------|
| Sample Number | D23-6397A | D23-6397B | D23-6397C |
| Test Number | 7 | 8 | 9 |
| Date Tested | 01/09/2023 | 01/09/2023 | 01/09/2023 |
| Time Tested | ** | ** | ** |
| Test Request #/Location | LOT 3804 | LOT 3805 | LOT 3806 |
| Layer / Reduced Level | Layer 2 | Layer 2 | Layer 2 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Clay | Clay | Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 1.92 | 1.86 | 1.89 |
| Field Moisture Content % | 11.5 | 11.7 | 12.6 |
| Field Dry Density (FDD) t/m ³ | 1.72 | 1.66 | 1.68 |
| Peak Converted Wet Density t/m ³ | 1.94 | 1.93 | 1.89 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 16.2 | 16.3 | 16.3 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 11.5 | 11.7 | 12.6 |
| Moisture Ratio % (AS1289.5.4.1) | 70.5 | 72.0 | 77.0 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 5.0 | 4.5 | 4.0 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 99.0 | 96.5 | 100.0 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

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

Material Test Report

Report Number: D231081-4
Issue Number: 1
Date Issued: 07/09/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6408
Date Sampled: 04/09/2023
Dates Tested: 04/09/2023 - 06/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk Estate Stage 38 - Level One
Material: Clay
Material Source: On site



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Approved Signatory: Eranda Hippola
 Laboratory Manager

NATA Accredited Laboratory Number: 15357

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|--|-----------------|-----------------|-----------------|
| Sample Number | D23-6408A | D23-6408B | D23-6408C |
| Test Number | 10 | 11 | 12 |
| Date Tested | 04/09/2023 | 04/09/2023 | 04/09/2023 |
| Time Tested | ** | ** | ** |
| Test Request #/Location | Lot 3807 | Lot 3808 | Lot 3809 |
| Layer / Reduced Level | Layer 3 | Layer 3 | Layer 3 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Clay | Clay | Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 1.94 | 2.09 | 2.13 |
| Field Moisture Content % | 13.5 | 16.8 | 15.4 |
| Field Dry Density (FDD) t/m ³ | 1.71 | 1.79 | 1.84 |
| Peak Converted Wet Density t/m ³ | 2.03 | 2.03 | 2.06 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 15.1 | 17.5 | 16.8 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 13.5 | 16.8 | 15.4 |
| Moisture Ratio % (AS1289.5.4.1) | 89.0 | 96.0 | 92.0 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 1.5 | 0.5 | 1.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 95.5 | 103.0 | 103.0 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

Moisture Variation Note:

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

Material Test Report

Report Number: D231081-5
Issue Number: 1
Date Issued: 08/09/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6419
Date Sampled: 05/09/2023
Dates Tested: 05/09/2023 - 07/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk Estate Stage 38 - Level One
Material: Clay
Material Source: On Site



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Approved Signatory: Eranda Hippola
 Laboratory Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

| | D23-6419A | D23-6419B | D23-6419C |
|--|-----------------|-----------------|-----------------|
| Sample Number | D23-6419A | D23-6419B | D23-6419C |
| Test Number | 13 | 14 | 15 |
| Date Tested | 05/09/2023 | 05/09/2023 | 05/09/2023 |
| Time Tested | 14:48 | 14:58 | 15:08 |
| Test Request #/Location | Lot 3804 | Lot 3807 | Lot 3810 |
| Layer / Reduced Level | Layer 4 | Layer 4 | Layer 4 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Clay | Clay | Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 2.09 | 2.13 | 1.99 |
| Field Moisture Content % | 12.5 | 13.7 | 13.8 |
| Field Dry Density (FDD) t/m ³ | 1.85 | 1.87 | 1.75 |
| Peak Converted Wet Density t/m ³ | 2.01 | 2.07 | 2.03 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 15.2 | 16.4 | 16.6 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 12.5 | 13.7 | 13.8 |
| Moisture Ratio % (AS1289.5.4.1) | 82.5 | 83.5 | 83.5 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 2.5 | 2.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 104.0 | 103.0 | 98.5 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

Moisture Variation Note:

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

Material Test Report

Report Number: D231081-6
Issue Number: 1
Date Issued: 11/09/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6429
Date Sampled: 06/09/2023
Dates Tested: 06/09/2023 - 08/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk stage 38 -Level One
Material: Clay
Material Source: On Site



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Approved Signatory: Eranda Hippola
 Laboratory Manager

NATA Accredited Laboratory Number: 15357

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|--|-----------------|-----------------|-----------------|
| Sample Number | D23-6429A | D23-6429B | D23-6429C |
| Test Number | 16 | 17 | 18 |
| Date Tested | 06/09/2023 | 06/09/2023 | 06/09/2023 |
| Time Tested | ** | ** | ** |
| Test Request #/Location | Lot 3811 | Lot 3812 | Lot 3813 |
| Layer / Reduced Level | Layer 5 | Layer 5 | Layer 5 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Clay | Clay | Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 1.98 | 2.02 | 1.99 |
| Field Moisture Content % | 11.4 | 11.2 | 11.5 |
| Field Dry Density (FDD) t/m ³ | 1.78 | 1.81 | 1.79 |
| Peak Converted Wet Density t/m ³ | 1.97 | 1.99 | 1.98 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 15.2 | 15.1 | 15.4 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 11.4 | 11.2 | 11.5 |
| Moisture Ratio % (AS1289.5.4.1) | 74.5 | 74.5 | 75.0 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 4.0 | 4.0 | 4.0 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 100.5 | 101.5 | 100.5 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

Moisture Variation Note:

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

Material Test Report

Report Number: D231081-7
Issue Number: 1
Date Issued: 11/09/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6435
Date Sampled: 07/09/2023
Dates Tested: 07/09/2023 - 08/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk stage 38 - Level One
Material: Clay
Material Source: On Site



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 Laboratory Manager

NATA Accredited Laboratory Number: 15357

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|--|-----------------|-----------------|-----------------|
| Sample Number | D23-6435A | D23-6435B | D23-6435C |
| Test Number | 19 | 20 | 21 |
| Date Tested | 08/09/2023 | 08/09/2023 | 08/09/2023 |
| Time Tested | ** | ** | ** |
| Test Request #/Location | Lot 3809 | Lot 3810 | Lot 3812 |
| Layer / Reduced Level | Layer 6 | Layer 6 | Layer 6 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Clay | Clay | Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 2.12 | 2.11 | 2.09 |
| Field Moisture Content % | 12.9 | 13.0 | 13.0 |
| Field Dry Density (FDD) t/m ³ | 1.87 | 1.87 | 1.85 |
| Peak Converted Wet Density t/m ³ | 2.10 | 2.11 | 2.07 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 16.2 | 16.3 | 17.1 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 12.9 | 13.0 | 13.0 |
| Moisture Ratio % (AS1289.5.4.1) | 80.0 | 80.0 | 76.0 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 3.0 | 3.0 | 4.0 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 100.5 | 100.0 | 101.0 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

Moisture Variation Note:

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

Material Test Report

Report Number: D231081-8
Issue Number: 1
Date Issued: 13/09/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6454
Date Sampled: 11/09/2023
Dates Tested: 11/09/2023 - 12/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk Estate Stage 38 - Level One
Material: Clay
Material Source: On Site



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 Laboratory Manager

NATA Accredited Laboratory Number: 15357

| Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1 | | | |
|--|-----------------|-----------------|-----------------|
| Sample Number | D23-6454A | D23-6454B | D23-6454C |
| Test Number | 22 | 23 | 24 |
| Date Tested | 11/09/2023 | 11/09/2023 | 11/09/2023 |
| Time Tested | ** | ** | ** |
| Test Request #/Location | LOT 3805 | LOT 3807 | LOT 3809 |
| Layer / Reduced Level | Layer 7 | Layer 7 | Layer 7 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Clay | Clay | Silty Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 1.86 | 1.90 | 2.01 |
| Field Moisture Content % | 14.7 | 14.5 | 14.5 |
| Field Dry Density (FDD) t/m ³ | 1.63 | 1.66 | 1.75 |
| Peak Converted Wet Density t/m ³ | 1.94 | 1.97 | 1.98 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 17.6 | 17.7 | 17.7 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 14.7 | 14.5 | 14.5 |
| Moisture Ratio % (AS1289.5.4.1) | 83.5 | 82.0 | 82.0 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 3.0 | 3.0 | 3.0 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 96.0 | 96.5 | 101.5 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

Moisture Variation Note:

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

Material Test Report

Report Number: D231081-9
Issue Number: 1
Date Issued: 18/09/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6491
Date Sampled: 14/09/2023
Dates Tested: 14/09/2023 - 15/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk Estate stage 38 - Level One
Material: Silty Clay



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 Laboratory Manager

NATA Accredited Laboratory Number: 15357

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

| Sample Number | D23-6491A | D23-6491B | D23-6491C |
|--|-----------------|-----------------|-----------------|
| Test Number | 25 | 26 | 27 |
| Date Tested | 14/09/2023 | 14/09/2023 | 14/09/2023 |
| Time Tested | 14:30 | 14:45 | 15:00 |
| Test Request #/Location | Lot 3814 | Lot 3815 | Lot 3816 |
| Layer / Reduced Level | Layer 4 | Layer 4 | Layer 4 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Silty Clay | Silty Clay | Silty Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 1.91 | 1.94 | 1.95 |
| Field Moisture Content % | 14.7 | 13.7 | 12.2 |
| Field Dry Density (FDD) t/m ³ | 1.66 | 1.71 | 1.74 |
| Peak Converted Wet Density t/m ³ | 1.98 | 1.93 | 1.95 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 17.5 | 16.9 | 15.1 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 14.7 | 13.7 | 12.2 |
| Moisture Ratio % (AS1289.5.4.1) | 84.0 | 81.0 | 80.5 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 3.0 | 3.0 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 96.0 | 100.5 | 100.0 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

Moisture Variation Note:

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

Material Test Report

Report Number: D231081-10
Issue Number: 1
Date Issued: 21/09/2023
Client: Excell Gray Bruni
 12 Allied Drive, Tullamarine Vic 3043
Project Number: D231081
Project Name: Riverwalk Estate stage 38 - Level One
Project Location: Werribee
Work Request: 6529
Date Sampled: 19/09/2023
Dates Tested: 19/09/2023 - 20/09/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Location: Riverwalk Estate stage 38
Material: Clay
Material Source: On Site



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Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

| | D23-6529A | D23-6529B | D23-6529C |
|--|-----------------|-----------------|-----------------|
| Sample Number | | | |
| Test Number | 28 | 29 | 30 |
| Date Tested | 19/09/2023 | 19/09/2023 | 19/09/2023 |
| Time Tested | 15:00 | 15:00 | 15:00 |
| Test Request #/Location | LOT 3813 | LOT 3815 | LOT 3816 |
| Layer / Reduced Level | Layer 7 | Layer 7 | Layer 7 |
| Thickness of Layer (mm) | 300 | 300 | 300 |
| Soil Description | Clay | Clay | Clay |
| Test Depth (mm) | 275 | 275 | 275 |
| Sieve used to determine oversize (mm) | 19.0 | 19.0 | 19.0 |
| Percentage of Wet Oversize (%) | 0 | 0 | 0 |
| Percentage of Dry Oversize (%) (AS1289.5.4.1) | 0 | 0 | 0 |
| Field Wet Density (FWD) t/m ³ | 1.92 | 1.94 | 1.98 |
| Field Moisture Content % | 14.7 | 14.9 | 16.4 |
| Field Dry Density (FDD) t/m ³ | 1.68 | 1.69 | 1.70 |
| Peak Converted Wet Density t/m ³ | 1.96 | 1.96 | 2.01 |
| Adjusted Peak Converted Wet Density t/m ³ | ** | ** | ** |
| Adj. Optimum Moisture Content % (AS1289.5.4.1) | 17.2 | 17.6 | 16.7 |
| Adj. Field Moisture Content % (AS1289.5.4.1) | 14.7 | 14.9 | 16.4 |
| Moisture Ratio % (AS1289.5.4.1) | 85.0 | 84.5 | 98.5 |
| Adjusted Moisture Ratio % (AS1289.5.4.1) | ** | ** | ** |
| Moisture Variation (Wv) % | 2.5 | 3.0 | 0.5 |
| Adjusted Moisture Variation % | ** | ** | ** |
| Hilf Density Ratio (%) | 98.0 | 99.0 | 98.0 |
| Compaction Method | Standard | Standard | Standard |
| Report Remarks | ** | ** | ** |

Moisture Variation Note:

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