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LEVEL 1 INSPECTION & TESTING FIVE FARMS ESTATE - STAGE 1, CLYDE NORTH

Prepared for Frasers Property Australia

Report Reference: GS5860.1 AA

Date: 29 September 2021

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PROJECT DETAILS

Project Reference	GS5860.1 AA	Rev	AA
Project Title	Five Farms Estate - Stage 1		
Project Location	Clyde North	State	VIC
Date	29 September 2021		

CLIENT DETAILS

Prepared For (Client)	Frasers Property Australia
Client Address	Level 9, 484 St Kilda Road, Melbourne, VIC, 3004

DISTRIBUTION

Original Held By	Ground Science Pty Ltd
One (1) Electronic Copy	Frasers Property Australia

This document presents the results of the Level 1 Inspection and Testing performed by Ground Science for the aforementioned project, as the nominated project Geotechnical Inspection & Testing Authority (GITA). This report is detailed for the sole use of the intended recipient(s). Should you have any questions related to this report please do not hesitate to contact the undersigned.

AUTHOR:



Anton Manoj
Geotechnical Engineer

REVIEWED:



Gee Singh MIEAust (NER)
Senior Geotechnical Engineer

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1. INTRODUCTION

This report presents the results of the inspection activities, compaction control, and laboratory testing services performed by Ground Science Pty Ltd for the development of Stage 1 at the Five Farms Estate residential development in Clyde North, Victoria (the site).

Ground Science was engaged to provide Level 1 Inspection and Testing Services for the construction of building platforms to support proposed residential allotments, as part of the bulk earthworks phase of the project. Authorisation to proceed was provided by Frasers Property Australia (the 'Client').

Level 1 Testing as defined in AS3798 (2007) 'Guidelines on Earthworks for Commercial and Residential Developments' provides for full time inspection of the construction of controlled fill and compaction testing in accordance with AS1289 'Methods of Testing Soils for Engineering Purposes'.

The Level 1 Inspection and Testing services described in this report were undertaken by experienced geotechnicians from Ground Science.

2. SCOPE OF WORK

2.1 AREAS OF WORK

The areas requiring Level 1 Inspection & Testing are shown on the site plan, Figures 1 and 2, in Appendix A, which is based on plans prepared by Beveridge Williams (1702037 REV A). This report details the Level 1 earthworks process performed on-site which commenced on 28th July 2021 and was completed on 25th August 2021, which included 12 full days of filling operations.

2.2 PLACEMENT METHODOLOGY

The placement of controlled fill on the above-mentioned areas was carried out in accordance with Level 1 fill procedures as detailed in AS3798 (2007) 'Guidelines on Earthworks for Commercial and Residential Developments' and the geotechnical report prepared by Ground Science (G4259.1 AA, dated 28.04.2021). The following fill placement guideline was adopted for the works:

- All existing loose surficial fill, topsoil, soft material, vegetation, materials containing significant organic matter, and alluvium deposits (sandy soil) were removed to expose the natural soil subgrade;
- Suitable fill material, sourced by the contractor and approved by Ground Science, was placed in loose horizontal layers not exceeding 250mm in thickness;
- The controlled fill material was compacted to achieve a target Dry Density Ratio of at least 95% Standard Compaction (AS 1289: 5.1.1, 5.4.1 or 5.7.1), for buildings/loads similar to residential structures;
- The fill is to be moisture conditioned to a moisture ratio of 85% – 115% of optimum moisture content (OMC);
- The fill material was sorted and mixed to remove particles greater than 20% by volume, particles coarser than 37.5mm, and no particle over 200mm in any dimension;
- Any imported fill materials should not be contaminated and should be derived from a clean source with documentation and proof of testing;
- The frequency of field density testing adopted for the project was generally in line with the requirements for large scale developments (Type 1), as detailed in AS3798 (2007), which nominates a frequency of not less than:
 - 1 test per layer or 200mm per 2500m²;
 - 1 test per 500m³ distributed reasonably evenly throughout the full depth and area; or

- 3 tests per site visit; whichever requires the most tests.

3. INSPECTION AND TESTING

3.1 SUBGRADE PREPARATION

Subgrade preparation involved the stripping of all surface vegetation, topsoil, unsuitable sandy soils from alluvium deposits, and soft soils until a suitable natural clay or silty sand soil subgrade was achieved. The exposed subgrade was then proof rolled using a fully loaded water cart and a medium number of soft spots were observed. Identified soft spots were removed, requiring 50mm – 100mm of further stripping to achieve a suitable subgrade. The exposed subgrade was again proof rolled with no soft spots observed. In some areas of the site, the stripped subgrade comprised silty sand, which was ripped/tined and blended with the underlying clay to form a suitable, approved subgrade per geotechnical direction from this office.

The above exposed subgrade was visually assessed using tactile methods described in AS1726 (2017) and approved by the GITA representative throughout the project. Typically, the subgrade soils were found to be in a stiff or better consistency and approved for subsequent fill placement. The subgrade soils were found to be naturally occurring residual “Red Bluff Sandstone” deposits comprising of sandy clay or a sandy clay/silty sand blend, low to medium plasticity, brown, and observed to be dry of OMC. The subgrade soils were ripped, moisture conditioned, and compacted prior to the placement of subsequent fill layers.

3.2 CONSTRUCTION MATERIALS

The fill material used in this project was nominated by the on-site contractor and was sourced from on-site excavations.

The material was carted to the site in dump trucks and stockpiled adjacent to the fill zones. Ground Science performed an assessment of the fill source to identify the following material characteristics:

- Material suitability as an engineering property;
- Cohesiveness;
- Free of building debris and vegetative matter;
- Free of oversize rock particles.

Visual assessments on the above-mentioned properties were conducted on-site and the fill material used was considered acceptable for use on this project.

The nominated fill products were visually assessed to comprise of;

- Silty CLAY, medium to high plasticity, brown, moisture equal to OMC;
- Sandy CLAY, low to medium plasticity, brown, fine to medium grained sand, moisture close to OMC.

At various phases during the project, oversize particles of 150mm were observed in the fill sources. These particles were pushed away from the fill zones by the on-site dozer.

Ground Science did not perform any chemical or environmental analysis of the above fill sources. Fill materials that were found to be dry were moisture conditioned using a water cart prior to and during placement. All fill materials hauled to the site were however generally considered suitable for use as engineered fill.

3.3 FILL CONSTRUCTION

The contractor had the following plant available on-site during the construction period for use in the fill placement;

- Dozer;
- Water Carts;

- 825 Compactor;
- Dump Trucks & Trailers.

During fill placement, the weather conditions were generally overcast and cold with temperatures typically ranging from 9 to 13 degrees Celsius. Occasional light rainfall was observed.

The filling process was conducted in the following methods:

- Approved silty clay material was spread into a loose layer of 150mm. then, silty sand material (Alluvium deposits, sourced from site stripping) was spread over the silty clay material in a loose layer of 150 – 200mm. The complete section was then ripped using the on-site dozer and compacted using 825 Compactor applying a minimum of 5 passes;
- Approved fill material was spread using the 825 Compactor into thin loose layers. Each layer was compacted using the 825 Compactor applying a minimum of 5 passes, per layer observed.

The fill material was compacted to a composite layer of 150mm - 300mm thick, prior to undertaking the field density testing. The target density ratio of 95% standard compaction was achieved for 300mm thick compacted layers with machinery available on-site as such 300mm thick compacted layers were adopted during some stages of fill construction.

Generally, up to 4 layers were placed and compacted within the fill area. The compacted fill was tined and moisture conditioned prior to the application of subsequent layers of fill. This process was adopted for the fill placement works.

Throughout the filling process and/or at the completion of the day's production, compaction testing was performed to assess the achieved density ratio of each layer. Figures 1 and 2 provides a guide to the fill placement and is limited to the areas described in this report. It is considered that a 100mm to 150mm thick layer of topsoil would be spread at the completion of all works, which does not form part of the Level 1 process. Any fill placed as part of newly constructed drainage, sewer works, or similar does not form part of this Level 1 report.

3.4 RESULTS OF COMPACTION CONTROL TESTING

Level 1 Inspection and Testing was undertaken by experienced technicians from Ground Science who attended the site for the duration of the construction phase and nominated the location of the in-situ density tests. Testing comprised a total of 51 in-situ density tests using a nuclear moisture-density gauge in accordance with Australian Standard (AS1289 5.8.1) and 51 "Rapid HILF" Compaction tests (AS1289 5.7.1) which included associated re-tests of areas that did not achieve the target density ratio of 95% Standard Compaction.

A summary of the field density tests performed for the project, including failed tests and re-tests, is presented in Appendix B. Field density and compaction control testing report sheets are presented in Appendix C. It should be noted that the tests are a representation of the fill placed and support the visual assessment of the works completed.

Test #14, #24, #26, #42, and #46 failed to meet the required target density ratio and the area of these test areas were subsequently reworked, recompacted, and retested with compliant test results achieved (test #21, #44, #45, #50 and #51). The moisture condition of the compacted fill material was typically dry of optimum moisture level.

All tests were noted to pass the required density ratio of 95% Standard Compaction and the moisture condition of the compacted fill material was noted to be generally within the recommended moisture ratio of 85% - 115% of OMC. All laboratory testing was undertaken in our NATA accredited Thomastown laboratory.

3.5 FINAL SURFACE LEVELS

Observations were made by a Ground Science staff member that filling had been completely up to the nominated finished levels as per confirmation provided from the contractor's site foreman. The observed final levels are the constructed finished surface levels of the controlled fill. It should be noted that the overall fill depths are estimated using onsite visual tactile methods and may not be a true representation of fill depths given that conditions on-site may change over time. True fill depths should be obtained from the contractor's survey data.

4. COMPLIANCE

Ground Science Staff have undertaken Level 1 Inspection and Testing Services of the construction of the controlled fill in the areas designated in Figures 1 and 2. Ground Science field staff have also observed that the prepared subgrade provided an adequate base for the subsequent placement of controlled fill.

Based on observations made by Ground Science staff and the results of density tests, we consider that the controlled fill placed has been constructed in accordance with the guidelines provided by AS3798 (2007) and AS2870 (2011).

It should be noted that the final fill layers may be subjected to adverse weather conditions resulting in either surface softening or drying and cracking over time; regardless of the compactive efforts and moisture conditioning applied during the works. The integrity of the top 200mm to 300mm of the fill will deteriorate with time and should be taken into account by the foundation engineer prior to the construction of dwellings or buildings. The levels nominated in this report are a guide to amounts of fill placed and do not necessarily reflect an accurate survey of the fill levels.

5. UNDERSTANDING LEVEL 1 INSPECTION & TESTING

The purpose of performing Level 1 Inspection and Testing is to ensure compliance of the fill with the specification. The engagement of a Geotechnical Inspection Testing Authority (GITA) allows the contractor to perform their role in the construction of the filling operation while the GITA monitors the quality control process of the fill placement. The visual observations of thorough processes and work practices by the contractor allows the GITA to approve the subsequent placement of fill without having to wait for the completion of testing and the extended time it takes to get a test result back. The GITA will however, carry out random spot checks of the filling operations throughout the day's production as confirmation that the placement procedures and the fill moisture content is appropriate. At the end of a day's production the GITA will sign off the completed works as satisfactory. Any failed tests will result in that particular area of operation requiring rectification in the following mornings activities. This may be as simple as extra rolling with compaction plant if moisture conditioning is suitable. Sometimes these areas may be retested if the GITA feels it is necessary.

While AS3798 (2007) is a guideline on the minimum requirements of filling on commercial and residential developments, some projects require a more detailed project specification to deal with site specific issues. While moisture conditioning of fill sources aids in the ease with which compaction is achieved, it is not necessarily a physical characteristic that determines if the placed fill is acceptable. In some situations, the moisture requirement is an extremely important function of the final constructed product. In these situations, a specific project specification should apply to the project as detailed by the designing geotechnical engineer. These are typical of clay liners for wet lands, dams, landfill liners and caps and an array of other engineering situations. Creating a consolidated platform of which is similar to equivalent surrounding natural conditions is the primary aim of level one processes, preventing the occurrence of differential ground movements to footing structures.

Level 1 Inspection & Testing requires full time inspection and testing of the fill placement undertaken on a site. Ground Science (project GITA), are notified daily (or at the completion of each day's work) by the project foreman where subsequent days of fill placement under Level 1 is to occur. On projects that rely upon the importation of a fill source, there can be delays in the receipt of sufficient materials to warrant fill placement works which may result in periods of time where a GITA representative is not required on site. It is the contractor's responsibility to notify



GroundScience

the GITA when works proceed and their attendance on site is required again. A GITA relies upon the integrity of the contractor to advise when site attendance is required and makes all reasonable visual attempts to assess if the works are the same as the previous days attendance.

For & on behalf of Ground Science Pty Ltd

AUTHOR:

A handwritten signature in black ink, appearing to read 'Anton Manoj'.

Anton Manoj
Geotechnical Engineer

REVIEWED:

A handwritten signature in black ink, appearing to read 'Gee Singh'.

Gee Singh MIEAust (NER)
Senior Geotechnical Engineer



6. LIMITATIONS

This type of investigation (as per our commission) is not designed or capable of locating all soil conditions, (which can vary even over short distances). The advice given in this report is based on the assumption that the test results are representative of the overall soil conditions. However, it should be noted that actual conditions in some parts of the Site might differ from those found. If further sampling reveals soil conditions significantly different from those shown in our findings, Ground Science must be consulted. Maintenance and upkeep of finished fill placement must be regularly monitored as exposure to extended weather periods/other elements may cause surface drying which may lead to cracking. Conversely, excessive exposure to moisture may cause heaving/softening in the soils.

It is recognised that the passage of time affects the information and assessment provided in this document. Ground Science's assessment is based on information that existed at the time of the preparation of this document. It is understood that the services provided allowed Ground Science to form no more than an opinion of the actual site conditions observed during sampling and observations of the site visit and cannot be used to assess the effects of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.

The scope and the period of Ground Science services are described in the proposal and are subject to restrictions and limitations. Ground Science did not perform a complete assessment of all possible conditions or 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 Ground Science in regards to it.

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 Ground Science for incomplete or inaccurate data supplied by others.

Any drawings or figures 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.

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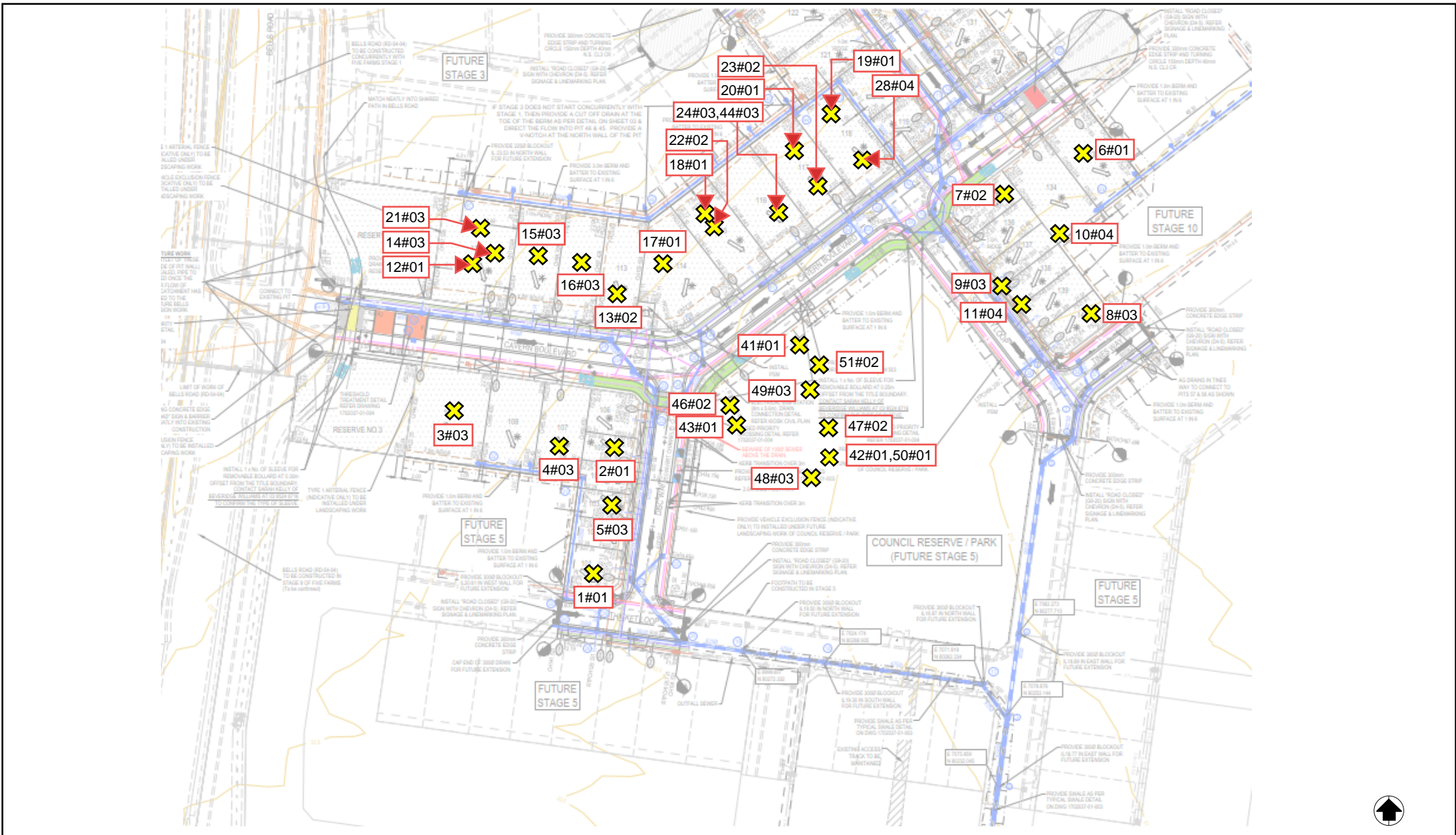


7. REFERENCES

- AS3798 (2007) Guidelines on Earthworks for Residential and Commercial Developments.
- AS1289 Methods of Testing Soils for Engineering Purposes.
- AS1726 (2017): Geotechnical Site Investigations

APPENDIX A

Figures 1 and 2: Site Layout & Test Location Plan



Rev	Drawn	Date	Checked	Scale	
0	Figure 1: Density Test Locations	AM	21/09/2021	GS	NTS

Legend

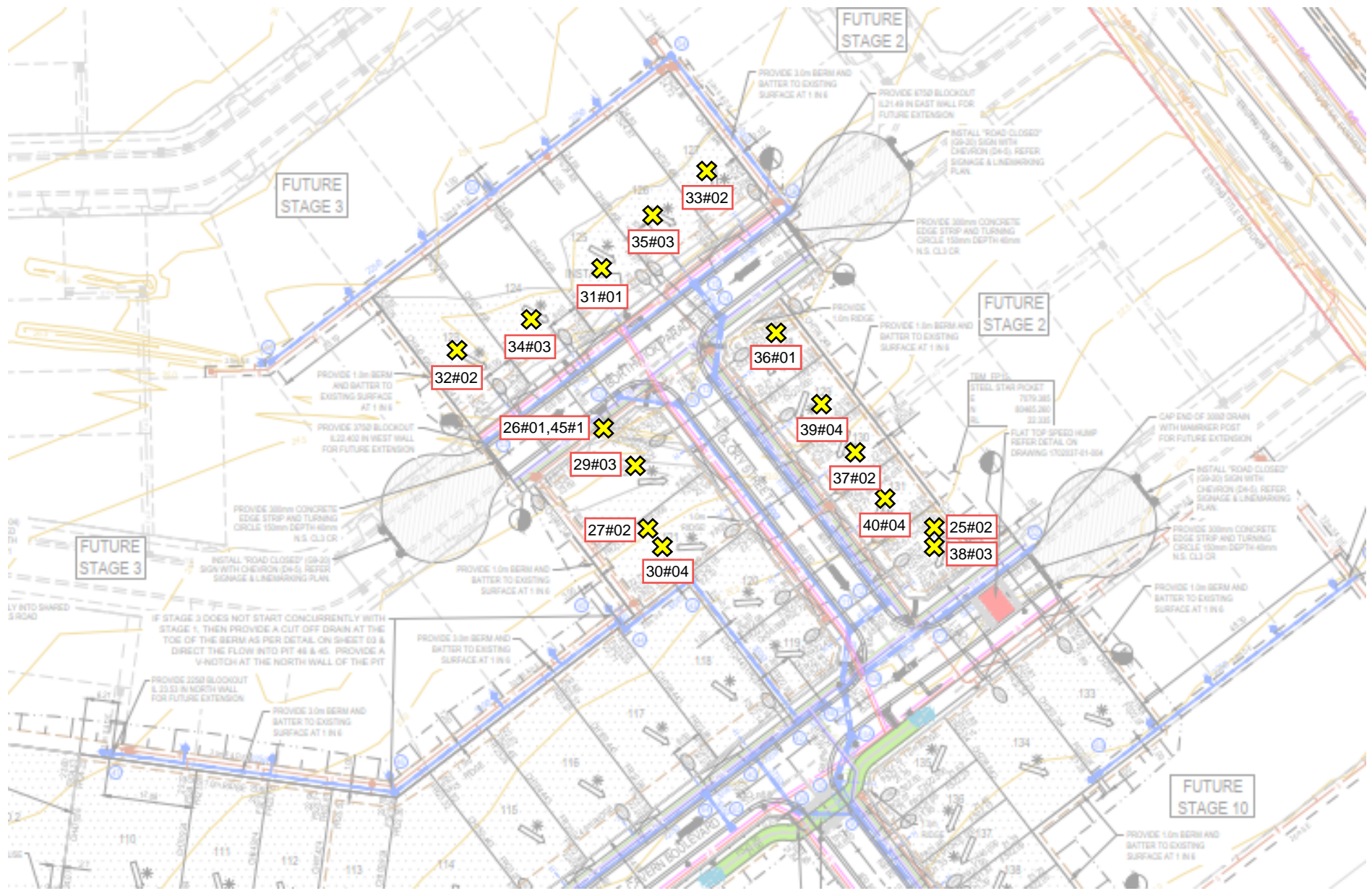
Density Test Location (#Layer number)

FIVE FARMS - STAGE 1 CLYDE NORTH (LEVEL 1)

Prepared For: Frasers Property Australia

Job No: GS5860.1 AA





Rev	Drawn	Date	Checked	Scale	
0	Figure 2: Density Test Locations	AM	21/09/2021	GS	NTS

Legend

Density Test Location
 (#Layer number)

FIVE FARMS - STAGE 1 CLYDE NORTH (LEVEL 1)

Prepared For: Frasers Property Australia

Job No: GS5860.1 AA



APPENDIX B

Field Density Test Summary

Project Summary Report



Report Date: 16/09/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Specification: 95% Standard Compaction
Test Methods: AS 1289 5.7.1 STD & 5.8.1 & 2.1.1

Ground Science Pty Ltd
 Ground Science Laboratory
 13 Brock Street Thomastown Victoria 3074
 Phone: (03) 9464 4617
 Email: chris@groundscience.com.au

Lot #	Sample #	Date Sampled	Location	Chainage (m)	Location Offset (m)	Elevation (m)	Layer	Relative Compaction (%)	Moisture Variation (%)	Moisture Content (%)	Field Wet Density (t/m3)
**	58601-S1	28/07/2021	From the NW corner of lot 101	15mE	10mS	**	1 +2	101.0	2.5	23.5	1.91
**	58601-S2	28/07/2021	From the NW corner of lot 105	10mE	7mS	**	1 +2	101.5	-1.0	23.5	1.99
**	58601-S3	29/07/2021	From the NW corner of lot 109	14mE	12mS	**	3	101.5	0.5	19.9	1.98
**	58601-S4	29/07/2021	From the NW corner of lot 107	5mE	8mS	**	3	102.0	0.0	21.4	1.98
**	58601-S5	29/07/2021	From the NW corner of lot 103	9mE	6mS	**	3	104.0	0.0	23.9	1.99
**	58601-S6	29/07/2021	From the S corner of lot 133	8mN	5mNE	**	1	97.0	-1.5	18.6	2.01
**	58601-S7	29/07/2021	From the S corner of lot 135	5mN	7mNE	**	2	99.5	0.0	14.4	2.12
**	58601-S8	29/07/2021	From the S corner of lot 140	12mNW	5mNE	**	3	97.0	0.0	15.2	2.08
**	58601-S9	30/07/2021	From the S corner of lot 137	**	**	**	3	97.0	-0.5	11.6	2.14
**	58601-S10	30/07/2021	From the SE corner of lot 134	**	**	**	4	99.5	-0.5	10.1	2.20
**	58601-S11	30/07/2021	From the S corner of lot 138	**	**	**	4	100.5	1.0	14.4	2.11
**	58601-S12	06/08/2021	SE corner of lot 110	10 mN	15 mW	**	1	96.0	0.0	19.1	2.08
**	58601-S13	06/08/2021	SE corner of lot 113	10 mN	5 mW	**	2	98.0	0.0	9.7	1.99
**	58601-S14	07/08/2021	SE corner of lot 110	15 mN	5 mW	**	3	93.0	0.5	20.3	1.90
**	58601-S15	07/08/2021	SE corner of lot 111	15 mN	5 mW	**	3	98.5	0.0	21.2	2.00
**	58601-S16	07/08/2021	SE corner of lot 112	15 mN	5 mW	**	3	96.0	0.0	21.7	1.95
**	58601-S17	09/08/2021	From the SE corner of lot 114	2mSW	8mNW	**	1	100.5	0.5	20.7	2.03
**	58601-S18	09/08/2021	From the SE corner of lot 116	5mNW	13mNW	**	1	101.5	1.5	18.2	2.02
**	58601-S19	09/08/2021	From the NE corner of lot 120	6mS	5mNW	**	1	101.0	1.5	24.6	1.90
**	58601-S20	09/08/2021	From the NE corner of lot 118	10mS	10mNW	**	1	105.0	1.5	26.0	1.98
**	58601-S21	10/08/2021	SE corner of lot 110 (Re-Test #14)	15mN	5mW	**	3	103.0	1.0	20.4	2.04
**	58601-S22	10/08/2021	From the E corner of lot 115	15mNW	8mSW	**	2	100.0	-0.5	23.2	2.00
**	58601-S23	10/08/2021	From the E corner of lot 117	10mNW	10mNW	**	2	99.5	-1.0	22.0	2.02
**	58601-S24	11/08/2021	From the E corner of lot 116	7mSW	15mNW	**	3	93.5	4.5	8.4	1.92
**	58601-S25	11/08/2021	From the E corner of lot 119	10mSW	6mNW	**	2	98.5	1.5	17.7	1.96
**	58601-S26	11/08/2021	From the E corner of lot 122	10mSW	1mNW	**	1	93.5	1.5	13.7	1.93
**	58601-S27	11/08/2021	From the N corner of lot 121	10mSE	11mSW	**	2	97.0	-0.5	16.0	2.02
**	58601-S28	11/08/2021	From the SE. Other of lot 118	7mNW	5mNE	**	4	98.0	2.5	15.1	1.92
**	58601-S29	13/08/2021	From the NE corner of lot 122	10mNW	18mSW	-150mm	3	99.0	2.5	16.3	1.98
**	58601-S30	13/08/2021	From the NE corner of lot 121	10mNW	7mSW	**	4	99.5	-0.5	18.6	2.06
**	58601-S31	13/08/2021	From the E corner of lot 125	7mSW	7mNW	-500mm	1	95.5	1.0	17.0	1.95
**	58601-S32	13/08/2021	From the E corner of lot 123	8mSW	9mNW	-250mm	2	102.5	0.0	19.4	2.05
**	58601-S33	13/08/2021	From the E corner of lot 127	5mSW	8mNW	-250mm	2	97.0	2.0	19.5	1.90
**	58601-S34	13/08/2021	From the E corner of lot 124	7mSW	8mNW	**	3	99.0	0.0	20.3	1.98
**	58601-S35	13/08/2021	From the E corner of lot 126	9mSW	6mNW	**	3	95.0	3.0	15.5	1.85
**	58601-S36	16/08/2021	From the S corner of lot 128	6mNW	5mNE	-750mm	1	96.5	2.0	20.3	1.88
**	58601-S37	16/08/2021	From the S corner of lot 130	5mNW	10mNE	-500mm	2	96.0	2.5	16.5	1.89

Lot #	Sample #	Date Sampled	Location	Chainage (m)	Location Offset (m)	Elevation (m)	Layer	Relative Compaction (%)	Moisture Variation (%)	Moisture Content (%)	Field Wet Density (t/m3)
**	58601-S38	16/08/2021	From the S corner of lot 132	7mNW	7mNE	-250mm	3	102.0	0.5	21.3	2.02
**	58601-S39	16/08/2021	From the S corner of lot 129	6mNW	8mNE	**	4	102.5	2.5	19.8	1.99
**	58601-S40	16/08/2021	From the S corner of lot 131	5mNW	5mNE	**	4	98.5	2.5	20.1	1.91
**	58601-S41	19/08/2021	From the W corner of reserve	14mSE	7mNE	**	1	96.0	1.0	12.3	1.98
**	58601-S42	19/08/2021	From the W corner of reserve	17mSE	20mNE	**	1	94.5	1.0	14.0	1.97
**	58601-S43	19/08/2021	From the W corner of reserve	30mSE	10mNE	**	1	97.0	2.0	12.8	2.02
**	58601-S44	19/08/2021	From the E corner of lot 116 (retest #24)	7mSW	15mNW	**	3	100.5	0.0	16.9	2.10
**	58601-S45	19/08/2021	From the E corner of Lot 122 (retest #26)	10mSW	1mNW	**	1	99.5	0.5	18.5	2.02
**	58601-S46	19/08/2021	From the W corner of Reserve	12mSE	10mNE	**	2	94.0	1.5	15.0	1.93
**	58601-S47	19/08/2021	From the W corner of Reserve	18mSE	20mNE	**	2	103.0	1.5	15.8	2.09
**	58601-S48	19/08/2021	From the S corner of Reserve	10mNW	10mNE	**	3	99.5	0.0	16.8	2.05
**	58601-S49	19/08/2021	From the S corner of Reserve	23mNW	10mNE	**	3	97.5	0.5	14.1	2.02
**	58601-S50	25/08/2021	From the S corner of Reserve (retest #42)	17mSE	20mNE	**	1	101.0	0.0	13.7	2.05
**	58601-S51	25/08/2021	From the W corner of Reserve (Re-Test #46)	12mSE	10mNE	**	2	101.5	0.0	16.5	2.09

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

APPENDIX C

Field Density Test Report Sheets

Material Test Report



Report Number: GS5860/1-1
Issue Number: 1
Date Issued: 30/07/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4571
Date Sampled: 28/07/2021
Dates Tested: 28/07/2021 - 29/07/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

Ground Science Pty Ltd
 Ground Science Laboratory
 13 Brock Street Thomastown Victoria 3074
 Phone: (03) 9464 4617
 Email: tim@groundscience.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Tim Senserrick
Laboratory 21C

NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	58601-S1	58601-S2	
Date Tested	28/07/2021	28/07/2021	
Time Tested	12:16	12:25	
Test Request #/Location	From the NW corner of lot 101	From the NW corner of lot 105	
Chainage (m)	15mE	10mE	
Location Offset (m)	10mS	7mS	
Layer / Reduced Level	1 +2	1 +2	
Thickness of Layer (mm)	300	300	
Soil Description	Silty CLAY, medium to high plasticity, brown	Sandy CLAY, medium to high plasticity, brown	
Test Depth (mm)	275	275	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	
Field Wet Density (FWD) t/m ³	1.91	1.99	
Field Moisture Content %	23.5	23.5	
Field Dry Density (FDD) t/m ³	1.54	1.61	
Peak Converted Wet Density t/m ³	1.89	1.97	
Adjusted Peak Converted Wet Density t/m ³	**	**	
Moisture Variation (Wv) %	2.5	-1.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	101.0	101.5	
Compaction Method	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: GS5860/1-2
Issue Number: 1
Date Issued: 02/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4601
Date Sampled: 29/07/2021
Dates Tested: 29/07/2021 - 31/07/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown
Material Source: Onsite

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Chris Senserrick

Approved Signatory: Chris Senserrick
Laboratory Manager

NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	58601-S3	58601-S4	58601-S5	58601-S6	58601-S7	58601-S8
Date Tested	29/07/2021	29/07/2021	29/07/2021	29/07/2021	29/07/2021	29/07/2021
Time Tested	10:01	10:15	10:24	11:04	12:22	14:20
Test Request #/Location	From the NW corner of lot 109	From the NW corner of lot 107	From the NW corner of lot 103	From the S corner of lot 133	From the S corner of lot 135	From the S corner of lot 140
Chainage (m)	14mE	5mE	9mE	8mN	5mN	12mNW
Location Offset (m)	12mS	8mS	6mS	5mNE	7mNE	5mNE
Layer / Reduced Level	3	3	3	1	2	3
Thickness of Layer (mm)	200	200	200	300	300	300
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	175	175	175	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	1.98	1.98	1.99	2.01	2.12	2.08
Field Moisture Content %	19.9	21.4	23.9	18.6	14.4	15.2
Field Dry Density (FDD) t/m ³	1.65	1.63	1.61	1.69	1.86	1.80
Peak Converted Wet Density t/m ³	1.95	1.95	1.92	2.07	2.13	2.14
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.5	0.0	0.0	-1.5	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	101.5	102.0	104.0	97.0	99.5	97.0
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: GS5860/1-3
Issue Number: 1
Date Issued: 03/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4625
Dates Tested: 30/07/2021 - 03/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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Approved Signatory: Chris Senserrick
Laboratory Manager

NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	58601-S9	58601-S10	58601-S11
Date Tested	30/07/2021	30/07/2021	30/07/2021
Time Tested	10:01	13:35	13:49
Test Request #/Location	From the S corner of lot 137	From the SE corner of lot 134	From the S corner of lot 138
Chainage (m)	**	**	**
Location Offset (m)	**	**	**
Layer / Reduced Level	3	4	4
Thickness of Layer (mm)	300	250	250
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	275	225	225
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m ³	2.14	2.20	2.11
Field Moisture Content %	11.6	10.1	14.4
Field Dry Density (FDD) t/m ³	1.92	2.00	1.85
Peak Converted Wet Density t/m ³	2.21	2.21	2.11
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	-0.5	-0.5	1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	97.0	99.5	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: GS5860/1-5
Issue Number: 1
Date Issued: 10/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4760
Date Sampled: 07/08/2021 12:30
Dates Tested: 07/08/2021 - 09/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Site Selection: Selected by Client
Location: Clyde
Material: Silty CLAY, medium to high plasticity, brown AND Sandy CLAY, low to medium plasticity, brown, fine to intermediate sand
Material Source: Onsite

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Chris Senserrick

Approved Signatory: Chris Senserrick
Laboratory Manager

NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	58601-S14	58601-S15	58601-S16
Date Tested	07/08/2021	07/08/2021	07/08/2021
Time Tested	12:30	12:35	12:40
Test Request #/Location	SE corner of lot 110	SE corner of lot 111	SE corner of lot 112
Latitude	15 mN	15 mN	15 mN
Longitude	5 mW	5 mW	5 mW
Layer / Reduced Level	3	3	3
Thickness of Layer (mm)	200	200	200
Soil Description	Silty sandy CLAY, M plas, brown, f-i sand	Silty sandy CLAY, M plas, brown, f-i sand	Silty sandy CLAY, M plas, brown, f-i sand
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
Field Wet Density (FWD) t/m ³	1.90	2.00	1.95
Field Moisture Content %	20.3	21.2	21.7
Field Dry Density (FDD) t/m ³	1.58	1.65	1.60
Peak Converted Wet Density t/m ³	2.05	2.04	2.04
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	0.5	0.0	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	93.0	98.5	96.0
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: GS5860/1-6
Issue Number: 1
Date Issued: 10/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4762
Date Sampled: 09/08/2021
Dates Tested: 09/08/2021 - 10/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Sandy CLAY, medium to high plasticity, brown

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Brent Elliott

Approved Signatory: Brent Elliott
 Senior Field Technician
 NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	58601-S17	58601-S18	58601-S19	58601-S20
Date Tested	09/08/2021	09/08/2021	09/08/2021	09/08/2021
Time Tested	08:42	08:49	13:53	14:05
Test Request #/Location	From the SE corner of lot 114	From the SE corner of lot 116	From the NE corner of lot 120	From the NE corner of lot 118
Chainage (m)	2mSW	5mNW	6mS	10mS
Location Offset (m)	8mNW	13mNW	5mNW	10mNW
Layer / Reduced Level	1	1	1	1
Thickness of Layer (mm)	200	200	200	200
Soil Description	Sandy CLAY, medium to high plasticity, brown	Sandy CLAY, medium to high plasticity, brown	Sandy CLAY, medium to high plasticity, brown	Sandy CLAY, medium to high plasticity, brown
Test Depth (mm)	175	175	175	175
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	2.03	2.02	1.90	1.98
Field Moisture Content %	20.7	18.2	24.6	26.0
Field Dry Density (FDD) t/m ³	1.68	1.71	1.53	1.57
Peak Converted Wet Density t/m ³	2.02	1.99	1.89	1.89
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	0.5	1.5	1.5	1.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	100.5	101.5	101.0	105.0
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

Material Test Report

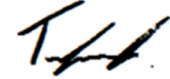


Report Number: GS5860/1-7
Issue Number: 1
Date Issued: 12/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4778
Date Sampled: 10/08/2021
Dates Tested: 10/08/2021 - 11/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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 Approved Signatory: Tim Senserrick
 Laboratory 21C

NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	58601-S21	58601-S22	58601-S23
Date Tested	10/08/2021	10/08/2021	10/08/2021
Time Tested	09:50	11:10	11:18
Test Request #/Location	SE corner of lot 110 (Re-Test #14)	From the E corner of lot 115	From the E corner of lot 117
Chainage (m)	15mN	15mNW	10mNW
Location Offset (m)	5mW	8mSW	10mNW
Layer / Reduced Level	3	2	2
Thickness of Layer (mm)	200	250	250
Soil Description	Sandy CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	175	225	225
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m ³	2.04	2.00	2.02
Field Moisture Content %	20.4	23.2	22.0
Field Dry Density (FDD) t/m ³	1.70	1.62	1.65
Peak Converted Wet Density t/m ³	1.99	1.99	2.02
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	1.0	-0.5	-1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	103.0	100.0	99.5
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: GS5860/1-8
Issue Number: 1
Date Issued: 16/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4799
Dates Tested: 11/08/2021 - 13/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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Approved Signatory: Tim Senserrick
 Laboratory 21C

NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	58601-S24	58601-S25	58601-S26	58601-S27	58601-S28
Date Tested	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021
Time Tested	09:20	09:29	09:38	11:56	14:01
Test Request #/Location	From the E corner of lot 116	From the E corner of lot 119	From the E corner of lot 122	From the N corner of lot 121	From the SE. Other of lot 118
Chainage (m)	7mSW	10mSW	10mSW	10mSE	7mNW
Location Offset (m)	15mNW	6mNW	1mNW	11mSW	5mNE
Layer / Reduced Level	3	2	1	2	4
Thickness of Layer (mm)	250	150	150	250	250
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	225	125	125	225	225
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m ³	1.92	1.96	1.93	2.02	1.92
Field Moisture Content %	8.4	17.7	13.7	16.0	15.1
Field Dry Density (FDD) t/m ³	1.77	1.67	1.70	1.74	1.67
Peak Converted Wet Density t/m ³	2.06	1.99	2.07	2.08	1.97
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	4.5	1.5	1.5	-0.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	93.5	98.5	93.5	97.0	98.0
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

Material Test Report




Report Number: GS5860/1-9
Issue Number: 1
Date Issued: 16/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4824
Date Sampled: 13/08/2021
Dates Tested: 13/08/2021 - 14/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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 Approved Signatory: Chris Senserrick
 Laboratory Manager
 NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	58601-S29	58601-S30	58601-S31	58601-S32
Date Tested	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Time Tested	09:01	09:04	08:40	08:50
Test Request #/Location	From the NE corner of lot 122	From the NE corner of lot 121	From the E corner of lot 125	From the E corner of lot 123
Chainage (m)	10mNW	10mNW	7mSW	8mSW
Location Offset (m)	18mSW	7mSW	7mNW	9mNW
Elevation (m)	-150mm	**	-.500mm	-250mm
Layer / Reduced Level	3	4	1	2
Thickness of Layer (mm)	150	150	250	250
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	125	125	225	225
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	1.98	2.06	1.95	2.05
Field Moisture Content %	16.3	18.6	17.0	19.4
Field Dry Density (FDD) t/m ³	1.71	1.74	1.67	1.72
Peak Converted Wet Density t/m ³	2.00	2.07	2.05	2.00
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	2.5	-0.5	1.0	0.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	99.0	99.5	95.5	102.5
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

Material Test Report



Report Number: GS5860/1-9
Issue Number: 1
Date Issued: 16/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4824
Date Sampled: 13/08/2021
Dates Tested: 13/08/2021 - 14/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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Approved Signatory: Chris Senserrick
 Laboratory Manager
 NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	58601-S33	58601-S34	58601-S35
Date Tested	13/08/2021	13/08/2021	13/08/2021
Time Tested	08:29	08:46	08:36
Test Request #/Location	From the E corner of lot127	From the E corner of lot124	From the E corner of lot126
Chainage (m)	5mSW	7mSW	9mSW
Location Offset (m)	8mNW	8mNW	6mNW
Elevation (m)	-250mm	**	**
Layer / Reduced Level	2	3	3
Thickness of Layer (mm)	250	250	250
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	225	225	225
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m ³	1.90	1.98	1.85
Field Moisture Content %	19.5	20.3	15.5
Field Dry Density (FDD) t/m ³	1.59	1.65	1.60
Peak Converted Wet Density t/m ³	1.96	2.01	1.94
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	2.0	0.0	3.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	97.0	99.0	95.0
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: GS5860/1-10
Issue Number: 1
Date Issued: 17/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4848
Date Sampled: 13/08/2021
Dates Tested: 13/08/2021 - 17/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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Approved Signatory: Chris Senserrick
Laboratory Manager

NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	58601-S36	58601-S37	58601-S38	58601-S39	58601-S40
Date Tested	16/08/2021	16/08/2021	16/08/2021	16/08/2021	16/08/2021
Time Tested	09:02	08:58	08:49	09:08	08:51
Test Request #/Location	From the S corner of lot 128	From the S corner of lot 130	From the S corner of lot 132	From the S corner of lot 129	From the S corner of lot 131
Chainage (m)	6mNW	5mNW	7mNW	6mNW	5mNW
Location Offset (m)	5mNE	10mNE	7mNE	8mNE	5mNE
Elevation (m)	-750mm	-500mm	-250mm	**	**
Layer / Reduced Level	1	2	3	4	4
Thickness of Layer (mm)	250	250	250	250	250
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	225	225	225	225	225
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m ³	1.88	1.89	2.02	1.99	1.91
Field Moisture Content %	20.3	16.5	21.3	19.8	20.1
Field Dry Density (FDD) t/m ³	1.56	1.63	1.66	1.66	1.59
Peak Converted Wet Density t/m ³	1.95	1.98	1.98	1.94	1.94
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	2.0	2.5	0.5	2.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	96.5	96.0	102.0	102.5	98.5
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

Material Test Report



Report Number: GS5860/1-11
Issue Number: 1
Date Issued: 23/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4921
Date Sampled: 18/08/2021
Dates Tested: 18/08/2021 - 23/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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Brent Elliott

Approved Signatory: Brent Elliott
 Senior Field Technician
 NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	58601-S41	58601-S42	58601-S43
Date Tested	19/08/2021	19/08/2021	19/08/2021
Time Tested	08:20	08:14	08:18
Test Request #/Location	From the W corner of reserve	From the W corner of reserve	From the W corner of reserve
Chainage (m)	14mSE	17mSE	30mSE
Location Offset (m)	7mNE	20mNE	10mNE
Layer / Reduced Level	1	1	1
Thickness of Layer (mm)	250	250	250
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	225	225	225
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m ³	1.98	1.97	2.02
Field Moisture Content %	12.3	14.0	12.8
Field Dry Density (FDD) t/m ³	1.76	1.73	1.79
Peak Converted Wet Density t/m ³	2.06	2.08	2.08
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	1.0	1.0	2.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	96.0	94.5	97.0
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: GS5860/1-11A
Issue Number: 1
Date Issued: 23/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4921
Date Sampled: 18/08/2021
Dates Tested: 18/08/2021 - 23/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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Approved Signatory: Brent Elliott
 Senior Field Technician
 NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	58601-S44	58601-S45	
Date Tested	19/08/2021	19/08/2021	
Time Tested	08:49	08:55	
Test Request #/Location	From the E corner of lot 116 (retest #24)	From the E corner of Lot 122 (retest #26)	
Chainage (m)	7mSW	10mSW	
Location Offset (m)	15mNW	1mNW	
Layer / Reduced Level	3	1	
Thickness of Layer (mm)	250	150	
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	
Test Depth (mm)	225	125	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	
Field Wet Density (FWD) t/m ³	2.10	2.02	
Field Moisture Content %	16.9	18.5	
Field Dry Density (FDD) t/m ³	1.79	1.70	
Peak Converted Wet Density t/m ³	2.08	2.03	
Adjusted Peak Converted Wet Density t/m ³	**	**	
Moisture Variation (Wv) %	0.0	0.5	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	100.5	99.5	
Compaction Method	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: GS5860/1-12
Issue Number: 1
Date Issued: 23/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 4948
Date Sampled: 19/08/2021
Dates Tested: 19/08/2021 - 23/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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Approved Signatory: Tim Senserrick
Laboratory 21C

NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	58601-S46	58601-S47	58601-S48	58601-S49
Date Tested	19/08/2021	19/08/2021	19/08/2021	19/08/2021
Time Tested	09:56	09:47	13:30	13:35
Test Request #/Location	From the W corner of Reserve	From the W corner of Reserve	From the S corner of Reserve	From the S corner of Reserve
Chainage (m)	12mSE	18mSE	10mNW	23mNW
Location Offset (m)	10mNE	20mNE	10mNE	10mNE
Layer / Reduced Level	2	2	3	3
Thickness of Layer (mm)	250	250	250	250
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	225	225	225	225
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	1.93	2.09	2.05	2.02
Field Moisture Content %	15.0	15.8	16.8	14.1
Field Dry Density (FDD) t/m ³	1.68	1.81	1.75	1.77
Peak Converted Wet Density t/m ³	2.05	2.03	2.06	2.07
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	1.5	1.5	0.0	0.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	94.0	103.0	99.5	97.5
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

Material Test Report



Report Number: GS5860/1-13
Issue Number: 1
Date Issued: 27/08/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/1
Project Name: Five Farms - Stage 1 (Level 1)
Project Location: Clyde
Work Request: 5072
Date Sampled: 25/08/2021
Dates Tested: 25/08/2021 - 27/08/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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Approved Signatory: Brent Elliott
 Senior Field Technician
 NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1

	58601-S50	58601-S51	
Sample Number	58601-S50	58601-S51	
Date Tested	25/08/2021	25/08/2021	
Time Tested	09:30	09:39	
Test Request #/Location	From the S corner of Reserve (retest #42)	From the W corner of Reserve (Re-Test #46)	
Chainage (m)	17mSE	12mSE	
Location Offset (m)	20mNE	10mNE	
Layer / Reduced Level	1	2	
Thickness of Layer (mm)	250	250	
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	
Test Depth (mm)	225	225	
Sieve used to determine oversize (mm)	19.0	19.0	
Percentage of Wet Oversize (%)	0	0	
Field Wet Density (FWD) t/m ³	2.05	2.09	
Field Moisture Content %	13.7	16.5	
Field Dry Density (FDD) t/m ³	1.81	1.79	
Peak Converted Wet Density t/m ³	2.03	2.05	
Adjusted Peak Converted Wet Density t/m ³	**	**	
Moisture Variation (Wv) %	0.0	0.0	
Adjusted Moisture Variation %	**	**	
Hilf Density Ratio (%)	101.0	101.5	
Compaction Method	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: GS5860/2-10
Issue Number: 1
Date Issued: 13/09/2021
Client: Frasers Property Australia Pty Ltd
 Level 9, 484 St Kilda Road, Melbourne VIC 3004
Contact: Jason Novotny
Project Number: GS5860/2
Project Name: Five Farms - Stage 2 (Level 1)
Project Location: Clyde
Work Request: 5310
Date Sampled: 10/09/2021
Dates Tested: 10/09/2021 - 13/09/2021
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% Standard Compaction
Location: Clyde North
Material: Silty CLAY, medium to high plasticity, brown

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 Approved Signatory: Chris Senserrick
 Laboratory Manager
 NATA Accredited Laboratory Number: 15055

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	58602-S25	58602-S26	58602-S27	58602-S28
Date Tested	10/09/2021	10/09/2021	10/09/2021	10/09/2021
Time Tested	08:51	08:43	11:30	13:29
Test Request #/Location	From the E corner of lot 210	From the E corner of lot 208	From the E corner of lot 210	From the S corner of lot 212
Chainage (m)	9mNW	6mNW	7mNW	5mNW
Location Offset (m)	3mSW	12mSW	8mSW	17mSW
Layer / Reduced Level	3	4	5	6
Thickness of Layer (mm)	250	250	250	250
Soil Description	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown	Silty CLAY, medium to high plasticity, brown
Test Depth (mm)	225	225	225	225
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	2.06	1.99	2.04	2.06
Field Moisture Content %	18.8	18.6	56.1	26.3
Field Dry Density (FDD) t/m ³	1.74	1.68	1.31	1.63
Peak Converted Wet Density t/m ³	1.99	2.03	2.06	2.05
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	0.5	-0.5	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	104.0	98.0	99.0	100.5
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

APPENDIX D

Site Photographs



28 Jul 2021 9:20:01 am
lots 101-109



9 Aug 2021 8:36:29 am
lots 114-122



11 Aug 2021 8:43:04 am
lots 110-122



13 Aug 2021 9:34:55 am
lots 128-132



19 Aug 2021 9:16:18 am
reserve

