CHADWICK GEOTECHNICS

REPORT

Level 1 Geotechnical Inspection and Testing Authority Services

Meridian Green Estate Clyde North
Stage 49
Lots 4901 to 4912, 4924 to 4926 and 4934 to Lot 4945

Prepared for:

Greenridge Properties Pty Ltd

25 June 2024

Our Ref: 1091936.049.v1

25 Metcalf Street, Dandenong South, Vic 3175, Melbourne, Australia
www.chadwickgeotechnics.com.au

Table of contents

Document Control

Title:	Level One Inspection and testing Services.				
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by**
25 June 2024	1091936.049.V1	Meridian Green Estate Stage 49 Level One Geotechnical Inspection and Testing Authority Services	STPA and RHB	RWMC	TJJC

1 Introduction

Chadwick Geotechnics Pty Ltd (Chadwick Geotechnics), was engaged by Greenridge Properties Pty Ltd, to provide Level 1 Geotechnical Inspection and Testing Authority (GITA), services for the earthworks conducted within Stage 49 of the Meridian Green Estate in Clyde North between project dates 14 August 2023 and 17 May 2024.

Level 1 GITA services as defined in AS3798-2007 “Guidelines on Earthworks for Commercial and Residential Development,” requires full time inspection and field and laboratory testing of earthworks in accordance with AS1289 “Methods of Testing Soils for Engineering Purposes.”

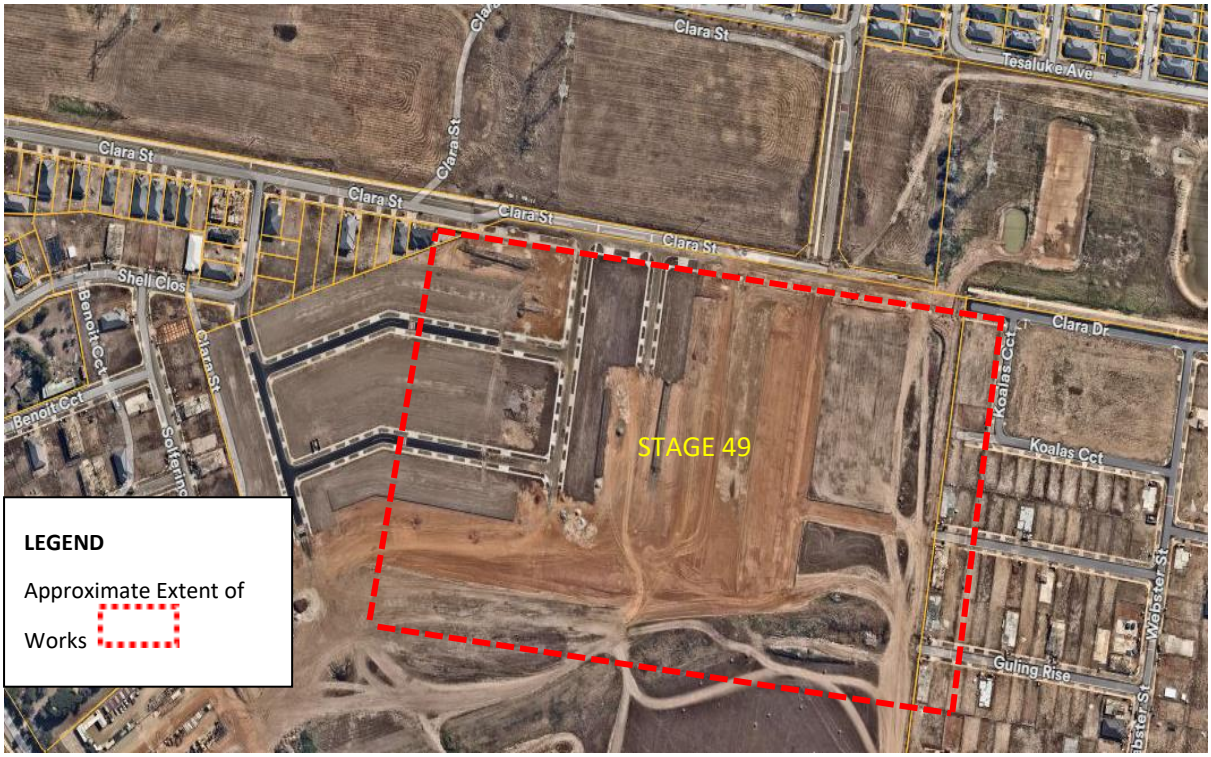
2 Project details

2.1 Location

Stage 49 is located to the East of Balcarra Street and West of Rhodes Way. Stage 47 and 48 are within the same development area.

The included works are shown on the Site Plan in **Appendices A**. Figure 2.1 below is an extract from Nearmap taken at the time of writing this report.

Figure 2.1: Extract from Nearmap



2.2 Roles

The organisations and their roles are presented in Table 2.1

Table 2.1: Roles on the Project

Role	Organisation
Developer	Greenridge Properties Pty Ltd
Geotechnical Inspection and Testing Authority (GITA)	Chadwick Geotechnics Pty Ltd
Designer / Superintendent	Charlton Degg Pty Ltd
Earthworks Contractor	Brown Property Group Pty Ltd

Chadwick Geotechnics undertook the field density testing, and the compaction control laboratory testing was conducted in our NATA accredited laboratories.

2.3 Dates on Site

Geotechnical technical and engineering staff from Chadwick Geotechnics were onsite for the duration of the earthworks program on the days shown in Table 2.2 below.

Table 2.2: Level 1 GITA – Onsite Presence

Month	Dates on site
August 2023	14, 15, 16
September 2023	15, 18, 20, 21, 25, 28,
April 2024	18, 29, 30, 29, 30
May 2024	2, 7, 8, 9, 14, 15, 16, 17

2.4 Included Areas

This report is applicable to material placed by the contractor on the residential lots within Meridian Green Estate Stage 49, as shown on the Site Plan in **Appendix A,** and with reference to Section 2.5 (Excluded Areas) of this report.

The following Lots were filled (or partially filled) during the Level 1 GITA supervision:

- The residential lots filled include Lot's 4901 to 4912, 4924 to 4926 and 4934 to Lot 4945.

2.5 Excluded Areas

This report does not include fill outside the general boundary of the filled areas as shown in **Appendix A** of this report. No fill was placed on the lots not mentioned in Section 2.4 of this report.

Backfill of trenches for the underground services, fill on footpaths, driveways and roads, or placement of topsoil, were not part of the scope for the works supervised by Chadwick Geotechnics.

3 Specifications

The works were to be conducted in general accordance with the 'Guidelines on earthworks for commercial and residential developments' of AS 3798-2007.

The following items were adopted as part of the project earthworks specifications:

- All Filling, in excess, of 200mm depth within the residential lots shall be undertaken to specifications satisfying the requirements of AS 3798-2007 "Guidelines on Earthworks for Commercial and Residential Development".
- The fill soils to comply with the 'Suitable Material' in accordance with Section 4.4 of the AS3798-2007, and the following:
    - Maximum particle size of 150mm.
    - Particles over 37.5mm diameter not to exceed 20% of the material.
- Organic soils, topsoil, silts, or soils containing organic matter, wood, plastics, metal, or other deleterious materials are not acceptable.
- Subgrade to be proof rolled prior to placement of an engineered fill.
- Fill to be compacted in near horizontal layers not exceeding 250mm loose thickness.
- Compaction to achieve a ratio of at least 95% Standard Maximum Dry Density (SMDD).
- Frequency of testing to be in accordance with Table 8.1 of AS3798-2007.
- Finished fill surface to be surveyed prior to placement of topsoil.

4 Inspection and Testing

The inspection and testing of earthworks have been carried out in accordance with AS3798-2007, 'Guidelines on earthworks for commercial and residential developments', with a frequency of field density tests as per Table 8.1 (explained in Section 4.5 of this report). Compaction control laboratory testing was performed in a Chadwick Geotechnics NATA accredited laboratory in accordance with AS1289 'Methods of Testing Soils for Engineering Purposes'.

4.1 Earthworks

The earthworks for the project comprised of the following phases:

- Stripping of topsoil from the proposed fill areas.
- Scarifying, moisture conditioning and compacting the Subgrade.
- Assessment, remediation, and proof rolling of subgrade.
- Geotechnical compliance testing of the soils used for fill, and,
- Placement and compaction of engineered fill.

4.2 Fill material

Material used for the construction of the fill comprised of local gravelly and silty clays won from the road boxing and trench excavations on this and the surrounding sites.

Samples were taken from the site comprising of local material used for fill was taken for geotechnical compliance testing during the works. The material compliance test results are summarised in **Table 4.1** The laboratory test certificate is attached in **Appendix C.**

Table 4.1: Compliance test Result Summary

Sample #	Particle Size Distribution (PSD)						Liquid Limit %	Plastic Limit %	Plasticity Index %	Source
	37.5 mm	13.2 mm	4.75 mm	1.18 mm	425 µm	0.75 µm				
S23DS-06784	100	97	93	89	81	69	62	19	43	On-site
S24DS-02657	100	100	93	82	73	61	52	21	31	On-site

The laboratory test results indicate the fill material is clay of high plasticity and satisfied the requirements of the Specification.

The material was deemed as being derived from natural soils. The soil is considered as 'Suitable Material' in accordance with Section 4.4 of the AS3798-2007.

The fill material was not tested for classification of 'Fill Material' as defined in EPA Publication IWRG621. Environmental testing is not within Chadwick Geotechnics scope.

Any observed organic or deleterious matter including any oversize cobbles or boulders were removed from the tested areas during the fill placement.

Photographs of typical materials used during construction are shown below.

Photograph 4.1: Photographs of the material used on site

Photograph 1: Typical on-site clay material

Photograph 2: Silty Mottled Orange Brown Clay

4.3 Subgrade Assessment / Proof Roll

The Subgrade of the site was progressively assessed during the period Chadwick Geotechnics personnel were on site.

Subgrade assessments were conducted following the removal of the topsoil and the wet soils that were present on site.

The subgrade inspections were performed in accordance with the Level 1 guidelines presented in AS 3798–2007 Section 5.5. No soft spots or deflections were encountered during the inspections and the area was found to be firm and free of vegetation and other deleterious material.

Two photographs of the subgrade assessment phase at the project are shown below.

Photograph 4.2: Subgrade assessment photographs

Photograph 3: Proof roll with Pad foot

Photograph 4: Subgrade assessment with 15 Tonne Pad foot Roller

4.4 Engineered Fill Construction

All fill material was brought by tandem trucks or from local or imported sources. The fill was spread with a bulldozer and compacted with a pad foot roller. A water cart was present onsite during the works for moisture conditioning of the materials.

All fill material was placed in lift sequences comprising horizontal layers. Chadwick Geotechnics verified that the surface of the stripped area, and that of additional lifts, was thoroughly scarified and moisture conditioned prior to placement of additional layers to prevent delamination at the layer interface. Once the placed fill was approved, the layer was compacted accordingly.

Chadwick Geotechnics personnel were on site on a fulltime basis during the placement, moisture conditioning, compaction, and testing of the fill on the dates noted in Table 2.2 of this report.

The following machinery was on site during earthworks.

Table 4.2: Earthworks plant on site

Equipment type	Model
Dozer	**CAT D6 Dozer**
Pad foot roller	**CAT 15 Tonne CP56B**
Water cart	**1**
Scraper	**1**
Dump trucks	**Tandem**
Excavator	**1**

Photographs of typical machinery on site used during construction are shown below.

Photograph 4.3: General Earthwork machinery and fill construction photographs

Photograph 5: Pad foot Roller compacting.

Photograph 6: Excavator placing fill

Photograph 7: Bulldozer.

Photograph 8: Grader

4.5 Density and Moisture testing

Field density and moisture content testing was undertaken progressively during construction on the compacted fill using a calibrated portable density and moisture gauge in accordance with AS 1289.5.8.1. The HILF rapid compaction test was used for peak converted wet density determinations in accordance with AS 1289.5.7.1. Test locations were recorded using a handheld GPS unit. A site plan showing the field density test locations is provided in **Appendix A**.

Testing was undertaken under the frequencies listed below, subject to the area and volume worked on the day of testing:

- 1 test per material type per layer per 2500m² or 1 test per 500m³ distributed reasonably evenly or 3 tests per lot – whichever requires the most tests in accordance with Type 1 Earthworks (large scale operations) as defined in Table 8.1 of the AS 3798-2007;

Thirty- four (34) tests were performed during the filling process. Four (4) of the tests did not achieve the recommended moisture ratio initially. The failed areas were reworked and retested accordingly. The retests returned passing density and moisture test results.

A summary table of HILF density tests is provided in **Appendix B** and the laboratory test reports are provided in **Appendix C**. Two photographs of field density testing conducted on site are shown below.

Photograph 4.4: Field Density/Moisture Testing photographs

Photo 9: Field density/moisture test

Photo 10: Field density/moisture test

5 Conclusion

On the basis, of our inspections and after considering all test results relating to the project, it is our opinion, so far as it is to be determined, that:

- The materials, used by the earth-works contractor met the geotechnical property requirements of the specification.
- The sourced fill was, considered to be natural, clean, and suitable for use at the site.
- The fill material placed was tested at a suitable frequency in accordance with AS 3798-2007- Table 8.1 and the results indicate the compacted clay achieved the density requirement of the specification.
- Given the consistent construction practices followed by the earthworks contractor and as witnessed by the Chadwick Geotechnics, combined with the satisfactory verification of test results achieved, it is inferred that areas of the site between test locations were performed to the same standard as those areas that have been tested.
- Based on observations made by Chadwick Geotechnics Level 1 personal and the results of field and laboratory tests, we consider that the engineered fill within the site (noted in Section 2.5), as far as we have been able to reasonably determine, have been placed in general accordance with the intent of the specification.
- It is our opinion that the earthworks undertaken have been performed in accordance with the requirements of Section 8.2 – Level 1 Inspection and Testing - AS3798-2007 Guidelines on Earthworks for Commercial and Residential Developments.

After earthwork construction works the maintenance of the fill is the sole responsibility of the Contractor. If the fill is not well maintained or protected with a sacrificial layer of topsoil or other fill, the uppermost layers and the exposed faces of the engineered fill may deteriorate as a result from exposure to varying weather conditions which can cause cracking or heaving of the fill. Any deterioration will need to be remediated prior to further construction on the site. Chadwick Geotechnics has not provided supervision since the above date and is not responsible for any subsequent deterioration that may have occurred or may occur since that date.

6 Applicability

This report has been prepared for the exclusive use of our client Greenridge Properties Pty Ltd in good faith and in accordance with the Chadwick Geotechnics quality system for the earthworks filling at the site.

This report is based on the nature of the project and the prevailing conditions between 14 August 2023 and 17 May 2024. No responsibility or liability will be accepted, and Chadwick Geotechnics is indemnified to the full extent permitted by law in respect of the use of this report where there has been a change in the nature of the project or the conditions on site that may alter or affect the conclusions of this report.

Should you require any further information regarding this report, please do not hesitate to contact the undersigned on (03) 8796 7900.

Chadwick Geotechnics Pty Ltd

Report prepared by:

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Robert Barden

Project Manager

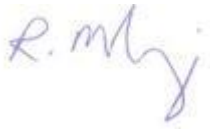
Authorised for Chadwick Geotechnics Pty Ltd by:

.....

Timothy Chadwick

Project Director

Report reviewed by:



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Robert McKenzie

Principal Geotechnical Engineer

RPEV Number: PE0005222

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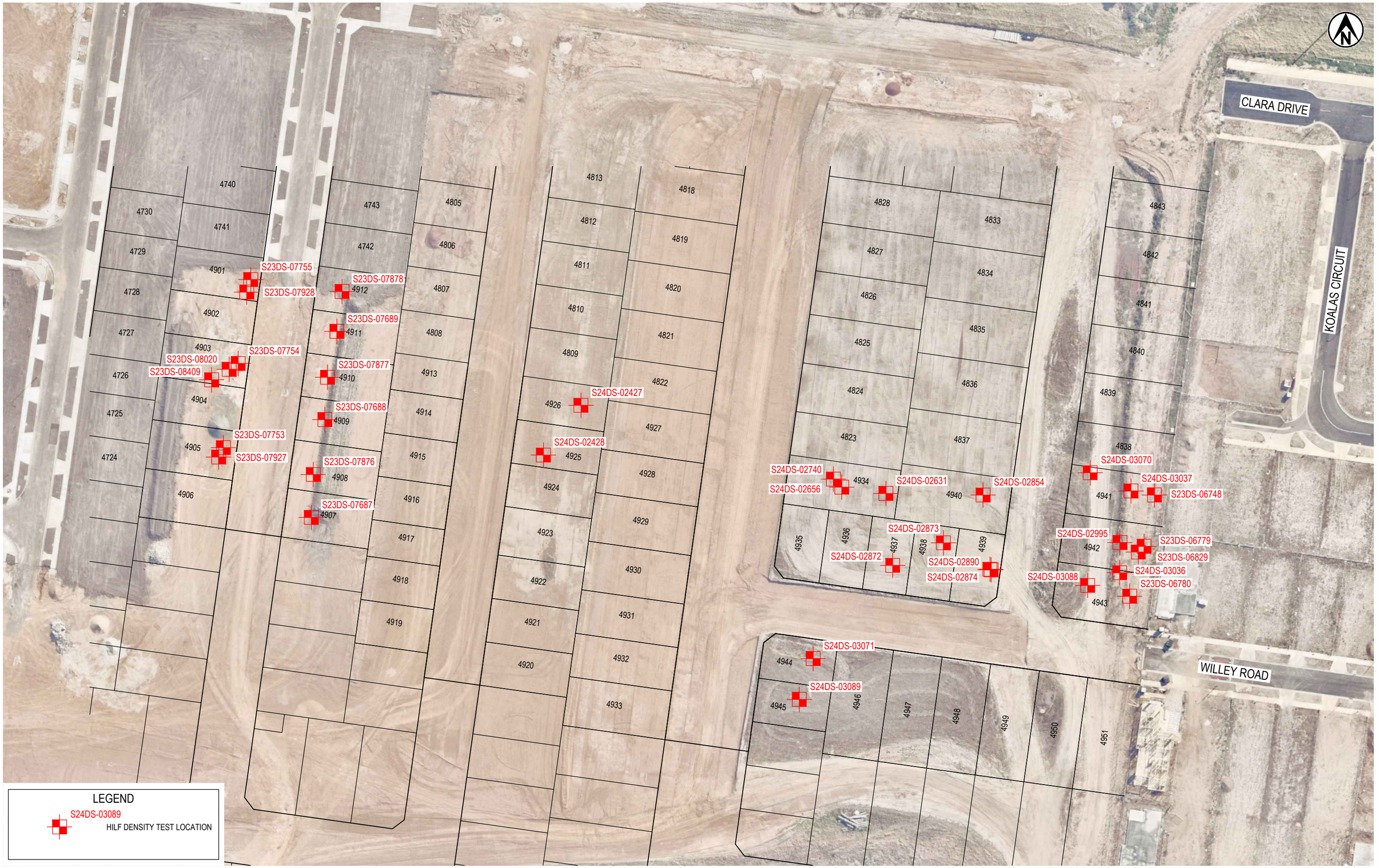
Appendix A Test Location Plan

T:\Dandenong\Geo Projects\1091936\1091936.049 Stage 49 Meridian Greens Estate\working material\CAD\FIG\1091936.049-F01.dwg 2024-Jun-20 2:25:13 PM Plotted By: KATHRYN JACKSON



LEGEND

S24DS-03089 HILF DENSITY TEST LOCATION

CHADWICK GEOTECHNICS

www.chadwickgeotechnics.com.au

NOTES:
1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD IMAGERY DATE: 29/03/2024.
2. BASE PLAN PROVIDED BY GREENRIDGE PROPERTIES PTY LTD REF: 1669_CPA_R CONCEPT PLAN. DATE RECEIVED: 14/12/2023.

A3 SCALE 1:1000

0 5 10 15 20 30 40 50 (m)

ORIGINAL IN COLOUR

PROJECT No.	1091936.049	
DESIGNED	STPA	Jun.24
DRAWN	KMJA	Jun.24
CHECKED		
APPROVED		DATE

CLIENT GREENRIDGE PROPERTIES PTY LTD

PROJECT MERIDIAN GREEN ESTATE - STAGE 49

TITLE LEVEL ONE HILF DENSITY TESTING
HILF DENSITY TEST LOCATION PLAN

UNDER REVISION 1

SCALE (A3) 1:1000 FIG No. 1091936.049-F01 REV 1

Appendix B Hilf Density Test Summary

CHADWICK GEOTECHNICS

1091936.049 Meridian Green Stage 49

Hilf Density Testing Summary Table

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 9706 9431

Think Act Safe Be

Report No	Sample No	Date	Test Number	Location [E]	Location [N]	Area/Lot No	RL / FSL	Hilf Density Ratio	Moisture Variation From OMC	Pass / Fail	Remarks
HDR:W23DS01951	S23DS-06748	14/08/2023	1	357255	5781573	4941 / 1	35.286	96.5	0 dry	Pass	
HDR:W23DS01966	S23DS-06779	15/08/2023	1	357252	5781559	4942 / 2	35.698	104	0.5 dry	Pass	
HDR:W23DS01966	S23DS-06780	15/08/2023	2	357248	5781544	4943 / 3	36.127	99.5	1.5 wet	Pass	
HDR:W23DS01980	S23DS-06829	16/08/2023	1	357250	5781557	4942 / 4	36.192	104	1 dry	Pass	
HDR:W23DS02210	S23DS-07687	15/09/2023	1	357014	5781567	4907 / 1	43.033	102	2 dry	Pass	
HDR:W23DS02210	S23DS-07688	15/09/2023	2	357018	5781595	4909 / 1	42.869	100	0.5 dry	Pass	
HDR:W23DS02210	S23DS-07689	15/09/2023	3	357022	5781620	4911 / 1	42.622	107.5	2.5 dry	Pass	
HDR:W23DS02224	S23DS-07753	18/09/2023	1	356989	5781587	4905 / 1	43.362	102	4.5 dry	Fail	See Retest S23DS-07927
HDR:W23DS02224	S23DS-07754	18/09/2023	2	356994	5781611	4903 / 1	43.248	105.5	3.5 dry	Fail	See Retest S23DS-08020
HDR:W23DS02224	S23DS-07755	18/09/2023	3	356997	5781635	4901 / 1	43.066	102.5	4 dry	Fail	See Retest S23DS-07928
HDR:W23DS02247	S23DS-07876	20/09/2023	1	357015	5781579	4907 / 2	43.262	105	0.5 dry	Pass	
HDR:W23DS02247	S23DS-07877	20/09/2023	2	357019	5781607	4910 / 2	43.031	107	2.5 dry	Pass	
HDR:W23DS02247	S23DS-07878	20/09/2023	3	357023	5781631	4912 / 2	42.926	105.5	1 dry	Pass	
HDR:W23DS02263	S23DS-07927	21/09/2023	1	356988	5781584	4905 / 1	-	101	3 dry	Pass	Retest of S23DS-07753
HDR:W23DS02263	S23DS-07928	21/09/2023	2	356996	5781631	4901 / 1	-	104.5	3 dry	Pass	Retest of S23DS-07755
HDR:W23DS02286	S23DS-08020	25/09/2023	1	356991	5781609	4903 / 1		96.5	4 Dry	Fail	Retest of S23DS-07754, See Retest 08409
HDR:W23DS02340	S23DS-08409	28/09/2023	1	356986	5781606	4903 / 1		102.5	3 dry	Pass	Retest of S23DS-08020
HDR:W24DS00594	S24DS-02427	18/04/2024	1	357091	5781599	4926 / 1	41.51	100	2.5 dry	Pass	
HDR:W24DS00594	S24DS-02428	18/04/2024	2	357081	5781585	4927 / 1	41.74	104	2 dry	Pass	
HDR:W24DS00642	S24DS-02631	29/04/2024	1	357178	5781574	4934 / 1	38.538	105.5	2.5 dry	Pass	
HDR:W24DS00649	S24DS-02656	30/04/2024	1	357166	5781575	4934 / 2	38.91	101	2 dry	Pass	
HDR:W24DS00667	S24DS-02740	2/05/2024	1	357163	5781578	4934 / 5	39.287	101	3 dry	Pass	
HDR:W24DS00697	S24DS-02854	7/05/2024	1	357206	5781573	4940 / 2	37.28	100	3 dry	Pass	
HDR:W24DS00705	S24DS-02872	8/05/2024	1	357180	5781553	4937 / 1	38.52	102	2 dry	Pass	
HDR:W24DS00705	S24DS-02873	8/05/2024	2	357195	5781560	4938 / 1	37.756	102.5	3 dry	Pass	
HDR:W24DS00705	S24DS-02874	8/05/2024	3	357208	5781552	4939 / 1	37.422	100	1.5 dry	Pass	
HDR:W24DS00716	S24DS-02890	9/05/2024	1	357208	5781552	4939 / 2	37.6	98.5	4 dry	Pass	
HDR:W24DS00743	S24DS-02995	14/05/2024	1	357245	5781560	4942 / 2	35.645	107	1 dry	Pass	
HDR:W24DS00755	S24DS-03036	15/05/2024	1	357245	5781551	4943 / 3	36.023	101.5	3 dry	Pass	
HDR:W24DS00755	S24DS-03037	15/05/2024	2	357248	5781574	4941 / 3	35.668	106	0.5 dry	Pass	
HDR:W24DS00766	S24DS-03070	16/05/2024	1	357237	5781580	4941 / 4+I8:I38	36.088	103.0	2.5 dry	Pass	
HDR:W24DS00766	S24DS-03071	16/05/2024	2	357158	5781527	4944 / 1	39.325	104.5	2.5 dry	Pass	
HDR:W24DS00770	S24DS-03088	17/05/2024	1	357236	5781547	4942 / 5	36.486	106.0	1.5 Dry	Pass	
HDR:W24DS00770	S24DS-03089	17/05/2024	2	357154	5781515	4945 / 2	39.698	98.0	2.0 Dry	Pass	

Appendix C NATA endorsed laboratory reports

CHADWICK GEOTECHNICS

Dandenong South
ACN 143 009 330
25 Metcalf Street
DANDENONG SOUTH, VIC 3175

Ph: + 61 3 8796 7900
Fax: +61 3 9706 9431

Report No: HDR:W23DS01951
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Silty Clay

Sample Data

Sample ID	S23DS-06748					
Field Sample ID	1					
Client Sample ID	1					
Date Tested	14/08/2023					
Time Tested	07:51					
E:	357254.920					
N:	5781573.187					
EL:	35.286					
Lot / Layer:	4941 / 1					

Field and Laboratory Data

Depth of Test (mm)	225					
Depth of Layer (mm)	250					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	19.3					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.91					
Field Dry Density (t/m³)	1.60					
Peak Converted Wet Density (t/m³)	1.98					
Optimum Moisture Content (%)	19.5					
Compactive Effort	Standard					
Moisture Ratio (%)	100.0					
Moisture Variation (%)	0.0					
Hilf Density Ratio (%)	**96.5**					

Comments

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Dandenong South
ACN 143 009 330
25 Metcalf Street
DANDENONG SOUTH, VIC 3175

Ph: + 61 3 8796 7900
Fax: +61 3 9706 9431

Report No: HDR:W23DS01966
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Silty Clay

Sample Data

Sample ID	S23DS-06779	S23DS-06780				
Field Sample ID	1	2				
Client Sample ID	2	3				
Date Tested	15/08/2023	15/08/2023				
Time Tested	09:11	14:27				
E:	357251.946	357247.841				
N:	5781558.543	5781544.313				
EL:	35.698	36.127				
Lot / Layer:	4942 / 2	4943 / 3				
Field and Laboratory Data						
Depth of Test (mm)	225	225				
Depth of Layer (mm)	250	250				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	25.9	22.6				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	1.97	1.99				
Field Dry Density (t/m³)	1.57	1.62				
Peak Converted Wet Density (t/m³)	1.89	2.00				
Optimum Moisture Content (%)	26.5	21.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	97.5	108.0				
Moisture Variation (%)	0.5 dry	1.5 wet				
Hilf Density Ratio (%)	**104.0**	**99.5**				

Comments

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Fax: +61 3 9706 9431

Report No: HDR:W23DS01980
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Date of Issue:

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Silty Clay

Sample Data

Sample ID	S23DS-06829					
Field Sample ID	1					
Client Sample ID	4					
Date Tested	16/08/2023					
Time Tested	13:45					
E:	357250.298					
N:	5781556.911					
EL:	36.192					
Lot / Layer:	4942 / 4					

Field and Laboratory Data

Depth of Test (mm)	225					
Depth of Layer (mm)	250					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	17.1					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.05					
Field Dry Density (t/m³)	1.75					
Peak Converted Wet Density (t/m³)	1.97					
Optimum Moisture Content (%)	18.0					
Compactive Effort	Standard					
Moisture Ratio (%)	95.5					
Moisture Variation (%)	1.0 dry					
Hilf Density Ratio (%)	**104.0**					

Comments

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Dandenong South
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Report No: HDR:W23DS02210
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Silty Clay

Sample Data

Sample ID	S23DS-07687	S23DS-07688	S23DS-07689			
Field Sample ID	1	2	3			
Client Sample ID	5	6	7			
Date Tested	15/09/2023	15/09/2023	15/09/2023			
Time Tested	12:25	12:32	12:40			
E:	357014.423	357018.290	357021.710			
N:	5781566.774	5781594.689	5781619.828			
EL:	43.033	42.869	42.622			
Lot / Layer:	4907 / 1	4909 / 1	4911 / 1			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Moisture Content (%)	27.4	27.0	18.0			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	1.89	1.94	2.07			
Field Dry Density (t/m³)	1.48	1.52	1.75			
Peak Converted Wet Density (t/m³)	1.85	1.94	1.92			
Optimum Moisture Content (%)	30.0	27.5	20.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	92.0	99.0	88.5			
Moisture Variation (%)	2.0 dry	0.5 dry	2.5 dry			
Hilf Density Ratio (%)	**102.0**	**100.0**	**107.5**			

Comments

CHADWICK GEOTECHNICS

Dandenong South
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DANDENONG SOUTH, VIC 3175

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Report No: HDR:W23DS02224
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Silty CLAY

Sample Data

Sample ID	S23DS-07753	S23DS-07754	S23DS-07755			
Field Sample ID	1	2	3			
Client Sample ID	8	9	10			
Date Tested	18/09/2023	18/09/2023	18/09/2023			
Time Tested	12:25	12:36	12:47			
E:	356989.349	356993.579	356997.148			
N:	5781586.673	5781610.667	5781634.580			
EL:	43.362	43.248	43.066			
Lot / Layer:	4905 / 1	4903/ 1	4901 / 1			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0				
Field Moisture Content (%)	21.8	24.7	22.5			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	1.90	1.95	1.90			
Field Dry Density (t/m³)	1.56	1.56	1.55			
Peak Converted Wet Density (t/m³)	1.86	1.85	1.86			
Optimum Moisture Content (%)	26.5	28.5	26.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	82.5	86.5	84.5			
Moisture Variation (%)	4.5 dry	3.5 dry	4.0 dry			
Hilf Density Ratio (%)	**102.0**	**105.5**	**102.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS02247
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Silty Clay

Sample Data

Sample ID	S23DS-07876	S23DS-07877	S23DS-07878			
Field Sample ID	1	2	3			
Client Sample ID	11	2	13			
Date Tested	20/09/2023	20/09/2023	20/09/2023			
Time Tested	09:34	09:49	09:58			
E:	357015	357019.048	357023.195			
N:	5781579.494	5781606.732	5781631.188			
EL:	43.262	43.031	42.926			
Lot / Layer:	4907 / 2	4910 / 2	4912 / 2			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Moisture Content (%)	22.0	24.3	24.8			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	1.94	2.03	2.00			
Field Dry Density (t/m³)	1.59	1.63	1.60			
Peak Converted Wet Density (t/m³)	1.85	1.90	1.89			
Optimum Moisture Content (%)	22.5	27.0	25.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	97.5	90.5	96.5			
Moisture Variation (%)	0.5 dry	2.5 dry	1.0 dry			
Hilf Density Ratio (%)	**105.0**	**107.0**	**105.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS02263
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Sandy Silty Clay

Sample Data

Sample ID	S23DS-07927	S23DS-07928				
Field Sample ID	1	2				
Client Sample ID	14	15				
Date Tested	21/09/2023	21/09/2023				
Time Tested	08:27	10:01				
E:	356988	356996				
N:	5781584	5781631				
EL:	-	-				
Lot / Layer:	4905 / 1	4901 / 1				
	Retest of S23DS-07753	Retest of S23DS-07755				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	21.3	20.5				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	1.94	2.02				
Field Dry Density (t/m³)	1.60	1.68				
Peak Converted Wet Density (t/m³)	1.92	1.94				
Optimum Moisture Content (%)	24.5	23.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	87.5	87.5				
Moisture Variation (%)	3.0 dry	3.0 dry				
Hilf Density Ratio (%)	**101.0**	**104.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS02286
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Sandy Clay

Sample Data

Sample ID	S23DS-08020					
Field Sample ID	1					
Client Sample ID	16					
Date Tested	25/09/2023					
Time Tested	10:00					
E:	356991					
N:	5781609					
EL:	-					
Lot / Layer:	4903 / 1					
	Retest of S23DS-07754					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	19.2					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.84					
Field Dry Density (t/m³)	1.54					
Peak Converted Wet Density (t/m³)	1.91					
Optimum Moisture Content (%)	23.0					
Compactive Effort	Standard					
Moisture Ratio (%)	82.5					
Moisture Variation (%)	4.0 dry					
Hilf Density Ratio (%)	**96.5**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS02340
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Silty Sandy Clay

Sample Data

Sample ID	S23DS-08409					
Field Sample ID	1					
Client Sample ID	17					
Date Tested	28/09/2023					
Time Tested	07:35					
E:	356986					
N:	5781606					
EL:	-					
Lot / Layer:	4903 / Final					
	Retest of S23DS-08020					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	22.0					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.90					
Field Dry Density (t/m³)	1.56					
Peak Converted Wet Density (t/m³)	1.85					
Optimum Moisture Content (%)	25.5					
Compactive Effort	Standard					
Moisture Ratio (%)	87.0					
Moisture Variation (%)	3.0 dry					
Hilf Density Ratio (%)	**102.5**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W24DS00594
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay

Sample Data

Sample ID	S24DS-02427	S24DS-02428				
Field Sample ID	1	2				
Date Tested	18/04/2024	18/04/2024				
Time Tested	12:20					
E:	357091.333	357080.627				
N:	5781598.728	5781584.546				
EL:	41.51	41.74				
Lot / Lift:	4926 / 1	4927 / 1				

Field and Laboratory Data

Depth of Test (mm)	125	125				
Depth of Layer (mm)	150	150				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	22.7	21.7				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	1.91	2.02				
Field Dry Density (t/m³)	1.56	1.66				
Peak Converted Wet Density (t/m³)	1.91	1.94				
Optimum Moisture Content (%)	25.0	24.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	90.0	90.5				
Moisture Variation (%)	2.5 dry	2.0 dry				
Hilf Density Ratio (%)	**100.0**	**104.0**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W24DS00642
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay

Sample Data

Sample ID	S24DS-02631					
Field Sample ID	1					
Date Tested	29/04/2024					
E:	357178.318					
N:	5781573.607					
EL:	38.538					
Lot / Lift:	4934 / 1					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	27.5					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.97					
Field Dry Density (t/m³)	1.54					
Peak Converted Wet Density (t/m³)	1.86					
Optimum Moisture Content (%)	30.0					
Compactive Effort	Standard					
Moisture Ratio (%)	92.0					
Moisture Variation (%)	2.5 dry					
Hilf Density Ratio (%)	**105.5**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W24DS00649
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 6/05/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay

Sample Data

Sample ID	S24DS-02656					
Field Sample ID	1					
Date Tested	30/04/2024					
Time Tested	13:10					
E:	357165.714					
N:	5781575.406					
EL:	38.910					
Lot / Layer:	4934 / 2					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	25.2					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.94					
Field Dry Density (t/m³)	1.55					
Peak Converted Wet Density (t/m³)	1.92					
Optimum Moisture Content (%)	27.5					
Compactive Effort	Standard					
Moisture Ratio (%)	92.0					
Moisture Variation (%)	2.0 dry					
Hilf Density Ratio (%)	**101.0**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W24DS00667
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 6/05/2024

Sample Details

Location:
Client Request ID:
Specification Requirements:
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Silty Clay

Sample Data

Sample ID	S24DS-02740					
Field Sample ID	1					
Date Tested	2/05/2024					
Time Tested	10:15					
E:	357163.336					
N:	5781577.705					
RL:	39.287					
Lot / Layer:	4934 / 5					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	18.9					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.94					
Field Dry Density (t/m³)	1.63					
Peak Converted Wet Density (t/m³)	1.92					
Optimum Moisture Content (%)	22.0					
Compactive Effort	Standard					
Moisture Ratio (%)	85.0					
Moisture Variation (%)	3.0 dry					
Hilf Density Ratio (%)	**101.0**					

Comments

CHADWICK GEOTECHNICS

Dandenong South
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DANDENONG SOUTH, VIC 3175

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Report No: HDR:W24DS00697
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 9/05/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay

Sample Data

Sample ID	S24DS-02854					
Field Sample ID	1					
Date Tested	7/05/2024					
Time Tested	14:10					
E:	357206.038					
N:	5781573.168					
EL:	37.280					
Lot / Layer:	4940 / 2					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	18.9					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.98					
Field Dry Density (t/m³)	1.67					
Peak Converted Wet Density (t/m³)	1.98					
Optimum Moisture Content (%)	22.0					
Compactive Effort	Standard					
Moisture Ratio (%)	86.5					
Moisture Variation (%)	3.0 dry					
Hilf Density Ratio (%)	**100.0**					

Comments

CHADWICK GEOTECHNICS

Dandenong South
ACN 143 009 330
25 Metcalf Street
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Fax: +61 3 9706 9431

Report No: HDR:W24DS00705
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: J. Lamont (Discipline Manager - CMT)
Date of Issue: 24/06/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Import - Stage 48
Material: Clay

Sample Data

Sample ID	S24DS-02872	S24DS-02873	S24DS-02874			
Field Sample ID	1	2	3			
Date Tested	8/05/2024	8/05/2024	8/05/2024			
Time Tested	08:10	08:20	08:30			
E:	357180.247	357194.725	357208.099			
N:	5781553.115	5781559.539	5781551.997			
EL:	38.52	37.756	37.422			
Lot / Layer:	4937 / 1	4938 / 1	4939 / 1			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0					
Field Moisture Content (%)	16.8	16.9	20.0			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	2.05	1.92	2.05			
Field Dry Density (t/m³)	1.75	1.65	1.71			
Peak Converted Wet Density (t/m³)	2.01	1.88	2.05			
Optimum Moisture Content (%)	19.0	20.0	21.5			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	88.5	84.0	92.5			
Moisture Variation (%)	2.0 dry	3.0 dry	1.5 dry			
Hilf Density Ratio (%)	**102.0**	**102.5**	**100.0**			

Comments

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Report No: HDR:W24DS00716
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 16/05/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Import - Stage 55
Material: Clay

Sample Data

Sample ID	S24DS-02890					
Field Sample ID	1					
Date Tested	9/05/2024					
Time Tested	11:00					
E:	357208.331					
N:	5781551.846					
EL:	37.600					
Lot / Lift:	4939 / 2					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	16.9					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.89					
Field Dry Density (t/m³)	1.61					
Peak Converted Wet Density (t/m³)	1.91					
Optimum Moisture Content (%)	21.0					
Compactive Effort	Standard					
Moisture Ratio (%)	80.5					
Moisture Variation (%)	4.0 dry					
Hilf Density Ratio (%)	**98.5**					

Comments

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Report No: HDR:W24DS00743
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 17/05/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: Clay

Sample Data

Sample ID	S24DS-02995					
Field Sample ID	1					
Date Tested	14/05/2024					
Time Tested	15:00					
E:	357245.063					
N:	5781559.641					
EL:	35.645					
Lot / Lift:	4942 / 2					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	22.0					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.02					
Field Dry Density (t/m³)	1.66					
Peak Converted Wet Density (t/m³)	1.89					
Optimum Moisture Content (%)	23.0					
Compactive Effort	Standard					
Moisture Ratio (%)	96.5					
Moisture Variation (%)	1.0 dry					
Hilf Density Ratio (%)	**107.0**					

Comments

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Report No: HDR:W24DS00755
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 17/05/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Offsite - Stage 48
Material: Clay

Sample Data

Sample ID	S24DS-03036	S24DS-03037				
Field Sample ID	1	2				
Date Tested	15/05/2024	15/05/2024				
Time Tested	11:20	11:40				
E:	357245.302	357248.206				
N:	5781597.455	5781574.324				
EL:	36.023	35.668				
Lot / Layer:	4943 / 3	4941 / 3				

Field and Laboratory Data

Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	20.7	19.9				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	1.94	2.02				
Field Dry Density (t/m³)	1.60	1.68				
Peak Converted Wet Density (t/m³)	1.90	1.90				
Optimum Moisture Content (%)	23.5	20.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	87.5	97.5				
Moisture Variation (%)	3.0 dry	0.5 dry				
Hilf Density Ratio (%)	**101.5**	**106.0**				

Comments

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Report No: HDR:W24DS00766
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 27/05/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 95%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported - Stage 55
Material: Clay

Sample Data

Sample ID	S24DS-03070	S24DS-03071				
Field Sample ID	1	2				
Date Tested	16/05/2024	16/05/2024				
Time Tested	09:15	11:20				
E:	357236.587	357157.572				
N:	5781579.523	5781526.544				
EL:	36.088	39.325				
Lot / Lift:	4941 / 4	4944 / 1				

Field and Laboratory Data

Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	21.5	24.8				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	1.97	1.98				
Field Dry Density (t/m³)	1.62	1.59				
Peak Converted Wet Density (t/m³)	1.91	1.89				
Optimum Moisture Content (%)	24.0	27.5				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	89.0	90.5				
Moisture Variation (%)	2.5 dry	2.5 dry				
Hilf Density Ratio (%)	**103.0**	**104.5**				

Comments

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Report No: HDR:W24DS00770
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 27/05/2024

Sample Details

Location:
Client Request ID:
Specification Requirements: Minimum Hilf Density Ratio of 92%
Field Test procedures: AS 1289.5.8.1
Laboratory Test procedures: AS 1289.2.1.1, AS 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Imported - Stage 55
Material: Clay

Sample Data

Sample ID	S24DS-03088	S24DS-03089				
Field Sample ID	1	2				
Date Tested	17/05/2024	17/05/2024				
Time Tested	09:10	10:30				
E:	357235.868	357153.622				
N:	5781547.385	5781814.904				
EL:	36.486	39.698				
Lot / Lift:	4942 / 5	4945 / 2				

Field and Laboratory Data

Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Moisture Content (%)	26.0	16.7				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	1.99	1.96				
Field Dry Density (t/m³)	1.58	1.68				
Peak Converted Wet Density (t/m³)	1.87	2.00				
Optimum Moisture Content (%)	28.0	19.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	93.5	88.0				
Moisture Variation (%)	1.5 dry	2.0 dry				
Hilf Density Ratio (%)	**106.0**	**98.0**				

Comments

CHADWICK GEOTECHNICS

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Report No: MAT:S23DS-06784/1
Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 13/09/2023

Sample Details

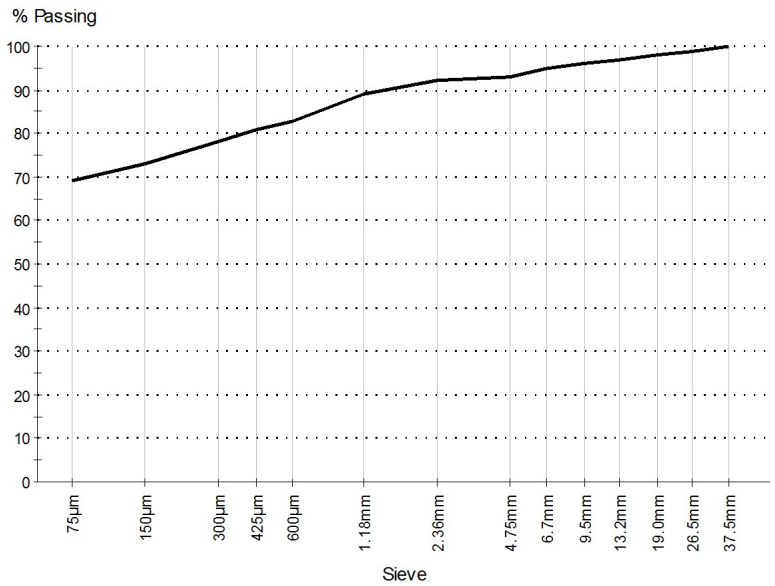
Sample Location	
Field Sample ID	1
Date Sampled	15/08/2023
Time Sampled	09:11
Source	Onsite
Material	Silty Clay
Specification	AS Grading
Sampling Method	AS1289.1.2.1 Clause 6.4 (b)
Sample ID	S23DS-06784

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	24.0	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	16.0	
Mould Length (mm)		250	
Crumbling		No	

Particle Size Distribution

AS 1289.3.6.1



Drying By: Oven
Date Tested: 22/08/2023

Note: Sample Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	98	
13.2mm	97	
9.5mm	96	
6.7mm	95	
4.75mm	93	
2.36mm	92	
1.18mm	89	
600µm	83	
425µm	81	
300µm	78	
150µm	73	
75µm	69	

Comments

N/A

CHADWICK GEOTECHNICS

Think Act Safe Be

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Report No: MAT:S23DS-06784/1
Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 13/09/2023

Other Test Results

Description	Method	Result	Limits
Curling		Yes	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.2	62	
Plastic Limit (%)	AS 1289.3.2.1	19	
Plasticity Index (%)	AS 1289.3.3.1	43	
Date Tested		25/08/2023	

Comments

N/A

CHADWICK GEOTECHNICS

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Report No: MAT:S24DS-02657/1
Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 16/05/2024

Sample Details

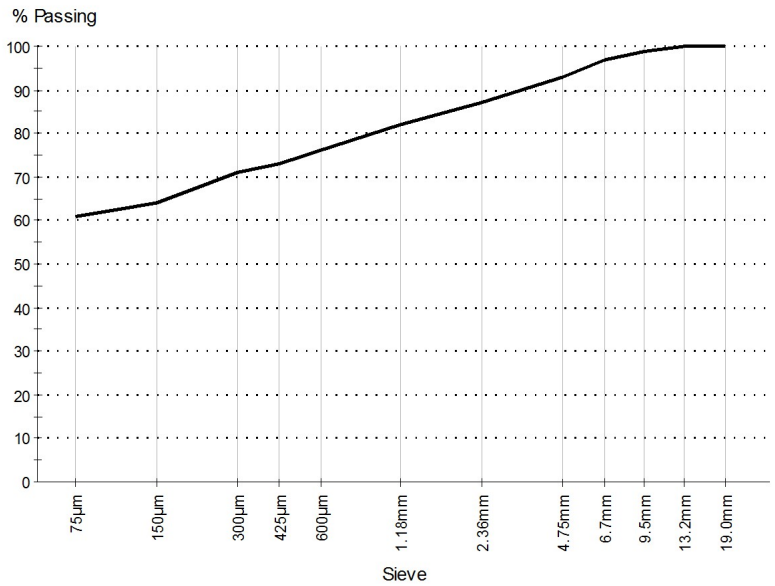
Sample Location	357165.714, 5781575.406, 38.910, 4934 / 2
Field Sample ID	1
Date Sampled	30/04/2024
Time Sampled	13:10
Source	Onsite
Material	Clay
Specification	AS Grading
Sampling Method	AS1289.1.2.1 Clause 6.4 (b)
Sample ID	S24DS-02657

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	18.6	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.0	
Mould Length (mm)		250	
Crumbling		No	

Particle Size Distribution

AS 1289.3.6.1



Drying By: Oven
Date Tested: 7/05/2024

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	100	
9.5mm	99	
6.7mm	97	
4.75mm	93	
2.36mm	87	
1.18mm	82	
600µm	76	
425µm	73	
300µm	71	
150µm	64	
75µm	61	

Comments

N/A

CHADWICK GEOTECHNICS

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Report No: MAT:S24DS-02657/1
Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 49
Project No.: 1091936.049
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number: 12719
Site Number: 12712
Approved Signatory: M. Longfield (Senior Technician)
Date of Issue: 16/05/2024

Other Test Results

Description	Method	Result	Limits
Curling		Yes	
Cracking		Yes	
Liquid Limit (%)	AS 1289.3.1.2	52	
Plastic Limit (%)	AS 1289.3.2.1	21	
Plasticity Index (%)	AS 1289.3.3.1	31	
Date Tested		7/05/2024	

Comments

N/A

Appendix D Controlled Fill Certificate

CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT : Meridian Green Estate Stage 49
Lots 4901 to 4912, 4924 to 4926 and 4934 to Lot 4945.

Chadwick Geotechnics REF: 1091936.049v1

DATE: 25 June 2024

CLIENT : Greenridge Properties Pty Ltd
P.O Box 4136
Dandenong South Victoria, 3164

SUMMARY

Chadwick Geotechnics Pty Ltd conducted, Level 1 inspection and testing, in accordance with Section 8.2 Level 1 inspection and Testing *AS3798-2007, Guidelines on earthworks for commercial and residential developments,* during the filling of the site.

So far as can be determined, the fill was placed in accordance with the Specification that required a minimum density ratio of 95% of HILF Density (AS1289.5.7.1) to be achieved.

LIMITATIONS

This Certificate has been commissioned for the filling of the area mentioned above. No responsibility or liability will be accepted for the use of this report for any purpose other than that for which Chadwick Geotechnics Pty Ltd was engaged, specifically for Level 1 Inspection and Testing of the structural fill (excluding topsoil).

This report is based on the conditions present and factors affecting the soil at the time of inspection (14 August 2023 and was completed on 17 May 2024). No responsibility or liability will be accepted and Chadwick Geotechnics Pty Ltd is indemnified to the full extent permitted by law in respect of the use of this Certificate where there has been a change in the nature of the project, or in the site conditions since the site testing.

CHADWICK GEOTECHNICS PTY LTD

Robert Barden
Project Manager

Timothy Chadwick
Project Director

CHADWICK
GEOTECHNICS