CHADWICK GEOTECHNICS

REPORT

Level 1 Geotechnical Testing and Inspection Authority Services

Meridian Green Estate Clyde North
Stage 47
Lots 4701 to 4712 and 4715, 4716 and 4724 to 4747

Prepared for:

Greenridge Properties Pty Ltd

16 February 2024

Our Ref: 1091936.047.v1

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

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Document Control

Title:	Level One Inspection and testing Services.				
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by**
16 February 2024	1091936.047.V1	Meridian Green Estate Stage 47 Level One Report	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 47 of the Meridian Green Estate in Clyde North between project dates 1 August 2023 and 14 February 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 47 is located to the South of Clara Street and East of Shell Close. Stage 46 and 55 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	1, 2, 3, 4, 9
September 2023	15, 18, 19, 20, 21, 28,
February 2024	14,

2.4 Included Areas

This report is applicable to material placed by the contractor on the residential lots within Meridian Green Estate Stage 47, 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:

- Lots and 4701 to 4712 and 4715, 1416 and 4724 to Lot 4747.

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

Project specifications were prepared by Charlton Degg Land Development Consultants Pty Ltd for the project. 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).
- Moisture content of the fill material is to be within ±3% of the soils Standard Optimum Moisture Content (SOMC).
- 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.

A sample 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-06269	100	100	97	83	70	53	30	17	13	On-site

The laboratory test results indicates the fill material is clay of medium 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 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: Typical subgrade surface

Photograph 4: Proof roll of the subgrade

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**
Grader	**1**
Dump trucks	**Tandem**

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

Photograph 4.3: General Earthwork machinery and fill construction photographs

Photograph 5: D6 Dozer used during filling.

Photograph 6: Pad foot compacting clay

Photograph 7: Water cart used for moisture conditioning

Photograph 8: Grader spreading material

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;

Forty-Four (44) tests were performed during the filling process. Two (2) of the tests did not achieve the required density and or 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 1 August 2023 and 14 February 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:

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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\1091936.047 Stage 47 Meridian Greens Estate\CAD\FIG\1091936.047-F01.dwg 2024-Feb-15 3:15:59 PM Plotted By: KATHRYN JACKSON

LEGEND

S23DS-06472 HILF DENSITY TEST LOCATION SITE 47

S23DS-06472 HILF DENSITY TEST LOCATION SITE 46

CHADWICK GEOTECHNICS

www.chadwickgeotechnics.com.au

NOTES:
1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD IMAGERY DATE: 29/10/2023.
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.	1091936.047	
DESIGNED	STPA	Feb.24
DRAWN	KMJA	Feb.24
CHECKED		
APPROVED		DATE

CLIENT **GREENRIDGE PROPERTIES PTY LTD**

PROJECT **MERIDIAN GREEN ESTATE - STAGE 47**

TITLE LEVEL ONE HILF DENSITY TESTING
HILF DENSITY TEST LOCATION PLAN

UNDER REVISION 1

SCALE (A3) 1:1000 FIG No. 1091936.047-F01 REV 1

Appendix B Hilf Density Test Summary

Meridian Green, 1091936.047

HILF Density Testing - Field Summary

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 9706 9431
www.chadwickgeotechnics.com.au

Report No	Sample No	Date	Test Number	Lot No	Easting	Northing	Layer/RL	Density Ratio (≥95 %)	Moisture Variation	Pass / Fail	Comments (Retest No) Compliance test taken ect
HDR:W23DS01822	S23DS-06198	2/08/2023	1	4701 / 1	356861	5781719	43.04	98	1 wet	Pass	
HDR:W23DS01813	S23DS-06175	1/08/2023	1	4653	356832	5781714	43.603	99	0	Pass	
HDR:W23DS01841	S23DS-06270	3/08/2023	1	4703 / 1	356892	5781710	43.138	101	0 wet	Pass	
HDR:W23DS01841	S23DS-06271	3/08/2023	2	4705 / 1	356919	5781707	43.059	96	0 dry	Pass	
HDR:W23DS01841	S23DS-06272	3/08/2023	3	4707 / 1	356936	5781698	43.195	96	0 wet	Pass	
HDR:W23DS01841	S23DS-06273	3/08/2023	4	4709 / 1	356932	5781673	43.334	95.5	0 wet	Pass	
HDR:W23DS01841	S23DS-06274	3/08/2023	5	4711 / 1	356914	5781674	43.303	97.5	0 wet	Pass	
HDR:W23DS01861	S23DS-06349	4/08/2023	1	4712 / 2	356902	5781671	43.507	103	0 dry	Pass	
HDR:W23DS01861	S23DS-06350	4/08/2023	2	4710 / 2	356931	5781662	43.343	100.5	0.5 dry	Pass	
HDR:W23DS01861	S23DS-06351	4/08/2023	3	4708 / 2	356935	5781688	43.285	98.5	0 dry	Pass	
HDR:W23DS01861	S23DS-06352	4/08/2023	4	4706 / 2	356938	5781712	43.069	97.5	0 dry	Pass	
HDR:W23DS01861	S23DS-06353	4/08/2023	5	4704 / 2	356907	5781711	43.246	99.5	0 dry	Pass	
HDR:W23DS01861	S23DS-06354	4/08/2023	6	4702 / 2	356877	5781715	43.309	100	0 wet	Pass	
HDR:W23DS01914	S23DS-06592	9/08/2023	1	4711 / 3	356915	5781683	43.551	102.5	0 dry	Pass	
HDR:W23DS01914	S23DS-06593	9/08/2023	2	4707 / 3	356929	5781703	43.446	100	0 wet	Pass	
HDR:W23DS01914	S23DS-06594	9/08/2023	3	4701 / 3	356850	5781703	43.652	97	0.5 wet	Pass	
HDR:W23DS01914	S23DS-06595	9/08/2023	4	4703 / 3	356891	5781697	43.616	103	0 wet	Pass	
HDR:W23DS02209	S23DS-07684	15/09/2023	1	4743 / 1	357027	5781652	42.413	99	2.5 dry	Pass	
HDR:W23DS02209	S23DS-07685	15/09/2023	2	4745 / 1	357030	5781684	42.374	100	2.5 dry	Pass	
HDR:W23DS02209	S23DS-07686	15/09/2023	3	4747 / 1	357044	5781698	42.184	103	0.5 dry	Pass	
HDR:W23DS02223	S23DS-07752	18/09/2023	4	4741 / 1	356995	5781648	42.31	107	5 dry	Fail	layer removed and reworked. See Retest 8410
HDR:W23DS02240	S23DS-07842	19/09/2023	1	4724 / Final	356950	5781583	43.658	106.5	0.5 dry	Pass	
HDR:W23DS02240	S23DS-07843	19/09/2023	2	4725 / Final	356952	5781594	43.623	104.5	2 dry	Pass	
HDR:W23DS02240	S23DS-07844	19/09/2023	3	4726 / Final	356954	5781607	43.592	104	2 dry	Pass	

Meridian Green, 1091936.047

HILF Density Testing - Field Summary

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
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Fax: (03) 9706 9431
www.chadwickgeotechnics.com.au

Report No	Sample No	Date	Test Number	Lot No	Easting	Northing	Layer/RL	Density Ratio (≥95 %)	Moisture Variation	Pass / Fail	Comments (Retest No) Compliance test taken ect
HDR:W23DS02240	S23DS-07845	19/09/2023	4	4727 / Final	356956	5781618	43.518	103	1 dry	Pass	
HDR:W23DS02240	S23DS-07846	19/09/2023	5	4728 / Final	356958	5781631	43.474	103.5	4.5 dry	Fail	See Retest S23DS-7926
HDR:W23DS02240	S23DS-07847	19/09/2023	6	4729 / Final	356960	5781641	43.429	105	2.5 dry	Pass	
HDR:W23DS02240	S23DS-07848	19/09/2023	7	4730 / Final	356962	5781653	43.386	108	3 dry	Pass	
HDR:W23DS02240	S23DS-07849	19/09/2023	8	4731 / Final	356965	5781668	43.294	103.5	0 wet	Pass	
HDR:W23DS02240	S23DS-07850	19/09/2023	9	4732 / Final	356967	5781681	43.212	100.5	2.5 dry	Pass	
HDR:W23DS02240	S23DS-07851	19/09/2023	10	4733 / Final	356968	5781690	43.235	103.5	0.5 dry	Pass	
HDR:W23DS02240	S23DS-07852	19/09/2023	11	4734 / Final	356971	5781702	43.158	102	1 dry	Pass	
HDR:W23DS02240	S23DS-07853	19/09/2023	12	4746 / Final	357032	5781698	42.534	103	0 dry	Pass	
HDR:W23DS02240	S23DS-07854	19/09/2023	13	4744 / Final	357029	5781673	42.566	100.5	0 dry	Pass	
HDR:W23DS02246	S23DS-07874	20/09/2023	1	4742 / 3	357023	5781644	42.863	95.5	0.5 dry	Pass	
HDR:W23DS02246	S23DS-07875	20/09/2023	2	4744 / 3	357026	5781665	42.745	98.5	0.5 dry	Pass	
HDR:W23DS02262	S23DS-07926	21/09/2023	1	4728 / Final	356960	5781628	-	106	3 dry	Pass	Retest of S23DS-07846
HDR:W23DS02341	S23DS-08410	28/09/2023	1	4741 / 1	356994	5781648	42.716	103	2.5 dry	Pass	Retest of S23DS-07752
HDR:W23DS02341	S23DS-08411	28/09/2023	2	4740 / 2	356996	5781661	42.918	106.5	2.5 dry	Pass	
HDR:W23DS02341	S23DS-08412	28/09/2023	3	4739 / 1	356998	5781671	42.645	98.5	0.5 dry	Pass	
HDR:W23DS02341	S23DS-08413	28/09/2023	4	4738 / 2	357000	5781685	42.651	101.5	2 dry	Pass	
HDR:W23DS02341	S23DS-08414	28/09/2023	5	4737 / Final	357000	5781697	72.712	101	2 dry	Pass	
HDR:W23DS02341	S23DS-08415	28/09/2023	6	4736 / 2	356992	5781701	46.521	104	2.5 dry	Pass	
HDR:W24DS00195	S24DS-00743	14/02/2024	1	4715 / 4716, boundary	358922	5781626.4	43.667	98	2 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
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Report No: HDR:W23DS01822
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 7/08/2023

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-06198					
Field Sample ID	1					
Client Sample ID	1					
Date Tested	2/08/2023					
Time Tested	09:50					
E:	356861.326 (356861)					
N:	5781717.373 (5781719)					
EL:	43.040					
Lot / Layer:	4701 / 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 (%)	27.8					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.89					
Field Dry Density (t/m³)	1.48					
Peak Converted Wet Density (t/m³)	1.93					
Optimum Moisture Content (%)	27.0					
Compactive Effort	Standard					
Moisture Ratio (%)	103.0					
Moisture Variation (%)	1.0 wet					
Hilf Density Ratio (%)	**98.0**					

Comments

CHADWICK GEOTECHNICS

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

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Report No: HDR:W23DS01813
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 46
Project No.: 1091936.046
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: 7/08/2023

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-06171	S23DS-06172	S23DS-06173	S23DS-06174	S23DS-06175	
Field Sample ID	1	2	3	4	5	
Client Sample ID	1	2	3	4	5	
Date Tested	1/08/2023	1/08/2023	1/08/2023	1/08/2023	1/08/2023	
Time Tested	13:50	13:58	14:04	14:12	14:19	
E:	356731.514 (356732)	356753.349 (356756)	356783.218 (356784)	356816.403 (356816)	356832.920 (356832)	
N:	5781680.931 (5781681)	5781688.212 (5781689)	5781698.976 (5781697)	5781700.295 (5781702)	5781713.839 (5781714)	
EL:	44.078	43.998	43.649	43.565	43.603	
Lot / Layer:	4661 / 1	4659 / 1	4657 / 1	4655 / 1	4653 / 1	
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175	175	
Depth of Layer (mm)	200	200	200	200	200	
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	
Oversize Wet (%)	0	0	0	0	0	
Field Moisture Content (%)	15.2	20.1	25.4	24.1	25.8	
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Density (t/m³)	2.02	2.03	1.98	1.97	1.94	
Field Dry Density (t/m³)	1.75	1.69	1.58	1.59	1.54	
Peak Converted Wet Density (t/m³)	2.11	2.07	1.93	1.99	1.96	
Optimum Moisture Content (%)	15.0	20.0	26.0	24.0	25.5	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Ratio (%)	102.5	101.5	97.5	100.0	100.5	
Moisture Variation (%)	0.5 wet	0.5 wet	0.5 dry	0.0	0.0	
Hilf Density Ratio (%)	**96.0**	**98.0**	**102.5**	**99.0**	**99.0**	

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS01841
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 7/08/2023

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-06270	S23DS-06271	S23DS-06272	S23DS-06273	S23DS-06274	
Field Sample ID	1	2	3	4	5	
Client Sample ID	2	3	4	5	6	
Date Tested	3/08/2023	3/08/2023	3/08/2023	3/08/2023	3/08/2023	
Time Tested	14:24	14:31	14:36	14:45	14:51	
E:	356892.076	356919.012	356935.611	356932.022	356914.029	
N:	5781709.989	5781706.785	5781697.907	5781672.922	5781674.295	
EL:	43.138	43.059	43.195	43.334	43.303	
Lot / Layer:	4703 / 1	4705 / 1	4707 / 1	4709 / 1	4711 / 1	
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175	175	
Depth of Layer (mm)	200	200	200	200	200	
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	
Oversize Wet (%)	0	0	0	0	0	
Field Moisture Content (%)	22.6	20.3	22.6	17.2	15.0	
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Density (t/m³)	2.01	1.97	1.91	2.01	2.06	
Field Dry Density (t/m³)	1.64	1.63	1.56	1.72	1.79	
Peak Converted Wet Density (t/m³)	2.00	2.05	1.99	2.11	2.11	
Optimum Moisture Content (%)	22.5	20.5	22.5	17.0	15.0	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Ratio (%)	100.0	99.5	101.0	100.5	100.0	
Moisture Variation (%)	0.0	0.0	0.0	0.0	0.0	
Hilf Density Ratio (%)	**101.0**	**96.0**	**96.0**	**95.5**	**97.5**	

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS01861
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 23/08/2023

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-06349	S23DS-06350	S23DS-06351	S23DS-06352	S23DS-06353	S23DS-06354
Field Sample ID	1	2	3	4	5	6
Client Sample ID	8	9	10	11	12	13
Date Tested	4/08/2023	4/08/2023	4/08/2023	4/08/2023	4/08/2023	4/08/2023
E:	356901.752	356930.524	356934.502	356938.334	356907.082	356876.708
N:	5781671.473	5781661.676	5781687.593	5781712.224	5781711.481	5781714.626
EL:	43.507	43.343	43.285	43.069	43.246	43.309
Lot / Layer:	4712 / 2	4710 / 2	4708 / 2	4706 / 2	4704 / 2	4702 / 2
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175	275	275
Depth of Layer (mm)	200	200	200	200	300	300
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0	0	0
Field Moisture Content (%)	24.8	19.0	250	14.3	20.4	17.1
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m³)	2.02	2.02	1.97	2.10	2.06	2.07
Field Dry Density (t/m³)	1.62	1.70	0.56	1.84	1.71	1.77
Peak Converted Wet Density (t/m³)	1.97	2.01	2.00	2.15	2.07	2.07
Optimum Moisture Content (%)	25.0	19.5	250.0	14.5	20.5	17.0
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	99.5	97.0	100.0	100.0	99.5	100.5
Moisture Variation (%)	0.0	0.5 dry	0.0	0.0	0.0	0.0
Hilf Density Ratio (%)	**103.0**	**100.5**	**98.5**	**97.5**	**99.5**	**100.0**

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS01914
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 23/08/2023

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-06592	S23DS-06593	S23DS-06594	S23DS-06595		
Field Sample ID	1	2	3	4		
Client Sample ID	23	24	25	26		
Date Tested	9/08/2023	9/08/2023	9/08/2023	9/08/2023		
Time Tested	14:30	14:38	14:46	14:54		
E:	356915.172	356928.616	356850.376	356890.869		
N:	5781683.333	5781702.621	5781703.014	5781696.561		
EL:	43.551	43.446	43.652	43.616		
Lot / Layer:	4711 / 3	4707 / 3	4701 / 3	4703 / 3		
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175		
Depth of Layer (mm)	200	200	200	200		
AS Sieve Size (mm)	19.0	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0	0		
Field Moisture Content (%)	23.9	25.1	14.8	25.9		
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1		
Field Wet Density (t/m³)	2.09	1.97	2.07	1.97		
Field Dry Density (t/m³)	1.68	1.57	1.80	1.57		
Peak Converted Wet Density (t/m³)	2.04	1.97	2.13	1.92		
Optimum Moisture Content (%)	24.0	25.0	14.5	26.0		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Ratio (%)	99.5	100.0	102.0	100.0		
Moisture Variation (%)	0.0	0.0	0.5 wet	0.0		
Hilf Density Ratio (%)	**102.5**	**100.0**	**97.0**	**103.0**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS02209
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 3/10/2023

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-07684	S23DS-07685	S23DS-07686			
Field Sample ID	1	2	3			
Client Sample ID	27	8	29			
Date Tested	15/09/2023	15/09/2023	15/09/2023			
Time Tested	12:49	12:58	13:12			
E:	357026.985	357030.442	357043.993			
N:	5781652.217	5781683.637	5781697.558			
EL:	42.413	42.374	42.184			
Lot / Layer:	4743 / 1	4745 / 1	4747 / 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 (%)	16.6	25.8	25.6			
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1			
Field Wet Density (t/m³)	1.95	1.90	2.00			
Field Dry Density (t/m³)	1.67	1.51	1.59			
Peak Converted Wet Density (t/m³)	1.96	1.90	1.93			
Optimum Moisture Content (%)	19.0	28.5	26.0			
Compactive Effort	Standard	Standard	Standard			
Moisture Ratio (%)	87.5	91.5	97.5			
Moisture Variation (%)	2.5 dry	2.5 dry	0.5 dry			
Hilf Density Ratio (%)	**99.0**	**100.0**	**103.0**			

Comments

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Report No: HDR:W23DS02223
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 3/10/2023

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	S23DS-07752					
Field Sample ID	1					
Client Sample ID	30					
Date Tested	18/09/2023					
Time Tested	12:58					
E:	356995.272					
N:	5781648.459					
EL:	42.31					
Lot / Layer:	4741 / 1					

Field and Laboratory Data

Depth of Test (mm)	175					
Depth of Layer (mm)	200					
AS Sieve Size (mm)	19.0					
Field Moisture Content (%)	20.6					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.99					
Field Dry Density (t/m³)	1.65					
Peak Converted Wet Density (t/m³)	1.86					
Optimum Moisture Content (%)	25.5					
Compactive Effort	Standard					
Moisture Ratio (%)	80.5					
Moisture Variation (%)	5.0 dry					
Hilf Density Ratio (%)	**107.0**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS02240
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 3/10/2023

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-07842	S23DS-07843	S23DS-07844	S23DS-07845	S23DS-07846	S23DS-07847
Field Sample ID	1	2	3	4	5	6
Client Sample ID	31	32	33	34	35	36
Date Tested	19/09/2023	19/09/2023	19/09/2023	19/09/2023	19/09/2023	19/09/2023
Time Tested	08:13	08:20	08:28	08:35	08:47	08:56
E:	356949.895	356951.746	356953.867	356955.784	356958.021	356959.707
N:	5781582.965	5781594.057	5781606.726	5781618.463	5781630.862	5781641.209
EL:	43.658	43.623	43.592	43.518	43.474	43.429
Lot / Layer:	4724 / Final	4725 / Final	4726 / Final	4727 / Final	4728 / Final	4729 / Final

Field and Laboratory Data

Depth of Test (mm)	175	175	175	175	175	175
Depth of Layer (mm)	200	200	200	200	200	200
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0	0	
Field Moisture Content (%)	21.7	26.2	26.7	26.0	20.2	22.0
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m³)	2.04	1.99	1.98	1.94	1.97	2.03
Field Dry Density (t/m³)	1.67	1.58	1.56	1.54	1.64	1.67
Peak Converted Wet Density (t/m³)	1.91	1.90	1.90	1.88	1.90	1.93
Optimum Moisture Content (%)	22.5	28.5	29.0	27.0	24.5	24.5
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	96.5	92.5	93.0	97.0	81.5	89.0
Moisture Variation (%)	0.5 dry	2.0 dry	2.0 dry	1.0 dry	4.5 dry	2.5 dry
Hilf Density Ratio (%)	**106.5**	**104.5**	**104.0**	**103.0**	**103.5**	**105.0**

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS02240
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 3/10/2023

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-07848	S23DS-07849	S23DS-07850	S23DS-07851	S23DS-07852	S23DS-07853
Field Sample ID	7	8	9	10	11	12
Client Sample ID	37	38	39	40	41	42
Date Tested	19/09/2023	19/09/2023	19/09/2023	19/09/2023	19/09/2023	19/09/2023
Time Tested	09:06	09:21	09:30	09:40	09:46	10:35
E:	356962.006	356964.841	356966.576	356968.080	356971.060	357031.969
N:	5781653.155	5781668.129	5781680.646	5781689.920	5781702.189	5781698.377
EL:	43.386	43.294	43.212	43.235	43.158	42.534
Lot / Layer:	4730 / Final	4731 / Final	4732 / Final	4733 / Final	4734 / Final	4746 / Final
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175	175	175
Depth of Layer (mm)	200	200	200	200	200	200
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)		0	0	0	0	0
Field Moisture Content (%)	18.9	24.3	21.1	26.0	20.1	21.3
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m³)	2.06	1.96	1.94	1.95	2.00	2.05
Field Dry Density (t/m³)	1.73	1.58	1.60	1.55	1.66	1.69
Peak Converted Wet Density (t/m³)	1.91	1.90	1.93	1.88	1.96	1.99
Optimum Moisture Content (%)	22.0	24.0	24.0	27.0	21.0	21.5
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	86.0	100.5	88.0	97.0	95.5	99.0
Moisture Variation (%)	3.0 dry	0.0	2.5 dry	0.5 dry	1.0 dry	0.0
Hilf Density Ratio (%)	**108.0**	**103.5**	**100.5**	**103.5**	**102.0**	**103.0**

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS02240
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 3/10/2023

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-07854					
Field Sample ID	13					
Client Sample ID	43					
Date Tested	19/09/2023					
Time Tested	10:43					
E:	357029.420					
N:	5781673.495					
EL:	42.566					
Lot / Layer:	4744 / Final					

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)	2.04					
Field Dry Density (t/m³)	1.72					
Peak Converted Wet Density (t/m³)	2.03					
Optimum Moisture Content (%)	19.0					
Compactive Effort	Standard					
Moisture Ratio (%)	99.5					
Moisture Variation (%)	0.0					
Hilf Density Ratio (%)	**100.5**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W23DS02246
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 3/10/2023

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-07874	S23DS-07875				
Field Sample ID	1	2				
Client Sample ID	44	45				
Date Tested	20/09/2023	20/09/2023				
Time Tested	10:33	10:42				
E:	357023.211	357026.479				
N:	5781643.805	5781664.984				
EL:	42.863	42.745				
Lot / Layer:	4742 / 3	4744 / 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 (%)	14.1	13.1				
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Density (t/m³)	2.02	2.05				
Field Dry Density (t/m³)	1.77	1.81				
Peak Converted Wet Density (t/m³)	2.12	2.08				
Optimum Moisture Content (%)	14.5	14.0				
Compactive Effort	Standard	Standard				
Moisture Ratio (%)	97.0	95.0				
Moisture Variation (%)	0.5 dry	0.5 dry				
Hilf Density Ratio (%)	**95.5**	**98.5**				

Comments

CHADWICK GEOTECHNICS

Dandenong South
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DANDENONG SOUTH, VIC 3175

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Report No: HDR:W23DS02262
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 3/10/2023

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-07926					
Field Sample ID	1					
Client Sample ID	46					
Date Tested	21/09/2023					
Time Tested	07:54					
E:	356960					
N:	5781628					
EL:	-					
Lot / Layer:	4728 / Final					
	Retest of S23DS-07846					

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 (%)	20.5					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	1.97					
Field Dry Density (t/m³)	1.64					
Peak Converted Wet Density (t/m³)	1.87					
Optimum Moisture Content (%)	23.5					
Compactive Effort	Standard					
Moisture Ratio (%)	88.0					
Moisture Variation (%)	3.0 dry					
Hilf Density Ratio (%)	**106.0**					

Comments

CHADWICK GEOTECHNICS

Think Act Safe Be

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Report No: HDR:W23DS02341
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 5/10/2023

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-08410	S23DS-08411	S23DS-08412	S23DS-08413	S23DS-08414	S23DS-08415
Field Sample ID	1	2	3	4	5	6
Client Sample ID	47	8	49	50	51	52
Date Tested	28/09/2023	28/09/2023	28/09/2023	28/09/2023	28/09/2023	28/09/2023
Time Tested	07:44	07:52	07:59	08:06	08:15	08:26
E:	356994.474	356995.822	356997.515	356999.793	357000.010	356991.564
N:	5781648.182	5781661.104	5781671.047	57816+85.452	5781696.840	5781701.310
EL:	42.716	42.918	42.645	42.651	72.712	46.521
Lot / Layer:	4741 / 1	4740 / 2	4739 / 1	4738 / 2	4737 / Final	4736 / 2
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175	175	175
Depth of Layer (mm)	200	200	200	200	200	200
AS Sieve Size (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Oversize Wet (%)	0	0	0	0	0	0
Field Moisture Content (%)	18.4	19.0	21.3	12.5	18.1	14.5
Field Moisture Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Density (t/m³)	2.03	2.08	1.95	2.00	2.00	2.10
Field Dry Density (t/m³)	1.72	1.74	1.61	1.78	1.69	1.84
Peak Converted Wet Density (t/m³)	1.97	1.95	1.98	1.97	1.98	2.02
Optimum Moisture Content (%)	21.0	21.5	22.0	14.5	20.5	17.0
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	86.5	88.5	97.0	86.5	89.0	84.5
Moisture Variation (%)	2.5 dry	2.5 dry	0.5 dry	2.0 dry	2.0 dry	2.5 dry
Hilf Density Ratio (%)	**103.0**	**106.5**	**98.5**	**101.5**	**101.0**	**104.0**

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W24DS00195
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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: 19/02/2024

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-00743					
Field Sample ID	1					
Date Tested	14/02/2024					
E:	358921.88					
N:	5781626.36					
EL:	43.667					

Field and Laboratory Data

AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Moisture Content (%)	12.9					
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m³)	2.00					
Field Dry Density (t/m³)	1.77					
Peak Converted Wet Density (t/m³)	2.04					
Optimum Moisture Content (%)	15.0					
Compactive Effort	Standard					
Moisture Ratio (%)	85.5					
Moisture Variation (%)	2.0 dry					
Hilf Density Ratio (%)	**98.0**					

Comments

CHADWICK GEOTECHNICS

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Report No: MAT:S23DS-06269/1
Issue No: 1

Material Test Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Green Estate, Stage 47
Project No.: 1091936.047
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	E: 356914.029, N: 5781674.295, EL: 43.303, Lot: 4711, Layer: 1
Field Sample ID	1
Date Sampled	3/08/2023
Time Sampled	14:51
Source	Onsite
Material	Silty Clay
Specification	AS Grading
Sampling Method	AS1289.1.2.1 Clause 6.4 (b)
Sample ID	S23DS-06269

Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	14.4	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	7.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Cracking		Yes	
Liquid Limit (%)	AS 1289.3.1.2	30	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	13	
Date Tested		17/08/2023	

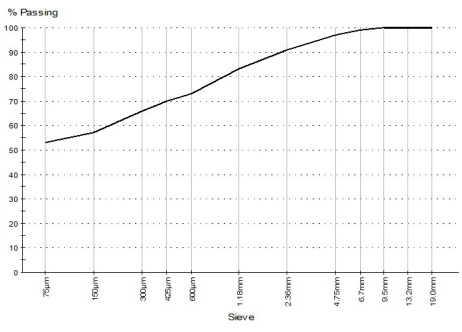
Particle Size Distribution

Method: AS 1289.3.6.1
Drying By: Oven
Date Tested: 14/08/2023

Note: Sample Washed

Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	100	
9.5mm	100	
6.7mm	99	
4.75mm	97	
2.36mm	91	
1.18mm	83	
600µm	73	
425µm	70	
300µm	66	
150µm	57	
75µm	53	

Chart



Comments

N/A

Appendix D Controlled Fill

CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT : Meridian Green Estate Stage 47
Lots 4701 to 4712 and 4715, 4716 and 4724 to 4747

Chadwick Geotechnics REF: 1091936.047v1

DATE: 16 February 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 (1 August 2023 and was completed on 14 February 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