CHADWICK GEOTECHNICS

REPORT

Level One Inspection and Testing Services

Meridian Central Estate Stage 35, Clyde
Lot 3501 & Lot's 3510 to Lot 3533

Prepared for:

Grosvenor Lodge Pty Ltd

20 June 2022

Our Ref: 3807351.035.v1

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

Document Control

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Distribution:

Grosvenor Lodge Pty Ltd	1 electronic copy
Chadwick Geotechnics Pty Ltd (FILE)	1 electronic copy

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1 Introduction

As part of the construction of the Meridian Central Estate development in Clyde North, Chadwick Geotechnics Pty Ltd (Chadwick Geotechnics), has been engaged by Grosvenor Lodge Pty Ltd to provide Geotechnical Inspection and Testing Authority (GITA) services for the earthworks within Stage 35 of the Estate.

This report presents the earthworks supervision methods and density testing results for the residential lot 3501 and Lot's 3510 to Lot 3533 within the Stage 35 site. The earthworks were completed between 9 December 2021 and 18 February 2022.

The specification required the earthworks to be completed under Level 1 Supervision, that is, full-time Inspection and Testing of the earthworks. Chadwick Geotechnics were onsite for the duration of the earthworks program.

2 Project details

2.1 Location

The Meridian Central Estate is in Clyde North, the Stage 35 site is located South of Stage 34 and South East of Stage 33 within the Meridian Central site. The stage is being developed as a residential development.

A site plan of the site is included in Appendix A.

2.2 Fill specification

A summary of the specification is shown below:

- All filling in excess of 300mm depth shall be constructed to specifications satisfying the requirements of AS 3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments".
- All filling works shall be undertaken with supervision to the standard detailed as "Level 1 Inspection and Testing" in AS 3798-2007, such that the supervisor will issue a notice detailing that the works comply with the specifications and drawings.
- 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 in presence of the Level 1 Inspector prior to the placement of engineered fill.
- Fill to be compacted in near horizontal layers.
- Compaction to achieve a ratio of at least 95% Standard MDD (maximum dry density).
- Frequency of testing to be in accordance with Table 8.1 of AS3798-2007.

2.3 Roles

The organisations and their roles are presented in Table 2.1 below.

Table 2.1 Project roles

Role	Organisation
Developer	Grosvenor Lodge Pty Ltd
Geotechnical Inspection and Testing Authority (GITA)	Chadwick Geotechnics Pty Ltd
Civil Designer / Superintendent	Beveridge Williams Pty Ltd
Earthworks Contractor	Brown Property Group Pty Ltd

2.4 Source of material

The material used on site was transported from local sources.

2.5 General

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 a Type 1 project (large scale operation). Compaction control laboratory testing was undertaken within Chadwick Geotechnics NATA accredited laboratories in accordance with AS1289 'Methods of Testing Soils for Engineering Purposes'.

2.6 Subgrade inspection

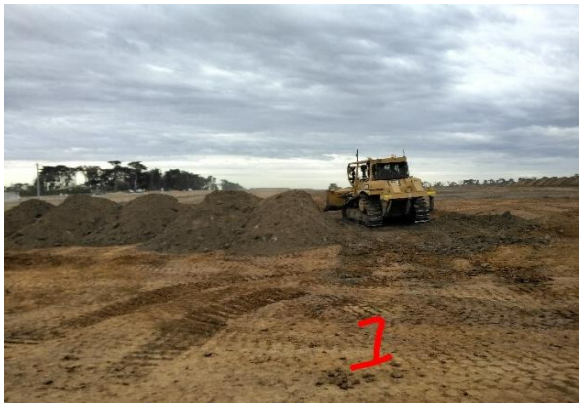
Prior to fill being placed the subgrade was inspected. The inspections were performed in accordance with the Level 1 guidelines presented in AS 3798–2007 Section 5.5. The stripped surface was stripped to natural clay, and the area was found to be firm and free of vegetation and other deleterious material. All pre-existing uncontrolled fill was removed prior to the placement of engineered fill to achieve the design levels.

2.7 Earthwork supervision

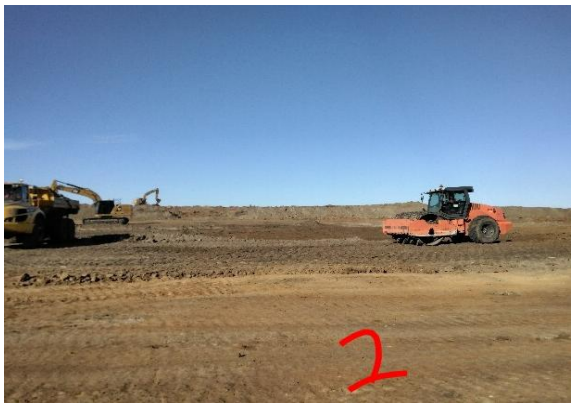
Full time Level 1 inspection and testing of the Stage 35 filling operations commenced on 9 December 2021 and was completed on 18 February 2022. During this period Chadwick Geotechnics was on site all the time (except when there were no earthworks) and observed the earthworks, the placing of fill including the supply of material, conditioning of material (moisture conditioning and oversize removal), placement and compaction of the fill material.

All fill material was placed in lift sequences and Chadwick Geotechnics verified that the surface of the stripped subgrade and additional lifts were thoroughly scarified, and moisture conditioned prior to placement of additional layers to prevent delamination at the layer interface.

Below are two photographs of typical earthwork operations completed during earthworks, See Photographs 2.7.1 and 2.7.2 below.



Photograph 2.7.1: Material Spreading and placement



Photograph 2.7.2: Compaction with Padfoot

2.8 Earthwork equipment

The fill was placed and compacted using vibrating Pad foot rollers. Water trucks with water cannons attached were used to moisture condition the soil materials.

2.9 Geotechnical sampling and testing

Field density and moisture content testing was carried out 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 handheld GPS units.

A total of 33 tests were performed across the Stage 35 area during the filling process.

The results show that 6 tests failed to meet the specification requirements for the project. The earthworks contractor was advised of the tests that failed and the fill relevant to the area was reworked, reconditioned, re-compacted and subsequently retested. The results show that the tests achieved the specification requirements for the project.

A site plan showing the field density test locations is provided in Appendix A, A summary of the Hilf density test reports is provided within Appendix B and all the test reports are provided within Appendix C, a controlled fill certificate is provided within Appendix D.

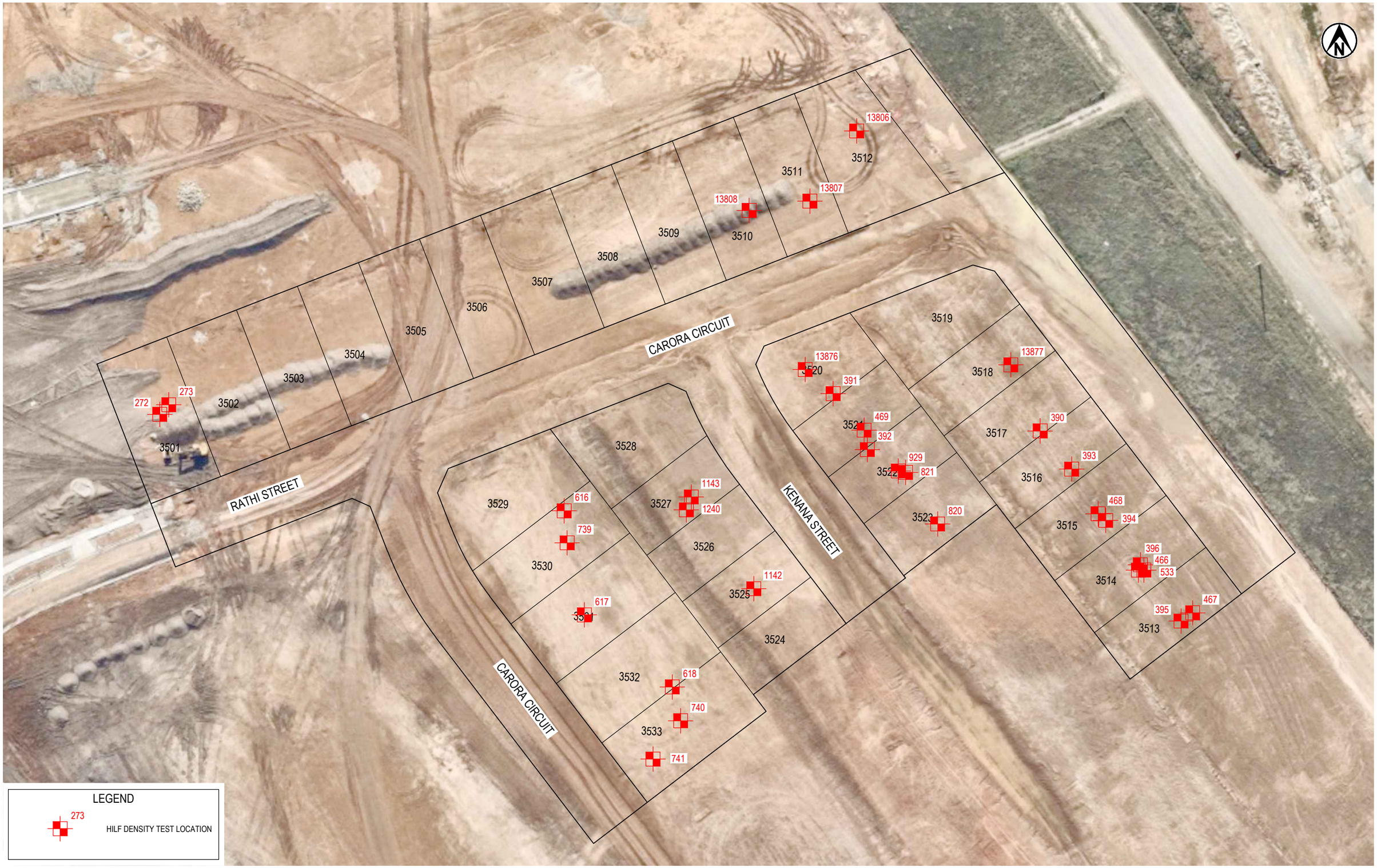
3 Conclusion

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 able to be determined, that:

- The materials used by the Earthworks contractor met the geotechnical property requirements of the specification.

Appendix A: Site plan

T:\Dandenong\Geo Projects\3807351\35 Stage 35\WorkingMaterial\CAD\FIG\3807351-F01.dwg 2022-Jun-16 3:37:45 PM Plotted By: KATHRYN JACKSON



LEGEND

273 HILF DENSITY TEST LOCATION

NOTES:
1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD IMAGERY DATE: 25/04/2022.

A3 SCALE 1:750

0 5 10 15 20 25 30 35 40 (m)

ORIGINAL IN COLOUR

CHADWICK GEOTECHNICS
www.chadwickgeotechnics.com.au

PROJECT No.	3807351	
DESIGNED	MSI	May.22
DRAWN	KMJA	May.22
CHECKED		
APPROVED	DATE	

CLIENT GROSVENOR LODGE PTY LTD
PROJECT MERIDIAN ESTATE - STAGE 35
TITLE LEVEL ONE HILF DENSITY TESTING HILF DENSITY TEST LOCATION PLAN

UNDER REVISION 1

SCALE (A3) 1:750 FIG No. 3807351-F01 REV 1

Appendix B: Hilf density test summary

Meridian Estate Stage 35 - 3807351.035

HILF Density Testing Summary

Chadwick Geotechnics
25 Metcalf Street
Dandenong South VIC 3175
Tel : (03) 8796 7900
Fax: (03) 9706 9431
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Report No	Sample No	Test Number	Date	Easting	Northing	Layer/RL	Density Ratio (≥95%)	Moisture Variation From OMC (%)	Pass / Fail	Remarks
HDR:W21DS03637	13398	1	9/12/2021	355956	5781604	43.195	96.5	2.0 dry	Pass	
HDR:W21DS03637	13399	2	9/12/2021	355958	5781628	43.119	102.5	3.0 dry	Pass	
HDR:W21DS03766	13806	1	21/12/2021	356250	5781598	41.922	103.5	2.5 dry	Pass	
HDR:W21DS03766	13807	2	21/12/2021	356240	5781583	42.355	103	2.5 dry	Pass	
HDR:W21DS03766	13808	3	21/12/2021	356227	5781581	42.586	102.5	2.5 dry	Pass	
HDR:W21DS03785	13876	1	22/12/2021	356239	5781547	42.819	109	1.0 dry	Pass	
HDR:W21DS03785	13877	2	22/12/2021	356283	5781548	41.671	102.5	1.5 dry	Pass	
HDR:W22DS00085	272	1	19/01/2022	356100.941	5781537.418	44.788	101	2.5 dry	Pass	
HDR:W22DS00085	273	2	19/01/2022	356102.853	5781539.464	45.112	110.5	0.5 dry	Pass	
HDR:W22DS00106	390	1	21/01/2022	356289.259	5781533.865	41.834	101	2.5 dry	Pass	
HDR:W22DS00106	391	2	21/01/2022	356244.976	5781541.837	42.9	99	3.0 dry	Pass	
HDR:W22DS00106	392	3	21/01/2022	356252.28	5781529.875	43.066	100.5	4.0 dry	Fail	See Retest 469
HDR:W22DS00106	393	4	21/01/2022	356296.001	5781525.715	41.821	100	3.0 dry	Pass	
HDR:W22DS00106	394	5	21/01/2022	356303.287	5781514.744	41.892	99.5	4.5 dry	Fail	See Retest 468
HDR:W22DS00108	395	1	22/01/2022	356319.396	5781493.217	42.086	103	4.5 dry	Fail	See Retest 467
HDR:W22DS00108	396	2	22/01/2022	356310.696	5781505.253	41.976	97.5	4.0 dry	Fail	See Retest 466
HDR:W22DS00134	466	1	25/01/2022	356310.271	5781504.11	41.998	100.5	4.5 dry	Fail	Retest of 396, See retest 533
HDR:W22DS00134	467	2	25/01/2022	356321.89	5781494.971	42.021	104.5	3.0 dry	Pass	Retest of 395

Meridian Estate Stage 35 - 3807351.035

HILF Density Testing Summary

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www.chadwickgeotechnics.com.au

Report No	Sample No	Test Number	Date	Easting	Northing	Layer/RL	Density Ratio (≥95%)	Moisture Variation From OMC (%)	Pass / Fail	Remarks
HDR:W22DS00134	468	3	25/01/2022	356301.647	5781516.151	41.885	99.5	3.0 dry	Pass	Retest of 394
HDR:W22DS00134	469	4	25/01/2022	356251.592	5781534.045	42.976	96	1.0 dry	Pass	Retest of 392
HDR:W22DS00161	533	1	28/01/2022	356311.437	5781504.114	41.949	99	0.5 wet	Pass	Retest of 466
HDR:W22DS00181	616	1	1/02/2022	356187.445	5781516.789	44.481	95.5	0.5 dry	Pass	
HDR:W22DS00181	617	2	1/02/2022	356191.766	5781494.537	44.682	96.5	0.5 dry	Pass	
HDR:W22DS00181	618	3	1/02/2022	356210.578	5781479.135	44.438	97	0.5 dry	Pass	
HDR:W22DS00217	739	1	4/02/2022	356188.079	5781509.953	44.701	107	2.5 dry	Pass	
HDR:W22DS00217	740	2	4/02/2022	356212.358	5781471.895	44.731	100	0.5 wet	Pass	
HDR:W22DS00217	741	3	4/02/2022	356206.438	5781463.715	45.161	97.5	0.5 wet	Pass	
HDR:W22DS00240	820	1	8/02/2022	356267.334	5781513.976	42.501	96	omc	Pass	
HDR:W22DS00240	821	2	8/02/2022	356260.484	5781525.006	42.562	102.5	2.0 dry	Pass	
HDR:W22DS00293	929	1	10/02/2022	356258.907	5781525.313	42.724	96	2.5 dry	Pass	
HDR:W22DS00357	1142	1	16/02/2022	356227.995	5781500.136	43.53	105.5	2.5 dry	Pass	
HDR:W22DS00357	1143	2	16/02/2022	356214.65	5781519.751	43.52	89.5	2.5 dry	Fail	See retest 1240
HDR:W22DS00392	1240	1	18/02/2022	356213.575	5781517.001	43.56	98.5	2.0 dry	Pass	Retest of 1143

Appendix C: Hilf density testing 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:W21DS03766
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 23/12/2021

Sample Details

Location:	Clyde North
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Onsite
Material:	Clay

Sample Data

Sample ID	S21DS-13806	S21DS-13807	S21DS-13808			
Field Sample ID	1	2	3			
Date Tested	21/12/2021	21/12/2021	21/12/2021			
E:	2428.214 (356250)	2415.518 (356240)	2402.945 (356227)			
N:	756.682 (5781598)	742.972 (5781583)	738793 (5781581)			
RL / Layer:	41.922 / 1	42.355 / 1	42.586 / 1			
Lot:	3512	3511	3510			
Other:	Sample 1	Sample 2	Sample 3			
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 Wet Density (t/m³)	2.07	1.94	2.01			
Peak Converted Wet Density (t/m³)	2.00	1.89	1.96			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	2.5 dry	2.5 dry	2.5 dry			
Hilf Density Ratio (%)	**103.5**	**103.0**	**102.5**			

Comments

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:W21DS03785
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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: 11/01/2022

Sample Details

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

Sample Data

Sample ID	S21DS-13876	S21DS-13877				
Field Sample ID	1	2				
Date Tested	22/12/2021	22/12/2021				
Lot No:	3520	3518				
E:	2414.621 / 356239	2460.574 / 356283				
N:	704.108 / 5781547	7050.655 / 5781548				
RL / Layer :	42.819 / 1	41.671 / 1				
	Sample 4	Sample 5				

Field and Laboratory Data

Depth of Test (mm)	225	125				
Depth of Layer (mm)	250	150				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Wet Density (t/m³)	2.09	1.95				
Peak Converted Wet Density (t/m³)	1.92	1.91				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	1.0 dry	1.5 dry				
Hilf Density Ratio (%)	**109.0**	**102.5**				

Comments

CHADWICK GEOTECHNICS

Dandenong South
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Ph: + 61 3 8796 7900
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Report No: HDR:W22DS00085
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 20/01/2022

Sample Details

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

Sample Data

Sample ID	S22DS-00272	S22DS-00273				
Field Sample ID	1	2				
Date Tested	19/01/2022	19/01/2022				
Lot No:	3501	3501				
E:	2277.681	2279.593				
N:	698.397	700.443				
Elv:	44.788	45.112				
Field and Laboratory Data						
Depth of Test (mm)	275	275				
Depth of Layer (mm)	300	300				
Field Wet Density (t/m³)	1.94	2.03				
Peak Converted Wet Density (t/m³)	1.93	1.83				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	2.5 dry	0.5 dry				
Hilf Density Ratio (%)	**101.0**	**110.5**				

Comments

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:W22DS00217
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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 (Dandenong Laboratory Manager)
Date of Issue: 16/06/2022

Sample Details

Location:	Clyde North
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Onsite
Material:	Silty Clay

Sample Data

Sample ID	S22DS-00739	S22DS-00740	S22DS-00741			
Field Sample ID	1	2	3			
Date Tested	4/02/2022	4/02/2022	4/02/2022			
Lot No:	3530	3533	3533			
E:	2364.819	2389.098	2383.178			
N:	670.932	632.874	624.694			
Elv:	44.701	44.731	45.161			
Field and Laboratory Data						
Depth of Test (mm)	275	275	275			
Depth of Layer (mm)	300	300	300			
AS Sieve Size (mm)	19.0	19.0	19.0			
Oversize Wet (%)	0	0	0			
Field Wet Density (t/m³)	2.16	2.19	2.12			
Peak Converted Wet Density (t/m³)	2.02	2.20	2.18			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	2.5 dry	0.5 wet	0.5 wet			
Hilf Density Ratio (%)	**107.0**	**100.0**	**97.5**			

Comments

CHADWICK GEOTECHNICS

Dandenong South
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Report No: HDR:W22DS00240
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 11/02/2022

Sample Details

Location:	Clyde North
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Onsite
Material:	Silty Clay

Sample Data

Sample ID	S22DS-00820	S22DS-00821				
Field Sample ID	1	2				
Date Tested	8/02/2022	8/02/2022				
Lot No:	3523	3522				
E:	2444.074	2437.224				
N:	674.955	685.985				
Elv:	42.501	42.562				
Field and Laboratory Data						
Depth of Test (mm)	275	275				
Depth of Layer (mm)	300	300				
AS Sieve Size (mm)	19.0	19.0				
Oversize Wet (%)	0	0				
Field Wet Density (t/m³)	2.08	2.11				
Peak Converted Wet Density (t/m³)	2.17	2.06				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	0.0	2.0 dry				
Hilf Density Ratio (%)	**96.0**	**102.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS00293
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 11/02/2022

Sample Details

Location:	Clyde North
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Onsite
Material:	Silty Clay

Sample Data

Sample ID	S22DS-00929					
Field Sample ID	1					
Date Tested	10/02/2022					
Lot No:	3522					
E:	2435.647					
N:	686.292					
Elv:	42.724					
Field and Laboratory Data						
Depth of Test (mm)	225					
Depth of Layer (mm)	250					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Wet Density (t/m³)	1.96					
Peak Converted Wet Density (t/m³)	2.04					
Compactive Effort	Standard					
Moisture Variation (%)	2.5 dry					
Hilf Density Ratio (%)	**96.0**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS00357
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 17/02/2022

Sample Details

Location:	Clyde North
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Onsite
Material:	Silty Clay

Sample Data

Sample ID	S22DS-01142	S22DS-01143				
Field Sample ID	1	2				
Date Tested	16/02/2022	16/02/2022				
Lot No:	3525	3527				
E:	2404.735	2391.390				
N:	661.115	680.730				
Elv:	43.530	43.520				
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 Wet Density (t/m³)	2.08	1.88				
Peak Converted Wet Density (t/m³)	1.97	2.10				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	2.5 dry	2.5 dry				
Hilf Density Ratio (%)	**105.5**	**89.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS00392
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 21/02/2022

Sample Details

Location:	Clyde North
Client Request ID:	
Specification Requirements:	Minimum Hilf Density Ratio of 95% (+- 3% of OMC)
Field Test procedures:	AS 1289.5.8.1
Laboratory Test procedures:	AS 1289.5.7.1
Sampling Method:	AS1289.1.2.1 Clause 6.4 (b)
Source:	Onsite
Material:	Silty Clay

Sample Data

Sample ID	S22DS-01240					
Field Sample ID	1					
Date Tested	18/02/2022					
Lot No:	3527					
E:	2390.315					
N:	677.980					
Elv:	43.560					
	Retest of S22DS-01143					

Field and Laboratory Data

Depth of Test (mm)	225					
Depth of Layer (mm)	250					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Wet Density (t/m³)	2.03					
Peak Converted Wet Density (t/m³)	2.06					
Compactive Effort	Standard					
Moisture Variation (%)	2.0 dry					
Hilf Density Ratio (%)	**98.5**					

Comments

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Report No: HDR:W22DS00106
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 24/01/2022

Sample Details

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

Sample Data

Sample ID	S22DS-00390	S22DS-00391	S22DS-00392	S22DS-00393	S22DS-00394	
Field Sample ID	1	2	3	4	5	
Date Tested	21/01/2022	21/01/2022	21/01/2022	21/01/2022	21/01/2022	
Lot No:	3517	3520	3521	3516	3515	
E:	2465.999	2421.716	2429.020	2472.741	2480.027	
N:	694.844	702.816	690.854	686.694	675.723	
Elv:	41.834	42.900	43.066	41.821	41.892	
Field and Laboratory Data						
Depth of Test (mm)	225	225	225	225	225	
Depth of Layer (mm)	250	250	250	250	250	
Field Wet Density (t/m³)	1.97	1.94	1.93	1.92	1.88	
Peak Converted Wet Density (t/m³)	1.95	1.96	1.92	1.92	1.89	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Variation (%)	2.5 dry	3.0 dry	4.0 dry	3.0 dry	4.5 dry	
Hilf Density Ratio (%)	**101.0**	**99.0**	**100.5**	**100.0**	**99.5**	

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS00108
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 24/01/2022

Sample Details

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

Sample Data

Sample ID	S22DS-00395	S22DS-00396				
Field Sample ID	1	2				
Date Tested	22/01/2022	22/01/2022				
Lot No:	3513	3514				
E:	2496.136	2487.436				
N:	654.196	666.232				
Elv:	42.086	41.976				
Field and Laboratory Data						
Depth of Test (mm)	275	275				
Depth of Layer (mm)	300	300				
Field Wet Density (t/m³)	1.96	1.87				
Peak Converted Wet Density (t/m³)	1.90	1.91				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	4.5 dry	4.0 dry				
Hilf Density Ratio (%)	**103.0**	**97.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS00134
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 31/01/2022

Sample Details

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

Sample Data

Sample ID	S22DS-00466	S22DS-00467	S22DS-00468	S22DS-00469		
Field Sample ID	1	2	3	4		
Date Tested	25/01/2022	25/01/2022	25/01/2022	25/01/2022		
Lot No:	3514	3513	3515	3521		
E:	2487.011	2498.630	2478.387	2428.332		
N:	665.089	655.950	677.130	695.024		
Elv:	41.998	42.021	41.885	42.976		
	Layer 1	Layer 1	Layer 1	Layer 2		
Field and Laboratory Data						
Depth of Test (mm)	275	275	225	225		
Depth of Layer (mm)	300	300	250	250		
Field Wet Density (t/m³)	1.88	2.00	1.90	1.91		
Peak Converted Wet Density (t/m³)	1.87	1.91	1.91	1.99		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	4.5 dry	3.0 dry	3.0 dry	1.0 dry		
Hilf Density Ratio (%)	**100.5**	**104.5**	**99.5**	**96.0**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS00161
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 3/02/2022

Sample Details

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

Sample Data

Sample ID	S22DS-00533					
Field Sample ID	1					
Date Tested	28/01/2022					
Lot No:	3514					
E:	2488.177					
N:	665.093					
Elv:	41.949					
	Retest of 00466					

Field and Laboratory Data

Depth of Test (mm)	275					
Depth of Layer (mm)	300					
AS Sieve Size (mm)	19.0					
Oversize Wet (%)	0					
Field Wet Density (t/m³)	1.96					
Peak Converted Wet Density (t/m³)	1.97					
Compactive Effort	Standard					
Moisture Variation (%)	0.5 wet					
Hilf Density Ratio (%)	**99.0**					

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W22DS00181
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Meridian Estate - Stage 35
Project No.: 3807351.035
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. Robinson (Team Leader)
Date of Issue: 3/02/2022

Sample Details

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

Sample Data

Sample ID	S22DS-00616	S22DS-00617	S22DS-00618			
Field Sample ID	1	2	3			
Date Tested	1/02/2022	1/02/2022	1/02/2022			
Lot No:	3529	3532	3532			
E:	2364.185	2368.506	2387.318			
N;	67.768	655.516	640.114			
Elv:	44.481	44.682	44.438			
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 Wet Density (t/m³)	2.03	2.03	1.98			
Peak Converted Wet Density (t/m³)	2.13	2.10	2.05			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 dry	0.5 dry	0.5 dry			
Hilf Density Ratio (%)	**95.5**	**96.5**	**97.0**			

Comments

Appendix D: Controlled Fill certificate

CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT	: Lot No's: 3501 and 3510 to Lot 3533 Meridian Central Estate Stage 35	Chadwick Geotechnics REF: 3807351.035.v1
CLIENT	: Grosvenor Lodge Pty Ltd PO Box 4136 DANDENONG SOUTH VIC 3164	DATE : 20 June 2022

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 it is able to 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 (9 December 2021 and was completed on 18 February 2022). 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