CHADWICK GEOTECHNICS

REPORT

Level One Inspection and Testing Services

Riverfield Estate Stage 2, Clyde
Lot's 201 to Lot 242

Prepared for:

Grosvenor Lodge Pty Ltd

11 April 2022

Our Ref: 1016363.002.v1

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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 Riverfield Estate development in Clyde, 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 2 of the Estate during construction.

This report presents the earthworks supervision methods and density testing results for the residential lot numbers 201 to Lot 242 within the Stage 2 site.

The earthworks were completed between 12 December 2020 and 1 December 2021.

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 Riverfield Estate is located in Clyde, the Stage 2 site is located on the Eastern Boundary of the Estate and North of Stage 1. 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	Charlton Degg Consultants Pty Ltd
Earthworks Contractor	Brown Property Group Pty Ltd

2.4 Source of material

The material used on site was imported from locally 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

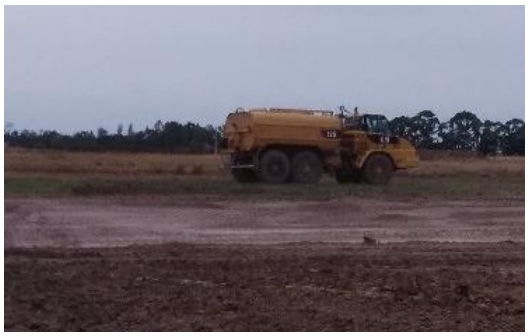
Full time Level 1 inspection and testing of the Stage 2 filling operations commenced on 12 December 2020 and was completed on 1 December 2021. During this period Chadwick Geotechnics was on site all the time (except when there were no earthworks) and observed the earthworks, the placing of fill including 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 Compaction and Conditioning



Photograph 2.7.2:

Moisture Conditioning material

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. The layer thicknesses were controlled using earthwork machinery with built-in GPS systems.

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 hand held GPS units. A site plan showing the field density test locations is provided in Appendix A. A summary of Hilf density testing is presented in Appendix B and the Hilf density test reports are presented in Appendix C.

A total of 69 test were performed across the Stage 2 area during the filling process.

The results show that 14 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 areas were reworked, reconditioned, re-compacted and subsequently retested. The result showed that the tests achieved the specification requirements for the project.

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.
- 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 material achieved the minimum density requirement of the specification.
- Given the consistent construction practices followed by the earthworks contractor, and as witnessed by 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.

It is our opinion that the earthworks undertaken have been performed in accordance with the requirements of Section 8.2 of AS3798-2007 - Level 1 Inspection and Testing.

4 Applicability

This report has been prepared for the exclusive use of our client Grosvenor Lodge Pty Ltd , with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

Recommendations and opinions in this report are based on data from discrete investigation locations. The nature and continuity of subsoil away from these locations are inferred but it must be appreciated that actual conditions could vary from the assumed model.

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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Tim Chadwick
Project Director

11-Apr-22
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Appendix A: Site plan

T:\Dandenong\Geo Projects\1016363\0 all stages 2022 March\CAD\FIG\Stage 2\1016363-F01.dwg 2022-Apr-08 9:13:08 AM Plotted By: KATHRYN JACKSON

IUNDARY UNLESS OTHERWISE SPECIFIED
ERB
: OFFSETS ARE AN APPROXIMATE TO BE VERIFIED BY THE CONTRACTOR.

RVICES
CES ARE
OSITION
VTEE IS
SHOWN.

BOUNDARY LINE
FUTURE STAGE STAGE 2
2.00
1:6 1:30
APPROX 1.3m

TYPICAL FILL BATTER SECTION ABUTTING FUTURE DEVELOPMENT STAGES
(Not to Scale)

FUTURE LOCAL PARK

CONCRETE EDGE STRIP AND 'NO ROAD' SIGN TEMPORARY AG AT EDGE STRIP

TEMPORARY TURNING CIRCLE (150mm DEPTH OF CLASS 3 CR) WITH POST & WIRE FENCE AROUND TURNING AREA

FUTURE STAGE 4
FUTURE STAGE 11
FUTURE STAGE 10
EXISTING STAGE 1

KOO CO ST ET
RIVERDREAM STREET
FAIRWEATHER STREET
VULPINE STREET
MONTADALE BOULEVARD

FUT. 401 FUT. 403 FUT. 404 FUT. 405 FUT. 406 FUT. 407 FUT. 409
FUT. 1101 FUT. 1102 FUT. 1103
FUT. 1048 FUT. 1008 FUT. 1007 FUT. 1006 FUT. 1005 FUT. 1004

S21DS-01104 S21DS-00936 S21DS-01330 S21DS-00924 S21DS-00929 S21DS-00934 S21DS-00859 S21DS-01331 S21DS-00926 S21DS-00932 S21DS-07475 S21DS-00931 S21DS-12885 S21DS-12886 S21DS-00363 S21DS-00294 S21DS-03487 S21DS-00367 S21DS-00368 S21DS-00320 S21DS-00146 S21DS-00935 S21DS-00293 S21DS-06555 S21DS-00321 S21DS-00145 S21DS-00930 S21DS-13116 S21DS-00365 S21DS-00364 S21DS-00292 S20DS-23906 S21DS-00144 S21DS-07477 S21DS-02722 S20DS-23908 S20DS-23982 S20DS-23983 S20DS-24019 S21DS-00022 S20DS-23981 S21DS-07404 S21DS-00366 S20DS-23987 S21DS-00143 S21DS-00021 S20DS-23988 S21DS-00127 S20DS-23335 S20DS-23618 S20DS-23903 S20DS-24018 S21DS-07478 S21DS-02721 S21DS-07406 S20DS-23907 S20DS-23905 S21DS-00126 S20DS-23331 S20DS-23695 S20DS-23904 S21DS-00141 S20DS-23333 S20DS-23989 S21DS-00370 S21DS-01105

LEGEND
S21DS-11909 HILF DENSITY TEST LOCATION

NOTES:
1. AERIAL IMAGE SOURCED FROM NEARMAP. COPYRIGHT NEARMAP PTY LTD IMAGERY DATE: 04/02/2022.
2. BASE PLAN PROVIDED BY CHARLTON DEGG. DRAWING REFERENCE: 1209/FLP01. DATE RECEIVED: 29/09/2021.

A3 SCALE 1:1000
0 5 10 15 20 30 40 50 (m)

ORIGINAL IN COLOUR

CHADWICK GEOTECHNICS
www.chadwickgeotechnics.com.au

PROJECT No.	1016363	
DESIGNED	RHB	Apr.22
DRAWN	KMJA	Apr.22
CHECKED		
APPROVED		DATE

CLIENT GREENRIDGE PROPERTIES PTY LTD
PROJECT RIVERFIELD ESTATE STAGE 2
TITLE LEVEL ONE HILF DENSITY TESTING
HILF DENSITY TEST LOCATION PLAN
UNDER REVISION 1
SCALE (A3) 1:1000 FIG No. FIGURE 01 REV 1

Appendix B: Hilf density test summary

CHADWICK GEOTECHNICS

1016363.2000 - Riverfield Estate Stage 2 - HILF Summary

Tel : (03) 8796 7900
Fax: (03) 8796 7944

Report No	Sample No	Date	Lot Number	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation	Pass / Fail	Remarks
HDR:W20DS06452	S20DS-23328	12/12/2020	121	356774.8	5777643.8	8.01	102	0.5 wet	Pass	
HDR:W20DS06452	S20DS-23329	12/12/2020	121	356773.7	5777645.9	8.19	96.5	3.5 wet	Fail	See Retest 23693
HDR:W20DS06452	S20DS-23330	12/12/2020	110	356735.6	5777618.6	8.87	96.5	3.0 wet	Pass	
HDR:W20DS06452	S20DS-23331	12/12/2020	120	356703.3	5777708.9	9.28	95	3.5 wet	Fail	See Retest 23695
HDR:W20DS06452	S20DS-23332	12/12/2020	122	356768.4	5777610.8	8.67	99.5	0.5 wet	Pass	
HDR:W20DS06452	S20DS-23333	12/12/2020	26	356748.8	5777696.5	9	103	1.0 wet	Pass	
HDR:W20DS06453	S20DS-23334	11/12/2020	140	356691.2	5777689.5		98.5	1.0 wet	Pass	
HDR:W20DS06453	S20DS-23335	11/12/2020	202	356676.8	5777732.7		94	1.5 dry	Fail	See Retest 23618
HDR:W20DS06453	S20DS-23336	11/12/2020	119	356748.7	5777660.7		93.5	omc	Fail	See Retest 23616
HDR:W20DS06453	S20DS-23337	11/12/2020	110	356757.6	5777637.6		97	omc	Pass	
HDR:W20DS06517	S20DS-23616	14/12/2020	109	356750	5777663	8.92	96	0.5 wet	Pass	Retest of 23336
HDR:W20DS06517	23618	14/12/2020	202	356679.0	5777732.0	9.10	97.5	omc	Pass	Retest of 23335
HDR:W20DS06538	S20DS-23692	15/12/2020		356718	5777632	9.15	98.5	omc	Pass	
HDR:W20DS06538	S20DS-23693	15/12/2020	121	356777	5777645	8.2	97	3.0 wet	Pass	Retest of 23329
HDR:W20DS06538	S20DS-23694	15/12/2020		356704	5777681	9.35	99.5	omc	Pass	
HDR:W20DS06538	S20DS-23695	15/12/2020	120	356702	5777708	9.25	100	omc	Pass	Retest of 23331
HDR:W20DS06538	S20DS-23696	15/12/2020	114	356710.4	5777644.9	9.4	99	0.5 wet	Pass	
HDR:W20DS06538	S20DS-23697	15/12/2020	140	356693	5777693.3	9.56	100	omc	Pass	

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Report No	Sample No	Date	Lot Number	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation	Pass / Fail	Remarks
HDR:W20DS06588	23903	17/12/2020	204	356716.9	5777734.0	8.93	99.5	omc	Pass	
HDR:W20DS06588	S20DS-23904	17/12/2020	136	356749.9	5777708.9	9.06	99	2.0 dry	Pass	
HDR:W20DS06588	23905	17/12/2020	210	356799.3	5777719.7	8.79	93.0	omc	Fail	See Retest 24018
HDR:W20DS06588	S20DS-23906	17/12/2020	134	356772.6	5777769	9.17	100	0.5 dry	Pass	
HDR:W20DS06588	23907	17/12/2020	204	356736.0	5777719.4	9.17	96.5	0.5 wet	Pass	
HDR:W20DS06588	23908	17/12/2020	215	356864.6	5777758.7	7.32	92.5	omc	Fail	See Retest 24019
HDR:W20DS06610	23981	18/12/2020	217	356868.8	5777750.8	8.42	98.0	3 wet	Pass	
HDR:W20DS06610	23982	18/12/2020	217	356864.1	5777759.6	7.93	99.0	2.5 wet	Pass	
HDR:W20DS06610	23983	18/12/2020	217	356862.4	5777756.4	7.68	100.5	omc	Pass	
HDR:W20DS06610	23987	18/12/2020	205	356725.0	5777745.0	9.21	97.5	0.5wet	Pass	
HDR:W20DS06610	23988	18/12/2020	208	356761.0	5777738.0	9.25	97.0	2.0	Pass	
HDR:W20DS06610	23989	18/12/2020		356808	5777699	8.98	96	3.0 wet	Pass	
HDR:W20DS06620	24018	21/12/2020	211	356800.6	5777732.5	8.82	102.0	omc	Pass	Retest of 23905
HDR:W20DS06620	24019	21/12/2020	215	356866.0	5777758.0	7.30	103.5	omc	Pass	Retest of 23908
HDR:W21DS00004	00021	4/01/2021	Road	356838.0	5777741.0	8.91	99.5	0.5 wet	Pass	
HDR:W21DS00004	00022	4/01/2021	Road	356839.9	5777750.8	8.69	101	omc	Pass	
HDR:W21DS00038	S21DS-00124	7/01/2021		356716	5777599	R.L 8.47	100.5	1.0 wet	Pass	
HDR:W21DS00038	S21DS-00125	7/01/2021		356694	5777660	R.L 8.83	100	1.0 wet	Pass	

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Report No	Sample No	Date	Lot Number	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation	Pass / Fail	Remarks
HDR:W21DS00038	S21DS-00126	7/01/2021		356677	5777708	R.L 9.06	99	1.0 wet	Pass	
HDR:W21DS00038	S21DS-00127	7/01/2021		356670	5777734	R.L 9.07	97.5	1.0 wet	Pass	
HDR:W21DS00043	S21DS-00141	8/01/2021	141	356667.1	5777696.9	9.41	99.5	omc	Pass	
HDR:W21DS00043	S21DS-00142	8/01/2021	116	356681.8	5777657.3	9.21	100	omc	Pass	
HDR:W21DS00044	00143	9/01/2021	210	356800.8	5777743.4		97	omc	Pass	
HDR:W21DS00044	00144	9/01/2021	226	356794.6	5777762.6		100	omc	Pass	
HDR:W21DS00044	00145	9/01/2021	227	356792.9	5777786.3		98	omc	Pass	
HDR:W21DS00044	00146	9/01/2021	229	356794.9	5777808.7		100.5	omc	Pass	
HDR:W21DS00065	00292	11/01/2021	224	356809.6	5777774.1	9.41	99.00	2.0 wet	Pass	
HDR:W21DS00065	00293	11/01/2021	229	356785.8	5777804.3	9.63	99.50	0.5 wet	Pass	
HDR:W21DS00065	00294	11/01/2021	220	356816.4	5777825.4	9.14	98.50	3.0 wet	Pass	
HDR:W21DS00072	00320	12/01/2021	240	356741.5	5777809.5	9.32	93.00	3.0 wet	Fail	See Retest - 00368
HDR:W21DS00072	00321	12/01/2021	236	356769.3	5777786.7	9.50	98.50	1.5 wet	Pass	
HDR:W21DS00086	00363	13/01/2021	233	356758.9	5777832.2	9.68	97.00	0.5 wet	Pass	
HDR:W21DS00086	00364	13/01/2021	237	356758.4	5777778.7	9.67	93.50	2.0 wet	Fail	See Retest - 00935
HDR:W21DS00086	00365	13/01/2021	238	356725.9	5777781.7	9.63	98.50	0.5 wet	Pass	
HDR:W21DS00086	00366	13/01/2021	203	356696.6	5777746.1	9.63	98.50	omc	Pass	
HDR:W21DS00086	00367	13/01/2021	240	356711.4	5777812.8	9.86	96.00	2.5 wet	Pass	
HDR:W21DS00086	00368	13/01/2021	240	356739.5	5777810.2	9.30	97	1.4 wet	Pass	Retest of 00320

CHADWICK GEOTECHNICS

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Report No	Sample No	Date	Lot Number	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation	Pass / Fail	Remarks
HDR:W21DS00086	00370	13/01/2021	1002	356864.2	5777680.7	9.15	91.00	2.5 wet	Fail	See Retest 01105
HDR:W21DS00199	S21DS-00857	19/01/2021	307	356909.3	5777573.4	8.25	98	0.5 wet	Pass	
HDR:W21DS00199	S21DS-00858	19/01/2021	310	356949.3	5777574.3	8.42	99.5	omc	Pass	
HDR:W21DS00199	S21DS-00859	19/01/2021	406	356778.3	5777854.1	9.41	97.5	0.5 dry	Pass	
HDR:W21DS00199	S21DS-00860	19/01/2021	405	356766.6	5777881.4	9.25	103	0.5 dry	Pass	
HDR:W21DS00199	S21DS-00861	19/01/2021	418	356785.3	5777897.1	9.14	98	0.5 wet	Pass	
HDR:W21DS00199	S21DS-00862	19/01/2021	419	356783.3	5777934.9	9.29	100.5	05 dry	Pass	
HDR:W21DS00219	S21DS-00924	20/01/2021	401	356718.1	5777868.4	8.34	100	0.5 wet	Pass	
HDR:W21DS00219	S21DS-00925	20/01/2021	402	356721	5777883.2	8.67	96	2.5 wet	Pass	
HDR:W21DS00219	S21DS-00926	20/01/2021	404	356736.1	5777852.4	8.97	96	omc	Pass	
HDR:W21DS00219	S21DS-00927	20/01/2021	425	356744.3	5777922.9	8.92	98.5	omc	Pass	
HDR:W21DS00219	S21DS-00928	20/01/2021	402	356721.9	5777885.4	8.94	97	2.5 dry	Pass	
HDR:W21DS00219	S21DS-00929	20/01/2021	401	356718.3	5777867.2	8.75	97.5	0.5 wet	Pass	
HDR:W21DS00219	S21DS-00930	20/01/2021	227	356798.3	5777787.9	9.69	95	2.0 wet	Pass	
HDR:W21DS00219	S21DS-00931	20/01/2021	407	356804.6	5777846.4	9.8	100.5	1.0 wet	Pass	
HDR:W21DS00219	S21DS-00932	20/01/2021	418	356770.5	5777846.1	9.24	98	4.0 wet	Fail	See Retest 01103
HDR:W21DS00219	S21DS-00933	20/01/2021	423	356772.1	5777930.6	9.31	97.5	2.5 wet	Pass	
HDR:W21DS00219	S21DS-00934	20/01/2021	406	356768.9	5777865.5	9.66	96	2.5 wet	Pass	
HDR:W21DS00219	S21DS-00935	20/01/2021	235	356760.8	5777804.3	9.95	100	2.0 wet	Pass	Retest of 00364

CHADWICK GEOTECHNICS

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Report No	Sample No	Date	Lot Number	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation	Pass / Fail	Remarks
HDR:W21DS00219	S21DS-00936	20/01/2021	402	356693.9	5777874.5	8.61	97.5	2.0 dry	Pass	
HDR:W21DS00219	S21DS-00937	20/01/2021	425	356742.3	5777927.5	9.36	96.5	2.0 wet	Pass	
HDR:W21DS00219	S21DS-00938	20/01/2021	426	356721.3	5777906.1	9.28	98	2.0 wet	Pass	
HDR:W21DS00262	S21DS-01100	22/01/2021	426	356730.3	5777922.4	9.54	101	0.5 dry	Pass	
HDR:W21DS00262	S21DS-01101	22/01/2021	428	356737.4	5777957.6	9.59	97	0.5 wet	Pass	
HDR:W21DS00262	S21DS-01102	22/01/2021	513	356757.4	5777983.1	9.72	99.5	0.5 wet	Pass	
HDR:W21DS00262	S21DS-01103	22/01/2021	418	356769.4	5777894.7	9.13	100	0.5 dry	Pass	Retest of 00932
HDR:W21DS00262	S21DS-01104	22/01/2021	402	356680.2	5777880.1	8.29	96	omc	Pass	
HDR:W21DS00262	S21DS-01105	22/01/2021	1002	356866.6	5777682.5	9.24	100	0.5 wet	Pass	Retest of 00370
HDR:W21DS00262	S21DS-01106	22/01/2021	329	356974.3	5777607.6	8.22	98	omc	Pass	
HDR:W21DS00262	S21DS-01107	22/01/2021	330	356984.2	5777595.6	8.09	99.5	0.5 wet	Pass	
HDR:W21DS00262	S21DS-01108	22/01/2021	333	356966	5777556.9	8.09	98.5	0.5 wet	Pass	
HDR:W21DS00304	S21DS-01328	27/01/2021		356734.2	5777962.3	9.85	100	1.0 wet	Pass	
HDR:W21DS00304	S21DS-01329	27/01/2021		356716.1	5777936.6	9.85	101	0.5 wet	Pass	
HDR:W21DS00304	S21DS-01330	27/01/2021		356699.1	5777870.9	9.72	98	0.5 wet	Pass	
HDR:W21DS00304	S21DS-01331	27/01/2021		356713.8	5777850.4	9.95	97	omc	Pass	
HDR:W21DS00675	S21DS-02721	19/02/2021		356854.4	5777723.8	8.91	99	omc	Pass	
HDR:W21DS00675	S21DS-02722	19/02/2021		356866.5	5777768	8.89	98.5	2.0 wet	Pass	
HDR:W21DS00867	S21DS-03485	5/03/2021		356860.8	5777513.6	9.499	98.5	0.5 wet	Pass	
HDR:W21DS00867	S21DS-03486	5/03/2021		356874.4	5777770.1	9.6	94	0.5 wet	Fail	See Retest 03553

CHADWICK GEOTECHNICS

1016363.2000 - Riverfield Estate Stage 2 - HILF Summary

Tel : (03) 8796 7900
Fax: (03) 8796 7944

Report No	Sample No	Date	Lot Number	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation	Pass / Fail	Remarks
HDR:W21DS00867	S21DS-03487	5/03/2021		356877.5	5777822.9	9.41	96.5	0.5 wet	Pass	
HDR:W21DS00881	S21DS-03549	9/03/2021		357192.5	5777602.8	7.22	101.5	1.0 wet	Pass	
HDR:W21DS00881	S21DS-03550	9/03/2021		357188.8	5777583.4	7.42	99	0.5 wet	Pass	
HDR:W21DS00881	S21DS-03551	9/03/2021		357162	5777571.7	7.09	99.5	0.5 wet	Pass	
HDR:W21DS00881	S21DS-03552	9/03/2021		357165.4	5777605.4	7.31	96.5	2.0 wet	Pass	
HDR:W21DS00881	S21DS-03553	9/03/2021		356875.4	5777769	9.32	102.5	2.5 dry	Pass	Retest of 03486
HDR:W21DS01760	S21DS-06547	13/05/2021		356890	5778000		96	1.9 wet		
HDR:W21DS01760	S21DS-06548	13/05/2021		356882	5777975		89	2.1 dry	Fail	See Retest 6924
HDR:W21DS01764	S21DS-06555	14/05/2021		356886	5777796		102	2.5 wet	Pass	
HDR:W21DS01764	S21DS-06556	14/05/2021		356884	5777948		93.5	2.5 wet	Fail	See Retest 6925
HDR:W21DS01864	S21DS-06923	24/05/2021		356901	5778057	9.86	98.5	0.5 wet	Pass	
HDR:W21DS01864	S21DS-06924	24/05/2021		356884	5777974	9.51	99	omc	Pass	Retest of 06548
HDR:W21DS01864	S21DS-06925	24/05/2021		356889	5777948		99	0.5 wet	Pass	Retest of 6556
HDR:W21DS01864	S21DS-06926	24/05/2021		356915	5778028	9.91	96	0.5 wet	Pass	
HDR:W21DS02010	S21DS-07404	1/06/2021		356894	5777748	Elv. 8.46	101.5	0.5 wet	Pass	
HDR:W21DS02010	S21DS-07405	1/06/2021		356899	5777725	Elv. 8.27	95	0.5 wet	Pass	
HDR:W21DS02010	S21DS-07406	1/06/2021		356874	5777725	Elv. 9.19	101.5	2.0 wet	Pass	
HDR:W21DS02035	S21DS-07475	2/06/2021		356812	5777850	8.79	95	omc	Pass	

CHADWICK GEOTECHNICS

1016363.2000 - Riverfield Estate Stage 2 - HILF Summary

Tel : (03) 8796 7900
Fax: (03) 8796 7944

Report No	Sample No	Date	Lot Number	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation	Pass / Fail	Remarks
HDR:W21DS02035	S21DS-07476	2/06/2021		356903	5777809	8.94	96.5	0.5 dry	Pass	
HDR:W21DS02035	S21DS-07477	2/06/2021		356893	5777770	9.17	95.5	3.0 wet	Pass	
HDR:W21DS02035	S21DS-07478	2/06/2021		356884	5777734	9.44	95	3.0 wet	Pass	
HDR:W21DS03493	S21DS-12885	25/11/2021	1101	356867	5777843	9.285 / 1	96.5	2.5 wet	Pass	
HDR:W21DS03493	S21DS-12886	25/11/2021	1102	356880	5777842	9.260 / 4	104	0.5 dry	Pass	
HDR:W21DS03493	S21DS-12887	25/11/2021	1104	356903	5777834	9.020 / 1	98	omc	Pass	
HDR:W21DS03493	S21DS-12888	25/11/2021	1106	356935	5777833	8.636 / 1 (FSL-0.45m)	99.5	1.5 dry	Pass	
HDR:W21DS03558	S21DS-13113	1/12/2021	1034	357024	5777791	8.176 / FSL-0.93m	98.5	0.5 wet	Pass	
HDR:W21DS03558	S21DS-13114	1/12/2021	1029	357015	5777763	8.250 / FSL-0.665m	97.5	0.5 wet	Pass	
HDR:W21DS03558	S21DS-13115	1/12/2021	1041	356973	5777799	8.750 / FSL-0.5m	98	1.5 dry	Pass	
HDR:W21DS03558	S21DS-13116	1/12/2021	1039	356860	5777787	8.550 / FSL-0.6m	98	0.5 wet	Pass	

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
Fax: +61 3 9706 9431

Report No: HDR:W20DS06452
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 21/12/2020

Sample Details

Location:
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	S20DS-23328	S20DS-23329	S20DS-23330	S20DS-23331	S20DS-23332	S20DS-23333
Field Sample ID	1	2	3	4	5	6
Date Tested	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020
E:	356774.8	356773.7	356735.6	356703.3	356768.4	356748.8
N:	5777643.8	5777645.9	5777618.6	5777708.9	5777610.8	577696.5
RL:	8.01	8.19	8.87	9.28	8.67	9.00
H:	1	2	4	4	3	3
Lot:	121	121	110	120	122	26
Field and Laboratory Data						
Depth of Test (mm)	225	225	225	225	225	225
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 Wet Density (t/m³)	2.02	2.00	1.98	1.98	1.97	2.03
Peak Converted Wet Density (t/m³)	1.97	2.07	2.05	2.08	1.98	1.97
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.5 wet	3.5 wet	3.0 wet	3.5 wet	0.5 wet	1.0 wet
Hilf Density Ratio (%)	**102.0**	**96.5**	**96.5**	**95.0**	**99.5**	**103.0**

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:W20DS06453
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
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: 28/09/2021

Sample Details

Location:
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	S20DS-23334	S20DS-23335	S20DS-23336	S20DS-23337		
Field Sample ID	1	2	3	4		
Date Tested	11/12/2020	11/12/2020	11/12/2020	11/12/2020		
E:	356691.2	356676.8	356748.7	356757.6		
N:	5777689.5	5777732.7	5777660.7	5777637.6		
Layer:	3	3	2	2		
Lot:	140	202	119	110		
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 Wet Density (t/m³)	2.03	1.96	1.91	1.94		
Peak Converted Wet Density (t/m³)	2.05	2.08	2.04	1.99		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	1.0 wet	1.5 dry	0.0	0.0		
Hilf Density Ratio (%)	**98.5**	**94.0**	**93.5**	**97.0**		

Comments

CHADWICK GEOTECHNICS

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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:W20DS06517
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 21/12/2020

Sample Details

Location:
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	S20DS-23613	S20DS-23614	S20DS-23615	S20DS-23616	S20DS-23617	S20DS-23618
Field Sample ID	1	2	3	4	5	6
Date Tested	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020
E:	356789.8	356784.1	3567761.3	356750	356782.1	356679
N:	5777618.8	5777669.8	5777660	5777663	5777607.7	5777732
RL:	8.15	8.74	9.01	8.92	8.76	9.10
	107	122	121	109	175	202
	1	1	2	2	2	3
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 Wet Density (t/m³)	1.98	2.03	1.98	1.94	2.00	2.01
Peak Converted Wet Density (t/m³)	2.06	1.95	2.05	2.02	2.06	2.06
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	3.0 wet	0.5 dry	0.0	0.5 wet	2.0 wet	0.0
Hilf Density Ratio (%)	**96.0**	**104.5**	**96.5**	**96.0**	**97.5**	**97.5**

Comments

CHADWICK GEOTECHNICS

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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:W20DS06538
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 23/12/2020

Sample Details

Location:
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	S20DS-23692	S20DS-23693	S20DS-23694	S20DS-23695	S20DS-23696	S20DS-23697
Field Sample ID	1	2	3	4	5	6
Date Tested	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020
E:	356718	356777	356704	356702	356710.4	356693
N:	5777632	5777645	5777681	5777708	5777644.9	5777693.3
RL:	9.15	8.20	9.35	9.25	9.40	9.56
Lot:	On the Road	121	On the Road	120	114	140
Layer:	5	2	5	4	6	6
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 Wet Density (t/m³)	1.97	2.02	2.03	2.03	2.01	2.06
Peak Converted Wet Density (t/m³)	2.00	2.08	2.04	2.02	2.02	2.06
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.0	3.0 wet	0.0	0.0	0.5 wet	0.0
Hilf Density Ratio (%)	**98.5**	**97.0**	**99.5**	**100.0**	**99.0**	**100.0**

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:W20DS06588
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 23/12/2020

Sample Details

Location:
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	S20DS-23903	S20DS-23904	S20DS-23905	S20DS-23906	S20DS-23907	S20DS-23908
Field Sample ID	1	2	3	4	5	6
Date Tested	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020
E:	356716.9	356749.9	356799.3	356772.6	356736	356864.6
N:	5777734	5777708.9	5777719.7	577769	5777719.4	5777758.7
RL:	8.93	9.06	8.79	9.17	9.17	7.32
Lot:	204	136	210	134	204	127
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 Wet Density (t/m³)	1.97	1.93	2.08	2.05	1.95	1.94
Peak Converted Wet Density (t/m³)	1.98	1.95	2.24	2.05	2.02	2.11
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.0	2.0 dry	0.0	0.5 dry	0.5 wet	0.0
Hilf Density Ratio (%)	**99.5**	**99.0**	**93.0**	**100.0**	**96.5**	**92.5**

Comments

CHADWICK GEOTECHNICS

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

Ph: + 61 3 8796 7900
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Report No: HDR:W20DS06610
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 23/12/2020

Sample Details

Location:
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	S20DS-23981	S20DS-23982	S20DS-23983	S20DS-23984	S20DS-23985	S20DS-23986
Field Sample ID	1	2	3	4	5	6
Date Tested	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020
E:	356868.8	356864.1	3556862.4	356816	356787	356745
N:	5777750.8	5777759.6	5777756.4	5777560	5777564	5777568
RL:	8.42	7.93	7.68	7.93	7.94	7.94
Field and Laboratory Data						
Depth of Test (mm)	225	225	225	225	225	225
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 Wet Density (t/m³)	1.99	2.06	2.01	1.74	1.98	1.95
Peak Converted Wet Density (t/m³)	2.04	2.08	2.00	2.02	2.08	2.08
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	3.0 wet	2.5 wet	0.0	2.5 wet	2.5 wet	4.5 wet
Hilf Density Ratio (%)	**98.0**	**99.0**	**100.5**	**86.5**	**95.0**	**94.0**

Comments

CHADWICK GEOTECHNICS

Think Act Safe Be

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:W20DS06610
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 23/12/2020

Sample Details

Location:
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	S20DS-23987	S20DS-23988	S20DS-23989			
Field Sample ID	7	8	9			
Date Tested	18/12/2020	18/12/2020	18/12/2020			
E:	356725	356761	356808			
N:	5777745	5777738	5777699			
RL:	9.21	9.25	8.98			
Field and Laboratory Data						
Depth of Test (mm)	225	225	225			
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)	1.99	2.01	2.01			
Peak Converted Wet Density (t/m³)	2.04	2.07	2.09			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 wet	2.0 wet	3.0 wet			
Hilf Density Ratio (%)	**97.5**	**97.0**	**96.0**			

Comments

CHADWICK GEOTECHNICS

Think Act Safe Be

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:W20DS06620
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 18/01/2021

Sample Details

Location:
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	S20DS-24018	S20DS-24019	S20DS-24020	S20DS-24021	S20DS-24022	
Field Sample ID	1	2	3	4	5	
Date Tested	21/12/2020	21/12/2020	21/12/2020	21/12/2020	21/12/2020	
E:	356800.6	356866	35859.7	356867.6	356744	
N:	5777732.5	5777758	5777607.1	5777649.1	5777566.1	
RL:	8.817	7.30	8.19	8.47	8.24	
Lot:	211		3.16	321	103	
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 Wet Density (t/m³)	2.13	2.12	2.08	2.04	1.97	
Peak Converted Wet Density (t/m³)	2.08	2.04	2.01	2.04	2.05	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Variation (%)	0.0	0.0	0.0	1.0 wet	0.5 wet	
Hilf Density Ratio (%)	**102.0**	**103.5**	**103.0**	**100.0**	**96.5**	

Comments

CHADWICK GEOTECHNICS

Dandenong South
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25 Metcalf Street
DANDENONG SOUTH, VIC 3175

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Report No: HDR:W21DS00004
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 2
Project No.: 1016363.200
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: J. Lamont
(Dandenong Laboratory Manager)
12712 Date of Issue: 7/01/2021

Sample Details

Location:	Riverfield Estate Stage 2
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:	Site Won
Material:	Clay

Sample Data

Sample ID	S21DS-00021	S21DS-00022				
Field Sample ID	1	2				
Date Tested	4/01/2021	4/01/2021				
E	356838.0	356839.9				
N	5777741.0	5777750.8				
RL	8.91	8.69				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
AS Sieve Size (mm)	19.0	19.0				
Field Wet Density (t/m³)	2.00	2.06				
Peak Converted Wet Density (t/m³)	2.01	2.04				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	0.5 wet	0.0				
Hilf Density Ratio (%)	**99.5**	**101.0**				

Comments

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Report No: HDR:W21DS00038
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: J. Lamont
(Dandenong Laboratory Manager)
12712 Date of Issue: 8/01/2021

Sample Details

Location:
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: Site Won
Material: CLAY FILL

Sample Data

Sample ID	S21DS-00124	S21DS-00125	S21DS-00126	S21DS-00127		
Field Sample ID	1	2	3	4		
Date Tested	7/01/2021	7/01/2021	7/01/2021	7/01/2021		
Location	E 356716	E 356694	E 356677	E 356670		
	N 5777599	N 5777660	N 5777708	N 777734		
	R.L 8.47	R.L 8.83	R.L 9.06	R.L 9.07		
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175		
Depth of Layer (mm)	200	200	200	200		
Field Wet Density (t/m³)	2.02	2.03	2.01	2.01		
Peak Converted Wet Density (t/m³)	2.02	2.03	2.03	2.06		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	1.0 wet	1.0 wet	1.0 wet	1.0 wet		
Hilf Density Ratio (%)	**100.5**	**100.0**	**99.0**	**97.5**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS00043
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 18/01/2021

Sample Details

Location:
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-00141	S21DS-00142				
Field Sample ID	1	2				
Date Tested	8/01/2020	8/01/2020				
E:	356667.1	356681.8				
N:	5777696.9	5777657.3				
RL:	9.41	9.21				
Lot:	141	116				
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 Wet Density (t/m³)	2.05	2.02				
Peak Converted Wet Density (t/m³)	2.06	2.02				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	0.0	0.0				
Hilf Density Ratio (%)	**99.5**	**100.0**				

Comments

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Report No: HDR:W21DS00044
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 2
Project No.: 1016363.2000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 18/01/2021

Sample Details

Location:
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-00143	S21DS-00144	S21DS-00145	S21DS-00146		
Field Sample ID	1	2	3	4		
Date Tested	9/01/2020	9/01/2020	9/01/2020	9/01/2020		
E:	356800.8	356794.6	356792.9	356794.9		
N:	5777743.4	5777762.6	5777786.3	5777808.7		
RL:	210	226	227	229		
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 Wet Density (t/m³)	2.09	2.06	2.02	2.06		
Peak Converted Wet Density (t/m³)	2.15	2.05	2.07	2.05		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	0.0	0.0	0.0	0.0		
Hilf Density Ratio (%)	**97.0**	**100.0**	**98.0**	**100.5**		

Comments

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Report No: HDR:W21DS00065
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 2
Project No.: 1016363.2000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

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Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 18/01/2021

Sample Details

Location:
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-00292	S21DS-00293	S21DS-00294			
Field Sample ID	1	2	3			
Date Tested	11/01/2021	11/01/2021	11/01/2021			
E:	356809.6	356785.8	356816.4			
N:	5777774.1	5777804.3	5777825.4			
RL:	9.41	9.63	9.140			
Lot:	224	229	220			
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)	2.06	1.99	2.02			
Peak Converted Wet Density (t/m³)	2.07	2.00	2.05			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	2.0 wet	0.5 wet	3.0 wet			
Hilf Density Ratio (%)	**99.0**	**99.5**	**98.5**			

Comments

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Report No: HDR:W21DS00072
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 2
Project No.: 1016363.2000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

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ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 19/01/2021

Sample Details

Location:
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-00320	S21DS-00321				
Field Sample ID	1	2				
Date Tested	12/01/2021	12/01/2021				
E:	356741.5	356769.3				
N:	5777809.5	5777786.7				
RL:	9.32	9.50				
Lot:	240	236				
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 Wet Density (t/m³)	1.96	2.12				
Peak Converted Wet Density (t/m³)	2.11	2.15				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	3.0 wet	1.5 wet				
Hilf Density Ratio (%)	**93.0**	**98.5**				

Comments

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Report No: HDR:W21DS00086
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 2
Project No.: 1016363.2000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 19/01/2021

Sample Details

Location:
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-00363	S21DS-00364	S21DS-00365	S21DS-00366	S21DS-00367	S21DS-00368
Field Sample ID	1	2	3	4	5	6
Date Tested	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021
E:	356758.9	356758.4	356725.9	356696.6	356711.4	356739.5
N:	5777832.2	5777778.7	5777781.7	5777746.1	5777812.8	5777810.2
RL:	9.68	9.67	9.63	9.63	9.86	9.30
Lot:	233	237	238	203	240	240
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 Wet Density (t/m³)	1.99	1.97	2.00	1.98	1.96	1.99
Peak Converted Wet Density (t/m³)	2.04	2.10	2.03	2.02	2.05	2.05
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.5 wet	2.0 wet	0.5 wet	0.0	2.5 wet	1.5 wet
Hilf Density Ratio (%)	**97.0**	**93.5**	**98.5**	**98.5**	**96.0**	**97.0**

Comments

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Report No: HDR:W21DS00086
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 2
Project No.: 1016363.2000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 19/01/2021

Sample Details

Location:
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-00369	S21DS-00370				
Field Sample ID	7	8				
Date Tested	13/01/2021	13/01/2021				
E:	356867.9	356864.2				
N:	5777658.8	5777680.7				
RL:	8.69	9.15				
Lot:	321	1002				
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 Wet Density (t/m³)	2.00	1.93				
Peak Converted Wet Density (t/m³)	2.07	2.13				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	2.5 wet	2.5 wet				
Hilf Density Ratio (%)	**97.0**	**91.0**				

Comments

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Report No: HDR:W21DS00199
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 25/01/2021

Sample Details

Location:
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-00857	S21DS-00858	S21DS-00859	S21DS-00860	S21DS-00861	S21DS-00862
Field Sample ID	1	2	3	4	5	6
Date Tested	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
E:	356909.3	356949.3	3567678.3	356766.6	356785.3	356783.3
N:	5777573.4	5777574.3	5777854.1	5777881.4	5777897.1	5777934.9
RL:	8.25	8.42	9.41	9.25	9.14	9.29
Lot:	307	310	406	405	418	419
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 Wet Density (t/m³)	1.95	2.04	1.98	1.94	1.95	1.97
Peak Converted Wet Density (t/m³)	1.99	2.05	2.04	1.88	1.99	1.96
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.5 wet	0.0	0.5 dry	0.5 dry	0.5 wet	0.5 dry
Hilf Density Ratio (%)	**98.0**	**99.5**	**97.5**	**103.0**	**98.0**	**100.5**

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS00219
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 25/01/2021

Sample Details

Location:
Client Request ID:
Specification Requirements:
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-00924	S21DS-00925	S21DS-00926	S21DS-00927	S21DS-00928	S21DS-00929
Field Sample ID	1	2	3	4	5	6
Date Tested	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
E:	356718.1	356721.0	356736.1	356744.3	356721.9	356718.3
N:	5777868.4	5777883.2	5777852.4	5777922.9	5777885.4	5777867.2
EL:	8.34	8.67	8.97	8.92	8.94	8.75
Lot:	401	402	404	425	402	401
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 Wet Density (t/m³)	2.00	1.98	1.97	2.05	1.99	1.98
Peak Converted Wet Density (t/m³)	2.00	2.06	2.05	2.08	2.06	2.04
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.5 wet	2.5 wet	0.0	0.0	2.5 dry	0.5 wet
Hilf Density Ratio (%)	**100.0**	**96.0**	**96.0**	**98.5**	**97.0**	**97.5**

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS00219
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 25/01/2021

Sample Details

Location:
Client Request ID:
Specification Requirements:
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-00930	S21DS-00931	S21DS-00932	S21DS-00933	S21DS-00934	S21DS-00935
Field Sample ID	7	8	9	10	11	12
Date Tested	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
E:	356798.3	356804.6	356770.5	356772.1	356768.9	356760.8
N:	5777787.9	5777846.4	577786.1	5777930.6	57757865.5	5777804.3
EL:	9.69	9.80	9.24	9.31	9.66	9.95
Lot:	227	407	418	423	406	235
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 Wet Density (t/m³)	1.94	2.00	1.97	1.99	1.99	2.05
Peak Converted Wet Density (t/m³)	2.04	1.99	2.02	2.05	2.07	2.05
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	2.0 wet	1.0 wet	4.0 wet	2.5 wet	2.5 wet	2.0 wet
Hilf Density Ratio (%)	**95.0**	**100.5**	**98.0**	**97.5**	**96.0**	**100.0**

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS00219
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

ilac-MRA NATA Accreditation No.12719

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 25/01/2021

Sample Details

Location:
Client Request ID:
Specification Requirements:
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-00936	S21DS-00937	S21DS-00938			
Field Sample ID	13	14	15			
Date Tested	20/01/2021	20/01/2021	20/01/2021			
E:	356693.9	356742.3	356721.3			
N:	5777874.5	5777927.5	5777906.1			
EL:	8.61	9.36	9.28			
Lot:	402	425	426			
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)	2.06	2.00	2.04			
Peak Converted Wet Density (t/m³)	2.10	2.07	2.09			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	2.0 dry	2.0 wet	2.0 wet			
Hilf Density Ratio (%)	**97.5**	**96.5**	**98.0**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS00262
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 29/01/2021

Sample Details

Location:
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-01100	S21DS-01101	S21DS-01102	S21DS-01103	S21DS-01104	S21DS-01105
Field Sample ID	1	2	3	4	5	6
Date Tested	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021
E:	356730.3	356737.4	356757.4	356769.4	356680.2	356866.6
N:	5777922.4	5777957.6	5777983.1	5777894.7	5777880.1	5777682.5
RL:	9.54	9.59	9.72	9.13	8.29	9.24
Lot:	426	428	513	418	402	1002
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 Wet Density (t/m³)	2.03	1.98	2.04	2.00	2.02	2.02
Peak Converted Wet Density (t/m³)	2.01	2.04	2.05	2.00	2.10	2.02
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.5 dry	0.5 wet	0.5 wet	0.5 dry	0.0	0.5 wet
Hilf Density Ratio (%)	**101.0**	**97.0**	**99.5**	**100.0**	**96.0**	**100.0**

Comments

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Report No: HDR:W21DS00262
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Longfield
(Senior Technician)
12712 Date of Issue: 29/01/2021

Sample Details

Location:
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-01106	S21DS-01107	S21DS-01108			
Field Sample ID	7	8	9			
Date Tested	22/01/2021	22/01/2021	22/01/2021			
E:	356974.3	356984.2	356966			
N:	5777607.6	5777595.6	5777556.9			
RL:	8.22	8.09	8.09			
Lot:	329	330	333			
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	2.00	2.03			
Peak Converted Wet Density (t/m³)	2.07	2.01	2.06			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.0	0.5 wet	0.5 wet			
Hilf Density Ratio (%)	**98.0**	**99.5**	**98.5**			

Comments

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Report No: HDR:W21DS00304
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 4
Project No.: 1016363.4000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Approved Signatory: M. Robinson
(Team Leader)
12712 Date of Issue: 28/01/2021

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-01328	S21DS-01329	S21DS-01330	S21DS-01331		
Field Sample ID	1	2	3	4		
Date Tested	27/01/2021	27/01/2021	27/01/2021	27/01/2021		
E:	356734.2	356716.1	356699.1	356713.8		
N:	5777962.3	5777936.6	5777870.9	5777850.4		
Elv:	9.85	9.85	9.72	9.95		
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175		
Depth of Layer (mm)	200	200	200	200		
Field Wet Density (t/m³)	2.05	1.97	2.05	2.06		
Peak Converted Wet Density (t/m³)	2.05	1.96	2.09	2.12		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	1.0 wet	0.5 wet	0.5 wet	0.0		
Hilf Density Ratio (%)	**100.0**	**101.0**	**98.0**	**97.0**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS00675
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 2
Project No.: 1016363.2000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number 12719
12712

Approved Signatory: J. A. Smith
(Senior Technician)
Date of Issue: 3/03/2021

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-02721	S21DS-02722				
Field Sample ID	1	2				
Date Tested	19/02/2021	19/02/2021				
E:	356854.4	356866.5				
N:	5777723.8	5777768.0				
Elv:	8.91	8.89				
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 Wet Density (t/m³)	2.12	2.06				
Peak Converted Wet Density (t/m³)	2.14	2.09				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	0.0	2.0 wet				
Hilf Density Ratio (%)	**99.0**	**98.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS00867
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 3
Project No.: 1016363.3000
Order No.: **CG Request No.:**
TRN: **Lot No.:**

Accredited for compliance with ISO/IEC 17025 – Testing

Accreditation Number 12719
12712

Approved Signatory: J. A. Smith
(Senior Technician)
Date of Issue: 9/03/2021

Sample Details

Location:	Stage 3
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:	Site Won
Material:	Clay

Sample Data

Sample ID	S21DS-03485	S21DS-03486	S21DS-03487			
Field Sample ID	1	2	3			
Date Tested	5/03/2021	5/03/2021	5/03/2021			
E	356860.8	356874.4	356877.5			
N	5777513.6	5777770.1	5777822.9			
EL	9.499	9.6	9.41			
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			
Field Wet Density (t/m³)	2.01	1.97	2.02			
Peak Converted Wet Density (t/m³)	2.04	2.09	2.09			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 wet	0.5 wet	0.5 wet			
Hilf Density Ratio (%)	**98.5**	**94.0**	**96.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS00881
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
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: 19/03/2021

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-03549	S21DS-03550	S21DS-03551	S21DS-03552	S21DS-03553	
Field Sample ID	1	2	3	4	5	
Date Tested	9/03/2021	9/03/2021	9/03/2021	9/03/2021	9/03/2021	
E:	357192.5	357188.8	357162.0	357165.4	356875.4	
N:	5777602.8	5777583.4	5777571.7	5777605.4	5777769.0	
Elv:	7.22	7.42	7.09	7.31	9.32	
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 Wet Density (t/m³)	2.05	2.04	2.02	1.97	2.07	
Peak Converted Wet Density (t/m³)	2.02	2.06	2.03	2.04	2.02	
Compactive Effort	Standard	Standard	Standard	Standard	Standard	
Moisture Variation (%)	1.0 wet	0.5 wet	0.5 wet	2.0 wet	2.5 dry	
Hilf Density Ratio (%)	**101.5**	**99.0**	**99.5**	**96.5**	**102.5**	

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01760
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 1
Project No.: 1016363.1000
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: 14/05/2021

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 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: CLAY

Sample Data

Sample ID	S21DS-06547	S21DS-06548				
Field Sample ID	1	2				
Date Tested	13/05/2021	13/05/2021				
Location	E 356890	E 356882				
	N 5778000	N 5777975				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
Field Wet Density (t/m³)	1.86	1.85				
Peak Converted Wet Density (t/m³)	1.94	2.08				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	2.0 wet	2.0 dry				
Hilf Density Ratio (%)	**96.0**	**89.0**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01764
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 17/05/2021

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-06555	S21DS-06556				
Field Sample ID	1	2				
Date Tested	14/05/2021	14/05/2021				
E:	356886	356884				
N:	5777796	5777948				
Field and Laboratory Data						
Depth of Test (mm)	175	175				
Depth of Layer (mm)	200	200				
Field Wet Density (t/m³)	2.05	1.85				
Peak Converted Wet Density (t/m³)	2.02	1.97				
Compactive Effort	Standard	Standard				
Moisture Variation (%)	2.5 wet	2.5 wet				
Hilf Density Ratio (%)	**102.0**	**93.5**				

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS01864
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 16/06/2021

Sample Details

Location:
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-06923	S21DS-06924	S21DS-06925	S21DS-06926		
Field Sample ID	1	2	3	4		
Date Tested	24/05/2021	24/05/2021	24/05/2021	24/05/2021		
E:	245801	356884	356889	356915		
N:	5778057	5777974	5777948	5778028		
EL:	9.86	9.51	Retest	9.91		
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 Wet Density (t/m³)	2.11	2.13	2.13	2.07		
Peak Converted Wet Density (t/m³)	2.14	2.16	2.15	2.16		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	0.5 wet	0.0	0.5 wet	0.5 wet		
Hilf Density Ratio (%)	**98.5**	**99.0**	**99.0**	**96.0**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS02010
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield - Stage 6
Project No.: 1016363.006
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: 2/06/2021

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 1289.5.7.1
Sampling Method: AS1289.1.2.1 Clause 6.4 (b)
Source: Onsite
Material: CLAY FILL

Sample Data

Sample ID	S21DS-07404	S21DS-07405	S21DS-07406			
Field Sample ID	1	2	3			
Date Tested	1/06/2021	1/06/2021	1/06/2021			
Location	E 356894	E 356899	E 356874			
	N 5777748	N 5777725	N 5777725			
	Elv. 8.46	Elv. 8.27	Elv. 9.19			
Field and Laboratory Data						
Depth of Test (mm)	175	175	175			
Depth of Layer (mm)	200	200	200			
Field Wet Density (t/m³)	2.13	1.99	2.08			
Peak Converted Wet Density (t/m³)	2.10	2.10	2.05			
Compactive Effort	Standard	Standard	Standard			
Moisture Variation (%)	0.5 wet	0.5 wet	2.0 wet			
Hilf Density Ratio (%)	**101.5**	**95.0**	**101.5**			

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS02035
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 10
Project No.: 1016363.010
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: 11/04/2022

Sample Details

Location:
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-07475	S21DS-07476	S21DS-07477	S21DS-07478		
Field Sample ID	1	2	3	4		
Date Tested	2/06/2021	2/06/2021	2/06/2021	2/06/2021		
Sample	1	2	3	4		
E:	356812	356903	356893	356884		
N:	5777850	5777809	5777770	5777734		
EL:	8.79	8.94	9.17	9.44		
Field and Laboratory Data						
Depth of Test (mm)	175	175	175	175		
Depth of Layer (mm)	200	200	200	200		
Field Wet Density (t/m³)	2.07	2.09	2.07	2.05		
Peak Converted Wet Density (t/m³)	2.18	2.16	2.17	2.16		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	0.0	0.5 dry	3.0 wet	3.0 wet		
Hilf Density Ratio (%)	**95.0**	**96.5**	**95.5**	**95.0**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS03493
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 11
Project No.: 1016363.011
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: 1/12/2021

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	S21DS-12885	S21DS-12886	S21DS-12887	S21DS-12888		
Field Sample ID	1	2	3	4		
Date Tested	25/11/2021	25/11/2021	25/11/2021	25/11/2021		
E:	356867	356880	356903	356935		
N:	5777843	5777842	5777834	5777833		
RL / Layer:	9.285 / 1	9.260 / 4	9.020 / 1	8.636 / 1 (FSL-0.45m)		
Lot:	1101	1102	1104	1106		
Field and Laboratory Data						
Depth of Test (mm)	125	150	150	175		
Depth of Layer (mm)	150	175	175	200		
AS Sieve Size (mm)	19.0	19.0	19.0	19.0		
Oversize Wet (%)	0	0	0	0		
Field Wet Density (t/m³)	2.07	2.18	2.06	2.12		
Peak Converted Wet Density (t/m³)	2.15	2.10	2.10	2.12		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	2.5 wet	0.5 dry	0.0	1.5 dry		
Hilf Density Ratio (%)	**96.5**	**104.0**	**98.0**	**99.5**		

Comments

CHADWICK GEOTECHNICS

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Report No: HDR:W21DS03558
Issue No: 1

HILF Density Ratio Report

Client: Greenridge Properties Pty Ltd
Address: PO Box 3131
AUBURN VIC 3123
Project: Riverfield Estate - Stage 10
Project No.: 1016363.010
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: 3/12/2021

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:	Sandy Clay

Sample Data

Sample ID	S21DS-13113	S21DS-13114	S21DS-13115	S21DS-13116		
Field Sample ID	1	2	3	4		
Date Tested	1/12/2021	1/12/2021	1/12/2021	1/12/2021		
E:	357024	357015	356973	35686		
N:	5777791	5777763	5777799	5777787		
RL / Layer:	8.176 / FSL-0.93m	8.250 / FSL-0.665m	8.750 / FSL-0.5m	8.550 / FSL-0.6m		
Lot:	1034	1029	1041	1039		
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 Wet Density (t/m³)	2.14	2.12	2.10	2.13		
Peak Converted Wet Density (t/m³)	2.18	2.17	2.15	2.16		
Compactive Effort	Standard	Standard	Standard	Standard		
Moisture Variation (%)	0.5 wet	0.5 wet	1.5 dry	0.5 wet		
Hilf Density Ratio (%)	**98.5**	**97.5**	**98.0**	**98.0**		

Comments

Appendix D: Controlled Fill certificate

CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT	: Lot No's: 201 to 242 Riverfield Estate, Stage 2	Chadwick Geotechnics REF: 1016363.002.v1	
CLIENT	: Grosvenor Lodge Pty Ltd PO Box 4136 DANDENONG SOUTH VIC 3164	DATE	: 11 April 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 top soil).

This report is based on the conditions present and factors affecting the soil at the time of inspection (12 December 2020 to the 1 December 2021). 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