



# REPORT

## Level One Inspection and Testing Services

Riverfield Estate Stage 1, Clyde  
Lot's 101 to Lot 141

Prepared for:

Grosvenor Lodge Pty Ltd

11 April 2022

Our Ref: 1016363.001.v1

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## Document Control

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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 1 of the Estate during construction.

This report presents the earthworks supervision methods and density testing results for the residential lot numbers 101 to Lot 141 within the Stage 1 site.

The earthworks were completed between 9 December 2020 and 3 March 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 1 site is located North of Ballarto Road and is located within the Southwest corner of the estate. 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 1 filling operations commenced on 9 December 2020 and was completed on 3 March 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



Photograph 2.7.2:  
Delivery and Conditioning

## 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 60 test were performed across the Stage 1 area during the filling process.

The results show that 11 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:

Authorised for Chadwick Geotechnics Pty Ltd by:



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Robert Barden  
Project Manager

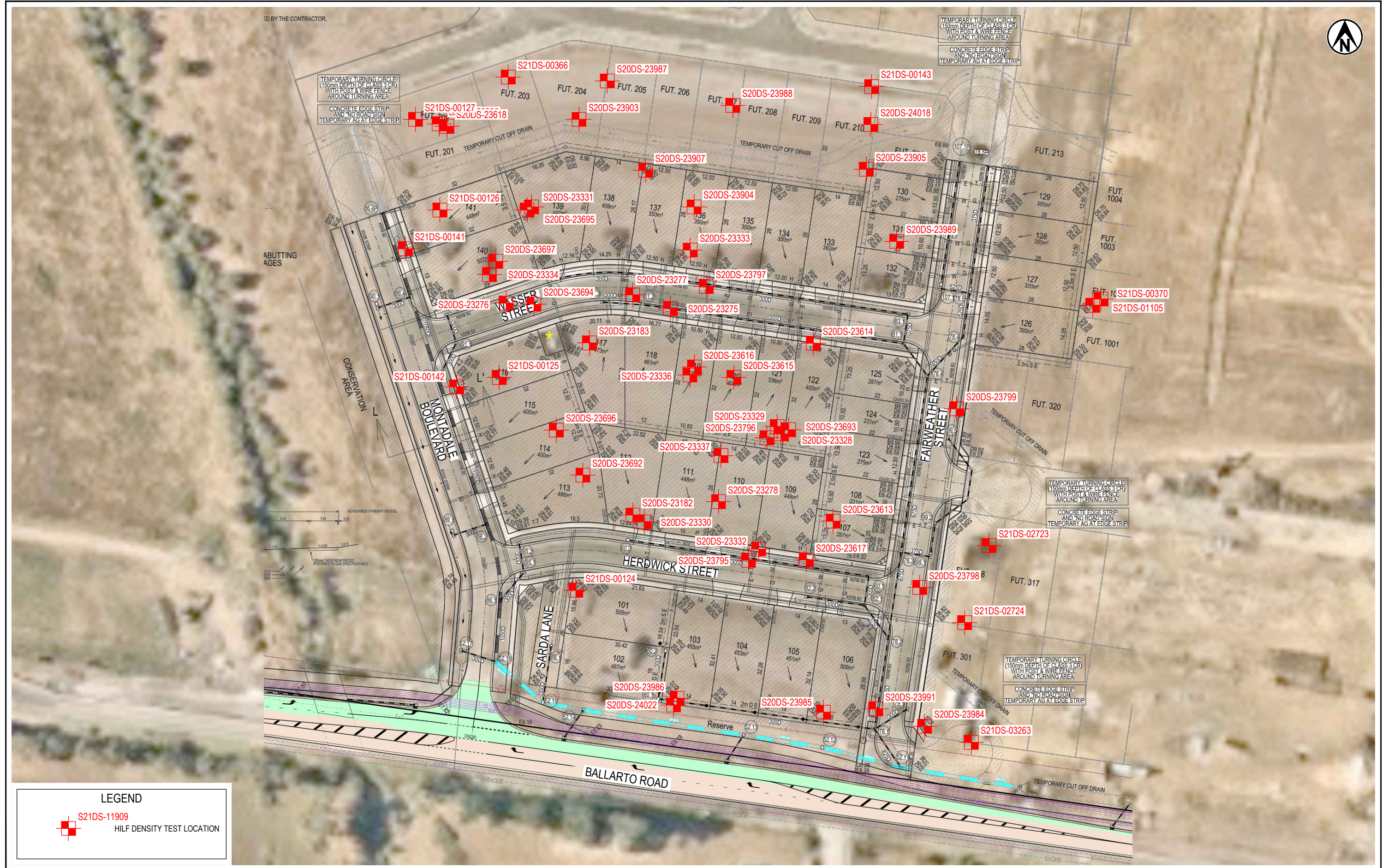
.....  
Tim Chadwick  
Project Director

11-Apr-22  
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## Appendix A: Site plan

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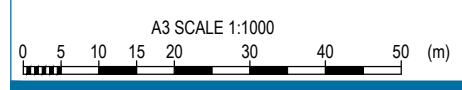




**LEGEND**

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.



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

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

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 www.chadwickgeotechnics.com.au

## Appendix B: Hilf density test summary

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Report No	Sample No	Date	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation		Pass / Fail	Remarks
HDR:W20DS06413	23182	9/12/2020	356732.4	5777620.6	8.46	95.5	2.0	dry	Pass	
HDR:W20DS06413	23183	9/12/2020	356719.9	5777669.9	8.69	97.5	0.5	dry	Pass	
HDR:W20DS06439	23275	10/12/2020	356743.1	5777679.8	8.25	96.0	3.0	wet	Pass	
HDR:W20DS06439	23276	10/12/2020	356696.0	5777681.3	8.76	101.0	0.0	omc	Pass	
HDR:W20DS06439	23277	10/12/2020	356732.3	5777683.7	8.86	99.5	1.5	wet	Pass	
HDR:W20DS06439	23278	10/12/2020	356756.9	5777624.4	8.50	101.0	0.5	wet	Pass	
HDR:W20DS06452	23328	12/12/2020	356774.8	5777643.8	8.01	102.0	0.5	wet	Pass	
HDR:W20DS06452	23329	12/12/2020	356773.7	5777645.9	8.19	96.5	3.5	wet	Fail	See Retest 23693
HDR:W20DS06452	23330	12/12/2020	356735.6	5777618.6	8.87	96.5	3.0	wet	Pass	
HDR:W20DS06452	23331	12/12/2020	356703.3	5777708.9	9.28	95.0	3.5	wet	Fail	See Retest 23695
HDR:W20DS06452	23332	12/12/2020	356768.4	5777610.8	8.67	99.5	0.5	wet	Pass	
HDR:W20DS06452	23333	12/12/2020	356748.8	5777696.5	9.00	103.0	1.0	wet	Pass	
HDR:W20DS06453	23334	11/12/2020	356691.2	5777689.5	9.08	98.5	1.0	wet	Pass	
HDR:W20DS06453	23335	11/12/2020	356676.8	5777732.7	9.13	94.0	1.5	dry	Fail	See Retest 23618
HDR:W20DS06453	23336	11/12/2020	356748.7	5777660.7	8.90	93.5	0.0	omc	Fail	See Retest 23616
HDR:W20DS06453	23337	11/12/2020	356757.6	5777637.6	8.90	97.0	0.0	omc	Pass	

Report No	Sample No	Date	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation		Pass / Fail	Remarks
HDR:W20DS06517	23613	14/12/2020	356789.8	5777618.8	8.15	96.0	3.0	wet	Pass	
HDR:W20DS06517	23614	14/12/2020	356784.1	5777669.8	8.74	104.5	0.5	dry	Pass	
HDR:W20DS06517	23615	14/12/2020	356761.3	5777660.0	9.01	96.5	0.0	omc	Pass	
HDR:W20DS06517	23616	14/12/2020	356750.0	5777663.0	8.92	96.0	0.5	wet	Pass	Retest of 23336
HDR:W20DS06517	23617	14/12/2020	356782.1	5777607.7	8.76	97.5	2.0	wet	Pass	
HDR:W20DS06517	23618	14/12/2020	356679.0	5777732.0	9.10	97.5	0.0	dry	Pass	Retest of 23335
HDR:W20DS06538	23692	15/12/2020	356718.0	5777632.0	9.15	98.5	0.0	omc	Pass	
HDR:W20DS06538	23693	15/12/2020	356777.0	5777645.0	8.20	97.0	3.0	wet	Pass	Retest of 23329
HDR:W20DS06538	23694	15/12/2020	356704.0	5777681.0	9.35	99.5	0.0	omc	Pass	
HDR:W20DS06538	23695	15/12/2020	356702.0	5777708.0	9.25	100.0	0.0	omc	Pass	Retest of 23331
HDR:W20DS06538	23696	15/12/2020	356710.4	5777644.9	9.40	99.0	0.5	wet	Pass	
HDR:W20DS06538	23697	15/12/2020	356693.0	5777693.3	9.56	100.0	0.0	omc	Pass	
HDR:W20DS06567	23795	16/12/2020	356765.5	5777607.6	8.86	102.5	0.5	dry	Pass	
HDR:W20DS06567	23796	16/12/2020	356770.8	5777642.7	9.20	100.0	1.0	wet	Pass	
HDR:W20DS06567	23797	16/12/2020	356753.4	5777686.1	9.17	98.0	1.0	wet	Pass	
HDR:W20DS06567	23798	16/12/2020	356814.6	5777599.8	8.41	96.5	2.0	wet	Pass	
HDR:W20DS06567	23799	16/12/2020	356825.2	5777651.0	8.51	96.0	2.0	wet	Pass	
HDR:W20DS06588	23903	17/12/2020	356716.9	5777734.0	8.93	99.5	0.0	omc	Pass	
HDR:W20DS06588	23904	17/12/2020	356749.9	5777708.9	9.06	99.0	2.0	dry	Pass	

Report No	Sample No	Date	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation		Pass / Fail	Remarks
HDR:W20DS06588	23905	17/12/2020	356799.3	5777719.7	8.79	93.0	0.0	omc	Fail	See Retest 24018
HDR:W20DS06588	23906	17/12/2020	356772.6	577769.0	9.17	100.0	0.5	dry	Pass	
HDR:W20DS06588	23907	17/12/2020	356736.0	5777719.4	9.17	96.5	0.5	wet	Pass	
HDR:W20DS06588	23908	17/12/2020	356864.6	5777758.7	7.32	92.5	0.0	omc	Fail	See Retest 24019
HDR:W20DS06610	23981	18/12/2020	356868.8	5777750.8	8.42	98.0	3.0	wet	Pass	
HDR:W20DS06610	23982	18/12/2020	356864.1	5777759.6	7.93	99.0	2.5	wet	Pass	
HDR:W20DS06610	23983	18/12/2020	356862.4	5777756.4	7.68	100.5	0.0	omc	Pass	
HDR:W20DS06610	23984	18/12/2020	356816.0	5777560.0	7.93	86.5	2.5	wet	Fail	See Retest 23991
HDR:W20DS06610	23985	18/12/2020	356787.0	5777564.0	7.94	95.0	2.5	wet	Pass	
HDR:W20DS06610	23986	18/12/2020	356745.0	5777568.0	7.94	94.0	4.5	wet	Fail	See Retest 24022
HDR:W20DS06610	23987	18/12/2020	356725.0	5777745.0	9.21	97.5	0.5	wet	Pass	
HDR:W20DS06610	23988	18/12/2020	356761.0	5777738.0	9.25	97.0	2.0	wet	Pass	
HDR:W20DS06610	23989	18/12/2020	356808.0	5777699.0	8.98	96.0	3.0	wet	Pass	
HDR:W20DS06611	23990	19/12/2020	356838.0	5777569.0	8.02	100.0	0.5	dry	Pass	
HDR:W20DS06611	23991	19/12/2020	356802.0	5777565.0	8.09	100.0	2.0	dry	Pass	Retest of 23984
HDR:W20DS06620	24018	21/12/2020	356800.6	5777732.5	8.82	102.0	0.0	omc	Pass	Retest of 23905
HDR:W20DS06620	24019	21/12/2020	356866.0	5777758.0	7.30	103.5	0.0	omc	Pass	Retest of 23908
HDR:W20DS06620	24020	21/12/2020	356859.7	5777607.1	8.19	103.0	0.0	omc	Pass	
HDR:W20DS06620	24021	21/12/2020	356867.6	5777649.1	8.47	100.0	1.0	wet	Pass	

Report No	Sample No	Date	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation		Pass / Fail	Remarks
HDR:W20DS06620	24022	21/12/2020	356744.0	5777566.1	8.24	96.5	0.5	wet	Pass	Retest of 23986
HDR:W21DS00038	00124	7/01/2021	356716.0	5777599.0	8.47	100.5	1.0	wet	Pass	
HDR:W21DS00038	00125	7/01/2021	356694.0	5777660.0	8.83	100.0	1.0	wet	Pass	
HDR:W21DS00038	00126	7/01/2021	356677.0	5777708.0	9.06	99.0	1.0	wet	Pass	
HDR:W21DS00038	00127	7/01/2021	356670.0	5777734.0	9.07	97.5	1.0	wet	Pass	
HDR:W21DS00043	00141	8/01/2020	356667.1	5777696.9	9.41	99.5	0.0	omc	Pass	
HDR:W21DS00043	00142	8/01/2020	356681.8	5777657.3	9.21	100.0	0.1	dry	Pass	
HDR:W21DS00044	S21DS-00143	9/01/2020	356800.8	5777743.4		97	omc		pass	
HDR:W21DS00044	S21DS-00144	9/01/2020	356794.6	5777762.6		100	omc		pass	
HDR:W21DS00044	S21DS-00145	9/01/2020	356792.9	5777786.3		98	omc		pass	
HDR:W21DS00044	S21DS-00146	9/01/2020	356794.9	5777808.7		100.5	omc		pass	
HDR:W21DS00086	S21DS-00363	13/01/2021	356758.9	5777832.2	9.68	97	0.7 wet		pass	
HDR:W21DS00086	S21DS-00364	13/01/2021	356758.4	5777778.7	9.67	93.5	1.8 wet		Fail	See Retest - 00935
HDR:W21DS00086	S21DS-00365	13/01/2021	356725.9	5777781.7	9.63	98.5	0.7 wet		pass	
HDR:W21DS00086	S21DS-00366	13/01/2021	356696.6	5777746.1	9.63	98.5	omc		pass	
HDR:W21DS00086	S21DS-00367	13/01/2021	356711.4	5777812.8	9.86	96	2.7 wet		pass	
HDR:W21DS00086	S21DS-00368	13/01/2021	356739.5	5777810.2	9.3	97	1.4 wet		pass	Retest of 00320
HDR:W21DS00086	S21DS-00369	13/01/2021	356867.9	5777658.8	8.69	97	2.7 wet		pass	
HDR:W21DS00086	S21DS-00370	13/01/2021	356864.2	5777680.7	9.15	91	2.6 wet		Fail	See Retest 01105

Report No	Sample No	Date	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation		Pass / Fail	Remarks
HDR:W21DS00219	S21DS-00924	20/01/2021	356718.1	5777868.4	8.34	100	0.6 wet		pass	
HDR:W21DS00219	S21DS-00925	20/01/2021	356721	5777883.2	8.67	96	2.4 wet		pass	
HDR:W21DS00219	S21DS-00926	20/01/2021	356736.1	5777852.4	8.97	96	omc		pass	
HDR:W21DS00219	S21DS-00927	20/01/2021	356744.3	5777922.9	8.92	98.5	omc		pass	
HDR:W21DS00219	S21DS-00928	20/01/2021	356721.9	5777885.4	8.94	97	2.3 dry		pass	
HDR:W21DS00219	S21DS-00929	20/01/2021	356718.3	5777867.2	8.75	97.5	0.3 wet		pass	
HDR:W21DS00219	S21DS-00930	20/01/2021	356798.3	5777787.9	9.69	95	2.2 wet		pass	
HDR:W21DS00219	S21DS-00931	20/01/2021	356804.6	5777846.4	9.8	100.5	0.9 wet		pass	
HDR:W21DS00219	S21DS-00932	20/01/2021	356770.5	5777846.1	9.24	98	4.1 wet		Fail	See Retest 01103
HDR:W21DS00219	S21DS-00933	20/01/2021	356772.1	5777930.6	9.31	97.5	2.5 wet		pass	
HDR:W21DS00219	S21DS-00934	20/01/2021	356768.9	5777865.5	9.66	96	2.6 wet		pass	
HDR:W21DS00219	S21DS-00935	20/01/2021	356760.8	5777804.3	9.95	100	1.8 wet		pass	Retest of 00364
HDR:W21DS00219	S21DS-00936	20/01/2021	356693.9	5777874.5	8.61	97.5	2.0 dry		pass	
HDR:W21DS00219	S21DS-00937	20/01/2021	356742.3	5777927.5	9.36	96.5	2.0 wet		pass	
HDR:W21DS00219	S21DS-00938	20/01/2021	356721.3	5777906.1	9.28	98	2.2 wet		pass	
HDR:W21DS00262	01100	22/01/2021	356730.3	5777922.4	9.54	101.0	0.5	dry	Pass	
HDR:W21DS00262	01101	22/01/2021	356737.4	5777957.6	9.59	97.0	0.5	wet	Pass	
HDR:W21DS00262	01102	22/01/2021	356757.4	5777983.1	9.72	99.5	0.5	wet	Pass	
HDR:W21DS00262	01103	22/01/2021	356769.4	5777894.7	9.13	100.0	0.5	dry	Pass	Retest of 00932

Report No	Sample No	Date	Location [E]	Location [N]	RL	Density Ratio HILF test (≥95%)	Moisture Variation		Pass / Fail	Remarks
HDR:W21DS00262	01104	22/01/2021	356680.2	5777880.1	8.29	96.0	omc	omc	Pass	
HDR:W21DS00262	01105	22/01/2021	356866.6	5777682.5	9.24	100.0	0.5	wet	Pass	Retest of 00370
HDR:W21DS00262	01106	22/01/2021	356974.3	5777607.6	8.22	98.0	omc	omc	Pass	
HDR:W21DS00262	01107	22/01/2021	356984.2	5777595.6	8.09	99.5	0.5	wet	Pass	
HDR:W21DS00262	01108	22/01/2021	356966.0	5777556.9	8.09	98.5	0.5	wet	Pass	
HDR:W21DS00676	S21DS-02723	20/02/2021	356834.5	5777611.8	9	97	omc		pass	
HDR:W21DS00676	S21DS-02724	20/02/2021	356827.5	5777589.7	9	97	1.8 wet		pass	
HDR:W21DS00812	S21DS-03259	3/03/2021	356987.86	5777615.5	8.62	100.5	omc		pass	
HDR:W21DS00812	S21DS-03260	3/03/2021	357000.9	5777638.8	8.52	99.5	2.2 wet		pass	
HDR:W21DS00812	S21DS-03261	3/03/2021	357197.7	5777598.2	6.21	99.5	0.3 dry		pass	
HDR:W21DS00812	S21DS-03262	3/03/2021	356845.4	5777565.9	8.87	99.5	omc		pass	
HDR:W21DS00812	S21DS-03263	3/03/2021	356829.4	5777555.4	8.49	95.5	2.5 wet		pass	
HDR:W21DS00812	S21DS-03264	3/03/2021	357197.8	5777556.5	6.12	98.5	omc		pass	
										no further tests



## Appendix C: Hilf density testing reports

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**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:W20DS06413**

**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



Approved Signatory: M. Robinson  
 (Team Leader)  
 Date of Issue: 10/12/2020

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## Sample Details

**Location:** Clyde  
**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-23182	S20DS-23183			
Field Sample ID	1	2			
Date Tested	9/12/2020	9/12/2020			
E:	356732.36	356719.9			
N:	5777620.56	5777669.9			
Elv:	8.46	8.69			

## Field and Laboratory Data

Depth of Test (mm)	175	175			
Depth of Layer (mm)	200	200			
Field Wet Density (t/m <sup>3</sup> )	1.88	2.01			
Peak Converted Wet Density (t/m <sup>3</sup> )	1.97	2.06			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	2.0 dry	0.5 dry			
Hilf Density Ratio (%)	<b>95.5</b>	<b>97.5</b>			

## Comments



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 Fax: +61 3 9706 9431

**Report No: HDR:W20DS06439**

**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.:**  
**TRN:**

**CG Request No.:**  
**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)  
 Date of Issue: 21/12/2020  
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## Sample Details

**Location:** Clyde  
**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-23275	S20DS-23276	S20DS-23277	S20DS-23278
Field Sample ID	1	2	3	4
Date Tested	10/12/2020			
E:	356743.1	356696.0	356732.3	356756.9
N:	5777679.8	5777681.3	5777683.7	577624.4
Elv:	8.249	8.76	8.86	8.5

## 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/m <sup>3</sup> )	1.96	2.06	2.00	1.98
Peak Converted Wet Density (t/m <sup>3</sup> )	2.04	2.04	2.02	1.95
Compactive Effort	Standard	Standard	Standard	Standard
Moisture Variation (%)	3.0 wet	0.0	1.5 wet	0.5 wet
Hilf Density Ratio (%)	<b>96.0</b>	<b>101.0</b>	<b>99.5</b>	<b>101.0</b>

## Comments



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**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.:**  
**TRN:**

**CG Request No.:**  
**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)  
 Date of Issue: 21/12/2020

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## 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/m <sup>3</sup> )	2.02	2.00	1.98	1.98	1.97	2.03
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>102.0</b>	<b>96.5</b>	<b>96.5</b>	<b>95.0</b>	<b>99.5</b>	<b>103.0</b>

## Comments



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**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  
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## 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 (%)	<b>98.5</b>	<b>94.0</b>	<b>93.5</b>	<b>97.0</b>

## Comments



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**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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

Accredited for compliance with ISO/IEC 17025  
 - Testing

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

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## 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/m <sup>3</sup> )	1.98	2.03	1.98	1.94	2.00	2.01
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>96.0</b>	<b>104.5</b>	<b>96.5</b>	<b>96.0</b>	<b>97.5</b>	<b>97.5</b>

## Comments



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**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

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)  
 Date of Issue: 23/12/2020  
 12712

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## 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/m <sup>3</sup> )	1.97	2.02	2.03	2.03	2.01	2.06
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>98.5</b>	<b>97.0</b>	<b>99.5</b>	<b>100.0</b>	<b>99.0</b>	<b>100.0</b>

## Comments



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**Report No: HDR:W20DS06567**

**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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

Accredited for compliance with ISO/IEC 17025  
 - Testing

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

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## 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-23795	S20DS-23796	S20DS-23797	S20DS-23798	S20DS-23799
Field Sample ID	1	2	3	4	5
Date Tested	16/12/2020	16/12/2020	16/12/2020	16/12/2020	16/12/2020
E:	356765.5	356770.8	356753.4	356814.6	356825.2
N:	5777607.6	5777642.7	5777686.1	5777599.8	5777651
RL:	8.86	9.20	9.17	8.41	8.51
Lot:	110	121	136	Road	Road

## 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)	1.99	2.01	2.03	2.00	1.97
Peak Converted Wet Density (t/m³)	1.94	2.01	2.07	2.07	2.05
Compactive Effort	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.5 dry	1.0 wet	1.0 wet	2.0 wet	2.0 wet
Hilf Density Ratio (%)	<b>102.5</b>	<b>100.0</b>	<b>98.0</b>	<b>96.5</b>	<b>96.0</b>

## Comments





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**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

Approved Signatory: M. Longfield  
 (Senior Technician)  
 Date of Issue: 23/12/2020  
 12712  
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## 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/m <sup>3</sup> )	1.97	1.93	2.08	2.05	1.95	1.94
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>99.5</b>	<b>99.0</b>	<b>93.0</b>	<b>100.0</b>	<b>96.5</b>	<b>92.5</b>

## Comments



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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.:**

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Approved Signatory: M. Longfield  
 (Senior Technician)  
 Date of Issue: 23/12/2020  
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## 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/m <sup>3</sup> )	1.99	2.06	2.01	1.74	1.98	1.95
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>98.0</b>	<b>99.0</b>	<b>100.5</b>	<b>86.5</b>	<b>95.0</b>	<b>94.0</b>

## Comments



**Dandenong South**  
**ACN 143 009 330**  
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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.:**

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Approved Signatory: M. Longfield  
 (Senior Technician)  
 Date of Issue: 23/12/2020  
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## 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 (%)	<b>97.5</b>	<b>97.0</b>	<b>96.0</b>		

**Comments**



**Dandenong South**  
**ACN 143 009 330**  
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**Report No: HDR:W20DS06611**



**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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

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

12712

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## 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-23990	S20DS-23991			
Field Sample ID	1	2			
Date Tested	19/12/2020	19/12/2020			
E:	356838	356802			
N:	5777569	5777565			
RL:	8.02	8.09			

## 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	1.98			
Peak Converted Wet Density (t/m³)	2.06	1.98			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	0.5 dry	2.0 dry			
Hilf Density Ratio (%)	<b>100.0</b>	<b>100.0</b>			

## Comments



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**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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

Accredited for compliance with ISO/IEC 17025  
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Approved Signatory: M. Longfield  
 (Senior Technician)  
 Date of Issue: 18/01/2021

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## 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/m <sup>3</sup> )	2.13	2.12	2.08	2.04	1.97
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>102.0</b>	<b>103.5</b>	<b>103.0</b>	<b>100.0</b>	<b>96.5</b>

## 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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

Accredited for compliance with ISO/IEC 17025  
 - Testing

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

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## 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/m <sup>3</sup> )	2.02	2.03	2.01	2.01
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>100.5</b>	<b>100.0</b>	<b>99.0</b>	<b>97.5</b>

## Comments



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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.:**

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Approved Signatory: M. Longfield  
 (Senior Technician)  
 12712 Date of Issue: 18/01/2021  
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## 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 (%)	<b>99.5</b>	<b>100.0</b>			

## 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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

Accredited for compliance with ISO/IEC 17025  
 - Testing

Approved Signatory: M. Longfield  
 (Senior Technician)  
 Date of Issue: 18/01/2021  
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## 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/m <sup>3</sup> )	2.09	2.06	2.02	2.06
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>97.0</b>	<b>100.0</b>	<b>98.0</b>	<b>100.5</b>

## 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.:**

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

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## 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/m <sup>3</sup> )	1.99	1.97	2.00	1.98	1.96	1.99
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>97.0</b>	<b>93.5</b>	<b>98.5</b>	<b>98.5</b>	<b>96.0</b>	<b>97.0</b>

## 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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

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

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## 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 (%)	<b>97.0</b>	<b>91.0</b>			

## Comments



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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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

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 - 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)  
 Date of Issue: 25/01/2021

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## 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/m <sup>3</sup> )	2.00	1.98	1.97	2.05	1.99	1.98
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>100.0</b>	<b>96.0</b>	<b>96.0</b>	<b>98.5</b>	<b>97.0</b>	<b>97.5</b>

## Comments



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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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

Accredited for compliance with ISO/IEC 17025  
 - Testing

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

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## 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/m <sup>3</sup> )	1.94	2.00	1.97	1.99	1.99	2.05
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>95.0</b>	<b>100.5</b>	<b>98.0</b>	<b>97.5</b>	<b>96.0</b>	<b>100.0</b>

## Comments



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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

Approved Signatory: M. Longfield  
 (Senior Technician)  
 12712 Date of Issue: 25/01/2021  
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## 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 (%)	<b>97.5</b>	<b>96.5</b>	<b>98.0</b>		

## Comments



**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: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

Approved Signatory: M. Longfield  
 (Senior Technician)  
 Date of Issue: 29/01/2021  
 12712  
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

## 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/m <sup>3</sup> )	2.03	1.98	2.04	2.00	2.02	2.02
Peak Converted Wet Density (t/m <sup>3</sup> )	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 (%)	<b>101.0</b>	<b>97.0</b>	<b>99.5</b>	<b>100.0</b>	<b>96.0</b>	<b>100.0</b>

## 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.:**  
**TRN:**

**CG Request No.:**  
**Lot No.:**

Accredited for compliance with ISO/IEC 17025  
 - Testing



Approved Signatory: M. Longfield  
 (Senior Technician)  
 Date of Issue: 29/01/2021  
 12712  
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## 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/m <sup>3</sup> )	2.03	2.00	2.03		
Peak Converted Wet Density (t/m <sup>3</sup> )	2.07	2.01	2.06		
Compactive Effort	Standard	Standard	Standard		
Moisture Variation (%)	0.0	0.5 wet	0.5 wet		
Hilf Density Ratio (%)	<b>98.0</b>	<b>99.5</b>	<b>98.5</b>		

## Comments



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**Report No: HDR:W21DS00676**

**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: 3/03/2021

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## 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-02723	S21DS-02724			
Field Sample ID	1	2			
Date Tested	20/02/2021	20/02/2021			
E:	356834.5	356827.5			
N:	5777611.8	5777589.7			
Elv:	9.00	9.00			

## 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	2.01			
Peak Converted Wet Density (t/m³)	2.02	2.07			
Compactive Effort	Standard	Standard			
Moisture Variation (%)	0.0	2.0 wet			
<b>Hilf Density Ratio (%)</b>	<b>97.0</b>	<b>97.0</b>			

## Comments





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**Report No: HDR:W21DS00812**

**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 Approved Signatory: M. Longfield  
 12712 (Senior Technician)  
 Date of Issue: 9/03/2021  
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

## 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-03259	S21DS-03260	S21DS-03261	S21DS-03262	S21DS-03263	S21DS-03264
Field Sample ID	1	2	3	4	5	6
Date Tested	3/03/2021	3/03/2021	3/03/2021	3/03/2021	3/03/2021	3/03/2021
E:	356987.86	357600.9	357197.7	356845.4	356829.4	357197.8
N:	5777615.5	5777638.8	5777598.2	5777565.9	5777555.4	5777556.5
Elv:	8.62	8.52	6.21	8.87	8.49	6.12

## 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/m <sup>3</sup> )	1.99	2.01	1.99	2.03	2.00	1.99
Peak Converted Wet Density (t/m <sup>3</sup> )	1.98	2.02	2.00	2.04	2.10	2.03
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Variation (%)	0.0	2.0 wet	0.5 dry	0.0	2.5 wet	0.0
Hilf Density Ratio (%)	<b>100.5</b>	<b>99.5</b>	<b>99.5</b>	<b>99.5</b>	<b>95.5</b>	<b>98.5</b>

## Comments

## Appendix D: Controlled Fill certificate

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## CONTROLLED FILL CERTIFICATE - LEVEL 1 INSPECTION & TESTING

PROJECT : Lot No's: 101 to 141  
Riverfield Estate, Stage 1  
Chadwick Geotechnics REF: 1016363.001.v1

CLIENT : Grosvenor Lodge Pty Ltd  
PO Box 4136  
DANDENONG SOUTH VIC 3164  
DATE : 11 April 2022

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### 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 (9 December 2020 to the 3 March 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

A handwritten signature in black ink that reads 'Robert Barden'.

Robert Barden  
Project Manager

A handwritten signature in blue ink that reads 'Timothy Chadwick'.

Timothy Chadwick  
Project Director

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