

Frasers Property Level 1 Inspection and Testing Report, Stage 5, Mambourin Estate 754-MELGE221991AI

17 June 2020



Trust is the cornerstone of all our projects

This page has been left intentionally blank

Level 1 Inspection and Testing Report, Stage 5, Mambourin Estate

Prepared for Frasers Property

Prepared by Coffey Services Australia Pty Ltd Level 1, 436 Johnston Street Abbotsford Vic 3067 Australia t: +61 3 9290 7000 f: +61 3 9290 7499 ABN 55 139 460 521

17 June 2020

Our Ref: 754-MELGE221991AI

For and on behalf of Coffey

hur

Stojcevski, Sotir Principal Geotechnical Technician

Quality information

Revision history

Revision	Description	Date	Originator	Reviewer	Signatory
0	Level 1 Report	17 June 2020	Samuel V.	Ganesh M.	Sotir S.

Distribution

Report Status	No. of copies	Format	Distributed to	Date
Issued	1	PDF	Spiire – Mithun.Ranjanan@spiire.com.au	17 June 2020
Issued	1	PDF	Frasers Property - Ilce.Mladenovski@frasersproperty.com.au	17 June 2020
Issued	1	PDF	Coffey Library	17 June 2020

Table of contents

1.	Introd	luction	.3
2.	Proje	ct Summary	.3
	2.1.	Included areas	.4
	2.2.	Excluded areas	.4
3.	Speci	fications / Work Instructions	.4
4.	Fill M	aterial	.5
5.	Earth	works	.6
	5.1.	Subgrade Assessment	.6
	5.2.	Fill Construction	.6
	5.3.	Survey data and Fill Thickness	.6
6.	Testir	ng and Results	.7
7.	State	ment of Compliance	.8

Tables

Table 1: Level 1 GITA - dates on site Table 2: Fill Pads in Stage 5 Table 3: Fill levels at selected spot locations in Stage 5

Figures

Figure 1 – Fill area and Exclusion Zone Location Plan
Figure 2, 3 – Field Density Test Location Plan
Figure 4 – Summary of Field Density Test Results

Figure 5, 6, 7, 8, 9 – Construction Drawings

Appendices

Appendix A - Laboratory Test Certificates Appendix B – Stage 5 Drawings

1. Introduction

This report presents the results of the Level 1 Inspection and Testing for fill placement within Stage 5 of Mambourin Estate, Wyndham Vale, undertaken by Coffey Services Australia Pty Ltd (Coffey).

The works were commissioned by Kranish Reddy from Frasers Property (Frasers). The project was managed by Spiire Australia Pty Ltd (Spiire).

2. Project Summary

We understand that Frasers require fill placement within Stage 5 of the Mambourin Estate, in the area as shown in Figure 1, to be constructed under Level 1 Inspection and Testing undertaken by a Geotechnical Inspection and Testing Authority (GITA).

Level 1 Inspection and Testing, as defined in AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Development," provides for full time inspection of the construction of controlled fill and field and laboratory testing in accordance with AS1289 "Methods of Testing Soils for Engineering Purposes."

The Level 1 Inspection for Stage 5 was undertaken by geotechnical professionals from Coffey over a period of 15 months as shown in Table 1. We note that during this period, earthworks were also conducted on Stage 1 to 4 which will be reported separately.

Month	Dates
October 2018	18
November 2018	15, 16, 19, 27, 28, 29, 30
December 2018	06, 12, 18, 19
January 2019	08, 09, 11, 12, 14, 15, 16, 17, 21, 22, 23
February 2019	25, 27, 28
March 2019	04, 05
April 2019	15, 16, 17, 29, 30
May 2019	01, 02, 03, 06, 07, 08, 09, 14, 15, 16
July 2019	01, 02, 03, 04, 24
August 2019	01, 05, 06, 20, 28
September 2019	05, 06, 09, 10, 11, 13, 14, 17, 18, 19, 20, 21, 23, 24, 25
October 2019	01, 02, 04, 08, 15, 16, 21, 24, 25, 28, 29, 30, 31
November 2019	06, 07, 08, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30
December 2019	02, 04, 05, 06, 07
January 2020	22, 29

Table 1: Level 1 GITA - dates on site

The earthworks contractor for the project was Winslow Constructors Pty Ltd (Winslow). Coffey undertook the field density testing and the compaction control testing in their laboratory and at A&Y Associates Laboratories, as part of the Level 1 Inspection and Testing process.

2.1. Included areas

This report is applicable to material placed by Winslow within Stage 5 of the Mambourin Estate, as shown in Figure 1 and with reference to Section 2.2 (Excluded Areas) of this report. The filling areas encompass five Fill Pads of Stage 5 as shown in Table 2.

Table 2: Fill Pads in Stage 5

Fill Pad	Residential Lot #
Pad 1	#501 - #516
Pad 2	#517 - #522
Pad 3	#523 - #526
Pad 4	#527 - #531
Pad 5	#532 - #537

2.2. Excluded areas

This report does not include fill other than where mentioned in this report or any other fill that may be placed during this period or subsequent periods at or surrounding the subject site. Excluded works comprise road construction, wetlands construction, trench backfill, foot paths, landscaping fill and placement of topsoil.

We note that Spiire (on behalf of Frasers) has engaged Coffey to assess selected parts of the road and wetlands construction within and/or adjacent to Stage 5, such as subgrade assessment, CBR values assessments, density testing, material properties testing and other works where geotechnical advice was required. These works are not covered in this report and are reported separately.

3. Specifications / Work Instructions

The specification for the project were in general accordance with the 'Guidelines on earthworks for commercial and residential developments' of AS 3798-2007.

Spiire have provided Coffey with six drawings titled 'Mambourin Estate Stage 5', Preliminary, under reference 305170F01 to 305170F06. On the Face Sheet under reference 305170F01, the following notes were considered and adopted as part of the earthworks specifications:

- Note 8: ALL FILLING SHALL BE TO A LEVEL 150mm BELOW THE FINISHED SURFACE LEVEL SHOWN AND COMPACTED AS PER AS-3798-1988.FILLING MATERIAL IS TO BE IN ACCORDANCE WITH THE SPECIFICATION & TO THE SATISFACTION OF COUNCIL AND THE SUPERINTENDENT.
- Note 9: ALL BATTERS SHALL BE 1 IN 6, UNLESS OTHERWISE SHOWN.
- Note 14: WHERE REQUIRED, ALL EXISTING DAMS, DEPRESSIONS AND DRAINS ARE TO BE BREACHED, DRAINED, DESLUDGED AND SHALL BE EXCAVATED TO A CLEAN FIRM BASE. THE SURFACE SHALL BE INSPECTED, APPROVED AND LEVELED BY THE ENGINEER PRIOR TO COMMENCEM ENT OF FILLING. THE FILL SHALL BE APPROVED SELECTED ON SITE MATERIAL OR APPROVED IMPORTED M ATERIAL. THE FILL SHALL BE PLACED UNDER CONTROLLED MOISTURE CONDITIONS IN ACCORDANCE WITH THE SPECIFICATION.

In addition to the above notes, the following items from AS3798-2007 were discussed with Spiire and Winslow prior to the earthworks and adopted as part of the project earthworks specifications:

- All filling in excess of 200mm depth within the building envelope of allotments shall be undertaken to specifications satisfying the requirements of AS 3798-2007 "Guidelines on Earthworks for Commercial and Residential Development";
- All such 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;
- Subgrade to be proof rolled in presence of the Level 1 Inspector prior to placement of an engineered fill;
- Subgrade to be surveyed prior to placement of any fill;
- Material to be used for fill construction shall satisfy the requirements of AS 3798-2007;
- Fill to be compacted in near horizontal layers not exceeding 300mm loose thickness;
- Compaction to achieve a ratio of at least 95% Standard MDD (maximum dry density);
- Moisture content of the fill material is to be within ±3% of the Standard Optimum Moisture Content (SOMC);
- Frequency of testing to be in accordance with Table 8.1 of AS3798-2007;
- Finished fill surface to be surveyed prior to placement of topsoil.
- 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, topsoils, silts or soils containing organic matter, wood, plastics, metal or other deleterious materials are not acceptable.

4. Fill Material

Fill used for the construction of Stage 5 comprised from imported sources arranged and approved by the contractor (Winslow) and the project manager (Spiire), as well as locally sourced clay from excavation of wetlands, road boxing and trenching within Mambourin Estate.

Any observed organic or deleterious matter including any oversize particles were removed during the fill placement within the engineered fill platforms. Coffey was not involved in the selection and approval process for the imported fill material.

The fill placed on the residential fill Lots generally comprised high and medium plasticity clay which is considered as 'Suitable Material' in accordance with Section 4.4 of the AS3798-2007.

5. Earthworks

The earthworks for this project included the following:

- Stripping of topsoil,
- Assessment, remediation and proof rolling of subgrade, and;
- Placement and compaction of fill to construct the engineered fill areas.

5.1. Subgrade Assessment

The subgrade of Stage 5 Fill Pads 1 to 5 was assessed progressively throughout the works in one section as follows:

- The Fill Pad 1 subgrade was assessed on 29 November 2018;
- The Fill Pad 2 subgrade was assessed on 29 November 2018;
- The Fill Pad 3 subgrade was assessed on 29 November 2018;
- The Fill Pad 4 subgrade was assessed on 29 November 2018;
- The Fill Pad 5 subgrade was assessed on 29 November 2018;

Subgrade assessment was conducted following the removal of topsoil, uncontrolled fill and before any fill was placed. In all areas the subgrade comprised natural clay with occasional basalt floaters observed immediately below and at the surface level. A surveyor engaged by Winslow/Spiire undertook a survey of the subgrade levels following Coffey's assessment.

No soft spots or deflections were observed during the subgrade proof rolling.

5.2. Fill Construction

All sourced fill was trucked in, spread with a bulldozer, compactor or grader and compacted with a compactor and/or a pad foot roller. A water cart was present onsite during works for moisture conditioning of the materials.

Prior to placement of the fill, the subgrade was scarified and moisturised to allow better bonding. The fill was then placed in horizontal layers not exceeding 300mm thickness. If any organic matter, oversize particles or unsuitable material was observed, the contractor was advised to remove this from the fill pad. Once the placed fill was approved, the layer was compacted accordingly.

Coffey personnel were on site on a fulltime basis during the placement, compaction and testing of the fill on the dates noted in Table 1 of this report.

5.3. Survey data and Fill Thickness

Spiire Australia Pty Ltd (Spiire) have provided us with a copy of a survey showing the levels of the stripped and finished surfaces of Precinct 1 of Mambourin Estate. Precinct 1 includes Stage 1 to 5 of the project.

These drawings are presented in 2 sheets attached in Appendix B under reference Mambourin Estate Precinct 1, Earthworks Filling Plan, Spot Level Comparison, Sheets 1 and 2, Drawing No. 303540SK05 and 303540SK06, Rev A.

The information from above surveys has been summarised in Table 3.

Fill Pad	Lot Number	Subgrade level (m)	Finish Level (m)	Fill thickness (m)	Number of layers	Average layer thickness (m)	Meet Project requirements
1	502	36.93	37.51	0.58	4	0.15	Yes
1	509	35.91	36.89	0.98	6	0.16	Yes
1	515	35.66	37.16	1.5	6	0.25	Yes
2	517	35.52	36.5	0.98	6	0.16	Yes
2	520	35.31	36.39	1.08	6	0.18	Yes
2	522	35.18	36.14	0.96	6	0.16	Yes
3	523	35.42	36.06	0.64	6	0.11	Yes
3	525	35.46	36.44	0.98	6	0.16	Yes
3	526	35.61	37.18	1.57	6	0.26	Yes
4	527	35.68	36.87	1.19	7	0.17	Yes
4	529	35.89	36.61	0.72	7	0.1	Yes
4	531	36.08	36.73	0.65	6	0.11	Yes
5	532	36.21	37.45	1.24	5	0.25	Yes
5	534	36.48	37.75	1.27	5	0.25	Yes
5	537	36.88	37.82	0.94	5	0.19	Yes

Table 3: Fill levels at selected spot locations in Stage 5

Based on the summary shown in Table 3 and the analysed fill layers thicknesses at the selected spot locations are generally compliant with the project specifications.

6. Testing and Results

Field density testing was undertaken progressively during construction on the compacted fill. Testing was undertaken under the frequencies listed below, subject to the area and volume worked on the day of testing:

- 1 test per material type per layer per 2500m² or 1 test per 500m³ distributed reasonably evenly or 3 tests per lot – whichever requires the most tests in accordance with Type 1 Earthworks (large scale operations) as defined in Table 8.1 of the AS 3798-2007;
- 1 test per layer per 1,000m² or 1 test per 200m³ distributed reasonably evenly or 1 test per residential lot whichever requires the most tests in accordance with Type 2 Earthworks (small scale operations) as defined in Table 8.1 of the AS 3798-2007;
- 1 test per layer per 500m² or 1 test per 100m³ distributed reasonably evenly or 3 tests per visit
 whichever requires the most tests in accordance with Type 3 Earthworks (concentrated scale operations) as defined in Table 8.1 of the AS 3798-2007;
- 1 test per 2 layers per 50m² distributed reasonably evenly throughout the fill depth –in accordance with Type 4 Earthworks (confined operations) as defined in Table 8.1 of the AS 3798-2007.

The field density testing was conducted by Coffey's personnel on site using a Nuclear Density Gauge in accordance with AS1289.5.8.1 'Determination of field density and field moisture content of a soil using a nuclear surface Moisture – Density Gauge'.

The laboratory testing was performed at Coffey's laboratory. A Hilf Rapid compaction test was performed for each field density test in accordance with AS1289.5.7.1 'Soil compaction and density tests—Compaction control test—Hilf density ratio and Hilf moisture variation (rapid method)'.

The location of the field density tests was determined by use of the GPS on the construction plant operated by the contractor on site. For each of the field density tests, the following items were recorded on the field sheets: test location, layer number, layer thickness, test depth, soil type, time and date of testing.

A total of 67 density tests were performed during the earthworks in the locations as presented in Figures 2 and 3. Of the 67 tests, 8 did not meet the specified criteria. These areas were subsequently re-worked and re-tested. Once re-tested, the 8 test results met the specified dry density ratio criteria of 95% Standard compactive effort and moisture variation of $\pm 3\%$ of the Optimum Moisture Content (OMC).

A summary of the test results obtained from the field density testing within Stage 5 are provided in a table presented as Figure 4. The laboratory test reports of the field density tests are presented in Appendix A.

7. Statement of Compliance

Coffey personnel have provided Level 1 inspection and testing services during the construction of the engineered fill areas within Stage 5 of Mambourin Estate as shown in SMS survey drawing in Appendix B. A geotechnical professional from Coffey (Level 1 Inspector) was on site on a full-time basis during the construction of the engineered fill platforms and observed the construction techniques adopted for the dates noted in section 2 of this report.

Based on observations made by Coffey's Level 1 Inspector and the results of field and laboratory tests, Coffey consider that the engineered fill areas within Stage 5 of Mambourin Estate as indicated in the SMS survey drawing in Appendix B, constructed by Winslow to the levels indicated in Section 5.3 of this report, as far as we have been able to reasonably determine, have been placed in general accordance with the intent of the specification.

Figures

Figure 1 – Site Plan indicating Fill Pads and Exclusion Zones Figure 2, 3 – Field Density Tests Locations Figure 4 – Table – Summary of Density Test Results Figure 5, 6, 7, 8, 9 – Construction Photos









SUMMARY OF FIELD DENSITY TEST RESULTS - STAGE 5 FIGURE 4



Project: Client: PM:	Ma Fra Sp	ambourin Estate, Stag asers Property iire	e 5	Project No. Specification:	754-MELGE221991AI Density Ratio ≥ 95% of Max Dry Density Moisture content within ± 3% of OMC				
Test	Retest of Test	Date	Stage #	Layer	Lot / Location	HILF Density Ratio	Moisture Variation of OMC	Pass / Fail	
#	#			#	#	%	%		
1 to 183			Tests	conducted on othe	r stages				
184	100	lednesday, December 12, 2018	Stage 5	1	527	96.0	1.0	Pass	
185		eunesuay, December 12, 2010	Stage 5	1	516	96.0	1.0	Pass	
186 to 189			Tests	conducted on othe	r stages				
190			Stage 5	1	508	102.0	-2.0	Pass	
191			Stage 5	1	533	102.0	-2.0	Pass	
192		Thursday, January 10, 2019	Stage 5	1	502	102.5	0.5	Pass	
193			Stage 5	2	504	104.0	-2.5	Pass	
194			Stage 5	2	536	107.0	-3.0	Pass	
195			Stage 5	2	507	103.0	-2.5	Pass	
196			Stage 5	2	501	102.0	-2.5	Pass	
197		Monday, January 14, 2019	Stage 5	1	512	101.5	-2.5	Pass	
198			Stage 5	1	515	102.0	0.0	Pass	
199			Stage 5	1	529	100.0	-2.0	Pass	
200			Stage 5	2	524	96.0	-0.5	Pass	
201		ruesday, January 15, 2019	Stage 5	2	516	100.0	0.5	Pass	
202 to 206			Tests	conducted on othe	r stages				
207			Stage 5	3	516	99.5	0.5	Pass	
208			Stage 5	3	525	98.5	0.5	Pass	

	T 1 1 00 0040										
209	i uesoay, January 22, 2019	Stage 5	2	512	100.0	2.0	Pass				
210		Stage 5	2	529	100.5	2.0	Pass				
211	Wednesday, January 23, 2010	Stage 5	2	518	104.5	1.0	Pass				
212	Wednesday, sandary 25, 2013	Stage 5	2	520	102.5	0.5	Pass				
211 to 217	Tests conducted on other stages										
218	Thursday Ephrupy 28, 2010	Stage 5	4	516	101.5	0.5	Pass				
219	Thursday, February 20, 2019	Stage 5	3	511	98.0	1.0	Pass				
220 to 222	0 to 222 Tests conducted on other stages										
223		Stage 5	3	519	103.0	-0.5	Pass				
224	Tuesday, March 05, 2019	Stage 5	4	521	101.0	0.5	Pass				
225		Stage 5	4	511	100.0	1.0	Pass				
226		Stage 5	3	507	100.5	-0.5	Pass				
227	Wednesday, April 17, 2010	Stage 5	3	502	102.5	-2.0	Pass				
228	Wednesday, April 17, 2019	Stage 5	5	516	104.0	-2.0	Pass				
229		Stage 5	5	512	104.0	-0.5	Pass				
230		Stage 5	4	501	105.0	-0.5	Pass				
231		Stage 5	4	504	103.0	-0.5	Pass				
232	Thursday April 19, 2010	Stage 5	3	536	102.0	0.5	Pass				
233	Thuisday, April 10, 2019	Stage 5	4	535	101.0	0.5	Pass				
234		Stage 5	5	536	104.0	-1.0	Pass				
235		Stage 5	5	507	103.0	-0.5	Pass				
236		Stage 5	3	531	101.5	-2.0	Pass				
237		Stage 5	3	528	100.5	-0.5	Pass				
	ivionday, April 29, 2019										

238			Stage 5	4	530	99.5	0.5	Pass		
239			Stage 5	4	527	102.0	0.5	Pass		
240		Tuesday April 30, 2019	Stage 5	5	530	98.5	1.5	Pass		
241		raesday, April 60, 2015	Stage 5	5	527	99.0	1.5	Pass		
242		Wednesday May 1 2019	Stage 5	4	525	101.5	3.5	Fail	244	
243		Woanooday, may 1, 2010	Stage 5	5	524	104.5	-0.5	Pass		
244	242		Stage 5	4	525	99.0	3.5	Fail	257	
245			Stage 5	6	523	98.0	3.0	Pass		
246		Friday, May 3, 2019	Stage 5	6	526	101.0	1.0	Pass		
247			Stage 5	6	528	100.0	2.5	Pass		
248			Stage 5	6	530	101.5	2.5	Pass		
249 to 256	756 Tests conducted on other stages									
257	244	244 Tuesday, May 7, 2019 Stage 5 4 525 100.5 6.5 Fail 260								
258 to 259			Tests	conducted on other	r stages					
260	257	Thursday, May 9, 2019	Stage 5	4	525	104.0	-2.0	Pass		
261 to 265			Tests	conducted on other	r stages					
266			Stage 5	5	517	97.5	0.0	Pass		
267		Wednesday, May 15, 2019	Stage 5	5	519	96.0	0.0	Pass		
268			Stage 5	5	522	97.0	0.5	Pass		
269			Stage 5	6	518	97.5	0.0	Pass		
270		Thursday, May 16, 2019	Stage 5	6	520	99.0	0.5	Pass		
271			Stage 5	6	522	97.0	0.5	Pass		
272 to 302			Tests	conducted on other	stages					
			Sterre F	6	516	100.0	0.0	Feil	200	

304		Monday, 01 July, 2019	Stage 5	6	514	98.0	9.5	Fail	307	
305			Stage 5	6	512	99.5	9.0	Fail	308	
306	303		Stage 5	6	516	100.5	5.5	Fail	309	
307	304	Tuesday, 02 July, 2019	Stage 5	6	514	98.5	2.5	Pass		
308	305		Stage 5	6	512	98.5	3.0	Pass		
309	306		Stage 5	6	516	101.5	5.0	Fail	312	
310		Wednesday, 03 July, 2019	Stage 5	6	510	102.5	3.0	Pass		
311			Stage 5	6	508	102.5	2.5	Pass		
312	309	Thursday, 04 July, 2019	Stage 5	6	516	99.0	0.5	Pass		
313 to 337	13 to 337 Tests conducted on other stages									
338		Tuesday, 08 October, 2019	Stage 5	7	528	99.0	0.0	Pass		
End										











Note: Plans are not to scale. All locations are approximate only. date approved drawn description revision

 CONSTRUCTION PHOTOGRAPHS

 754-MELGE 221991AI
 figure no: 5

project no:

title:

COT A TETRA TECH CO

A3

original size

date scale

20/05/2020 NTS

SS

approved

۶

drawn

SPIIRE C/- FRASERS PROPERTY MAMBOURIN ESTATE STAGE 5

client: project:

of Stage 5 fill pads.









Appendix A – Laboratory Test Reports



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

HILF Density Ratio Report					Report No: HDR:MELB18W00280 Issue No: 1				
Client:	Coffey Services Aust Level 1 436 Johnston Abbotsford VIC 306	tralia Pty Ltd (E) n Street 57	(T - Abbotsford)						
Principal: Project No.: Project Name: Lot No.:	incipal: Frasers Property Australia oject No.: 754-MELB00044AA oject Name: 754-MELGE221991AA - Mambourin Estate t No.: TRN:					Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 9/06/2020			
Sample Deta	ails								
Location:	Mambo	ourin Estate							
Client Request I	D:								
Specification Re	equirements: MINIM 3% of	UM HILF DENS OMC (as advise	ITY RATIO OF 9 d by client)	95% of Standar	d Compaction an	d Moisture varia	tion to be within		
Field Test proce	dures: AS 128	39.5.8.1	,						
Laboratory Test	procedures: AS 128	39.2.1.1. AS 128	9.5.7.1						
Sampling Metho	d: AS128	9.1.2.1 Clause 6	6.4 (b)						
Source:									
Material:									
Sample Data	3								
Sample ID		MELB18S-00986	MELB18S-00987	MELB18S-00988	MELB18S-00989				
Field Sample ID		00187	00188	00189	00190				
Client Sample ID)	182	183	184	185				
Date Tested		12/12/2018	12/12/2018	12/12/2018	12/12/2018				
Time Tested		11:10	11:45	03:50	04:00				
LOT Number		373	377	527	516				
Layer Number		3	3	1	1				
Stage		3	3	5	5				
Field and La	boratory Data								
Depth of Test (m	יב וm)	275	275	275	275				
Depth of Layer (mm)	300	300	300	300				
Field Moisture C	content (%)	15.1	15.7	15.0	15.7				
Field Moisture C	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Densit	ty (t/m³)	1.96	1.97	1.97	1.97				
Field Dry Densit	y (t/m³)	1.71	1.70	1.71	1.70				
Peak Converted	Wet Density* (t/m ³)	2.01	1.92	2.05	2.05				
Optimum Moistu	ure Content (%)	17.5	18.0	14.0	14.5				
Compactive Effo	ort	Standard	Standard	Standard	Standard				
Moisture Ratio (%)	87.5	86.5	106.0	108.5				
Moisture Variati	on (%)	2.0 dry	2.5 dry	1.0 wet	1.0 wet				
Hilf Density F	Ratio (%)	98.0	103.0	96.0	96.0				
legend * adjusted for c	oversize material								



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067

ABN 92 114 364 046 Phone: +61 418 691 682

						Report	No: HDR:ME	_B19W00008
HII E De	nsity Ratio	o Renor	rt i					Issue No: 1
Client:	Coffey Services Aust	tralia Ptv I td (F)	T - Abbotsford)					
	Level 1 436 Johnston Abbotsford VIC 306	n Street						
Dringingly		atrolia			on b(
Project No.: 754-MELB00044AA Project Name: 754-MELGE221991AA - Mambourin Estate Lot No.: TRN:				Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019				
Sample Det	ails							
Location:	Mambo	ourin Estate						
Client Request	ID:							
Specification R	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	95% of Star	ndard	Compaction an	d Moisture varia	tion to be within
	3% of	OMC (as advise	d by client)					
Field Test proce	edures: AS 128	89.5.8.1						
Laboratory Tes	t procedures: AS 128	89.5.7.1, AS 128	39.2.1.1					
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (a)					
Source:								
Material:	Fill							
Sample Dat	2							
Sample ID	a	MELB19S-00020	MELB19S-00021	MELB19S-0	0022	MELB19S-00023	MELB19S-00024	
Field Sample ID		00201	00202	00203		00204	00205	
Client Sample I	D	190	191	192		193	194	
Date Tested		10/01/2019	10/01/2019	10/01/20	19	10/01/2019	10/01/2019	
Time Tested		11:30	12:10	03:50		04:20	04:45	
LOT Number		508	533	502		504	536	
Layer Number		1	1	1		2	2	
Stage Number		5	5	5		5	5	
Field and La	aboratory Data							
Depth of Test (r	nm)	275	275	275		275	275	
Depth of Layer	(mm)	300	300	300		300	300	
Field Moisture	Content (%)	26.8	31.8	22.3		27.7	25.2	
Field Moisture	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.	1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Densi	ity (t/m³)	1.96	1.96	1.95		1.96	1.97	
Field Dry Densi	ty (t/m³)	1.55	1.49	1.60		1.53	1.57	
Peak Converted	l Wet Density* (t/m³)	1.92	1.92	1.90		1.88	1.84	
Optimum Moist	ure Content (%)	29.0	34.0	21.5		30.0	28.5	
Compactive Eff	ort	Standard	Standard	Standar	ď	Standard	Standard	
Moisture Ratio	(%)	92.5	93.0	103.0		91.5	89.0	
Moisture Variat	ion (%)	2.0 dry	2.0 dry	0.5 we	t	2.5 dry	3.0 dry	
Hilf Density I	Ratio (%)	102.0	102.0	102.5	5	104.0	107.0	
legend * adjusted for	oversize material							



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

						Report	No: HDR:MEI	_B19W00020
	nsity Rati	- Renor	•					Issue No: 1
	isity Natio	o ivehoi	L					
Client: C	Coffey Services Aus	tralia Pty Ltd (E> n Street	(T - Abbotsford)					
A A	Abbotsford VIC 306	57						
Principal: F Project No.: 7 Project Name: 7 Lot No.:	II: Frasers Property Australia No.: 754-MELB00044AA ame: 754-MELGE221991AA - Mambourin Estate TRN:				Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019			
Sample Detai	ils							
Location:	Mamb	ourin Estate						
Client Request ID):							
Specification Rec	uirements: MINIM	UM HILE DENS	ITY RATIO OF 9	95% of Star	ndard	Compaction an	d Moisture varia	tion to be within
	3% of	OMC(as advised	d by client)		laara	compaction an		
Field Test proced	lures: AS 128	39.5.8.1	,					
Laboratory Test	procedures: AS 128	39.5.7.1. AS 128	39.2.1.1					
Sampling Method	I: AS128	9.1.2.1 Clause 6	6.4 (b)					
Source:		0.0000						
Material:	Fill							
O a se a la Data								
Sample Data								
Sample ID		MELB19S-00061	MELB19S-00062	MELB19S-00	0063	MELB19S-00064	MELB19S-00065	
Field Sample ID		00206	00207	00208		00209	00210	
Client Sample ID		195	196	197	10	198	199	
Date Tested		14/01/2019	14/01/2019	14/01/20	19	14/01/2019	14/01/2019	
		03.45	04.10	04.30		04.50	05.10	
		507	501	210		515	529	
Layer Number		2	2			۱ ۲	1	
Stage Number	arotany Data	5	5	5		5	5	
Field and Lat		075	075	075		075	075	
Depth of Test (mr	n)	275	275	2/5		275	275	
Eigld Mointure Co	antont (%)	300	300	300		300	300	
Field Moisture Co	ontent (%)	12.9	10.0	19.0	1 1	10.0	14.0	
Field Wot Donsity	r (t/m ³)	1 05	1 0/	1 0/	1.1	1 03	1 02	
Field Dry Density	(t/m ³)	1.33	1.54	1.04		1.55	1.52	
Peak Converted V	Net Density* (t/m³)	1.70	1.90	1.00		1.89	1.07	
Optimum Moistur	re Content (%)	15.5	19.0	22.0		17.0	17.0	
Compactive Effor	rt	Standard	Standard	Standar	ď	Standard	Standard	
Moisture Ratio (%	6)	84.0	86.5	88.5	~	99.0	88.0	
Moisture Variatio	, n (%)	2.5 dry	2.5 dry	2.5 dry	/	0.0	2.0 dry	
Hilf Density R	atio (%)	103.0	102.0	101.5	;	102.0	100.0	
legend * adjusted for ov	versize material							



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

					Report No: HDR:MELB19W00025		
HILF De	nsity Ratio	o Repor	t		Issue No: 1		
Client:	Coffey Services Aust Level 1 436 Johnstor Abbotsford VIC 306	ralia Pty Ltd (E) n Street 7	(T - Abbotsford)				
Principal: Project No.: Project Name: Lot No.:	Frasers Property Australia 754-MELB00044AA 754-MELGE221991AA - Mambourin Estate TRN:				Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019		
Sample Deta	ails						
Location:	Mambo	ourin Estate					
Client Request I	D:						
Specification Re	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	5% of Sta	ndard Compaction ans Moisture variation to be within		
-	3% of	OMC(as advised	d by client)				
Field Test proce	dures: AS 128	39.5.8.1					
Laboratory Test	procedures: AS 128	39.5.7.1, AS 128	9.2.1.1				
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (a)				
Source:							
Material:	Fill						
Sample Data	a						
Sample ID		MELB19S-00075	MELB19S-00076				
Field Sample ID		00211	00212				
Client Sample II)	200	201				
Date Tested		15/01/2019	15/01/2019				
LOT Number		03:45	04:15				
LOT Number		524	516				
Layer Number		2	2				
Stage Number	havetaw. Data	5	5				
Field and La	iboratory Data	075	075				
Depth of Test (n	nm)	275	275				
Depth of Layer (mm)	300	300				
Field Moisture C	Content (%)	17.9	19.4				
Field Wot Densi		AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Densi	Ly (L/III ²)	1.93	1.95				
Pield Dry Delisit	.y (UIII') Wot Doncitu'* (t/m³)	2.01	1.03				
Ontimum Moist	tre Content (%)	18.5	1.34				
Compactive Eff	ort	Standard	Standard				
Moisture Ratio (%)	97.0	102.5				
Moisture Variati	on (%)	0.5 drv	0.5 wet				
Hilf Density F	Ratio (%)	96.0	100.0				
legend * adjusted for a	oversize material						



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

				Г	Report	No: HDR:ME	LB19W00038
HILF De	nsity Ratio	o Repor	t				Issue No: 1
Client:	Coffey Services Australia Pty Ltd (EXT - Abbotsford) Level 1 436 Johnston Street Abbotsford VIC 3067						
Principal: Project No.: Project Name: Lot No.:	rincipal: Frasers Property Australia roject No.: 754-MELB00044AA oject Name: 754-MELGE221991AA - Mambourin Estate ot No.: TRN:				Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019		
Sample Deta	ails						
Location:	Mambo	ourin Estate					
Client Request	ID:						
Specification Re	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	95% of Stand	ard Compaction an	d moisture varia	tion to be within
	3% of	OMC (as advise	d by client)		•		
Field Test proce	edures: AS 128	39.5.8.1					
Laboratory Test	t procedures: AS 128	39.5.7.1, AS 128	9.2.1.1				
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (b)				
Source:							
Material:	Fill						
Sample Date	a						
Sample ID	a	MEL B19S-00143	MEL B19S-00144	MEL B19S-001	45 MEL B19S-00146		
Field Sample ID		00218	00219	00220	00221		
Client Sample II	Π	207	208	209	210		
Date Tested	_	22/01/2019	22/01/2019	22/01/2019	22/01/2019		
Time Tested		03:45	04:00	04:20	04:50		
LOT Number		516	525	512	529		
Layer Number		3	3	2	2		
Stage Number		5	5	5	5		
Field and La	aboratory Data						
Depth of Test (n	nm)	275	275	275	275		
Depth of Layer	(mm)	300	300	300	300		
Field Moisture (Content (%)	25.9	24.2	24.4	21.7		
Field Moisture (Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	1 AS 1289.2.1.1		
Field Wet Densi	ity (t/m³)	1.94	1.94	1.96	1.97		
Field Dry Densit	ty (t/m³)	1.54	1.56	1.57	1.62		
Peak Converted	I Wet Density* (t/m³)	1.95	1.97	1.95	1.95		
Optimum Moist	ure Content (%)	25.5	23.5	22.5	19.5		
Compactive Eff	ort	Standard	Standard	Standard	Standard		
Moisture Ratio	(%)	102.0	102.5	109.0	111.0		
Moisture Variati	ion (%)	0.5 wet	0.5 wet	2.0 wet	2.0 wet		
HIIT Density I	katio (%)	99.5	98.5	100.0	100.5		
legend * adjusted for	oversize material						



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

					Report No: HDR:MELB19W00041		
HILF De	nsity Ratio	o Repor	't		Issue No: 1		
Client:	Coffey Services Aust Level 1 436 Johnstor Abbotsford VIC 306	ralia Pty Ltd (E) n Street 7	(T - Abbotsford)				
Principal: Project No.: Project Name: Lot No.:	Frasers Property Australia 754-MELB00044AA 754-MELGE221991AA - Mambourin Estate TRN:				Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019		
Sample Deta	ails						
Location:	Mambo	ourin Estate					
Client Request	ID:						
Specification Re	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	5% of Sta	ndard Compaction and Moisture variation to be within		
-	3% of (OMC (as advise	d by client)				
Field Test proce	edures: AS 128	39.5.8.1					
Laboratory Test	t procedures: AS 128	39.5.7.1, AS 128	39.2.1.1				
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (b)				
Source:							
Material:	Fill						
Sample Data	a						
Sample ID		MELB19S-00165	MELB19S-00166				
Field Sample ID		00223	00224				
Client Sample II		211	212				
Date Tested		23/01/2019	23/01/2019				
Time Tested		03:03	03:03				
LOT Number		518	520				
Layer Number		1	2				
	hereter Dete	5	Э				
Field and La	aboratory Data	075	075				
Depth of Test (n	nm)	275	275				
Eigld Moisture	$\frac{(11111)}{2}$	300	300				
Field Moisture (Content (%)	ZJ.7	20.7 AS 1280 2.1.1				
Field Wot Donsi	$t_{\rm V}$ (t/m ³)	1 07	1 05				
Field Dry Densi	ty (t/m ³)	1.57	1.50				
Peak Converted	Wet Densitv* (t/m³)	1.88	1.02				
Optimum Moist	ure Content (%)	23.0	28.0				
Compactive Eff	ort	Standard	Standard				
Moisture Ratio	(%)	103.5	102.0				
Moisture Variati	ion (%)	1.0 wet	0.5 wet				
Hilf Density I	Ratio (%)	104.5	102.5				
legend * adjusted for	oversize material	_	-				



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

						Report	No: HDR:MEI	B19W00085
HILF De	nsity Ratio	o Repor	t					Issue No: 1
Client:	Coffey Services Australia Pty Ltd (EXT - Abbotsford) Level 1 436 Johnston Street Abbotsford VIC 3067							
Principal: Project No.: Project Name: Lot No.:	cipal: Frasers Property Australia ect No.: 754-MELB00044AA ct Name: 754-MELGE221991AA - Mambourin Estate No.: TRN:				Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019			
Sample Deta	ails							
Location:	Mambo	ourin Estate						
Client Request	ID:							
Specification Re	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	95% of Star	ndard	Compaction and	d Moisture varia	tion to be within
	3% of	OMC(as advised	d by client)					
Field Test proce	edures: AS 128	89.5.8.1						
Laboratory Test	t procedures: AS 128	89.5.7.1, AS 128	89.2.1.1					
Sampling Metho	d: AS128	9.1.2.1 Clause 6	6.4 (b)					
Source:								
Material:	Fill							
Sample Date	3							
Sample ID	a	MEL P10S 00344	MEL 2102 00345	MEL 8105.00	0346	MEL R105 00347	MEL R105 00348	
Field Sample ID		00245	00246	00247	0340	00248	00240	
Client Sample ID	<u>ר</u>	218	219	220		221	222	
Date Tested	5	28/02/2019	28/02/2019	1/01/190	0	1/01/1900	1/01/1900	
Time Tested		09:30	10:10	02:30	.0	03.00	03:35	
I OT Number		516	511	111		106	102	
Laver Number		4	3	4		4	4	
Stage		5	5	1		1	1	
Field and La	aboratory Data							
Depth of Test (n	nm)	275	275	275		275	275	
Depth of Laver	(mm)	300	300	300		300	300	
Field Moisture C	Content (%)	18.5	19.9	29.9		31.8	38.8	
Field Moisture 0	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.	1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Densi	ty (t/m³)	1.98	1.91	1.92		1.92	1.92	
Field Dry Densit	ty (t/m ³)	1.67	1.59	1.48		1.46	1.38	
Peak Converted	Wet Density* (t/m³)	1.95	1.94	1.88		1.92	1.90	
Optimum Moist	ure Content (%)	18.0	19.0	29.5		31.5	36.5	
Compactive Effe	ort	Standard	Standard	Standar	ď	Standard	Standard	
Moisture Ratio	(%)	102.5	105.5	101.5		101.5	106.0	
Moisture Variati	ion (%)	0.5 wet	1.0 wet	0.5 we	t	0.5 wet	2.0 wet	
Hilf Density F	Ratio (%)	101.5	98.0	102.0		100.0	100.5	
legend * adjusted for	oversize material							



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

					Report No: HDR:MELB19W00091		
HILF De	nsity Ratio	o Repor	t		Issue No: 1		
Client:	Coffey Services Aust Level 1 436 Johnstor Abbotsford VIC 306	n Street 7	(T - Abbotsford)				
Principal: Project No.: Project Name: Lot No.:	I: Frasers Property Australia Io.: 754-MELB00044AA me: 754-MELGE221991AA - Mambourin Estate TRN:				Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019		
Sample Det	ails						
Location:	Mambo	ourin Estate					
Client Request	ID:						
Specification R	equirements: MINIM 3% of	UM HILF DENS OMC (as advise	ITY RATIO OF 9 d by client)	95% of Stand	dard Compaction and Moisture variation to be within		
Field Test proce	edures: AS 128	39.5.8.1					
Laboratory Test	t procedures: AS 128	39.5.7.1, AS 128	9.2.1.1				
Sampling Metho	d: AS128	9.1.2.1 Clause 6	6.4 (b)				
Source:			()				
Material:	Fill						
Sample Data	а						
Sample ID		MELB19S-00368	MELB19S-00369	MELB19S-003	370		
Field Sample ID	1	00250	00251	00252			
Client Sample II	D	223	224	225			
Date Tested		5/03/2019	5/03/2019	5/03/2019			
Time Tested		11:45	12:30	02:20			
LOT Number		519	521	511			
Lsayer		3	4	4			
Stage		5	5	5			
Field and La	aboratory Data						
Depth of Test (r	nm)	275	275	275			
Depth of Layer	(mm)	300	300	300			
Field Moisture (Content (%)	28.8	28.0	28.5			
Field Moisture (Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.	1		
Field Wet Densi	ty (t/m³)	1.92	1.91	1.92			
Field Dry Densi	ty (t/m³)	1.49	1.50	1.50			
Peak Converted	I Wet Density* (t/m ³)	1.86	1.89	1.92			
Optimum Moist	ure Content (%)	29.0	27.5	27.5			
Compactive Eff	ort	Standard	Standard	Standard			
Moisture Ratio	(%)	98.5	101.5	103.5			
woisture Variat	ion (%)	0.5 dry	0.5 Wet	1.0 wet			
Density I	Tatio (%)	103.0	101.0	100.0			
legend * adjusted for	oversize material						



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

					Report	No: HDR:MELB19V	V00134
HII F De	ensity Ratio	o Repor	t			lss	ue No: 1
Client:	Coffey Services Aust	ralia Ptv I td (E)	T - Abbotsford)				
	Level 1 436 Johnstor Abbotsford VIC 306	n Street 7					
Principal:	Frasers Property Aug	stralia			Oh	do	
Project No.: Project Name: Lot No.:	Project No.: 754-MELB00044AA Project Name: 754-MELGE221991AA - Mambourin Estate Lot No.: TRN:				Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019		
Sample Det	ails						
Location:	Mambo	ourin Estate					
Client Request	ID:						
Specification R	equirements: MINIM	UM HILE DENS	ITY RATIO OF 9	95% of Standa	ard Compaction an	d moisture variation to	be within
	3% of (OMC(as advised	d by client)				
Field Test proc	edures: AS 128	39.5.8.1	3				
Laboratory Tes	t procedures: AS 128	39.5.7.1. AS 128	9.2.1.1				
Sampling Meth	od: AS128	9.1.2.1 Clause 6	6.4 (b)				
Source:							
Material:							
Sample Dat	a						
Sample ID		MELB19S-00508	MELB19S-00509	MELB19S-0051	0 MELB19S-00511		
Field Sample ID)	00254	00255	00256	00257		
Client Sample I	D	226	227	228	229		
Date Tested		17/04/2019	17/04/2019	17/04/2019	17/04/2019		
Time Tested		11:30	12:15	13:30	14:10		
stage		5	5	5	5		
Lot no		507	502	516	512		
Layer	- barrete a Data	3	3	5	5		
Field and La	aboratory Data						
Depth of Test (I	mm)	275	275	275	275		
Depth of Layer	(mm)	300	300	300	300		
Field Moisture	Content (%)	24.4	22.5	25.7	22.7		
Field Moisture	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1		
Field Wet Dens	ity (t/m ³)	1.95	1.96	1.95	1.96		
Field Dry Densi	ty (t/m³)	1.57	1.60	1.55	1.60		
Peak Converted	a wet Density" (t/m*)	1.94	1.92	1.88	1.89		
	ure content (%)	20.U	24.5 Stondard	28.U	Z3.5		
Moisture Batic	(0/)						
Moisture Katlo	(/0)	90.0 0.5 dry	92.3 2.0 dry	92.0 2.0 dry	0.5 dry		
	Datio (%)	100 E	2.0 ury	2.0 ury	10.5 ury		
	Natio (70)	100.3	102.3	104.0	104.0		

Comments

legend * adjusted for oversize material



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

Report No: HDR:MELB19W00135 Issue No: 1

HILF Density Ratio Report

Client:	Coffey Services Australia Pty Ltd (EXT - Abbotsford) Level 1 436 Johnston Street Abbotsford VIC 3067
Principal:	Frasers Property Australia
Project No.:	754-MELB00044AA
Project Name:	754-MELGE221991AA - Mambourin Estate
Lot No.:	TRN:

Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019

Sample Details

Location:

Mambourin Estate

Client Request ID:

 Specification Requirements:
 MINIMUM HILF DENSITY RATIO OF 95% of Standard Compaction and moisture variation to be within 3% of OMC (as advised by client)

 Field Test procedures:
 AS 1289.5.8.1

 Laboratory Test procedures:
 AS 1289.5.7.1, AS 1289.2.1.1

 Sampling Method:
 AS1289.1.2.1 Clause 6.4 (b)

 Source:
 AS1289.1.2.1 Clause 6.4 (b)

Material:

Sample Data						
Sample ID	MELB19S-00512	MELB19S-00513	MELB19S-00514	MELB19S-00515	MELB19S-00516	MELB19S-00517
Field Sample ID	00258	00259	00260	00261	00262	00263
Client Sample ID	230	231	232	233	234	235
Date Tested	18/04/2019	18/04/2019	18/04/2019	18/04/2019	18/04/2019	18/04/2019
Time Tested	12:30	13:00	13:30	14:00	14:45	15:30
stage	5	5	5	5	5	5
Lot	#501	#504	#536	#535	#536	#507
Layer	4	4	3	4	5	5
Field and Laboratory Data						
Depth of Test (mm)	275	275	275	275	275	275
Depth of Layer (mm)	300	300	300	300	300	300
Field Moisture Content (%)	24.1	24.5	29.0	27.8	24.2	25.5
Field Moisture Content Method	AS 1289.2.1.1					
Field Wet Density (t/m ³)	1.95	1.95	1.95	1.96	1.95	1.95
Field Dry Density (t/m ³)	1.57	1.57	1.51	1.53	1.57	1.55
Peak Converted Wet Density* (t/m ³)	1.86	1.89	1.91	1.93	1.88	1.89
Optimum Moisture Content (%)	24.5	25.0	28.5	27.0	25.0	26.0
Compactive Effort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio (%)	97.5	98.5	101.5	103.0	96.5	97.5
Moisture Variation (%)	0.5 dry	0.5 dry	0.5 wet	0.5 wet	1.0 dry	0.5 dry
Hilf Density Ratio (%)	105.0	103.0	102.0	101.0	104.0	103.0
legend * adjusted for oversize material						



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

				Г	Report	No: HDR:ME	LB19W00139
HILF De	nsity Ratio	o Repor	t				Issue No: 1
Client:	Coffey Services Australia Pty Ltd (EXT - Abbotsford) Level 1 436 Johnston Street Abbotsford VIC 3067						
Principal: Project No.: Project Name: Lot No.:	rincipal: Frasers Property Australia roject No.: 754-MELB00044AA oject Name: 754-MELGE221991AA - Mambourin Estate ot No.: TRN:				Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019		
Sample Deta	ails						
Location:	Mambo	ourin Estate					
Client Request I	D:						
Specification Re	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	95% of Stand	ard Compaction an	d Moisture varia	tion to be within
	3% of	OMC (as advise	d by client)				
Field Test proce	edures: AS 128	39.5.8.1					
Laboratory Test	procedures: AS 128	39.5.7.1, AS 128	89.2.1.1				
Sampling Metho	d: AS128	9.1.2.1 Clause 6	6.4 (b)				
Source:							
Material:	Fill						
Sample Data	а						
Sample ID	-	MELB19S-00524	MELB19S-00525	MELB19S-005	526 MELB19S-00527		
Field Sample ID		00264	00265	00266	00267		
Client Sample II)	236	237	238	239		
Date Tested		29/04/2019	29/04/2019	29/04/2019	29/04/2019		
Time Tested		12:45	01:10	03:35	04:05		
LOT Number		531	528	530	527		
Stage Numer		5	5	5	5		
Layer Number		3	3	4	4		
Field and La	boratory Data						
Depth of Test (n	nm)	275	275	275	275		
Depth of Layer	(mm)	300	300	300	300		
Field Moisture C	Content (%)	32.0	29.6	23.3	26.3		
Field Moisture C	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.	.1 AS 1289.2.1.1		
Field Wet Densi	ty (t/m³)	1.95	1.94	1.94	1.95		
Field Dry Densit	ty (t/m³)	1.47	1.50	1.57	1.55		
Peak Converted	Wet Density* (t/m ³)	1.91	1.93	1.95	1.91		
Optimum Moist	ure Content (%)	34.0	30.0	23.0	26.0		
Compactive Effe	ort	Standard	Standard	Standard	Standard		
Moisture Ratio ((%)	94.0	98.0	102.0	101.5		
Moisture Variati	on (%)	2.0 dry	0.5 dry	0.5 wet	0.5 wet		
HIIT Density I	<atio (%)<="" th=""><th>101.5</th><th>100.5</th><th>99.5</th><th>102.0</th><th></th><th></th></atio>	101.5	100.5	99.5	102.0		
legend * adjusted for o	oversize material						



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067

ABN 92 114 364 046 Phone: +61 418 691 682

HII F Den	sity Rati	n Renor	·t		Repor	t No: HDR:ME	LB19W00142 Issue No: 1
Client: C	offey Services Aust evel 1 436 Johnstor bbotsford VIC 306	ralia Pty Ltd (E) Street	T - Abbotsford)				
Principal: F Project No.: 7 Project Name: 7 Lot No.:	rasers Property Aus 54-MELB00044AA 54-MELGE221991/	stralia AA - Mambourin TRN:	Estate		Appr (Seni 431 Date	oved Signatory: Stephen I or Geotechnician) of Issue: 23/08/2019	Pender
Sample Detai	ls						
Location:	Mambo	ourin Estate					
Client Request ID	:						
Specification Req	uirements: MINIM	UM HILF DENS	ITY RATIO OF 9	5% of Star	ndard Compaction a	nd Moisture varia	ation to be within
	3% of	OMC(as advised	d by client)				
Field Test proced	ures: AS 128	39.5.8.1					
Laboratory Test p	rocedures: AS 128	39.5.7.1, AS 128	89.2.1.1				
Sampling Method	: AS128	9.1.2.1 Clause 6	6.4 (b)				
Source:							
Material:	Fill						
O a va a la Data							
Sample Data							
Sample ID		MELB19S-00531	MELB19S-00532				
Field Sample ID		00268	00269				
Client Sample ID		240	241				
Date Tested		30/04/2019	30/04/2019				
I OT Number		011.15	12.10				
Lor Number		5	521				
Stago		5	5				
Field and Lab	oratory Data	5	5				
Depth of Test (mp		275	275				
Depth of Lavor (m	() (m)	300	300				
Field Moisture Co	ntent (%)	24.8	20.8				
Field Moisture Co	ntent Method	AS 1289 2 1 1	AS 1289 2 1 1				
Field Wet Density	(t/m ³)	1.95	1.94				
Field Dry Density	(t/m ³)	1.56	1.60				
Peak Converted V	Vet Densitv* (t/m³)	1.99	1.96				
Optimum Moistur	e Content (%)	23.5	19.5				
Compactive Effor	t	Standard	Standard				
Moisture Ratio (%)	106.0	108.0				
Moisture Variation	n (%)	1.5 wet	1.5 wet				
Hilf Density Ra	atio (%)	98.5	99.0				
legend * adjusted for ove	ersize material						



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067

ABN 92 114 364 046 Phone: +61 418 691 682

		_			Report No: HDR:MELB19W001	44	
HILF De	ensity Ratio	o Repor	t			J. I	
Client:	Coffey Services Aust Level 1 436 Johnstor Abbotsford VIC 306	ralia Pty Ltd (E) n Street 7	(T - Abbotsford)				
Principal: Project No.: Project Name: Lot No.:	Frasers Property Aus 754-MELB00044AA 754-MELGE2219914	stralia \A - Mambourin TRN:	Estate		Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019		
Sample Deta	ails						
Location:	Mambo	ourin Estate					
Client Request	ID:						
Specification R	equirements: MINIM Within	UM HILF DENS 3% of OMC(as	ITY RATIO OF 9 advised by client	95% of Star t)	ndard Compaction and Moisture Variation to be		
Field Test proce	edures: AS 128	39.5.8.1	-	-			
Laboratory Test	t procedures: AS 128	39.5.7.1, AS 128	9.2.1.1				
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (b)				
Source:							
Material:	Fill						
Sample Data	а						
Sample ID	ŭ	MELB19S-00533	MELB19S-00534				
Field Sample ID		00270	00271				
Client Sample II	D	242	243				
Date Tested		1/05/2019	1/05/2019				
Time Tested		12:00	03:30				
LOT Number		525	524				
Layer Number		4	5				
Stage		5	5				
Field and La	aboratory Data						
Depth of Test (n	nm)	275	275				
Depth of Layer	(mm)	300	300				
Field Moisture 0	Content (%)	34.4	35.3				
Field Moisture (Content Method	AS 1289.2.1.1	AS 1289.2.1.1				
Field Wet Densi	ty (t/m³)	1.86	1.85				
Field Dry Densi	ty (t/m³)	1.38	1.36				
Peak Converted	I Wet Density* (t/m³)	1.83	1.77				
Optimum Moist	ure Content (%)	31.0	35.5				
Compactive Eff	ort	Standard	Standard				
Moisture Ratio	(%)	111.0	99.0				
Moisture Variati	ion (%)	3.5 wet	0.5 dry				
Hilf Density I	Ratio (%)	101.5	104.5				
legend * adjusted for	oversize material						



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

HILF De	ensity Ratio	o Repor	t		Report	No: HDR:ME	LB19W00146 Issue No: 1
Client:	Coffey Services Aust Level 1 436 Johnston Abbotsford VIC 306	tralia Pty Ltd (E) n Street 37	(T - Abbotsford)				
Principal: Project No.: Project Name: Lot No.:	Frasers Property Au 754-MELB00044AA 754-MELGE221991A	stralia AA - Mambourin TRN :	Estate		Approv (Senio 431 Date of	ved Signatory: Stephen F r Geotechnician) f Issue: 23/08/2019	Pender
Sample Det	ails						
Location:	Mamb	ourin Estate					
Client Request	ID.						
Specification R	oquiroments: MINIM			DE ^{0/} of Standar	d Composition on	d Moioturo voria	tion to be within
	3% ∩f	OMC (as advised	the client		u compaction an		
Field Test proc	edures: AS 12	89 5 8 1					
l aboratory Tes	t procedures: AS 120	80 5 7 1 AS 129	20 2 1 1				
Sampling Moth		0 1 2 1 Clause 6	S 1 (b)				
Source:	00. A0120	19.1.2.1 Clause (J.4 (D)				
Source.	E III						
waterial:	FIII						
Sample Dat	а						
Sample ID		MELB19S-00536	MELB19S-00537	MELB19S-00538	MELB19S-00539	MELB19S-00540	MELB19S-00541
Field Sample ID)	00272	00273	00274	00275	00276	00277
Client Sample I	D	244	245	246	247	248	249
Date Tested		3/05/2019	3/05/2019	3/05/2019	3/05/2019	3/05/2019	3/05/2019
Time Tested		10:15	11:30	12:10	01:30	09:10	09:35
LOT Number		525	523	526	528	530	110
Layer Number		4	6	6	6	6	5
Stage		5	5	5	5	5	1
Field and La	aboratory Data						
Depth of Test (I	mm)	275	275	275	275	275	275
Depth of Layer	(mm)	300	300	300	300	300	300
Field Moisture	Content (%)	39.1	37.0	43.8	45.2	46.8	31.6
Field Moisture	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Field Wet Dens	ity (t/m³)	1.86	1.85	1.85	1.86	1.84	1.94
Field Dry Densi	ty (t/m³)	1.34	1.35	1.28	1.28	1.26	1.47
Peak Converted	d Wet Density* (t/m³)	1.88	1.89	1.83	1.86	1.82	1.93
Optimum Moist	ure Content (%)	35.0	34.0	43.0	42.0	44.0	26.5
Compactive Eff	ort	Standard	Standard	Standard	Standard	Standard	Standard
Moisture Ratio	(%)	111.0	109.5	102.0	107.5	106.5	118.5
Moisture Variat	ion (%)	3.5 wet	3.0 wet	1.0 wet	2.5 wet	2.5 wet	5.0 wet
Hilf Density	Ratio (%)	99.0	98.0	101.0	100.0	101.5	100.5
legend * adjusted for	oversize material						



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

					Report	No: HDR:ME	LB19W00146
HILF De	nsity Ratio	o Repor	t				Issue No: 1
Client:	Coffey Services Aust Level 1 436 Johnston Abbotsford VIC 306	ralia Pty Ltd (E) n Street 7	(T - Abbotsford)				
Principal: Project No.: Project Name: Lot No.:	Frasers Property Aus 754-MELB00044AA 754-MELGE221991/	stralia AA - Mambourin TRN :	Estate		Approv (Senior 431 Date of	ed Signatory: Stephen F Geotechnician)	Pender
Sample Deta	ails						
Location:	Mambo	ourin Estate					
Client Request	ID:						
Specification Re	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	95% of Standa	ard Compaction an	d Moisture varia	tion to be within
	3% of	OMC(as advised	d by client)				
Field Test proce	edures: AS 128	39.5.8.1					
Laboratory Test	t procedures: AS 128	39.5.7.1, AS 128	89.2.1.1				
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (b)				
Source:							
Material:	Fill						
Sample Data	а						
Sample ID	u	MEL B19S-00542	MEL B19S-00543	MEL B19S-0054	4 MEL B19S-00545		
Field Sample ID	1	00278	00279	00280	00281		
Client Sample II	ח	250	251	252	253		
Date Tested		3/05/2019	3/05/2019	3/05/2019	3/05/2019		
Time Tested		02:15	03:15	03:10	03:10		
LOT Number		106	111	108	109		
Layer Number		5	6	6	7		
Stage		1	1	1	1		
Field and La	aboratory Data						
Depth of Test (n	nm)	275	275	275	275		
Depth of Layer	(mm)	300	300	300	300		
Field Moisture C	Content (%)	33.1	27.4	30.5	30.8		
Field Moisture C	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1		
Field Wet Densi	ty (t/m³)	1.94	1.93	1.95	1.94		
Field Dry Densit	ty (t/m³)	1.45	1.52	1.49	1.48		
Peak Converted	I Wet Density* (t/m³)	1.93	1.94	1.95	1.94		
Optimum Moist	ure Content (%)	29.5	24.0	27.5	27.5		
Compactive Eff	ort	Standard	Standard	Standard	Standard		
Moisture Ratio	(%)	111.5	113.0	111.5	112.5		
Moisture Variati	ion (%)	3.0 wet	3.0 wet	3.0 wet	3.0 wet		
Hilf Density F	Ratio (%)	100.5	100.0	100.0	99.5		
legend * adjusted for	oversize material						



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067

ABN 92 114 364 046 Phone: +61 418 691 682

					Report No: HDR:MELB19W00148
HILF De	ensity Ratio	o Repor	t		Issue No: 1
Client:	Coffey Services Aust Level 1 436 Johnstor Abbotsford VIC 306	tralia Pty Ltd (E) Street	(T - Abbotsford)		
Principal: Project No.: Project Name: Lot No.:	Frasers Property Aus 754-MELB00044AA 754-MELGE221991A	stralia \A - Mambourin TRN:	Estate		Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 23/08/2019
Sample Det	ails				
Location:	Mambo	ourin Estate			
Client Request	ID:				
Specification R	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	95% of Standa	ard Compaction and Moisture variation to be within
	3% of (OMC (as advise	d by client)		
Field Test proce	edures: AS 128	39.5.8.1	3 ,		
Laboratory Tes	t procedures: AS 128	39.5.7.1, AS 128	9.2.1.1		
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (b)		
Source:			()		
Material:	Fill				
Sample Dat	а				
Sample ID	•	MELB19S-00549	MELB19S-00550	MELB19S-0055	51
Field Sample ID)	00285	00286	00287	
Client Sample I	D	257	258	259	
Date Tested		7/05/2019	7/05/2019	7/05/2019	
Time Tested		11:30	12:30	01:30	
LOT Number		525	110	101	
Layer Number		4	5	5	
Stage		5	1	1	
Re-test		244	249	255	
Field and La	aboratory Data				
Depth of Test (r	nm)	275	275	275	
Depth of Layer	(mm)	300	300	300	
Field Moisture	Content (%)	38.9	42.1	34.9	
Field Moisture	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Densi	ity (t/m ³)	1.86	1.86	1.85	
Field Dry Densi	ty (t/m²)	1.34	1.31	1.37	
Peak Converted	vvet Density" (t/m°)	1.80	1.80	1.84	
Compactive Eff	ure content (%)	JZ.J Standard	04.0 Stondard	27.5 Standard	
Compactive En	(%)	120.0	122.0	126.0	
Moisture Variat	(⁷⁰)	6.5 wet	7.5 wet	7.5 wet	
Hilf Density	Ratio (%)	100.5	100.5	100 5	
legend * adjusted for	oversize material	100.0	100.5	100.5	



ABN 55 139 460 521 Phone: +61 418 691 682

					Report No: HDR:MELB19W00151
HILF De	nsity Ratio	o Repor	t		Issue No: 1
Client:	Coffey Services Aus Level 1 436 Johnston Abbotsford VIC 306	tralia Pty Ltd (E) Street	(T - Abbotsford)		
Principal: Project No.: Project Name: Lot No.:	Frasers Property Au 754-MELB00044AA 754-MELGE221991/	stralia \A - Mambourin TRN :	Estate		Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 11/07/2019
Sample Deta	ails				
Location:	Mamb	ourin Estate			
Client Request	ID:				
Specification Re	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	95% of Stan	ndard Compaction and Moisture variation to be within
	3% of	OMC(as advised	by client)		
Field Test proce	edures: AS 128	39.5.8.1			
Laboratory Test	t procedures: AS 128	39.5.7.1, AS 128	9.2.1.1		
Sampling Metho	od: AS128	9.1.2.1 Clause 6	δ.4 (b)		
Source:					
Material:	Fill				
Sample Date	2				
Sample ID	a	MEL 0100 00559	MEL 0100 00550	MEL 0100 00	0560
Sample ID	1	00204	00205	00206	
Client Sample ID	_ ר	266	267	268	
Date Tested		15/05/2010	15/05/2010	15/05/201	10
Time Tested		01.00	01.00	02:30	
I OT Number		517	519	522	
Laver Number		5	5	5	
Stage		5	5	5	
Field and La	aboratory Data	Ū.	Ū	Ŭ	
Depth of Test (n		275	275	275	
Depth of Laver	(mm)	300	300	300	
Field Moisture (Content (%)	21.0	9.9	17.5	
Field Moisture	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1	1.1
Field Wet Densi	ty (t/m ³)	1.96	1.95	1.96	
Field Dry Densi	ty (t/m ³)	1.62	1.78	1.66	
Peak Converted	Wet Density* (t/m³)	2.01	2.04	2.02	
Optimum Moist	ure Content (%)	21.0	9.5	17.0	
Compactive Eff	ort	Standard	Standard	Standar	d
Moisture Ratio	(%)	99.0	102.0	102.5	
Moisture Variati	ion (%)	0.0	0.0	0.5 wet	t
Hilf Density I	Ratio (%)	97.5	96.0	97.0	
legend * adjusted for	oversize material				



Coffey Services Australia Pty Ltd 15 Marine Parade Melbourne VIC 3067

ABN 55 139 460 521 Phone: +61 418 691 682

		_			Report No: HDR:MELB19W00152
HILF De	ensity Ratio	o Repor	t		
Client:	Coffey Services Aus Level 1 436 Johnston Abbotsford VIC 306	tralia Pty Ltd (E) n Street 37	(T - Abbotsford)		
Principal: Project No.: Project Name: Lot No.:	Frasers Property Au 754-MELB00044AA 754-MELGE221991/	stralia \A - Mambourin TRN :	Estate		Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 11/07/2019
Sample Deta	ails				
Location:	Mamb	ourin Estate			
Client Request	ID:				
Specification Re	equirements: MINIM			5% of Stan	adard Compaction and Moisture variation to be within
	3% of	OMC(as advised	d by client)		
Field Test proce	edures: AS 12	39 5 8 1	a by onenty		
l aboratory Test	t procedures: AS 12	39 5 7 1 AS 129	9211		
Sampling Metho			54(h)		
Source:	Ju. A0120	5.1.2.1 Olduse (J.+ (D)		
Source.	Cill				
Waterial.	E III				
Sample Data	a				
Sample ID		MELB19S-00561	MELB19S-00562	MELB19S-00	0563
Field Sample ID	1	00297	00298	00299	
Client Sample II	D	269	270	271	
Date Tested		16/05/2019	16/05/2019	16/05/201	19
Time Tested		01:30	02:00	02:30	
LOT Number		518	520	522	
Layer Number		6	6	6	
Stage		5	5	5	
Field and La	aboratory Data				
Depth of Test (n	nm)	275	275	275	
Depth of Layer	(mm)	300	300	300	
Field Moisture C	Content (%)	26.1	29.7	24.2	
Field Moisture C	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.	1.1
Field Wet Densi	ty (t/m³)	1.97	1.97	1.96	
Field Dry Densit	ty (t/m³)	1.56	1.51	1.58	
Peak Converted	I Wet Density* (t/m³)	2.02	1.98	2.02	
Optimum Moist	ure Content (%)	26.0	29.0	24.0	
Compactive Eff	ort	Standard	Standard	Standar	d
Moisture Ratio ((%)	101.0	102.0	101.5	
Moisture Variati	ion (%)	0.0	0.5 wet	0.5 wet	t
Hilf Density F	Ratio (%)	97.5	99.0	97.0	
legend * adjusted for	oversize material				



Coffey Testing Pty Ltd 15 Marine Parade Melbourne VIC 3067 ABN 92 114 364 046 Phone: +61 418 691 682

					Report No: HDR:MELB19W00149
HILF De	nsity Ratio	o Repor	t		ISSUE NO: 1
Client:	Coffey Services Aust Level 1 436 Johnstor Abbotsford VIC 306	ralia Pty Ltd (E) n Street 7	(T - Abbotsford)		
Principal: Project No.: Project Name: Lot No.:	Frasers Property Aus 754-MELB00044AA 754-MELGE2219914	stralia AA - Mambourin TRN:	Estate		Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 9/06/2020
Sample Deta	ails				
Location:	Mambo	ourin Estate			
Client Request I	ID:				
Specification Re	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	95% of Stand	lard Compaction and moisture variation to be within
	3% of	OMC(as advised	d by client)		
Field Test proce	edures: AS 128	39.5.8.1			
Laboratory Test	t procedures: AS 128	39.2.1.1, AS 128	39.5.7.1		
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (b)		
Source:					
Material:	Fill				
Sample Data	a				
Sample ID		MELB19S-00552	MELB19S-00553	MELB19S-005	54
Field Sample ID		00288	00289	00290	
Client Sample II	כ	260	261	262	
Date Tested		9/05/2019	9/05/2019	9/05/2019	
Time Tested		01:30	02:00	02:30	
LOT Number		525	110	101	
Layer Number		4	5	5	
Stage		5	1	1	
Re-test		257	258	259	
Field and La	aboratory Data				
Depth of Test (n	nm)	275	275	275	
Depth of Layer ((mm)	300	300	300	
Field Moisture C	Content (%)	23.4	25.8	24.2	
Field Moisture C	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1	.1
Field Wet Densi	ty (t/m³)	1.93	1.92	1.94	
Field Dry Densit	ty (t/m³)	1.57	1.53	1.56	
Peak Converted	Wet Density* (t/m ³)	1.86	1.87	1.87	
Optimum Moisti	ure Content (%)	25.0	28.0	25.0	
Compactive Effe	Ort	Standard	Standard	Standard	
INIOISTURE RATIO ((%)	92.5	92.0	96.0	
woisture variati	on (%)	2.0 dry	2.0 dry	1.0 dry	
	Katio (%)	104.0	103.0	103.5	
regend * adjusted for o	oversize material				



ABN 55 139 460 521 Phone: +61 418 691 682

					Report No: HDR:MELB19W00175
HILF De	nsity Ratio	o Repor	t		Issue No: 1
Client:	Coffey Services Aus Level 1 436 Johnston Abbotsford VIC 306	tralia Pty Ltd (E) n Street	(T - Abbotsford)		
Principal: Project No.: Project Name: Lot No.:	Frasers Property Au 754-MELB00044AA 754-MELGE221991/	stralia AA - Mambourin TRN :	Estate		Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 11/07/2019
Sample Deta	ails				
Location:	Mamb	ourin Estate			
Client Request I	D:				
Specification Re	equirements: MINIM	UM HILF DENS	ITY RATIO OF 9	95% of Star	ndard Compaction and Moisture variation to be within
	3% of	OMC(as advised	by client)		•
Field Test proce	edures: AS 128	39.5.8.1			
Laboratory Test	procedures: AS 128	89.5.7.1, AS 128	9.2.1.1		
Sampling Metho	od: AS128	9.1.2.1 Clause 6	δ.4 (b)		
Source:					
Material:	Fill				
Sample Data	3				
Sample ID	A	MEL B19S-00640	MEL B19S-00641	MEL B195-00	0642
Field Sample ID		00349	00350	00351	
Client Sample II)	303	304	305	
Date Tested	•	1/07/2019	1/07/2019	1/07/201	9
Time Tested		02:10	02:40	03:05	
LOT Number		516	514	512	
Layer Number		66	6	5	
Stage		5	5	5	
Field and La	boratory Data				
Depth of Test (n	nm)	275	275	275	
Depth of Layer	(mm)	300	300	300	
Field Moisture C	Content (%)	47.9	51.5	51.0	
Field Moisture C	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.	1.1
Field Wet Densi	ty (t/m³)	1.89	1.87	1.89	
Field Dry Densit	ty (t/m³)	1.28	1.23	1.25	
Peak Converted	Wet Density* (t/m ³)	1.88	1.91	1.90	
Optimum Moist	ure Content (%)	38.5	41.5	41.0	
Compactive Effe	ort	Standard	Standard	Standar	rd
Moisture Ratio (%)	124.5	124.5	123.5	
Moisture Variati	on (%)	9.0 wet	9.5 wet	9.0 we	t
Hilf Density F	Ratio (%)	100.0	98.0	99.5	
legend * adjusted for o	oversize material				



ABN 55 139 460 521 Phone: +61 418 691 682

		_			Report No: HDR:MELB19W00176
HILF De	ensity Ratio	o Repor	t		
Client:	Coffey Services Aust Level 1 436 Johnston Abbotsford VIC 306	tralia Pty Ltd (EX n Street 37	(T - Abbotsford)		
Principal: Project No.: Project Name: Lot No.:	Frasers Property Aus 754-MELB00044AA 754-MELGE221991A	stralia AA - Mambourin TRN:	Estate		Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 11/07/2019
Sample Det	ails				
Location:	Mamb	ourin Estate			
Client Request	ID:				
Specification R	equirements: MINIM			95% of Standa	rd Compaction and Moisture varoiation to be
	within	3% of OMC(as a	dvised by client)	
Field Test proce	edures: AS 128	39.5.8.1	5		
Laboratory Test	t procedures: AS 128	89.5.7.1. AS 128	9.2.1.1		
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (b)		
Source:					
Material:	Fill				
Osmula Dat	-				
Sample Data	а				
Sample ID		MELB195-00643	MELB195-00644	MELB195-00645	
Client Sample ID	, n	306	307	308	
Date Tested	D	2/07/2019	2/07/2019	2/07/2019	
Time Tested		01:30	02.00	02:30	
I OT Number		516	514	512	
Laver Number		6	6	6	
Stage		5	5	5	
Re-test		303	304	305	
Field and La	aboratory Data				
Depth of Test (r	nm)	275	275	275	
Depth of Layer	(mm)	300	300	300	
Field Moisture	Content (%)	35.3	27.5	35.2	
Field Moisture (Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Densi	ity (t/m³)	1.88	1.88	1.87	
Field Dry Densi	ty (t/m³)	1.39	1.48	1.38	
Peak Converted	d Wet Density* (t/m³)	1.87	1.91	1.90	
Optimum Moist	ure Content (%)	30.0	25.0	32.0	
Compactive Eff	O r t	Standard	Standard	Standard	
Moioture Variati	(%)	11/.5 5.5 wot	111.U 2.5 wot	1 10.5 2 0 wet	
Hilf Density	$\frac{1011}{2} \left(\frac{70}{2}\right)$	5.5 Wet	2.5 Wet	3.0 wet	
legend * adjusted for	Naliu (70)	100.5	30.3	30.3	



ABN 55 139 460 521 Phone: +61 418 691 682

					Report No: HDR:MELB19W00177
HILF De	ensity Ratio	o Repor	t		Issue No: 1
Client:	Coffey Services Aus Level 1 436 Johnston Abbotsford VIC 306	tralia Pty Ltd (EX n Street 37	(T - Abbotsford)		
Principal: Project No.: Project Name: Lot No.:	Frasers Property Au 754-MELB00044AA 754-MELGE221991/	stralia AA - Mambourin TRN:	Estate		Approved Signatory: Stephen Pender (Senior Geotechnician) 431 Date of Issue: 11/07/2019
Sample Det	ails				
Location:	Mamb	ourin Estate			
Client Request	ID:				
Specification R	equirements: MINIM	UM HILF DENS		95% of Standa	rd Compaction and Moisture variation to be within
	3% of	OMC (as advise	d by client)		
Field Test proc	edures: AS 128	39.5.8.1	•		
Laboratory Tes	t procedures: AS 128	89.5.7.1, AS 128	9.2.1.1		
Sampling Metho	od: AS128	9.1.2.1 Clause 6	6.4 (b)		
Source:					
Material:	Fill				
Sample Dat	3				
Sample ID	a	MEL B19S-00646	MEL B19S-00647	MEL B19S-00648	3
Field Sample ID)	00355	00356	00357	
Client Sample I	D	309	310	311	
Date Tested		3/07/2019	3/07/2019	3/07/2019	
Time Tested		01:30	01:55	02:30	
LOT Number		516	510	508	
Layer Number		6	6	6	
Stage		5	5	5	
Re-test		re-test of 306			
Field and La	aboratory Data				
Depth of Test (r	mm)	275	275	275	
Depth of Layer	(mm)	300	300	300	
Field Moisture	Content (%)	34.6	32.4	35.4	
Field Moisture	Content Method	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Field Wet Dens	ity (t/m³)	1.89	1.88	1.88	
Field Dry Densi	ty (t/m³)	1.40	1.42	1.39	
Peak Converted	d Wet Density* (t/m ³)	1.86	1.84	1.84	
	ure content (%)	29.5 Stondard	29.5 Stondard	32.5 Stondard	
Compactive En	0/L	5tanuaru 117.0	5tanuaru 100 5	108.5	
Moisture Variat	(<i>⁷⁰)</i>	5 0 wet	3 0 wet	2.5 wot	
Hilf Density	Ratio (%)	101 5	102 5	102 5	
legend * adjusted for	oversize material	101.5	102.5	102.5	



Field Density Test Results

AS1289.5.7.1

A & Y Associates Pty Ltd 5/16 Network Drive Truganina VIC 3029 PH: 0400 413 531 info@ayassociates.com.au

Client:		Coffey Services	s Australia			Job No:	COF720
Project:		Mambourin Est	ate			Report:	1
Location:		Wyndham Vale					
Sample No		1 (#312)					
Date Tested		4/07/2019					
Time Tested		11:50					
Test Location		Stage 5					
		Lot 516 Re-Test #309					
Level/Layer		6					
Layer Thickness	mm	300					
Test Depth	mm	275					
Field Wet Density	t/m ³	1.874					
Field Moisture Content	%	29.1					
Material:		On-site Clay					
Oversize Material	WET, %	0.0					
Sieve Size	mm	19					
Peak Converted Wet Density	t/m ³	1.89					
Optimum Moisture Content	%	28.5					
Moisture Patio	%	102					
Moisture Variation	%	0.5					
from OMC		Wetter					
Density Ratio	%	99.0					
Specification:	95% Std				Test Selection:	N	Ά
Notes:	Field densi	ty test conducted an	d provided by Coffey	Laboratories. Accred	ditation No. #1151	Coffey's Ref: 754-ME	ELGE 221991
Test Method	AS1289 5.8	8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	Sampled	By Client
NATA	NATA Accre Accreditatio The results	dited Laboratory No. 2 on for compliance with of tests, calibrations a ment are traceable to	20172 ISO/IEC 17025 - Test Ind/or measurements Australian / National	ing included Standards	Approved Signatory:	David	Burns
WORLD RECOGNISED ACCREDITATION					Date:	8/07/	2019



Field Density Test Results AS1289.5.7.1

A & Y Associates Pty Ltd 5/16 Network Drive Truganina VIC 3029 PH: 0400 413 531 info@ayassociates.com.au

Client:		Coffey Services	s Australia			Job No:	COF720
Project:		Mambourin Est	ate - Compactio	on		Report:	3
Location:		Stage 3 -Lot Te	esting				
Sample No		334	335	336	337	338	339
Date Tested		8/10/2019	8/10/2019	8/10/2019	8/10/2019	8/10/2019	8/10/2019
Time Tested		10:45	12:30	13:50	14:30	15:00	15:45
Test Location		Stage 3 Lot 375	Stage 3 Lot 377	Stage 3 Lot 374	Stage 3 Lot 324	Stage 5 Lot 528	Stage 3 Lot 368
Level/Layer		5	6	7	4	7	3
Layer Thickness	mm	200	200	200	200	200	200
Test Depth	mm	175	175	175	175	175	175
Field Wet Density	t/m ³	1.968	1.97	1.958	1.959	1.964	1.971
Field Moisture Content	%	23.6	21.1	22.5	23.6	22.1	26.6
Material:		Clay Fill	Clay Fill	Clay Fill	Clay Fill	Clay Fill	Clay Fill
			1	L	1	I	
Oversize Material	WET, %	0.0	0.0	0.0	0.0	0.0	0.0
Sieve Size	mm	19	19	19	19	19	19
Peak Converted Wet Density	t/m ³	1.97	2.03	1.93	1.91	1.99	1.99
Optimum Moisture Content	%	25.5	21.5	23	26	22	27
Moisture Ratio	%	92.5	98	98	91	100.5	98.5
Moisture Variation	%	-1.5 Drior	-0.5 Drior	-0.5 Drior	-2.5	0.0 OMC	-0.5 Drior
Density Ratio	%	100.0	97.0	101.5	102.5	99.0	99.0
	70					77.0	
Specification:	95% STD				Test Selection:	N	/A
Notes:	Field densi	ty test conducted an	d provided by Coffey	Laboratories. Accre	ditation No. #1151	Coffey's Ref: 754-M	ELGE 221991
Test Method	AS1289 5.	8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	Sampled	By Client
WORLD RECOGNISED	NATA Accre Accreditatio The results in this docu	dited Laboratory No. 2 on for compliance with of tests, calibrations a ment, are traceable to	20172 I ISO/IEC 17025 - Test and/or measurements Australian / National	ing included Standards	Approved Signatory:	David	Burns
ACCREDITATION					Date:	11/10	., 2010

Appendix B – Stage 5 Drawings





MAMBOURIN ESTATE STAGE 5 FRASERS PROPERTY AUSTRALIA

GENERAL NOTES

- ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM AND ALL COORDINATES ARE TO MAP GRID OF AUSTRALIA (MGA) ZONE 55.
- ALL EXISTING SUFFACE LEVELS SHOWN ON THE ENGINEERING DRAWINGS HAVE BEEN ALL EXISTING JETE DRAW DAGITAL TERRAM MOBEL THESE LEVELS HAVE BEEN USED AS THE BASIS FOR ALL BUGHERING DESIGN AND DETERMINATION OF OUMITTIES AND ARE ACCURATE TO MITHIN 2.05m

۲

ALL WORKS TO BE CARRED OUT IN ACCORDANCE WITH AS2724-1992 GENERAL CODDITIONS OF CONTRACT, THE ROAD & DAMANGE SPECIACIANDA PAPROVED MOMICPALITY SPECIFICIATIONS AND STANDARD DAAMINGS AND TO THE ATTERATION OF THE SUPERATIONENT AND THE MONEAL ENGINEER AND RAMEN ATTIVE

26 ALL TEMPORARY WARNING SIGNS USED DURING CONSTRUCTION SHALL BE SUPPLIED AND MANITAMED IN ACCORDANCE WITH AS 1742-3.

27 TACTILE GROUND SURFACE INDICATORS ARE TO BE INSTALLED IN ACCORDANCE WITH THE DISABILITY DISCRIMINATION ACT AND RELEVANT COUNCLE STANDARD DRAWINGS. 28 CONTRACTOR TO PROVIDE AN ENVIRONMENTAL MANAGEMENT PLAN INCLUDING SILT AND SEDIMENT RUNOFF PROTECTION ETC. PRIOR TO THE COMMENCEMENT OF WORKS.

25 LINEMARKING AND SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH AS 1742 SERES UNESS NOTED OTHERMISE. STREET SIGNS ARE TO BE INSTALLED IN ACCORDANCE WITH COUNCIL STANDARDS.

CLAY) MUST BE REMOVED. THE SUB-GRADE MUST THEN BE REGULATED WITH COUNCIL APPROVED MATERIAL.

- ROAD CHAMAGES REFER TO POAD CENTRELINES. CHAMAGES FOR INTERSECTIONS AND CUL-DE-SACS REFER TO THE LIP OF KERB
- THE LOCATION OF EXISTING SERVICES SHOLLO BE DETERMIED BY THE CONTRACTOR PHOR TO CONFING ANY EXISTANTION BY CONTACTING ALL LOCAL SERVICE AUTHORITES AMY EXISTING SERVICES SHOMM ON THESE DAAMINGS ARE OFFERED AS A GUIDE ONLY AND ARE WIT GUARANTEED AS CORRECT

29 ALL TRES AND SHRUBS ARE TO BE RETAINED UNLESS OTHERWISE SHOWN IF ROAD AND DRIMMED CONSTRUCTION MICESTATIFIES THER REPOVAL, WAITEN PERMISSION MUST BE 061 AMED FROM THE SUPERMILINGINI.

30. TREES NOT SPECIFIED FOR REMOVAL ARE TO BE PROTECTED WITH APPROPRIATE EXCLUSION FENCING PRIOR TO COMMENCEMENT OF ANY WORKS.

- WHERE REQURED ANY BULIDINGS. IROUGHS, FENCES AND OTHER STRUCTURES ON SITE ARE TO BE REMOVED AS DIRECTED BY THE INMUREEN THE COST OF REMOVAL IS TO BE MICLUDEN THE OVERALLE RATHWORKS FIGURE UNLESS A SPECIFIC ITEM FOR REMOVAL IS DROTED IN THE COMPULE.
 - ALL EXCAVATED ROCK AND SURPLUS SPOIL TO BE REMOVED AND DISPOSED OFF SITE UNLESS NOTED OTHERWISE.
- ALL FILING SHALL BE TO A LEVELSOMM BELOW THE FINISHED SUPPAGE LEVEL SHOW AND COMPACIED AS AS 3798-1998 FILING MATERALIS TO BE IN ACCORDANCE WITH THE SPECIER (ATON & TO THE SATISFACTION OF COUNCIL AND THE SUPPENNTENDENT.
 - ALL BATTERS SHALL BE 1 IN 6, UNLESS OTHERWISE SHOWN.
- NO FILL OR STOCKPILING OF MATERIAL IS TO BE PLACED ON ANY RESERVE FOR PUBLIC OPEN SPACE UNLESS OTHERWISE DIRECTED OR APPROVED BY THE SUPERINTENDENT.
- TBM'S TO BE RE-ESTABLISHED BY THE LICENSED SURVEYOR IF FOUND TO BE MISSING A THE COMMENCEMENT OF CONSTRUCTION THE CONTRACTOR WILL BE RESPONSIBLE FOR CARE AND MAINTENANCE OF T BM'S THEREAFTER
 - AT LEAST 3 DAYS PRIOR TO COMMENDING WORK ON EXCAVATIONS IN EXCESS OF 150m DEEP. A MOTECATION FOOM MUST BE ESTIT TO MORKAAFE THE CONTRACTORS 10 COMPLY WITH WORKAGET FRE MINES IRFERINGESI REGULATION 1992, THE MINES ACT 1959 AND OCCUPATIONAL HEALTH AND SAFETY ACT 1958, 2004
- ALL SERVICE TRENCHES UNDER DRIVEWAYS, FOOTPATHS AND PARKING BAYS TO BE BACKFILLED BACKFILED BOCK SERVICE TRENCHES LESS THAM 750mm BEHIND KERB AND CHAMBEL OR AVED TRENCHES LESS THAM 750mm DREMOX FEB AND CHAMBEL OR AVED TRENCHES ARE ALSO TO BE BACKFILED WITH COMPACTED CLASS 2 (RUSSED BOCK
- - NO BLASTING TO BE CARRIED OUT WITHIN THE MUNICIPALITY WITHOUT OBTAINING COUNCILS PERMISSION
- GAS AND WATER CONDUTS ARE TO BE . Ø50mm (LASS 12 P V C SINGLE SERVICE Ø100mm (LASS 12 P V C DUAL SERVICE (DRINKING AND NON DRINKING WATER)

 - WITH THE FOLLOWING MINIMUM COVER TO FINISHED SURFACE LEVELS. ROAD PAVEMENT 0.80m VERGE, FOOTPATHS 0.45m
- ALL SERVICE CONDUTT RENCHES UNDER ROAD PAVEMENTS TO BE BACKFILLED IN ACCORDANCE WITH RELEVANT MUNICIPALITY OR ROAD AUTHORITY SPECIFICATION 11
- AG/SUBSOIL DRAIN TO BE LAID BEHIND KERB WHERE REQUIRED IN ACCORDANCE WITH THE COUNCIL STANDARD DRAWINGS AND CONNECTED TO UNDERGROUND DRAINAGE.
 - WHERE CURVED PIPES ARE SHOWN ON THE FACE PLANS THEY ARE TO BE LAD PARALLEL TO THE BACK OF THE BEXCEPT WHERE A RADIUS HAS BEEKI SFECIFICALL NOMMATED CURVED PIPES ARE TO BE APPROVED BY COUNCLI. AND IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
 - WATER TAPPINGS TO BE LOCATED IN CENTRE OF ALLOTMENTS UNLESS OTHERWISE SHOWN 20
 - 21. TELSTRA ARE TO BE NOTIFIED 7 DAYS PRIOR TO PLACEMENT OF CONCRETE WORKS 22
 - PAVENENT DEPTHS MAY BE MODIFED AS DIRECTED BY THE SUPENNTENDENT. PAVENENT TO BE BOXEO DUT TO MINIMUM DEPTH DENDTED, INSPECTED AND JF SUBGRADE IS NO OUESTON, FURTHER TESTING CARRED OUT TO DETERMINE FINAL PAVENENT DEPTH
- WHERE PAVEMENT IS CONSTRUCTED ON FILLING, FILL MATERIAL IS TO BE APPROVED BY THE SUPERNITENDENT AND COUNCIL, FILLING TO BE. CONSTRUCTED IN LAYERS ISOMM THICK WITH COMPACTION ACHEVING 95% AUSTRALIAN STANDARD DENSITY. 23
 - 24. WHEN PAVEMENT EXCAVATION IS IN ROCK ALL LOOSE MATERIAL (INCLUDING ROCKS AND

The strin and method in the construction of councer data showing makes with the construction of councer data showing makes with the construction of councer data showing makes with the construction of the councer of the councer of the councer to the councer of the councer of the councer of the councer to the councer of the councer of the councer of the councer to the councer of t

20/08/18 28/05/18 16/03/18 K,H K,H INCIL COMMENTS ADDED









LOCALITY PLAN

SCALE: MAP:

Drawing Name

Drawing Number

DRAWING INDEX NOT TO SCALE 204 E5

COPYRIGHT MELWAY PUBLISHING PTY LTD REPRODUCED WITH PERMISSION

1

Wyndham

WORKS SITE OF

WARNING

BEWARE OF UNDERGROUND/OVERHEAD SERVICES THE LOCATION OF SERVICES ARE APPROMATIC BAY AND THERE LOCATION SERVICES ARE APPROMATIC BAY AND THERE RACT POSITION SERVICES ARE STER OLIVERATE SERVICE AND ALL ALL RUSING SERVICE SAR SHOW SECRAL CONSERVING SHOULD BE OVERHEAD ILITIDIA PARSHERAL ION PARCINERS UNDER OVERHEAD ILITIDIA THANSPISSION LASS

	FRASERS PROPERTY	
)	Designed Che	Jecke
	R. WEINBER M.	Ξ.
	Authorised Date	ate
ABN 55 050 029 635	M. CAIRNEY 20.	30/0





8 1.725 W 1.725 N 1.725 S 1.725 S 1.725 DFFSET TELECOM

2.60 2.60 2.60 2.60

SIDE

SIDE

OFFSET

SIDE OFFSET

SDE

ROAD NAME

SURROUND DRIVE HELDER AVENUE PLANE AVENUE YARD STREET **BRANCH STREET**

POTABLE WATER RECYCLED WATER

SERVICE OFFSETS AND LOCATION TABLE



υ

PRELIMINARY 305170F01

FRASERS PROPERTY AUSTRALIA CITY OF WYNDHAM



CES	TREE (& SURVEYED CANOPY) TO BE RETAINED
	TREE TO BE REMOVED
	VEGETATION LINE

 \otimes

MAMBOURIN ESTATE STAGE 5 FACE SHEET



This page has been left intentionally blank