

# **Merrifield Estate - Stage 40, Mickleham**

## **Level 1 Inspection & Testing Report**

Reference: 1120 0299-1



### **Prepared for:**

BMD Urban

May 2022



**A&Y ASSOCIATES**  
GEOTECHNICAL ENGINEERING CONSULTANTS

# Document Control Record

Prepared by:

**A&Y Associates Pty Ltd**

ABN 92 614 244 665

5/16 Network Drive

Truganina, VIC 3029

**T:** (03) 8754 8325

**E:** info@ayassociates.com.au

**W:** www.ayassociates.com.au

## Document control

<b>Report title</b>		Level 1 Inspection & Testing			
<b>Project reference number</b>		1120 0299-1			
<b>Client</b>		BMD Urban			
<b>Contact name</b>		Alyssa Willder			
<b>Contact number</b>		0400 207 600			
<b>Contact e-mail</b>		Alyssa.willder@bmd.com.au			
<b>Revision</b>	<b>Date</b>	<b>Descriptions/Status</b>	<b>Author</b>	<b>Reviewer</b>	<b>Approver</b>
0	27/04/2022	Final	B Mu	A Tan	A Tan
1	12/05/2022	Amendment	B Mu	A Tan	A Tan
2	30/05/2022	Amendment	B Mu	A Tan	A Tan

## Approver



Alvin Tan

(BE Civil and Infrastructure), MIEAust

Senior Geotechnical Engineer

E: alvin@ayassociates.com.au | M: 0449 288 338



ENGINEERS  
AUSTRALIA  
Professional Engineer  
MEMBER

---

## **Disclaimer**

The findings and conclusions contained in this report are made based on site conditions that existed at the time this work was conducted. The conclusions present in this report are relevant to the conditions of the site and the state of legislation currently enacted as at the date of this report.

Findings and conclusions are made assuming that the soil, groundwater, geological and chemical conditions detailed within this report are accurate and remain applicable to the site at the time of writing. No other warranties are made or intended.

A&Y Associates (A&Y) Pty Ltd has used a degree of skill and care ordinarily exercised by reputable members of our profession practicing in the same or similar locality.

A&Y does not make any representation or warranty that the conclusions in this report will be applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

This report has been prepared exclusively for use by our client. This report cannot be reproduced without the written authorisation of A&Y and then can only be reproduced in its entirety.

## **Applicability**

This report has been prepared for the benefit for our client with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

No responsibility for this report will be taken by A&Y if it is altered in any way, or not reproduced in full.

---

## Contents

<b>1</b>	<b>Introduction.....</b>	<b>3</b>
<b>2</b>	<b>Project Summary .....</b>	<b>3</b>
<b>3</b>	<b>Project Specifications.....</b>	<b>4</b>
<b>4</b>	<b>Subgrade Assessment.....</b>	<b>5</b>
<b>5</b>	<b>Earthworks .....</b>	<b>5</b>
<b>6</b>	<b>Fill Material .....</b>	<b>5</b>
<b>7</b>	<b>Testing.....</b>	<b>6</b>
<b>8</b>	<b>Finished Surface Levels .....</b>	<b>6</b>
<b>9</b>	<b>Exclusion .....</b>	<b>6</b>
<b>10</b>	<b>Conclusion .....</b>	<b>7</b>
	<b>Appendix A - Site Plan .....</b>	<b>8</b>
	<b>Appendix B – Test Locations .....</b>	<b>11</b>
	<b>Appendix C – Test Results Summary .....</b>	<b>13</b>
	<b>Appendix D – NATA Test Results .....</b>	<b>16</b>

---

## **1 Introduction**

This report presents the results of the Level 1 Inspection and Testing for the construction of the fill platforms located in Merrifield Estate - Stage 40, Mickleham.

## **2 Project Summary**

It is understood that BMD Urban required the fill platforms within Merrifield Estate - Stage 40, Mickleham 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 was undertaken by a Geotechnician from A&Y Associates over a period of 15 working days from 10<sup>th</sup> August 2021 to 6<sup>th</sup> September 2021.

This report is applicable for fill placed by BMD Urban in Merrifield Estate - Stage 40, Mickleham, as shown in Appendix A – Site Plan.

A heat map indicating the amount of cut and fill prepared by JAC Surveyors dated 10<sup>th</sup> March 2022 has been attached in Appendix A along with the site plan. It should be noted that the level 1 inspection and testing also cover some areas in the cut zone due to soft spot remediation and over-excavation during the removal of stockpiles placed on site.

---

### 3 Project Specifications

No specification has been provided for the construction works in Merrifield Estate - Stage 40, Mickleham. The supervision and inspections were performed based on AS3798. A short summary of the requirements outlined in AS3798 is provided below:

- Material to be used for fill construction shall satisfy the requirements of AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments". The material used shall be free of:
  - Organic soils, such as topsoils, severely root affected subsoil and peat;
  - Contaminated soils;
  - Materials which undergo volume change or loss of strength when disturbed and exposed to moisture;
  - Silts, or materials that have deleterious engineering properties of silt;
  - Fill that contains wood, metal, plastic, boulders, or other deleterious material, in sufficient proportions to affect the required performance of fill;
  - The maximum particle size of any rocks or other lump, within the layer, has not exceeded two-thirds (2/3) of the compacted layer thickness.
- Compaction to achieve a dry density ratio of at least 95% Standard, as the project was classified as **Residential**.

---

## 4 Subgrade Assessment

The subgrade was assessed by A&Y Associates following the topsoil removal and before any fill was placed. The subgrade assessment was undertaken on the **10<sup>th</sup> of August 2021, 13<sup>th</sup> of August 2021 and 25<sup>th</sup> of August 2021** as mentioned in report 1120 0299-1-Rev2 (SS11).

The exposed subgrade material comprised natural silty clay. No wet or soft patches were found during the inspection. No evidence of deleterious material was found during the inspection.

## 5 Earthworks

The earthworks for this project included stripping of topsoil, removing of tree roots, proof rolling the subgrade and placement and compaction of fill to construct engineered platforms.

Based on design plans and site inspection, it appears that the fill thickness placed is approximately 200mm-2000mm. The fill layers or thickness nominated in this report are provided as a guide on the amounts of fill placed and do not necessarily reflect an accurate survey of the fill levels.

## 6 Fill Material

The fill material used for the platform consisted of site derived material. The material was predominantly comprised of Silty Clay with gravel.

---

## 7 Testing

Field density testing was undertaken on the compacted fill at a frequency of a minimum of 3 tests per lot (AS3798 Table 8.1).

Tests were performed using a Nuclear Density Gauge for field density determination as per AS 1289.5.8.1. Testing was completed at a minimum rate of 3 field density tests per day's production based on the minimum requirements of AS 3798-2007 and taken from each layer of fill placed.

A total of 45 field density tests were performed during the earthworks. All of the test results met the specified compaction requirement of 95% Standard Compaction.

The locations of the 45 field density tests are shown in Appendix B – Test Locations. A summary of the test results obtained from the field density testing is presented in Appendix C – Test Results Summary. The laboratory test reports of the field density tests are presented in Appendix D – NATA Test Results.

## 8 Finished Surface Levels

It should be noted that even though the final fill layer meets the specification requirements, over time, the material may be subject to adverse weather conditions resulting in either surface softening or drying and cracking. The top 150mm – 200mm of the fill will deteriorate with time and should be considered by the foundation engineer.

## 9 Exclusion

A&Y Associates was not involved in monitoring and testing the following works and as such are not included in the Level 1 report.

- Any trenches excavated and backfilled on site for the installation of underground services such as sewers, electrical conduits, water mains etc.
- Footpaths in front of the lots that may be excavated and filled after the Level 1 supervision conducted by A&Y Associates.
- Uncontrolled fill and topsoil that may have been placed as part of the landscaping of the site following the completion of the engineered fill construction.



---

## **10 Conclusion**

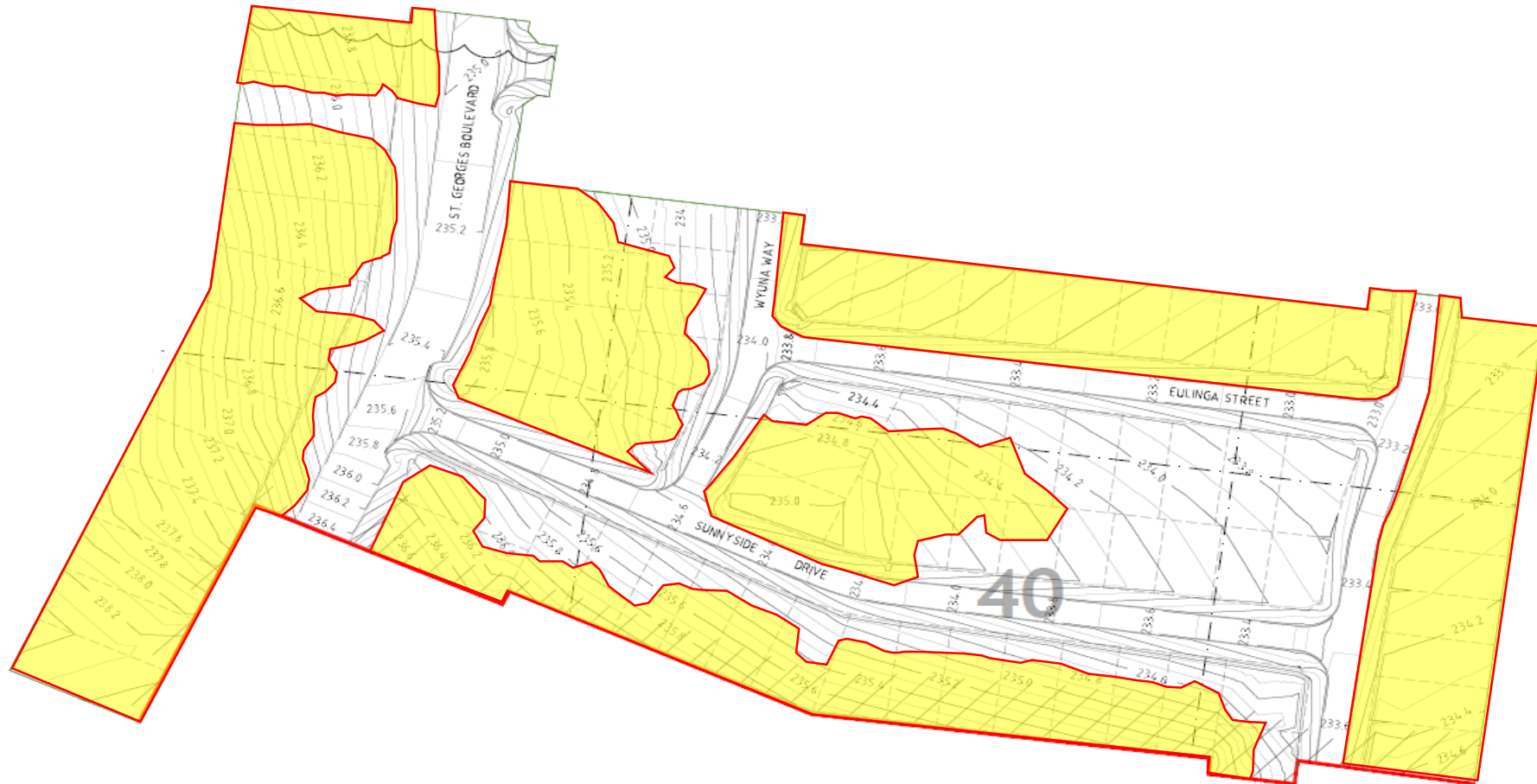
On the completion of the earthworks and after analysing the materials used, it has been concluded that the filling procedure conducted by BMD Urban appears to be consistent with the requirements of AS 3798 in regards to the placement of fill materials on a project under Level 1 Supervision and in accordance with the project specification as provided to A&Y Associates.


---

## **Appendix A - Site Plan**



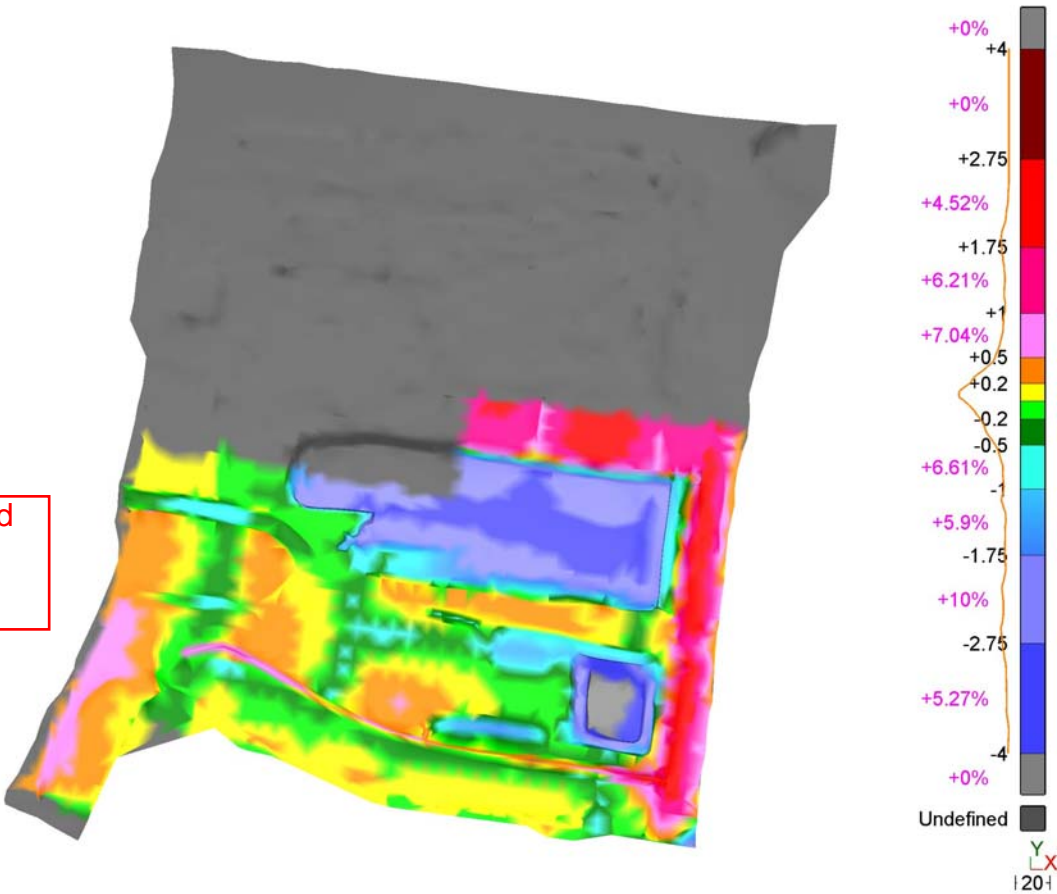
Area Inspected and Tested



<b>PROJECT:</b> Merrifield Estate – Stage 40 (Level 1)	<b>CLIENT:</b> BMD Urban	<b>SITE PLAN SKETCH—NOT TO SCALE</b>	 <b>A&amp;Y ASSOCIATES</b> GEOTECHNICAL ENGINEERING CONSULTANTS
<b>LOCATION:</b> Mickleham	<b>PROJECT No:</b> 1120 0299-1		

Merrifield St40-41 Heatmap

Volumes Required  
Fill-19,050m3  
Cut-43,890m3

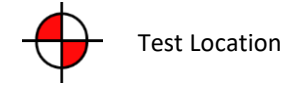



**3DReshaper**  
[www.3dreshaper.com](http://www.3dreshaper.com)  
[support@3dreshaper.com](mailto:support@3dreshaper.com)



---

## **Appendix B – Test Locations**



PROJECT: Merrifield Estate – Stage 40 (Level 1)	CLIENT: BMD Urban	SITE PLAN SKETCH—NOT TO SCALE	 <b>A&amp;Y ASSOCIATES</b> GEOTECHNICAL ENGINEERING CONSULTANTS
LOCATION: Mickleham	PROJECT No: 1120 0299-1		

---

## **Appendix C – Test Results Summary**

Project No		1120 0299-1			Client	BMD Urban				
Project Name		Marrifield Estate - Stage 40			Specification			Density Ratio ≥ 95% of Peak Wet Density		
Location		Mickleham								
Test No	Retest of Test	Date	Location	Layer	Oversize	Density Ratio	Moisture Ratio	Moisture Variation	Pass / Fail	Retest
#	#		Lot #	#	%	%	%	%		Pass / Fail
1	-	10/08/2021	Lot 4037	1	0.0	95.0	95.5	-0.5	Pass	-
2	-	10/08/2021	Lot 4071	2	0.0	95.5	99.5	0.0	Pass	-
3	-	10/08/2021	Lot 4069	2	0.0	95.5	102.0	0.5	Pass	-
4	-	11/08/2021	Lot 4067	1	0.0	95.5	101.5	0.0	Pass	-
5	-	11/08/2021	Lot 4068	2	0.0	95.5	103.5	0.5	Pass	-
6	-	11/08/2021	Lot 4069	3	0.0	96.0	97.5	-0.5	Pass	-
7	-	12/08/2021	Lot 4067	3	0.0	98.0	100.0	0.0	Pass	-
8	-	12/08/2021	Lot 4068	3	0.0	98.0	96.0	-0.5	Pass	-
9	-	12/08/2021	Lot 4069	4	0.0	99.5	98.0	-0.5	Pass	-
10	-	13/08/2021	Lot 4041	1	0.0	98.0	100.0	0.0	Pass	-
11	-	13/08/2021	Lot 4043	1	0.0	98.0	100.0	0.0	Pass	-
12	-	13/08/2021	Lot 4018	1	0.0	98.5	98.5	0.0	Pass	-
13	-	16/08/2021	Lot 4021	1	0.0	95.5	87.5	-3.0	Pass	-
14	-	16/08/2021	Lot 4046	1	0.0	98.0	89.0	-3.0	Pass	-
15	-	16/08/2021	Lot 4048	1	0.0	96.0	87.0	-2.5	Pass	-
16	-	17/08/2021	Lot 4039	3	5.3	97.0	86.5	-2.5	Pass	-
17	-	17/08/2021	Lot 4038	3	5.9	98.0	85.5	-2.5	Pass	-
18	-	17/08/2021	Lot 4036	4	3.2	97.5	86.5	-2.5	Pass	-
19	-	20/08/2021	Lot 4039	4	5.7	100.5	99.0	0.0	Pass	-
20	-	20/08/2021	Lot 4037	4	4.9	98.0	101.0	0.0	Pass	-
21	-	20/08/2021	Lot 4071	3	5.0	97.5	100.0	0.0	Pass	-
22	-	25/08/2021	Lot 4024	FSL/1st	6.8	102.0	101.0	0.5	Pass	-
23	-	25/08/2021	Lot 4050	FSL/1st	5.9	102.0	98.5	-0.5	Pass	-
24	-	25/08/2021	Lot 4049	FSL/1st	6.0	101.5	99.5	0.0	Pass	-



25	-	24/08/2021	Lot 4038	4	12.2	98.5	85.5	-3.0	Pass	-
26	-	24/08/2021	Lot 4036	5	9.0	101.0	87.5	-2.5	Pass	-
27	-	24/08/2021	Lot 4070	6	14.5	100.0	87.0	-2.0	Pass	-
28	-	26/08/2021	Lot 4029	FSL	0.0	95.5	97.0	-0.5	Pass	-
29	-	26/08/2021	Lot 4032	FSL	0.0	96.0	99.5	-0.5	Pass	-
30	-	26/08/2021	Lot 4073	FSL	0.0	97.0	99.5	0.0	Pass	-
31	-	27/08/2021	Lot 4004	FSL	6.5	97.5	99.0	0.0	Pass	-
32	-	27/08/2021	Lot 4008	FSL	12.4	97.0	99.5	-0.5	Pass	-
33	-	27/08/2021	Lot 4013	FSL	10.0	97.0	101.5	0.0	Pass	-
34	-	27/08/2021	Lot 4014	FSL	12.7	96.5	97.5	-0.5	Pass	-
35	-	27/08/2021	Lot 4010	FSL	0.0	96.5	99.5	0.0	Pass	-
36	-	27/08/2021	Lot 4005	FSL	8.2	95.5	99.5	-0.5	Pass	-
37	-	2/09/2021	Lot 4036	7	8.0	95.0	100.0	0.0	Pass	-
38	-	2/09/2021	Lot 4070	8	7.8	95.5	99.0	0.0	Pass	-
39	-	2/09/2021	Lot 4068	9	5.6	95.0	99.5	0.0	Pass	-
40	-	3/09/2021	Lot 4058	FSL	0.0	97.0	99.0	-0.5	Pass	-
41	-	3/09/2021	Lot 4061	FSL	0.0	97.5	96.0	-1.0	Pass	-
42	-	3/09/2021	Lot 4064	FSL	0.0	96.0	96.0	-0.5	Pass	-
43	-	6/09/2021	Lot 4076	FSL	0.0	97.0	96.0	-1.0	Pass	-
44	-	6/09/2021	Lot 4080	FSL	0.0	98.0	97.5	-1.0	Pass	-
45	-	6/09/2021	Lot 4026	FSL	0.0	96.0	97.0	-0.5	Pass	-

\*\* Negative (-) value indicates that the field moisture content is drier than the optimum moisture content (OMC)

\*\* Positive (+) value indicates that the field moisture content is wetter than the optimum moisture content (OMC)

---

## **Appendix D – NATA Test Results**

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	1	
<b>Location:</b>	Mickleham					

Sample No	1	2	3			
Date Tested	10/08/2021	10/08/2021	10/08/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	Layer 1	Layer 2	Layer 2			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.10	t/m <sup>3</sup> 2.11	t/m <sup>3</sup> 2.09			
Field Moisture Content	% 14.8	% 16.4	% 15.8			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 0.0	WET, % 0.0	WET, % 0.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.20	t/m <sup>3</sup> 2.21	t/m <sup>3</sup> 2.19			
Optimum Moisture Content	% 15.5	% 16.5	% 15.5			



  

<b>Moisture Ratio</b>	% 95.5	% 99.5	% 102			
<b>Moisture Variation from OMC</b>	% -0.5 Drier	% 0.0 OMC	% 0.5 Wetter			
<b>Density Ratio</b>	% 95.0	% 95.5	% 95.5			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI01)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:   Date: 16/08/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	2	
<b>Location:</b>	Mickleham					

Sample No	4	5	6			
Date Tested	11/08/2021	11/08/2021	11/08/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	Layer 1	Layer 2	Layer 3			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.09	t/m <sup>3</sup> 2.07	t/m <sup>3</sup> 2.06			
Field Moisture Content	% 18.3	% 16.1	% 17.1			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 0.0	WET, % 0.0	WET, % 0.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.19	t/m <sup>3</sup> 2.17	t/m <sup>3</sup> 2.14			
Optimum Moisture Content	% 18	% 15.5	% 17.5			



  

<b>Moisture Ratio</b>	% 101.5	% 103.5	% 97.5			
<b>Moisture Variation</b>	% 0.0	% 0.5	% -0.5			
<b>from OMC</b>	OMC	Wetter	Drier			
<b>Density Ratio</b>	% 95.5	% 95.5	% 96.0			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI02)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:    David Burns  Date: 16/08/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	3	
<b>Location:</b>	Mickleham					

Sample No	7	8	9			
Date Tested	12/08/2021	12/08/2021	12/08/2021			
Time Tested	AM	AM	AM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	Layer 3	Layer 3	Layer 4			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.01	t/m <sup>3</sup> 1.98	t/m <sup>3</sup> 2.07			
Field Moisture Content	% 17.5	% 18.2	% 18.6			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 0.0	WET, % 0.0	WET, % 0.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.06	t/m <sup>3</sup> 2.02	t/m <sup>3</sup> 2.08			
Optimum Moisture Content	% 17.5	% 19	% 19			



  

<b>Moisture Ratio</b>	% 100	% 96	% 98			
<b>Moisture Variation</b>	% 0.0	% -0.5	% -0.5			
<b>from OMC</b>	OMC	Drier	Drier			
<b>Density Ratio</b>	% 98.0	% 98.0	% 99.5			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI03)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:    David Burns  Date: 17/08/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included	
	in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	4	
<b>Location:</b>	Mickleham					

Sample No	10	11	12			
Date Tested	13/08/2021	13/08/2021	13/08/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	Layer 1	Layer 1	Layer 1			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.02	t/m <sup>3</sup> 1.98	t/m <sup>3</sup> 2.04			
Field Moisture Content	% 19.5	% 17.0	% 18.2			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 0.0	WET, % 0.0	WET, % 0.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.06	t/m <sup>3</sup> 2.02	t/m <sup>3</sup> 2.07			
Optimum Moisture Content	% 19.5	% 17	% 18.5			



  

<b>Moisture Ratio</b>	% 100	% 100	% 98.5			
<b>Moisture Variation</b>	% 0.0	% 0.0	% 0.0			
<b>from OMC</b>	OMC	OMC	OMC			
<b>Density Ratio</b>	% 98.0	% 98.0	% 98.5			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI04)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:   David Burns  Date: 17/08/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	5	
<b>Location:</b>	Mickleham					

Sample No	13	14	15			
Date Tested	16/08/2021	16/08/2021	16/08/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	Layer 1	Layer 1	Layer 1			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 1.82	t/m <sup>3</sup> 1.88	t/m <sup>3</sup> 1.80			
Field Moisture Content	% 18.8	% 24.9	% 17.4			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 0.0	WET, % 0.0	WET, % 0.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 1.91	t/m <sup>3</sup> 1.92	t/m <sup>3</sup> 1.88			
Optimum Moisture Content	% 21.5	% 28	% 20			



  

<b>Moisture Ratio</b>	% 87.5	% 89	% 87			
<b>Moisture Variation</b>	% -3.0	% -3.0	% -2.5			
<b>from OMC</b>	Drier	Drier	Drier			
<b>Density Ratio</b>	% 95.5	% 98.0	% 96.0			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI05)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:   David Burns  Date: 19/08/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included	
	in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	6	
<b>Location:</b>	Mickleham					

Sample No	16	17	18			
Date Tested	17/08/2021	17/08/2021	17/08/2021			
Time Tested	AM	AM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	Layer 3	Layer 3	Layer 4			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.01	t/m <sup>3</sup> 2.05	t/m <sup>3</sup> 2.00			
Field Moisture Content	% 16.0	% 17.1	% 18.2			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 5.3	WET, % 5.9	WET, % 3.2			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.07	t/m <sup>3</sup> 2.08	t/m <sup>3</sup> 2.04			
Optimum Moisture Content	% 18.5	% 20	% 21			



  

<b>Moisture Ratio</b>	% 86.5	% 85.5	% 86.5			
<b>Moisture Variation</b>	% -2.5	% -2.5	% -2.5			
<b>from OMC</b>	Drier	Drier	Drier			
<b>Density Ratio</b>	% 97.0	% 98.0	% 97.5			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI06)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:   Date: 24/08/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included	
	in this document, are traceable to Australian / National Standards	



## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	7	
<b>Location:</b>	Mickleham					

Sample No	19	20	21			
Date Tested	20/08/2021	20/08/2021	20/08/2021			
Time Tested	AM	AM	AM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	Layer 4	Layer 4	Layer 3			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.05	t/m <sup>3</sup> 2.02	t/m <sup>3</sup> 2.01			
Field Moisture Content	% 16.9	% 17.2	% 18.0			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 5.7	WET, % 4.9	WET, % 5.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.03	t/m <sup>3</sup> 2.04	t/m <sup>3</sup> 2.05			
Optimum Moisture Content	% 17	% 17	% 18			



  

<b>Moisture Ratio</b>	% 99	% 101	% 100			
<b>Moisture Variation</b>	% 0.0	% 0.0	% 0.0			
<b>from OMC</b>	OMC	OMC	OMC			
<b>Density Ratio</b>	% 100.5	% 98.0	% 97.0			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI07)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:    David Burns  Date: 23/08/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	8	
<b>Location:</b>	Mickleham					

Sample No	22	23	24			
Date Tested	25/08/2021	25/08/2021	25/08/2021			
Time Tested	AM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL / 1st	FSL / 1st	FSL / 1st			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.09	t/m <sup>3</sup> 2.10	t/m <sup>3</sup> 2.10			
Field Moisture Content	% 23.2	% 23.1	% 22.4			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 6.8	WET, % 5.9	WET, % 6.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.04	t/m <sup>3</sup> 2.04	t/m <sup>3</sup> 2.06			
Optimum Moisture Content	% 23	% 23.5	% 22.5			



  

<b>Moisture Ratio</b>	% 101	% 98.5	% 99.5			
<b>Moisture Variation</b>	% 0.5	% -0.5	% 0.0			
<b>from OMC</b>	Wetter	Drier	OMC			
<b>Density Ratio</b>	% 102.0	% 102.0	% 101.5			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI08)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:   Date: 27/08/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	9	
<b>Location:</b>	Mickleham					

Sample No	25	26	27			
Date Tested	24/08/2021	24/08/2021	24/08/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	Layer 4	Layer 5	Layer 6			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.03	t/m <sup>3</sup> 2.09	t/m <sup>3</sup> 2.06			
Field Moisture Content	% 18.8	% 18.8	% 17.4			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, %	12.2	9.0	14.5		
Sieve Size	mm	19	19	19		
Peak Converted Wet Density	t/m <sup>3</sup>	2.03	2.07	2.06		
Optimum Moisture Content	%	22	21.5	20		



  

<b>Moisture Ratio</b>	%	85.5	87.5	87		
<b>Moisture Variation</b>	%	-3.0	-2.5	-2.0		
<b>from OMC</b>		Drier	Drier	Drier		
<b>Density Ratio</b>	%	98.5	101.0	100.0		

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI09)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:   David Burns  Date: 30/08/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included	
	in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	10	
<b>Location:</b>	Mickleham					

Sample No	28	29	30			
Date Tested	26/08/2021	26/08/2021	26/08/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL	FSL	FSL			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 1.87	t/m <sup>3</sup> 1.88	t/m <sup>3</sup> 1.88			
Field Moisture Content	% 23.3	% 25.4	% 25.9			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 0.0	WET, % 0.0	WET, % 0.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 1.95	t/m <sup>3</sup> 1.96	t/m <sup>3</sup> 1.94			
Optimum Moisture Content	% 24	% 25.5	% 26			



  

<b>Moisture Ratio</b>	% 97	% 99.5	% 99.5			
<b>Moisture Variation</b>	% -0.5	% -0.5	% 0.0			
<b>from OMC</b>	Drier	Drier	OMC			
<b>Density Ratio</b>	% 95.5	% 96.0	% 97.0			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI10)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:  David Burns Date: 1/09/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	11	
<b>Location:</b>	Mickleham					

Sample No	31	32	33			
Date Tested	27/08/2021	27/08/2021	27/08/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL	FSL	FSL			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.02	t/m <sup>3</sup> 2.03	t/m <sup>3</sup> 2.00			
Field Moisture Content	% 21.3	% 21.4	% 20.3			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 6.5	WET, % 12.4	WET, % 10.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.06	t/m <sup>3</sup> 2.06	t/m <sup>3</sup> 2.03			
Optimum Moisture Content	% 21.5	% 21.5	% 20			

<b>Moisture Ratio</b>	% 99	% 99.5	% 101.5			
<b>Moisture Variation</b>	% 0.0	% -0.5	% 0.0			
<b>from OMC</b>	OMC	Drier	OMC			
<b>Density Ratio</b>	% 97.5	% 97.0	% 97.0			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI11)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)



NATA Accredited Laboratory No. 20172  
Accreditation for compliance with ISO/IEC 17025 - Testing  
The results of tests, calibrations and/or measurements included  
in this document, are traceable to Australian / National Standards

Approved Signatory:



David Burns

Date: 1/09/2021

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	12	
<b>Location:</b>	Mickleham					

Sample No	34	35	36			
Date Tested	27/08/2021	27/08/2021	27/08/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL	FSL	FSL			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.00	t/m <sup>3</sup> 1.93	t/m <sup>3</sup> 1.97			
Field Moisture Content	% 23.4	% 23.4	% 25.4			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 12.7	WET, % 0.0	WET, % 8.2			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 2.03	t/m <sup>3</sup> 2.00	t/m <sup>3</sup> 2.05			
Optimum Moisture Content	% 24	% 23.5	% 25.5			



  

<b>Moisture Ratio</b>	% 97.5	% 99.5	% 99.5			
<b>Moisture Variation from OMC</b>	% -0.5 Drier	% 0.0 OMC	% -0.5 Drier			
<b>Density Ratio</b>	% 96.5	% 96.5	% 95.5			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI12)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172 Accreditation for compliance with ISO/IEC 17025 - Testing The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	Approved Signatory:  Date: 1/09/2021

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	13	
<b>Location:</b>	Mickleham					

Sample No	37	38	39			
Date Tested	2/09/2021	2/09/2021	2/09/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	Layer 7	Layer 8	Layer 9			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 2.05	t/m <sup>3</sup> 2.02	t/m <sup>3</sup> 1.99			
Field Moisture Content	% 25.0	% 22.3	% 19.9			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, %	8.0	7.8	5.6		
Sieve Size	mm	19	19	19		
Peak Converted Wet Density	t/m <sup>3</sup>	2.15	2.10	2.09		
Optimum Moisture Content	%	25	22.5	20		



  

<b>Moisture Ratio</b>	%	100	99	99.5		
<b>Moisture Variation</b>	%	0.0	0.0	0.0		
<b>from OMC</b>		OMC	OMC	OMC		
<b>Density Ratio</b>	%	95.0	95.5	95.0		

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI13)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:    David Burns  Date: 6/09/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	

## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	14	
<b>Location:</b>	Mickleham					

Sample No	40	41	42			
Date Tested	3/09/2021	3/09/2021	3/09/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL	FSL	FSL			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 1.85	t/m <sup>3</sup> 1.82	t/m <sup>3</sup> 1.90			
Field Moisture Content	% 24.3	% 22.1	% 20.6			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 0.0	WET, % 0.0	WET, % 0.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 1.91	t/m <sup>3</sup> 1.86	t/m <sup>3</sup> 1.98			
Optimum Moisture Content	% 24.5	% 23	% 21.5			



  

<b>Moisture Ratio</b>	% 99	% 96	% 96			
<b>Moisture Variation</b>	% -0.5	% -1.0	% -0.5			
<b>from OMC</b>	Drier	Drier	Drier			
<b>Density Ratio</b>	% 97.0	% 97.5	% 96.0			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI14)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:  Date:
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	

David Burns  
6/09/2021



## 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

<b>Client:</b>	BMD Urban			<b>Job No:</b>	BMD2020	
<b>Project:</b>	Merrifield Estate - Stage 40 (Level 1)			<b>Report:</b>	15	
<b>Location:</b>	Mickleham					

Sample No	43	44	45			
Date Tested	6/09/2021	6/09/2021	6/09/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL	FSL	FSL			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 1.90	t/m <sup>3</sup> 1.83	t/m <sup>3</sup> 1.90			
Field Moisture Content	% 23.5	% 24.8	% 22.3			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, % 0.0	WET, % 0.0	WET, % 0.0			
Sieve Size	mm 19	mm 19	mm 19			
Peak Converted Wet Density	t/m <sup>3</sup> 1.96	t/m <sup>3</sup> 1.87	t/m <sup>3</sup> 1.98			
Optimum Moisture Content	% 24.5	% 25.5	% 23			



  

<b>Moisture Ratio</b>	% 96	% 97.5	% 97			
<b>Moisture Variation</b>	% -1.0	% -1.0	% -0.5			
<b>from OMC</b>	Drier	Drier	Drier			
<b>Density Ratio</b>	% 97.0	% 98.0	% 96.0			

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref : 1120 0299-1 (SI15)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <b>NATA</b> WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:    David Burns  Date: 7/09/2021
	Accreditation for compliance with ISO/IEC 17025 - Testing	
	The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards	