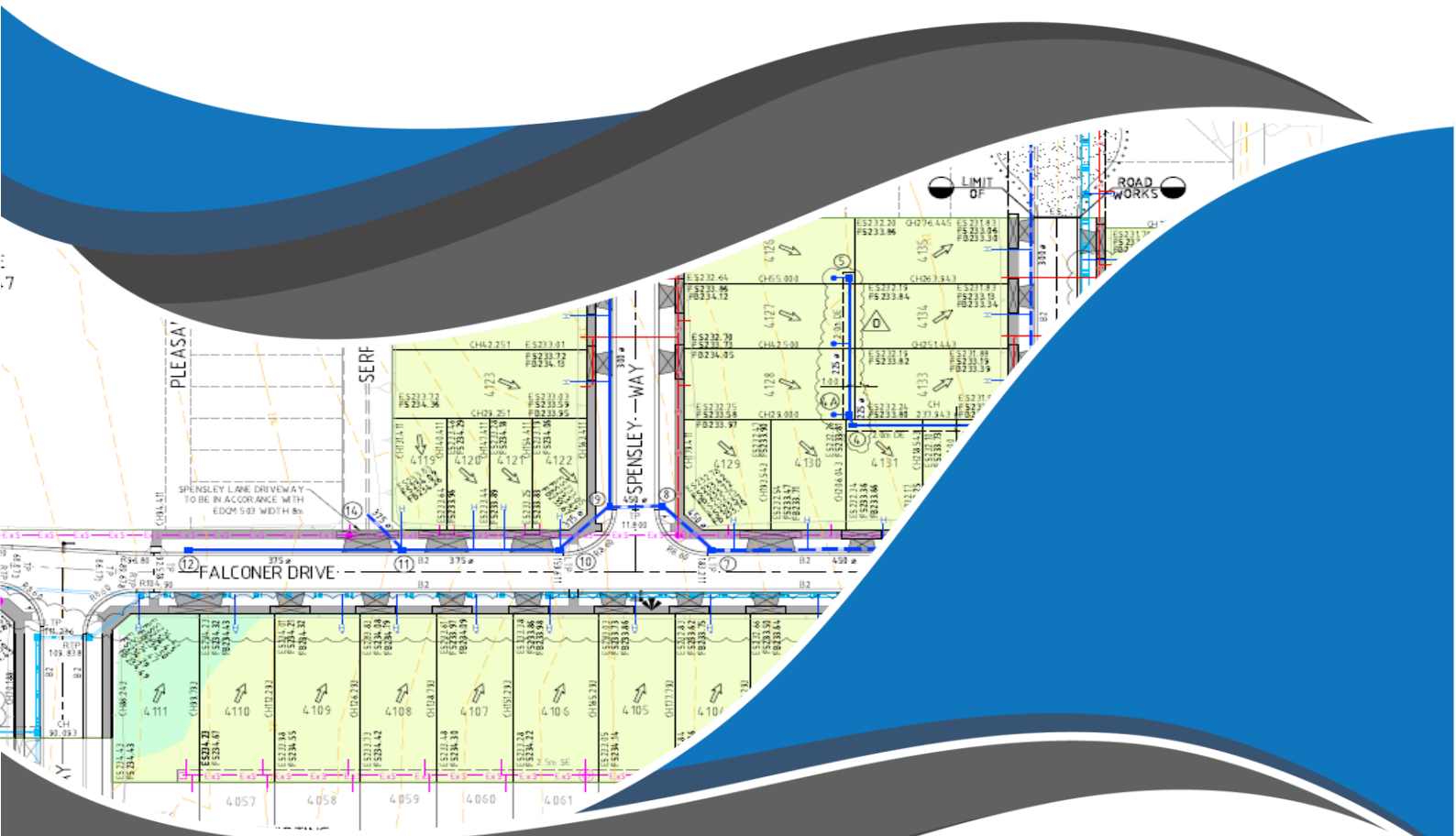
Merrifield Estate - Stage 41, Mickleham

Level 1 Inspection & Testing Report

Reference: 1120 0300-1



Prepared for:

BMD Urban

June 2022

A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Document Control Record

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Document control

Report title	Level 1 Inspection & Testing
Project reference number	1120 0300-1
Client	BMD Urban
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Revision	Date	Descriptions/Status	Author	Reviewer	Approver
0	**27/04/2022**	**Final**	**B Mu**	**A Tan**	**A Tan**
1	**12/05/2022**	**Amendment**	**B Mu**	**A Tan**	**A Tan**
2	**01/06/2022**	**Amendment**	**B Mu**	**A Tan**	**A Tan**

Approver

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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.

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Contents

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 41, Mickleham.

2 Project Summary

It is understood that BMD Urban required the fill platforms within Merrifield Estate - Stage 41, 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 eleven (11) working days from 14th August 2021 to 26th October 2021.

This report is applicable for fill placed by BMD Urban in Merrifield Estate - Stage 41, Mickleham, as shown in Appendix A – Site Plan.

A heat map indicating the amount of cut and fill prepared by JAC Surveyors dated 10th 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 41, 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 **14th August 2021, 30th August 2021, 20th September and 22nd October 2021** as mentioned in report *1120 0300-1-Rev2 (SSI1)*.

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-1400mm. 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 33 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 33 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.

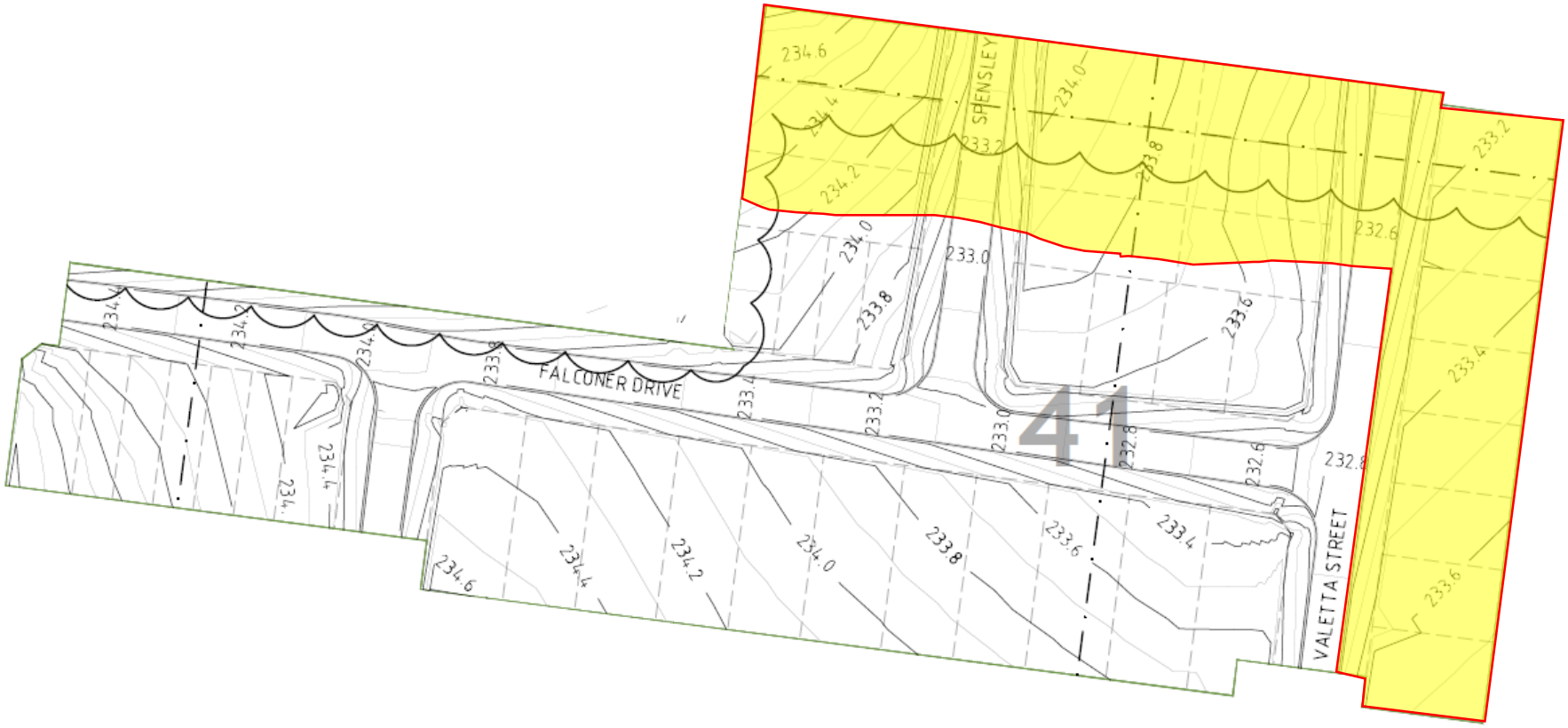
- Any trenches excavated and backfilled on site for the installation of underground services such as sewers, electrical conduits, water mains etc.
- Footpaths in front of the lots that may be excavated and filled after the Level 1 supervision conducted by A&Y Associates.
- Uncontrolled fill and topsoil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

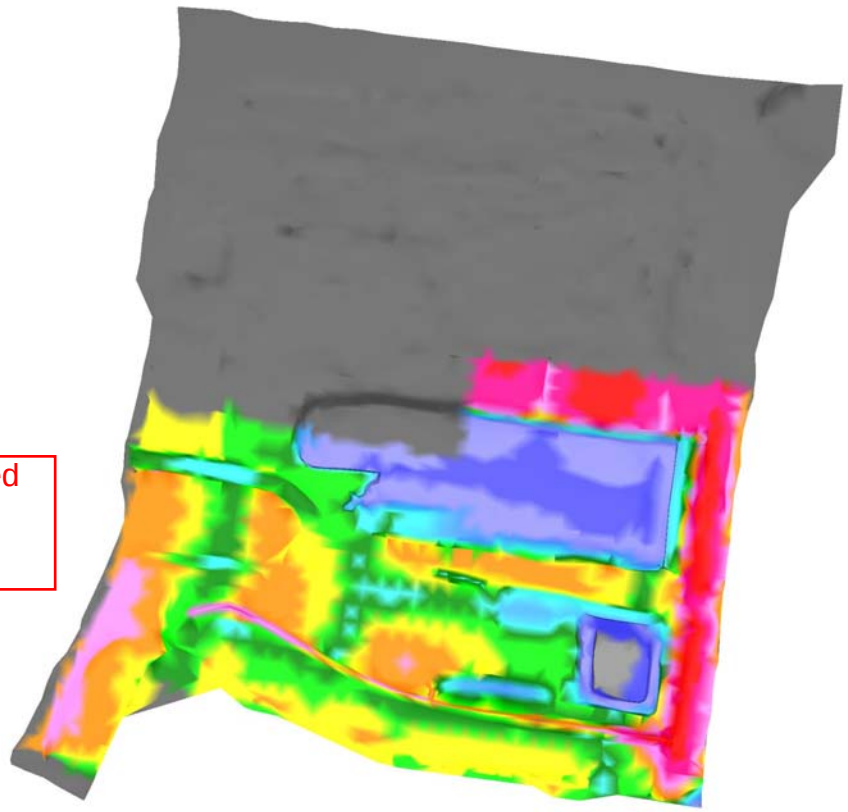


PROJECT: **Merrifield Estate – Stage 41 (Level 1)**	**CLIENT:** **BMD Urban**	**SITE PLAN SKETCH—NOT TO SCALE**	A&Y ASSOCIATES GEOTECHNICAL ENGINEERING CONSULTANTS
LOCATION: **Mickleham**	**PROJECT No:** **1120 0300-1**		

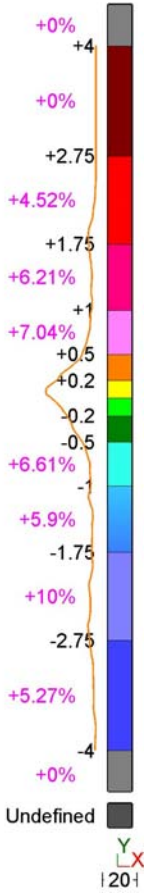
3D view hardcopy

Merrifield St40-41 Heatmap

Date: Thursday 10 March 2022
Name: *Supplied Strip-220228 vs FS*



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



3DReshaper
www.3dreshaper.com
support@3dreshaper.com

Company: JAC Surveyors
Time: 10:35 AM

Appendix B – Test Locations

PROJECT: **Merrifield Estate – Stage 41 (Level 1)**	**CLIENT:** **BMD Urban**	**SITE PLAN SKETCH—NOT TO SCALE**	A&Y ASSOCIATES GEOTECHNICAL ENGINEERING CONSULTANTS
LOCATION: **Mickleham**	**PROJECT No:** **1120 0300-1**		

Appendix C – Test Results Summary

Project No	1120 0300-1				Client	BMD Urban				
Project Name	Marrifield Estate - Stage 41				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	-	14/08/2021	-	1	0.0	99.0	101.0	0.5	Pass	-
2	-	14/08/2021	-	2	0.0	99.0	102.5	0.5	Pass	-
3	-	14/08/2021	-	2	0.0	99.0	103.5	0.5	Pass	-
4	-	19/08/2021	-	3	0.0	97.5	91.5	-1.5	Pass	-
5	-	19/08/2021	-	3	0.0	97.5	91.5	-2.0	Pass	-
6	-	19/08/2021	-	4	0.0	98.0	92.0	-1.5	Pass	-
7	-	23/08/2021	-	4	5.1	95.5	101.5	0.5	Pass	-
8	-	23/08/2021	-	4	6.1	95.0	102.5	0.5	Pass	-
9	-	23/08/2021	-	5	6.7	95.5	103.5	0.5	Pass	-
10	-	24/08/2021	-	5	0.0	96.0	99.5	0.0	Pass	-
11	-	24/08/2021	-	6	0.0	97.5	98.0	-0.5	Pass	-
12	-	24/08/2021	-	6	0.0	95.5	98.0	-0.5	Pass	-
13	-	26/08/2021	-	6	6.3	95.0	101.0	0.0	Pass	-
14	-	26/08/2021	-	7	6.1	95.0	103.0	0.5	Pass	-
15	-	26/08/2021	-	7	7.8	95.0	102.0	0.5	Pass	-
16	-	30/08/2021	-	1	6.8	96.0	99.5	-0.5	Pass	-
17	-	30/08/2021	-	2	7.0	95.0	97.5	-0.5	Pass	-
18	-	30/08/2021	-	3	5.8	95.0	99.0	0.0	Pass	-
19	-	31/08/2021	-	FSL	5.6	96.0	101.5	0.0	Pass	-
20	-	31/08/2021	-	FSL	5.6	95.0	99.0	0.0	Pass	-
21	-	31/08/2021	-	FSL	6.1	95.0	99.5	0.0	Pass	-
22	-	1/09/2021	-	3	6.9	96.0	101.5	0.5	Pass	-
23	-	1/09/2021	-	4	6.0	96.0	99.0	0.0	Pass	-
24	-	1/09/2021	-	4	7.6	96.0	101.5	0.0	Pass	-

25	-	20/09/2021	-	5	6.0	97.5	96.5	-0.5	Pass	-
26	-	20/09/2021	-	6	6.8	97.5	98.0	-0.5	Pass	-
27	-	20/09/2021	-	6	6.2	96.5	97.0	-0.5	Pass	-
28	-	22/10/2021	-	1	7.0	95.5	97.0	-0.5	Pass	-
29	-	22/10/2021	-	2	7.2	96.5	97.5	-0.5	Pass	-
30	-	22/10/2021	-	2	6.8	98.5	96.5	-0.5	Pass	-
31	-	26/10/2021	-	FSL	6.0	95.0	97.0	-0.5	Pass	-
32	-	26/10/2021	-	FSL	6.5	95.0	98.5	-0.5	Pass	-
33	-	26/10/2021	-	FSL	7.0	95.0	96.5	-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)

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GEOTECHNICAL ENGINEERING CONSULTANTS

Appendix D – NATA Test Results

A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

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:	BMD Urban			**Job No:**	BMD2021	
Project:	Merrifield Estate - Stage 41 (Level 1)			**Report:**	1	
Location:	Mickleham					

Sample No		1	2	3			
Date Tested		14/08/2021	14/08/2021	14/08/2021			
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	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	2.06	2.07	2.05			
Field Moisture Content	%	16.2	16.4	15.5			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	0.0	0.0	0.0			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	2.08	2.09	2.07			
Optimum Moisture Content	%	16	16	15			
Moisture Ratio	%	101	102.5	103.5			
Moisture Variation from OMC	%	0.5 Wetter	0.5 Wetter	0.5 Wetter			
Density Ratio	%	99.0	99.0	99.0			

Specification:	95% STD	**Test Selection:**	N/A
Notes:	Ref : 1120 0300-1 (SI01)		
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	**Sampling Method:**	AS 1289 1.2.1 6.4(b)

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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: 11/01/2022

A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

Field Density Test Results
AS1289.5.7.1

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

Client: BMD Urban **Job No:** BMD2021

Project: Merrifield Estate - Stage 41 (Level 1) **Report:** 2

Location: Mickleham

Sample No		4	5	6			
Date Tested		19/08/2021	19/08/2021	19/08/2021			
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	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	2.02	1.97	2.01			
Field Moisture Content	%	21.0	20.1	19.3			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	0.0	0.0	0.0			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	2.07	2.02	2.04			
Optimum Moisture Content	%	23	22	21			
Moisture Ratio	%	91.5	91.5	92			
Moisture Variation from OMC	%	-1.5 Drier	-2.0 Drier	-1.5 Drier			
Density Ratio	%	97.5	97.5	98.0			

Specification: 95% STD **Test Selection:** N/A

Notes: Ref : 1120 0300-1 (SI02)

Test Method AS1289 5.8.1, 5.7.1, 2.1.1, 1.1 **Sampling Method:** AS 1289 1.2.1 6.4(b)

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Approved Signatory: David Burns

Date: 11/01/2021

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Field Density Test Results
AS1289.5.7.1

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Client:	BMD Urban			**Job No:**	BMD2021	
Project:	Merrifield Estate - Stage 41 (Level 1)			**Report:**	3	
Location:	Mickleham					

Sample No		7	8	9			
Date Tested		23/08/2021	23/08/2021	23/08/2021			
Time Tested		PM	PM	PM			
Test Location		Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer		Layer 4	Layer 4	Layer 5			
Layer Thickness	mm	200	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	2.01	1.93	2.04			
Field Moisture Content	%	16.3	19.0	17.1			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	5.1	6.1	6.7			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	2.10	2.01	2.12			
Optimum Moisture Content	%	16	18.5	16.5			
Moisture Ratio	%	101.5	102.5	103.5			
Moisture Variation from OMC	%	0.5 Wetter	0.5 Wetter	0.5 Wetter			
Density Ratio	%	95.5	95.0	95.5			

Specification:	95% STD	**Test Selection:**	N/A
Notes:	Ref : 1120 0300-1 (SI03)		
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	**Sampling Method:**	AS 1289 1.2.1 6.4(b)

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Approved Signatory:

David Burns

Date: 11/01/2021

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Field Density Test Results
AS1289.5.7.1

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Client:	BMD Urban			**Job No:**	BMD2021	
Project:	Merrifield Estate - Stage 41 (Level 1)			**Report:**	4	
Location:	Mickleham					

Sample No		10	11	12			
Date Tested		24/08/2021	24/08/2021	24/08/2021			
Time Tested		AM	PM	PM			
Test Location		Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer		Layer 5	Layer 6	Layer 6			
Layer Thickness	mm	200	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	2.08	2.01	2.04			
Field Moisture Content	%	17.4	16.6	16.6			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	0.0	0.0	0.0			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	2.16	2.06	2.14			
Optimum Moisture Content	%	17.5	17	17			
Moisture Ratio	%	99.5	98	98			
Moisture Variation from OMC	%	0.0 OMC	-0.5 Drier	-0.5 Drier			
Density Ratio	%	96.0	97.5	95.5			

Specification:	95% STD	**Test Selection:**	N/A
Notes:	Ref : 1120 0300-1 (SI04)		
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	**Sampling Method:**	AS 1289 1.2.1 6.4(b)

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Approved Signatory: David Burns

Date: 11/01/2022

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Field Density Test Results
AS1289.5.7.1

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Client:	BMD Urban			**Job No:**	BMD2021	
Project:	Merrifield Estate - Stage 41 (Level 1)			**Report:**	5	
Location:	Mickleham					

Sample No		13	14	15			
Date Tested		26/08/2021	26/08/2021	26/08/2021			
Time Tested		AM	PM	PM			
Test Location		Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer		Layer 6	Layer 7	Layer 7			
Layer Thickness	mm	200	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	2.00	1.93	1.94			
Field Moisture Content	%	20.7	22.7	22.0			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	6.3	6.1	7.8			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	2.09	2.01	2.03			
Optimum Moisture Content	%	20.5	22	21.5			
Moisture Ratio	%	101	103	102			
Moisture Variation from OMC	%	0.0 OMC	0.5 Wetter	0.5 Wetter			
Density Ratio	%	95.0	95.0	95.0			

Specification:	95% STD	**Test Selection:**	N/A
Notes:	Ref : 1120 0300-1 (SI05)		
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	**Sampling Method:**	AS 1289 1.2.1 6.4(b)

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Approved Signatory:

David Burns

Date: 11/01/2022

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Field Density Test Results
AS1289.5.7.1

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Client: BMD Urban **Job No:** BMD2021

Project: Merrifield Estate - Stage 41 (Level 1) **Report:** 6

Location: Mickleham

Sample No		16	17	18			
Date Tested		30/08/2021	30/08/2021	30/08/2021			
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	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	1.98	1.95	1.99			
Field Moisture Content	%	22.8	22.4	21.3			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	6.8	7.0	5.8			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	2.05	2.04	2.08			
Optimum Moisture Content	%	23	23	21.5			
Moisture Ratio	%	99.5	97.5	99			
Moisture Variation from OMC	%	-0.5 Drier	-0.5 Drier	0.0 OMC			
Density Ratio	%	96.0	95.0	95.0			

Specification: 95% STD **Test Selection:** N/A

Notes: Ref : 1120 0300-1 (SI06)

Test Method AS1289 5.8.1, 5.7.1, 2.1.1, 1.1 **Sampling Method:** AS 1289 1.2.1 6.4(b)

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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: 12/01/2022

A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

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:	BMD Urban			**Job No:**	BMD2021	
Project:	Merrifield Estate - Stage 41 (Level 1)			**Report:**	7	
Location:	Mickleham					

Sample No		19	20	21			
Date Tested		31/08/2021	31/08/2021	31/08/2021			
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	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	1.93	1.98	1.99			
Field Moisture Content	%	24.3	22.8	24.3			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	5.6	5.6	6.1			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	1.99	2.07	2.09			
Optimum Moisture Content	%	24	23	24.5			
Moisture Ratio	%	101.5	99	99.5			
Moisture Variation from OMC	%	0.0 OMC	0.0 OMC	0.0 OMC			
Density Ratio	%	96.0	95.0	95.0			

Specification:	95% STD	**Test Selection:**	N/A
Notes:	Ref : 1120 0300-1 (SI07)		
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	**Sampling Method:**	AS 1289 1.2.1 6.4(b)

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Client:	BMD Urban			**Job No:**	BMD2021	
Project:	Merrifield Estate - Stage 41 (Level 1)			**Report:**	8	
Location:	Mickleham					

Sample No		22	23	24			
Date Tested		1/09/2021	1/09/2021	1/09/2021			
Time Tested		PM	PM	PM			
Test Location		Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer		Layer 3	Layer 4	Layer 4			
Layer Thickness	mm	200	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	1.98	2.00	2.00			
Field Moisture Content	%	25.3	22.3	23.3			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	6.9	6.0	7.6			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	2.05	2.07	2.07			
Optimum Moisture Content	%	25	22.5	23			
Moisture Ratio	%	101.5	99	101.5			
Moisture Variation from OMC	%	0.5 Wetter	0.0 OMC	0.0 OMC			
Density Ratio	%	96.0	96.0	96.0			

Specification:	95% STD	**Test Selection:**	N/A
Notes:	Ref : 1120 0300-1 (SI08)		
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	**Sampling Method:**	AS 1289 1.2.1 6.4(b)

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Client: BMD Urban **Job No:** BMD2021

Project: Merrifield Estate - Stage 41 (Level 1) **Report:** 9

Location: Mickleham

Sample No		25	26	27			
Date Tested		20/09/2021	20/09/2021	20/09/2021			
Time Tested		AM	PM	PM			
Test Location		Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer		Layer 5	Layer 6	Layer 6			
Layer Thickness	mm	200	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	2.01	2.02	2.00			
Field Moisture Content	%	18.8	21.1	21.9			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	6.0	6.8	6.2			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	2.05	2.05	2.06			
Optimum Moisture Content	%	19.5	21.5	22.5			
Moisture Ratio	%	96.5	98	97			
Moisture Variation from OMC	%	-0.5 Drier	-0.5 Drier	-0.5 Drier			
Density Ratio	%	97.5	97.5	96.5			

Specification: 95% STD **Test Selection:** N/A

Notes: Ref : 1120 0300-1 (SI09)

Test Method AS1289 5.8.1, 5.7.1, 2.1.1, 1.1 **Sampling Method:** AS 1289 1.2.1 6.4(b)

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Client: BMD Urban **Job No:** BMD2021

Project: Merrifield Estate - Stage 41 (Level 1) **Report:** 10

Location: Mickleham

Sample No		28	29	30			
Date Tested		22/10/2021	22/10/2021	22/10/2021			
Time Tested		AM	AM	AM			
Test Location		Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer		Layer 1	Layer 2	Layer 3			
Layer Thickness	mm	200	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	1.98	1.97	1.96			
Field Moisture Content	%	22.3	21.4	22.2			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	7.0	7.2	6.8			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	2.05	2.02	1.97			
Optimum Moisture Content	%	23	22	23			
Moisture Ratio	%	97	97.5	96.5			
Moisture Variation from OMC	%	-0.5 Drier	-0.5 Drier	-0.5 Drier			
Density Ratio	%	95.5	96.5	98.5			

Specification: 95% STD **Test Selection:** N/A

Notes: Ref : 1120 0300-1 (SI10)

Test Method AS1289 5.8.1, 5.7.1, 2.1.1, 1.1 **Sampling Method:** AS 1289 1.2.1 6.4(b)

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Client:	BMD Urban			**Job No:**	BMD2021	
Project:	Merrifield Estate - Stage 41 (Level 1)			**Report:**	11	
Location:	Mickleham					

Sample No		31	32	33			
Date Tested		26/10/2021	26/10/2021	26/10/2021			
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	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m^3	1.87	1.92	1.94			
Field Moisture Content	%	20.4	21.2	22.2			
Material:		Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			
Oversize Material	WET, %	6.0	6.5	7.0			
Sieve Size	mm	19	19	19			
Peak Converted Wet Density	t/m^3	1.96	2.00	2.02			
Optimum Moisture Content	%	21	21.5	23			
Moisture Ratio	%	97	98.5	96.5			
Moisture Variation from OMC	%	-0.5 Drier	-0.5 Drier	-0.5 Drier			
Density Ratio	%	95.0	95.0	95.0			

Specification:	95% STD	**Test Selection:**	N/A
Notes:	Ref : 1120 0300-1 (SI11)		
Test Method	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	**Sampling Method:**	AS 1289 1.2.1 6.4(b)

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