

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 0276-1			
Client		BMD Urban			
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Revision	Date	Descriptions/Status	Author	Reviewer	Approver
0	9/09/2021	Final	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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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.

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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 71, Mickleham.

2 Project Summary

It is understood that BMD Urban requires the fill platforms within Merrifield Estate - Stage 71, 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 two (2) working days on **31st May 2021 and 1st June 2021**.

This report is applicable for fill placed by BMD Urban for the shaded areas at following lots located in Merrifield Estate - Stage 71, Mickleham, as shown in Appendix A – Site Plan.

- Lot 7101 to Lot 7103
- Lot 7105 to Lot 7106
- Lot 7110 to Lot 7111
- Lot 7118 to Lot 7121

3 Project Specifications

No specification has been provided for the construction works in Merrifield Estate - Stage 71, Mickleham. The supervision and inspections were performed based on AS3798. A short summary of the requirements outline in AS3798 is provided below:

- All filling in excess of 300mm depth within the building envelope of allotments shall be undertaken to specifications satisfying the requirements of AS3798.
- Material to be used for fill construction shall satisfy the requirements of AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments". 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 **31st May 2021** as mentioned in report *1120 0276-1 (SS11)*.

The exposed subgrade was rolled by a 20 tonne compactor. 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 average fill thickness placed is approximately 200mm.

6 Fill Material

The fill material used for the platform consisted site derived material. The material was predominantly comprising of Clay.

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 6 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 6 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 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.

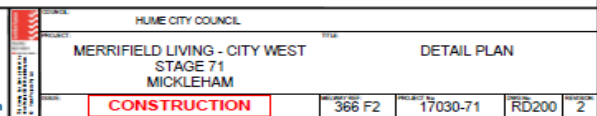
9 Conclusion

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

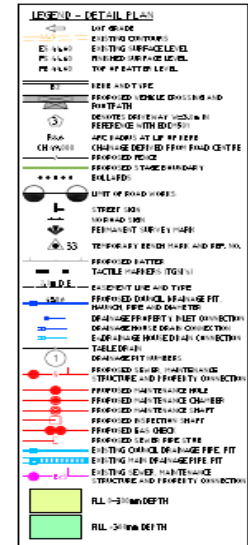


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Appendix B – Test Locations



THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. A DEDICATORY ON TIDE MUST BE MADE BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS.

WARNING
ANY DESIGN SURFACE LEVELS SHOWN ARE
PRELIMINARY ONLY AND SUBJECT TO FINAL DETAIL
DESIGN. DO NOT USE FOR CONSTRUCTION

T.B.M. NO.	EASTING (M)	NORTHING (M)	A.H.D LEVEL (M)	DESCRIPTION	DATE OF SURVEY
05	35456.04	544436.94	154.565	STAKE POINT	Jan-18
09	35456.96	544435.87	154.585	STAKE POINT	Jan-18
14	35509.65	544437.24	154.585	BRASS PLATE	Jan-18

BEFORE COMMENCEMENT OF WORKS THE CONTRACTOR IS TO ENSURE THE TBM'S USED CLOSE AGAINST AT LEAST TWO OTHER TBM'S. THE CONTRACTOR IS TO NOTIFY THE SUPERINTENDENT OF ANY TBM'S THAT HAVE BEEN DISTURBED.

		GROSS	
2	CONSTRUCTION FIRM - PROVIDED EARTHWORK SUPERVISORY	GR.	25,000.00
1	CONSTRUCTION FIRM - PROVIDED EARTHWORK AND LOT LEVEL	GR.	10,000.00
3	CONSTRUCTION FIRM	GR.	5,000.00
6	FIELDWORK FIRM	GR.	15,000.00
4	FIELDWORK FIRM	GR.	4,000.00
NET	DISCOUNTED	DISCOUNT	DATE



verve
Ground Floor, 207-213 Waverley Road,
Melburn East VIC 3145
TEL : 03 8573 1500 verveprojects.com

HUME CITY COUNCIL				
Title				
RIFIELD LIVING - CITY WEST STAGE 71 MICKLEHAM		DETAIL PLAN		
CONSTRUCTION	REVISED BY 366 F2	REVISED BY 17030-71	REVISED BY RD200	REVISED BY 2

PROJECT:
Merrifield - Stage 71

CLIENT:	BMD Urban
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LOCATION:
Mickleham


PROJECT No:	1120 0276-1
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SITE PLAN SKETCH—NOT TO SCALE



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Appendix C – Test Results Summary

Project No		1120 0276-1			Client		BMD Urban			
Project Name		Merrifield Estate - Stage 71			Specification			Density Ratio \geq 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	-	31/05/2021	Lot 7101	1	0.0	97.5	100.0	0.0	Pass	-
2	-	31/05/2021	Lot 7101	1	0.0	98.5	98.5	0.0	Pass	-
3	-	31/05/2021	Lot 7102	1	0.0	96.0	101.5	0.0	Pass	-
4	-	1/06/2021	Lot 7105	1	0.0	96.0	101.0	0.0	Pass	-
5	-	1/06/2021	Lot 7105	1	0.0	98.5	101.0	0.0	Pass	-
6	-	1/06/2021	Lot 7106	1	0.0	97.0	101.5	0.0	Pass	-
** Negative (-) value indicates that the field moisture content is drier than the optimum moisture content (OMC)									 A&Y ASSOCIATES <small>GEOTECHNICAL ENGINEERING CONSULTANTS</small>	
** 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

Client:	BMD Urban			Job No:	BMD1847	
Project:	Merrifield Estate - Stage 71 (Level 1)			Report:	1	
Location:	Mickleham					



Sample No	1	2	3			
Date Tested	31/05/2021	31/05/2021	31/05/2021			
Time Tested	PM	PM	PM			

Test Location	Lot #7101 Refer to Plan	Lot #7101 Refer to Plan	Lot #7102 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 ³ 1.93	t/m ³ 1.91	t/m ³ 1.89			
Field Moisture Content	% 20.0	% 18.2	% 18.8			
Material:	Site Derived Clay	Site Derived Clay	Site Derived Clay			

Oversize Material	WET, %	0.0	0.0	0.0		
Sieve Size	mm	19	19	19		
Peak Converted Wet Density	t/m ³	1.98	1.94	1.97		
Optimum Moisture Content	%	20	18.5	18.5		

Moisture Ratio	%	100	98.5	101.5		
Moisture Variation	%	0.0	0.0	0.0		
from OMC		OMC	OMC	OMC		
Density Ratio	%	97.5	98.5	96.0		

Specification:	95% STD	Test Selection:	N/A
Notes:	Ref : 1120 0276-1 (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)

 NATA WORLD RECOGNISED ACCREDITATION	NATA Accredited Laboratory No. 20172	Approved Signatory:  David Burns Date: 06/09/2021
	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	

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WARNING
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SERVICES

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T.B.M. NO.	EASTING (M)	NORTHING (M)	A.H.D. LEVEL (M)	DESCRIPTION	TBM DATE SURVEY
8	39156.04	564436.94	19.268	STAR POINT	June-8
8B	39156.90	564438.47	19.268	STAR POINT	June-8
9	38880.64	564437.26	20.1385	STAR POINT	June-8

BEFORE COMMENCEMENT OF WORKS THE CONTRACTOR IS TO ENSURE THE TBM'S USE
CLOSE AGAINST AT LEAST TWO OTHER TBM'S. THE CONTRACTOR IS TO NOTIFY THE
SUPERINTENDENT OF ANY TBM'S THAT HAVE BEEN DISTURBED

		GROSS	
2	CONSTRUCTION FIRM - PROVIDED EARTHWORK SUPERVISORY	GF.	25.04.21
1	CONSTRUCTION FIRM - PROVIDED EARTHWORK AND LAY LEVEL	GF.	12.04.21
3	CONSTRUCTION FIRM	GF.	05.04.21
6	FIELDWORK FIRM	GF.	05.04.21
4	FIELDWORK FIRM	GF.	04.04.21
REF.	PERSONNEL	PERSONNEL	DATE



HUME CITY COUNCIL			
RIFLE LIVING - CITY WEST STAGE 71 MICKLEHAM		DETAIL PLAN	
CONSTRUCTION	366 F2	17030-71	RD200

DATE:	31/05/2021
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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:	BMD1847	
Project:	Merrifield Estate - Stage 71 (Level 1)			Report:	2	
Location:	Mickleham					

Sample No	4	5	6			
Date Tested	01/06/2021	01/06/2021	01/06/2021			
Time Tested	PM	PM	PM			

Test Location	Lot #7105 Refer to Plan	Lot #7105 Refer to Plan	Lot #7106 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 ³ 1.87	t/m ³ 1.89	t/m ³ 1.91			
Field Moisture Content	% 21.7	% 20.2	% 20.8			
Material:	Site Derived Clay	Site Derived Clay	Site Derived Clay			

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 ³ 1.95	t/m ³ 1.91	t/m ³ 1.97			
Optimum Moisture Content	% 21.5	% 20	% 20.5			

Moisture Ratio	% 101	% 101	% 101.5			
Moisture Variation	% 0.0	% 0.0	% 0.0			
from OMC	OMC	OMC	OMC			
Density Ratio	% 96.0	% 98.5	% 97.0			

Specification:	95% STD	Test Selection:	N/A
Notes:	Ref : 1120 0276-1 (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)



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: 06/09/2021

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SUPERINTENDENT OF ANY TBM'S THAT HAVE BEEN DISTURBED

		DATE	NAME
2	CONSTRUCTIVE FEED - MOVED BATTERIES ON DECK-TOILET	GP	27/04/21
3	CONSTRUCTIVE FEED - SELECTED BEEHIVE AND LAY LEVEL	GP	28/04/21
4	CONSTRUCTIVE FEED	GP	5/05/21
5	PROFESSIONAL FEED	GP	15/05/21
6	PROFESSIONAL FEED	GP	4/06/21



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HUME CITY COUNCIL

MERRIFIELD LIVING - CITY WEST
STAGE 71
MICKLEHAM

DETAIL PLAN

CONSTRUCTION

366 F

17030-71

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DATE:	01/06/2021
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