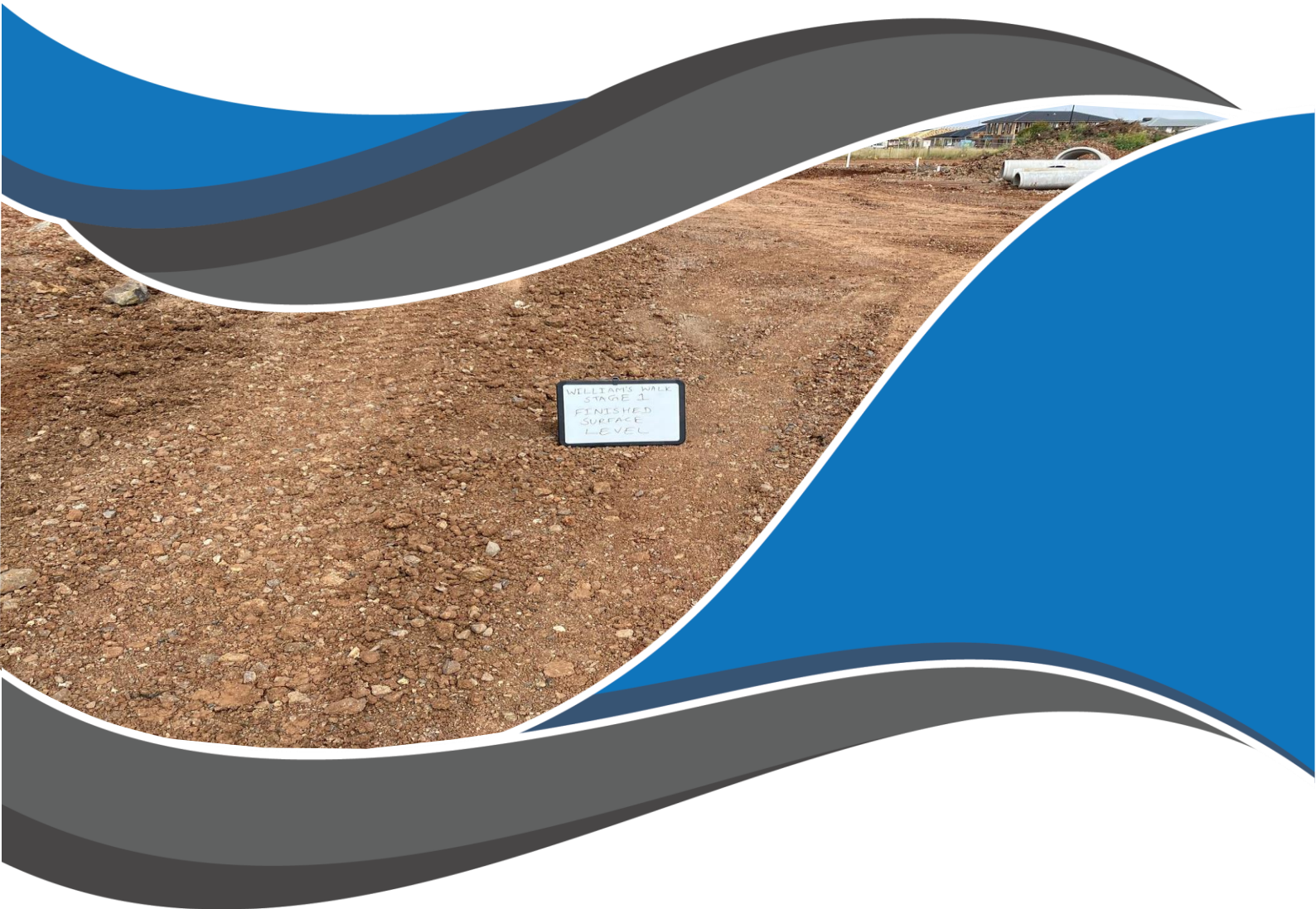


# Williams Walk - Stage 1, Rockbank

## Level 1 Inspection & Testing Report

Reference: 1120 0273-1



### Prepared for:

Bitu-Mill

June 2022



**A&Y ASSOCIATES**  
GEOTECHNICAL ENGINEERING CONSULTANTS

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## **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.

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## 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>10</b>
	<b>Appendix C – Test Results Summary .....</b>	<b>12</b>
	<b>Appendix D – NATA Test Results .....</b>	<b>14</b>

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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 Williams Walk - Stage 1, Rockbank.

## 2 Project Summary

It is understood that Bitu-Mill require the fill platforms within Williams Walk - Stage 1, Rockbank 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 on **25<sup>th</sup> August 2021**.

This report is applicable for fill placed by Bitu-Mill for the following lots located in Williams Walk - Stage 1, Rockbank, as shown in Appendix A – Site Plan.

- Lot 79 – 84
- Lot 93 – 99
- Lot 174
- Lot 158 – 159
- Lot 181 – 182

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### 3 Project Specifications

Specifications have been provided (Ref: Drawing R100-Rev0 prepared by Creo Consultants Pty Ltd and Geotechnical Investigation Report G4348.1 AA prepared by GroundScience) for the construction works in Williams Walk - Stage 1, Rockbank. The supervision and inspections were performed based on the project specifications and AS3798. A short summary of the requirements 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". 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.
- The fill is to be moisture conditioned to a moisture ratio of 90% – 120% of standard compaction;
- The fill material shall not contain greater than 20% by volume of particles coarser than 37.5mm and no particle over 100mm in any dimension;
- Compaction to achieve a dry density ratio of at least 95% Standard, as the project was classified as **Residential**.

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## 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 **25<sup>th</sup> August 2022** as mentioned in report *1120 0273-1 (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. 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 comprising of Silty Clay with gravel.

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## 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 3 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 3 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.



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## **10 Conclusion**

On the completion of the earthworks and after analysing the materials used, it has been concluded that the filling procedure conducted by Bitu-Mill 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.

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# **Appendix A - Site Plan**



Area Inspected and Tested



PROJECT:  
Williams Walk – Stage 1 (Level 1)

CLIENT:  
Bitu-Mill

LOCATION:  
Rockbank

PROJECT No:  
1120 0273-1

SITE PLAN SKETCH—NOT TO SCALE



---

## **Appendix B – Test Locations**



Indicative Test Location



PROJECT:  
Williams Walk – Stage 1 (Level 1)

CLIENT:  
Bitu-Mill

LOCATION:  
Rockbank

PROJECT No:  
1120 0273-1

SITE PLAN SKETCH—NOT TO SCALE



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# **Appendix C – Test Results Summary**

Project No		1120 0273-1			Client	Bitu-mill				
Project Name		Williams Walk - Stage 1			Specification			Density Ratio $\geq$ 95% of Peak Wet Density		
Location		Rockbank								
Test No	Retest of Test	Date	Location	Layer	Oversize	Density Ratio	Moisture Ratio	Moisture Variation	Pass / Fail	Retest
#	#		Lot #	#	%	%	%	%		Pass / Fail
1	-	25/08/2021	-	1	5.1	98.0	97.0	-0.5	Pass	-
2	-	25/08/2021	-	1	5.2	97.5	98.0	-0.5	Pass	-
3	-	25/08/2021	-	1	5.1	97.5	96.0	-1.0	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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## **Appendix D – NATA Test Results**



## Field Density Test Results AS1289.5.7.1

<b>Client:</b>	Bitu-Mill	<b>Job No:</b>	BTU1830
<b>Project:</b>	Williams Walk - Stage 1 (Level 1)	<b>Report:</b>	1
<b>Location:</b>	Rockbank		
Sample No	1	2	3
Date Tested	25/08/2021	25/08/2021	25/08/2021
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> 1.78	t/m <sup>3</sup> 1.79	t/m <sup>3</sup> 1.80
Field Moisture Content	% 21.3	% 20.6	% 22.6
Material:	Situ Derived Clay Fill	Situ Derived Clay Fill	Situ Derived Clay Fill
Oversize Material	WET, % 5.1	WET, % 5.2	WET, % 5.1
Sieve Size	mm 19	mm 19	mm 19
Peak Converted Wet Density	t/m <sup>3</sup> 1.80	t/m <sup>3</sup> 1.81	t/m <sup>3</sup> 1.82
Optimum Moisture Content	% 22	% 21	% 23.5
<b>Moisture Ratio</b>	% 97	% 98	% 96
<b>Moisture Variation from OMC</b>	% -0.5 Drier	% -0.5 Drier	% -1.0 Drier
<b>Density Ratio</b>	% 98.0	% 97.5	% 97.5

<b>Specification:</b>	95% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	1120 0273-1 (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)

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



PROJECT:  
Williams Walk – Stage 1 (Level 1)

CLIENT:  
Bitu-Mill

DATE:  
25/08/2021

LOCATION:  
Rockbank

PROJECT No:  
1120 0273-1 (SI01)

SITE PLAN SKETCH—NOT TO SCALE

