

Reference  
No.: 9042-062

LEVEL ONE

SURVEILLANCE

AND INSPECTION REPORT

*Carried Out  
By*



PREPARED FOR: -

SYMON BROS. CONSTRUCTIONS PTY LTD



## Table of Contents

1)	Introduction & Scope.....	2
2)	Site Preparation.....	2
3)	Fill Material.....	2
4)	Fill Construction Procedure.....	3
5)	Compaction Control Testing.....	3
6)	Testing Frequency.....	3
7)	Statement of Compliance.....	4
8)	Limitations of this Report.....	4

## Appendices

Appendix A Construction Drawings

Appendix B Daily Field Compaction Summary Results



Client Name: Symon Bros. Constructions Pty Ltd

Project Name: Mambourin Estate Stage 23

Date: 6<sup>th</sup> of June 2023

Author: Mr. Sam Loza

Reference No.: 9042-062

Revision: 0

Project Manager: Mr. George Dimopoulos

### **1. Introduction & Scope**

At the request of Symon Bros. Constructions Pty Ltd, Geotechnical Laboratories has carried out inspection and testing of the above-mentioned site from the 9<sup>th</sup> of December 2022 to the 6<sup>th</sup> of February 2023 where a residential development is being constructed. Inspection and testing of stripping, material quality and compaction control tests were carried out to comply with the requirements of AS 3798 Appendix B, Level 1.

The following documentation was submitted to Geotechnical Laboratories by Symon Bros. Constructions Pty Ltd and was used to determine compliance of earthworks in conjunction with the requirements of AS 3798 – 2007.

(1). Layout Plan Drawing No. 309510CR100 Rev. 3

General site works involved the placement of fill, using on-site derived clay, to bring the fill region to the required finished levels as indicated on the faceplan drawings.

### **2. Site Preparation**

Initial site inspections were undertaken on the 21<sup>st</sup> of November 2022 confirming that selected areas to be filled were completely stripped of topsoil prior to filling. The brown silty topsoils had been stockpiled around the site for later removal off-site.

Proof roll inspections were performed throughout the project duration to ensure no significant soft areas were present prior to filling.

### **3. Fill Material**

It is understood that the fill material used was sourced from on-site excavations, mainly drainage trenches and road boxing. The material had been screened to remove any boulders.



The fill material is best described as a silty CLAY, brown, slightly moist to moist, medium to high plasticity with basalt gravels and cobbles.

The fill material is consistent with the naturally occurring soils for this region.

Source material was deemed a **Suitable Material** in accordance with guidelines set out in AS 3798 - 2007 Section 4.4.

#### **4. Fill Construction Procedure**

The following plant (but not always limited to) were engaged in the fill placement process:

- Highway trucks
- Dump trucks
- A watercart
- A sheepsfoot compactor (815)

The sheepsfoot compactor placed material in horizontal loose layers of approximately 250-300mm. The sheepsfoot compactor also performed compaction of the clay fill operating in a criss-cross pattern.

The moisture condition of the fill was closely monitored, and moisture conditioning procedures were applied to bring the material closer to its Standard Optimum Moisture Content (AS 1289 5.7.1).

#### **5. Compaction Control Testing**

Compaction control testing was performed on-site using a Nuclear Densometer in accordance with AS 1289 5.8.1. Laboratory reference densities were determined from material sampled at each test site location using the Hilf Rapid Compaction Method in accordance with AS 1289 5.7.1.

A total of fifty-two compaction tests were performed on the fill construction. Results are presented in Appendix B of this report.

#### **6. Testing Frequency**

Testing frequencies were in accordance with **AS 3798 - 2007 Table 8.1 for Large Scale Operations.**

Acceptance of fill layers for compaction was based on the requirements of **AS 3798 - 2007 Table 5.1 Item 1. Residential.**

As a result, the compliance criteria adopted by Geotechnical Laboratories was a hilf density ratio not less than 95 percent of the maximum hilf density value as determined by the Standard Hilf Rapid Compaction Method in accordance with AS 1289 5.7.1.



Test results indicate that the above-mentioned requirements have been successfully achieved.

No moisture criteria was specified.

### **7. Statement of Compliance**

So far as can be determined, Symon Bros. Constructions Pty Ltd has satisfactorily complied with the compaction and construction processes required for the structural filling of this site. As such, structural filling placed on this site by Symon Bros. Constructions Pty Ltd from the 9<sup>th</sup> of December 2022 to the 6<sup>th</sup> of February 2023 can be categorised as CONTROLLED FILL in accordance with AS 2870-2011.

### **8. Limitations and Liability of this Report**

This report has been produced for and remains the property of Symon Bros. Constructions Pty Ltd.

The release of this report to a third party will only occur if Geotechnical Laboratories Pty Ltd has received, in writing, the authority to do so by our client.

Geotechnical Laboratories Pty Ltd will not engage in any third-party communication regarding this report.

Where information has been supplied by the client or third party, the assumption is made that this is correct. Geotechnical Laboratories Pty Ltd will not be held responsible for any inaccuracies supplied.

Test results and controlled fill compliance relates only to fill placed by Symon Bros. Constructions Pty Ltd and for earthworks completed at the time of inspection and testing. Any previous or subsequent earthworks will require a separate evaluation.

For & on behalf of  
Geotechnical Laboratories Pty Ltd.

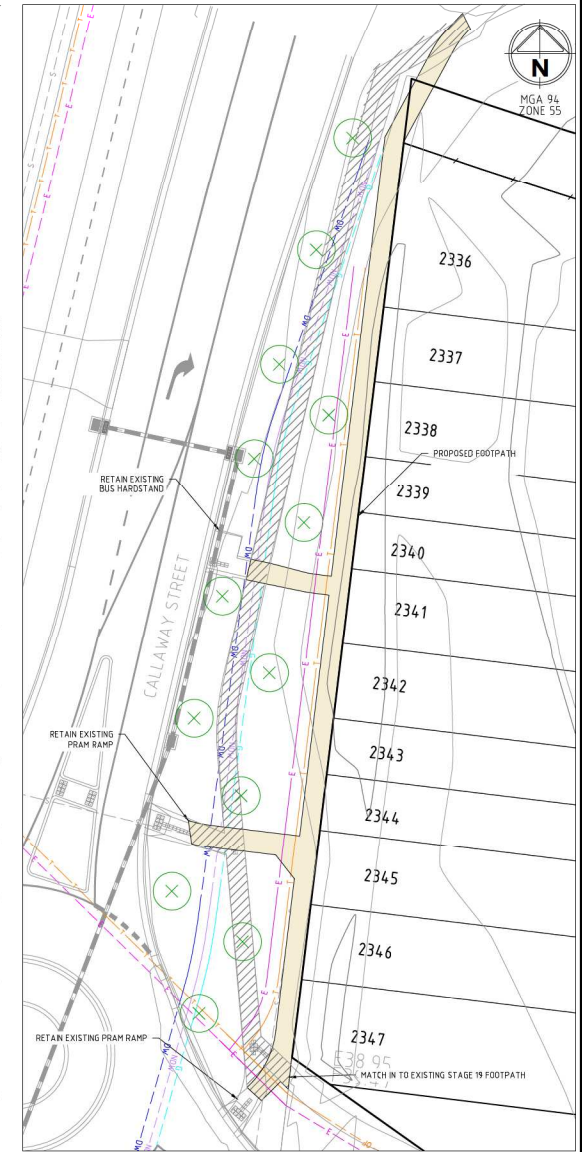
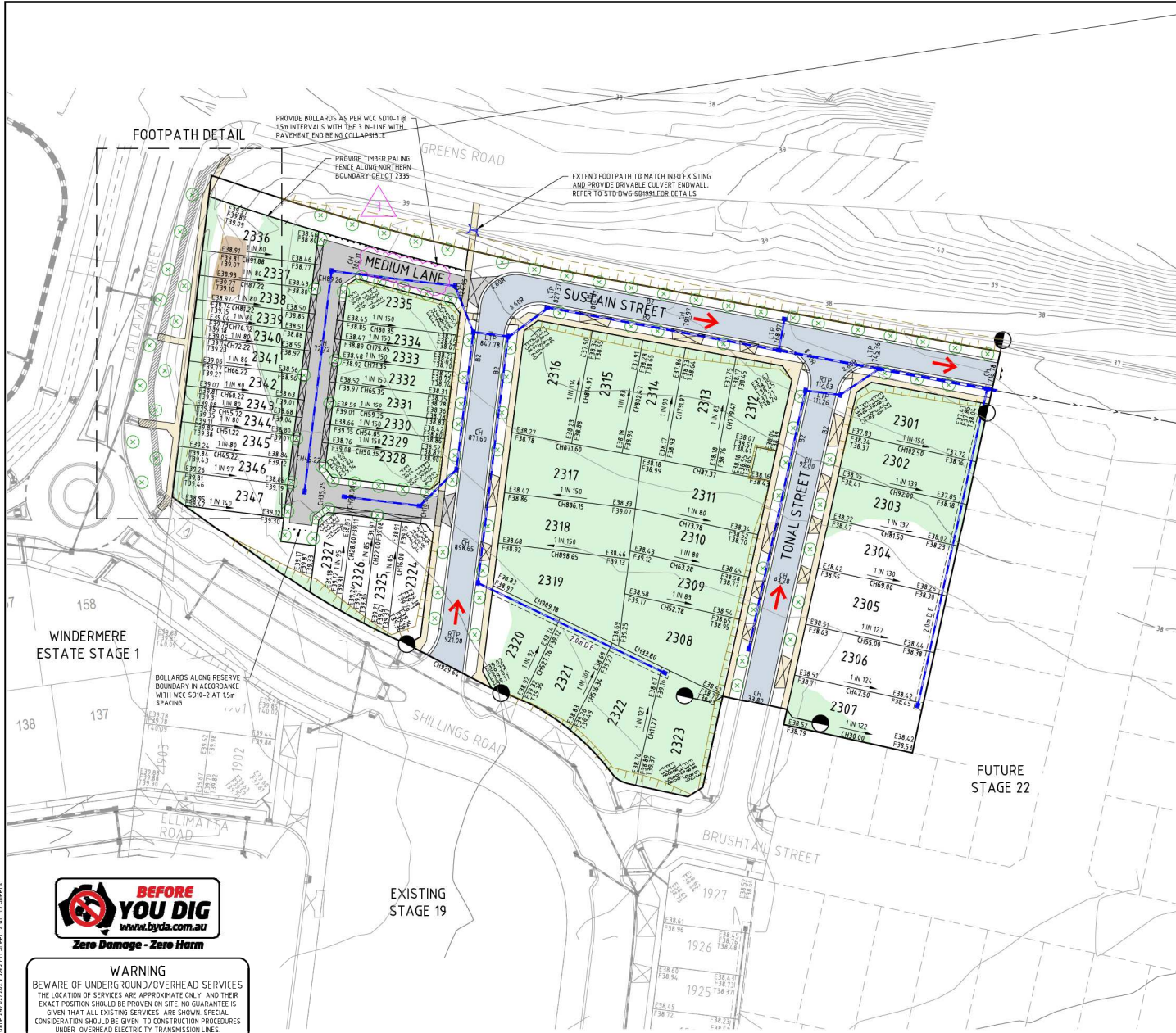
Sam Loza  
Laboratory Manager.



LEVEL ONE  
SURVEILLANCE  
AND INSPECTION REPORT

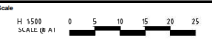
APPENDIX A





**WARNING**  
BEWARE OF UNDERGROUND/OVERHEAD SERVICES  
THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. SPECIAL CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTION PROCEDURES UNDER OVERHEAD ELECTRICITY TRANSMISSION LINES.

Rev	Amendments	Approved	Date
3	STREET NAME UPDATED	MI R	24/02/23
2	RESERVE FOOTPATH LAYOUT AMENDED & CULVERTS ADDED	MI R	17/02/23
1	LOT LAYOUT AMENDED & KIOSK LOCATION ADDED	MI R	31/10/22
0	ISSUED FOR CONSTRUCTION	MI R	05/09/22
B	FENCING ADDED	MI R	18/09/22
A	PRELIMINARY ISSUE	MI R	29/07/22



System Certified
   
 © Spiire Australia Pty Ltd All Rights Reserved
   
This document is produced by Spiire Australia Pty Ltd solely for the benefit of and use by the client in accordance with the terms of the contract. Spiire Australia Pty Ltd does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by that party on the contents of this document.

16 414 LA TROBE STREET PO BOX 16084 MELBOURNE  
 VICTORIA 3007 AUSTRALIA T 61 3 9993 7888  
 spiire.com.au ABN 55 005 029 635

Designed  
**K. FEARN-WANNAN**  
 Authorised  
**G. KOHLMAN**

Checked  
**G. KOHLMAN**  
 Date  
 17/02/23

**MAMBOURIN**  
**STAGE 23**  
**ROAD AND DRAINAGE**  
**ROAD LAYOUT PLANS**  
 WYNDHAM CITY COUNCIL  
 FRASERS PROPERTY LTD  
 CONSTRUCTION 309510CR200 3



LEVEL ONE  
SURVEILLANCE  
AND INSPECTION REPORT

APPENDIX B





GEOTECHNICAL LABORATORIES

ACN 102 571 077

14 Ravenhall Way, Ravenhall, Vic 3023

Email: info@geolab.com.au PH: (03) 8361-9140

### DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/006

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
9/12/22	1	<i>Refer to #9042/007 for approx. test site locations.</i>	1.91	23.5	103.0	1.85	26.0	175	3.0 Drier	88.5	0	0	0	
9/12/22	2		1.87	24.0	102.5	1.82	26.5	175	2.5 Drier	90.5	0	0	0	
9/12/22	3		1.85	29.0	100.0	1.85	30.0	175	1.5 Drier	95.5	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 12:15pm Finish Time: 1:00pm

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



Accredited for compliance with ISO/IEC 17025 - Testing

NATA Accredited Laboratory Number 14561

MICK CROWE  
(Approved Signatory)

Issue Date: 14/12/2022





# GEOTECHNICAL LABORATORIES

**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

<b>CLIENT: SYMON BROS</b>  <b>LOCATION: Mambourin, Stage 23</b>  <b>Sketch indicating compaction test locations</b>	<b>DATE: /0/2022</b>	<b>JOB No.: 9042/00</b>
	<b>OPERATOR:</b>	<b>CHECKED:</b>
	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>



**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/011

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
13/12/22	4	<i>Refer to #9042/012 for approx. test site locations.</i>	2.01	28.0	106.5	1.89	28.0	175	0.0 Drier	100.0	0	0	0	
13/12/22	5		2.02	29.5	105.5	1.92	29.0	175	0.5 Wetter	101.0	0	0	0	
13/12/22	6		2.02	24.5	107.5	1.88	27.5	175	2.5 Drier	90.0	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 12:15pm Finish Time: 12:50pm

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation, Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



*Accredited for compliance with ISO/IEC 17025 - Testing*

*NATA Accredited Laboratory Number 14561*

**MICK CROWE**  
(Approved Signatory)

Issue Date: 16/12/2022





# GEOTECHNICAL LABORATORIES

**GEOTECHNICAL LABORATORIES**

**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023

Email: info@geolab.com.au PH: (03) 8361-9140

**CLIENT: SYMON BROS**

**LOCATION: Mambourin, Stage 23**

**Sketch indicating compaction test locations**

**DATE: 13/12/2022**

**OPERATOR: BM**

**SCALE: NTS**

**JOB No.: 9042/012**

**CHECKED: KK**

**FIGURE No: -**



GEOTECHNICAL LABORATORIES

ACN 102 571 077

14 Ravenhall Way, Ravenhall, Vic 3023

Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/014

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
15/12/22	7	<i>Refer to #9042/015 for approx. test site locations.</i>	2.01	24.5	102.0	✘ 1.97	25.0	175	0.5 Drier	97.0	5	0	450	
15/12/22	8		2.07	24.0	109.0	1.90	26.0	175	1.5 Drier	93.5	0	0	350	
15/12/22	9		1.96	27.5	105.0	✘ 1.86	29.0	175	1.5 Drier	94.5	4	0	200	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 1.20PM Finish Time: 2.00PM

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)

✘ Indicates APCWD



*Accredited for compliance with ISO/IEC 17025 - Testing*

*NATA Accredited Laboratory Number 14561*

MICK CROWE  
(Approved Signatory)

Issue Date: 20/12/2022





**GEOTECHNICAL LABORATORIES**

**GEOTECHNICAL LABORATORIES**

**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023

Email: info@geolab.com.au PH: (03) 8361-9140

**CLIENT: SYMON BROS**

**LOCATION: Mambourin, Stage 23**

**Sketch indicating compaction test locations**

**DATE: 15/12/2022**

**JOB No.: 9042/015**

**OPERATOR: PS**

**CHECKED: NF**

**SCALE: NTS**

**FIGURE No: -**



**GEOTECHNICAL LABORATORIES**  
ACN 102 571 077

14 Ravenhall Way, Ravenhall, Vic 3023  
Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/016

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
16/12/22	10	<i>Refer to #9042/017 for approx. test site locations.</i>	1.91	28.0	99.5	✘ 1.93	27.5	175	0.5 Wetter	101.0	3	0	0	
16/12/22	11		1.99	26.5	101.5	✘ 1.96	26.0	175	0.5 Wetter	101.0	5	0	0	
16/12/22	12		1.92	23.5	103.0	✘ 1.87	26.0	175	2.5 Drier	89.5	4	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 12:30pm Finish Time: 1:00pm

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation, Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)

✘ Indicates APCWD



Accredited for compliance with ISO/IEC 17025 - Testing

NATA Accredited Laboratory Number 14561

**MICK CROWE**  
(Approved Signatory)

Issue Date: 22/12/2022





**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

<b>CLIENT: SYMON BROS</b>  <b>LOCATION: Mambourin, Stage 23</b>  <b>Sketch indicating compaction test locations</b>	<b>DATE: 16/12/2022</b>	<b>JOB No.: 9042/017</b>
	<b>OPERATOR: SA</b>	<b>CHECKED: KK</b>
	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>



**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/027

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
12/01/23	13	<i>Refer to #9042/028 for approx. test site locations.</i>	1.90	20.5	103.0	1.84	24.5	175	4.0 Drier	83.5	0	0	200	
12/01/23	14		1.85	25.0	100.5	1.84	28.5	175	3.5 Drier	88.5	0	0	200	
12/01/23	15		1.91	23.5	102.0	1.87	25.0	175	1.5 Drier	93.0	0	0	200	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 2.45PM Finish Time: 3.45PM

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



Accredited for compliance with ISO/IEC

17025 - Testing

NATA Accredited Laboratory Number 14561

**MICK CROWE**  
(Approved Signatory)

Issue Date: 19/1/2023





**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

<b>CLIENT: SYMON BROS</b>  <b>LOCATION: Mambourin, Stage 23</b>  <b>Sketch indicating compaction test locations</b>	<b>DATE: 12/01/2023</b>	<b>JOB No.: 9042/028</b>
	<b>OPERATOR: PS</b>	<b>CHECKED: NF</b>
	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>



**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/029

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
13/01/23	16	<i>Refer to #9042/030 for approx. test site locations.</i>	1.90	23.0	99.0	1.92	24.5	175	1.5 Drier	94.0	0	0	0	
13/01/23	17		1.95	24.5	98.5	1.97	24.5	175	0.0 Drier	100.0	0	0	200	
13/01/23	18		1.92	19.0	97.5	1.97	21.0	175	1.5 Drier	92.0	0	0	200	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 2.00PM Finish Time: 2.40PM

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



*Accredited for compliance with ISO/IEC*

*17025 - Testing*

*NATA Accredited Laboratory Number 14561*

**MICK CROWE**  
(Approved Signatory)

Issue Date: 19/1/2023





# GEOTECHNICAL LABORATORIES

**GEOTECHNICAL LABORATORIES**

**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023

Email: info@geolab.com.au PH: (03) 8361-9140

**CLIENT: SYMON BROS**

**LOCATION: Mambourin, Stage 23**

**Sketch indicating compaction test locations**

**DATE: 13/01/2023**

**OPERATOR: PS**

**SCALE: NTS**

**JOB No.: 9042/030**

**CHECKED: NF**

**FIGURE No: -**



**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/031

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
14/01/23	19	<i>Refer to #9042/032 for approx. test site locations.</i>	1.82	25.5	98.0	✘ 1.86	26.5	175	1.5 Drier	95.5	7	0	200	
14/01/23	20		1.88	29.0	101.5	1.85	29.5	175	0.5 Drier	98.5	0	0	0	
14/01/23	21		1.91	26.0	105.0	1.81	29.0	175	3.0 Drier	89.5	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 9:10am Finish Time: 9:50am

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)

✘ Indicates APCWD



*Accredited for compliance with ISO/IEC 17025 - Testing*

*NATA Accredited Laboratory Number 14561*

**MICK CROWE**  
(Approved Signatory)

Issue Date: 19/1/2023





**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

<b>CLIENT: SYMON BROS</b>  <b>LOCATION: Mambourin, Stage 23</b>  <b>Sketch indicating compaction test locations</b>	<b>DATE: 14/01/2023</b>	<b>JOB No.: 9042/032</b>
	<b>OPERATOR: NE</b>	<b>CHECKED: KK</b>
	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>





**GEOTECHNICAL LABORATORIES**  
ACN 102 571 077

14 Ravenhall Way, Ravenhall, Vic 3023  
Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/034

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
16/01/23	22	<i>Refer to #9042/035 for approx. test site locations.</i>	1.89	24.0	101.5	1.86	27.0	175	2.5 Drier	90.0	0	0	0	
16/01/23	23		1.92	25.0	104.0	1.85	28.0	175	3.0 Drier	89.5	0	0	0	
16/01/23	24		1.83	30.0	99.5	1.83	31.5	175	1.5 Drier	95.0	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 12:15pm Finish Time: 12:45pm

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation, Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



*Accredited for compliance with ISO/IEC 17025 - Testing*

*NATA Accredited Laboratory Number 14561*

MICK CROWE  
(Approved Signatory)

Issue Date: 19/1/2023



**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

<b>CLIENT: SYMON BROS</b>  <b>LOCATION: Mambourin, Stage 23</b>  <b>Sketch indicating compaction test locations</b>	<b>DATE: 16/01/2023</b>	<b>JOB No.: 9042/035</b>
	<b>OPERATOR: SA</b>	<b>CHECKED: KK</b>
	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>



**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/039

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
18/01/23	25	<i>Refer to #9042/040 for approx. test site locations.</i>	1.96	28.5	102.5	✘ 1.92	28.5	175	0.0 Drier	100.0	7	0	0	
18/01/23	26		1.86	27.5	100.5	1.85	29.0	175	1.5 Drier	95.5	0	0	0	
18/01/23	27		1.90	30.5	99.5	1.90	29.0	175	1.5 Wetter	105.5	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 1.20PM Finish Time: 1.50PM

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)

✘ Indicates APCWD



Accredited for compliance with ISO/IEC 17025 - Testing

NATA Accredited Laboratory Number 14561

**MICK CROWE**  
 (Approved Signatory)

Issue Date: 24/1/2023





# GEOTECHNICAL LABORATORIES

**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

**CLIENT: SYMON BROS**

**LOCATION: Mambourin, Stage 23**

**Sketch indicating compaction test locations**

**DATE: 18/01/2023**

**OPERATOR: DB**

**SCALE: NTS**

**JOB No.: 9042/040**

**CHECKED: NF**

**FIGURE No: -**



**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/041

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
19/01/23	28	<i>Refer to #9042/042 for approx. test site locations.</i>	1.90	31.5	101.0	1.88	30.5	175	1.0 Wetter	102.5	0	0	0	
19/01/23	29		1.80	33.0	96.5	1.87	32.0	175	1.0 Wetter	102.5	0	0	0	
19/01/23	30		1.87	26.5	102.5	1.83	28.0	175	1.5 Drier	95.5	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 10.50AM Finish Time: 11.20AM

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



*Accredited for compliance with ISO/IEC 17025 - Testing*

*NATA Accredited Laboratory Number 14561*

**MICK CROWE**  
(Approved Signatory)

Issue Date: 24/1/2023





**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

<b>CLIENT: SYMON BROS</b>  <b>LOCATION: Mambourin, Stage 23</b>  <b>Sketch indicating compaction test locations</b>	<b>DATE: 19/01/2023</b>	<b>JOB No.: 9042/042</b>
	<b>OPERATOR: AB</b>	<b>CHECKED: NF</b>
	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>



**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/045

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
20/01/23	31	<i>Refer to #9042/046 for approx. test site locations.</i>	1.80	30.0	95.5	1.88	28.5	175	2.0 Wetter	106.5	0	0	0	
20/01/23	32		1.84	32.5	100.5	1.83	33.0	175	0.5 Drier	99.0	0	0	0	
20/01/23	33		1.80	33.0	98.0	1.83	33.0	175	0.5 Drier	99.0	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 10:45am Finish Time: 11:30am

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



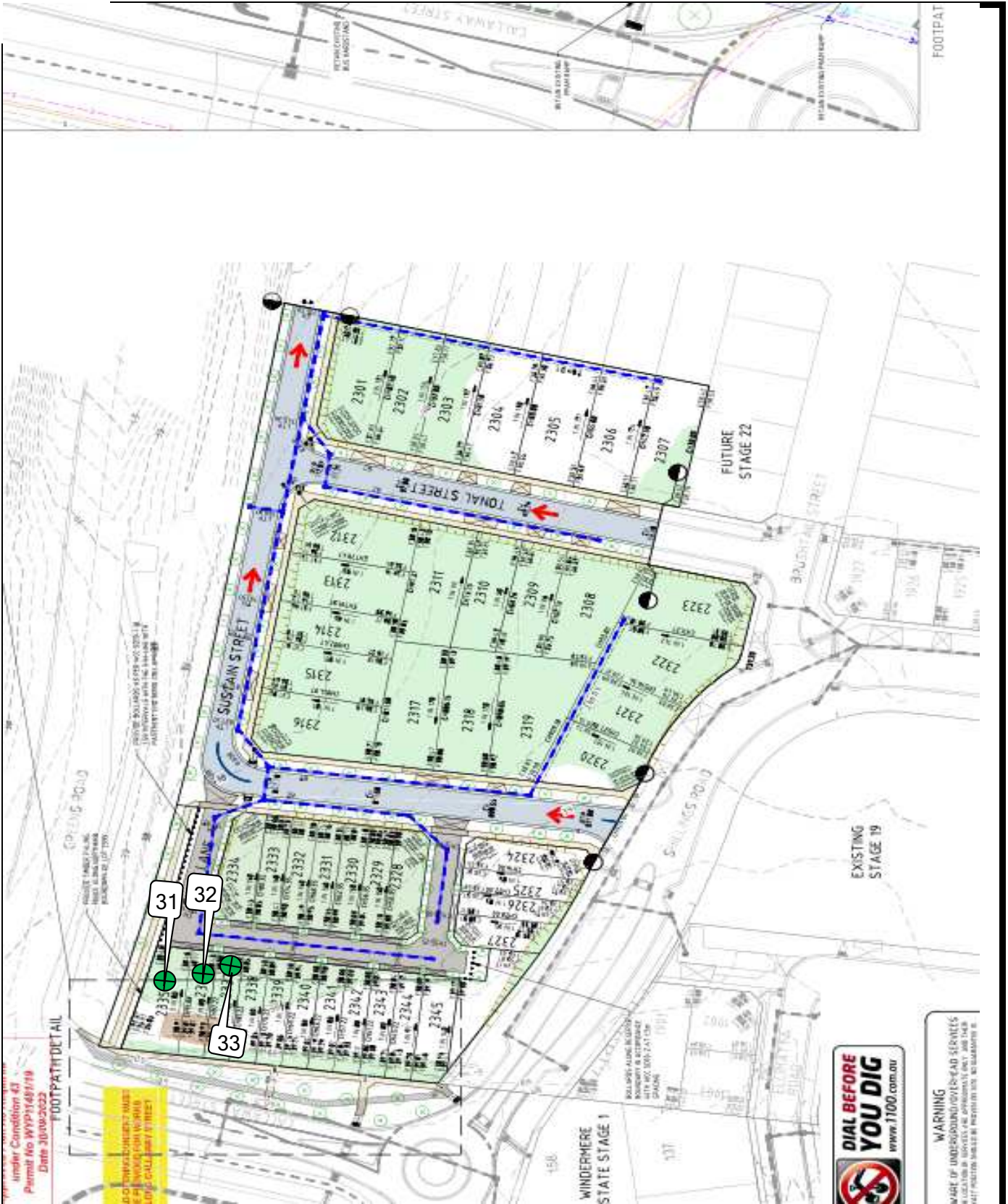
*Accredited for compliance with ISO/IEC 17025 - Testing*

*NATA Accredited Laboratory Number 14561*

**MICK CROWE**  
(Approved Signatory)

Issue Date: 25/1/2023





**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

**CLIENT: SYMON BROS**

**LOCATION: Mambourin, Stage 23**

**Sketch indicating compaction test locations**

**DATE: 20/01/2023**

**JOB No.: 9042/046**

**OPERATOR: AB/KOB**

**CHECKED: KK**

**SCALE: NTS**

**FIGURE No: -**



**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/047

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
23/01/23	34	<i>Refer to #9042/048 for approx. test site locations.</i>	1.92	22.5	103.5	1.85	26.0	175	3.5 Drier	86.5	0	0	0	
23/01/23	35		1.92	23.5	100.5	1.91	26.0	175	2.0 Drier	91.5	0	0	0	
23/01/23	36		1.92	22.5	99.5	1.93	24.5	175	1.5 Drier	93.0	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 10:20am Finish Time: 10:40am

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



Accredited for compliance with ISO/IEC 17025 - Testing

NATA Accredited Laboratory Number 14561

**MICK CROWE**  
(Approved Signatory)

Issue Date: 30/1/2023





**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

<b>CLIENT: SYMON BROS</b>  <b>LOCATION: Mambourin, Stage 23</b>  <b>Sketch indicating compaction test locations</b>	<b>DATE: 23/01/2023</b>	<b>JOB No.: 9042/048</b>
	<b>OPERATOR: SA</b>	<b>CHECKED: KK</b>
	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>



**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/050

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
24/01/23	37	<i>Refer to #9042/051 for approx. test site locations.</i>	1.90	29.5	103.0	1.84	30.5	175	1.0 Drier	96.5	0	0	0	
24/01/23	38		1.89	32.0	101.5	1.86	31.5	175	0.5 Wetter	101.0	0	0	0	
24/01/23	39		1.91	30.5	103.0	1.85	31.0	175	0.5 Drier	98.5	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 9:25am Finish Time: 10:00am

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



Accredited for compliance with ISO/IEC 17025 - Testing

NATA Accredited Laboratory Number 14561

**MICK CROWE**  
(Approved Signatory)

Issue Date: 30/1/2023





**GEOTECHNICAL LABORATORIES**  
**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

<b>CLIENT: SYMON BROS</b>  <b>LOCATION: Mambourin, Stage 23</b>  <b>Sketch indicating compaction test locations</b>	<b>DATE: 24/01/2023</b>	<b>JOB No.: 9042/051</b>
	<b>OPERATOR: SA</b>	<b>CHECKED: KK</b>
	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>



GEOTECHNICAL LABORATORIES

ACN 102 571 077

14 Ravenhall Way, Ravenhall, Vic 3023

Email: info@geolab.com.au PH: (03) 8361-9140

### DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/053

LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
25/01/23	40	<i>Refer to #9042/054 for approx. test site locations.</i>	1.91	23.0	103.5	1.84	28.0	175	5.0 Drier	82.5	0	0	0	
25/01/23	41		1.96	24.0	103.5	1.89	28.0	175	4.0 Drier	85.0	0	0	0	
25/01/23	42		1.88	21.5	98.5	1.90	26.0	175	4.5 Drier	83.0	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 1:15pm Finish Time: 2:00pm

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



Accredited for compliance with ISO/IEC

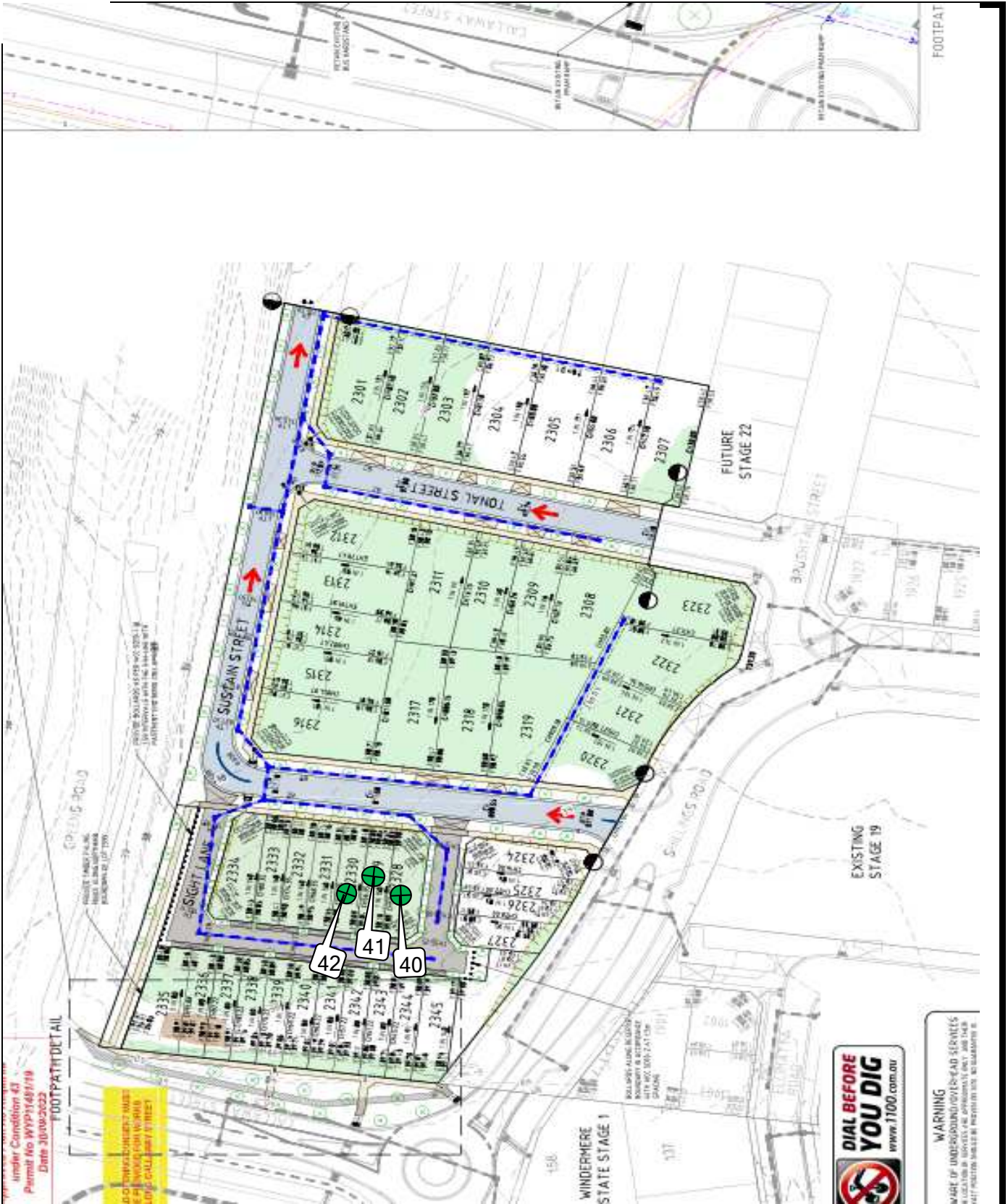
17025 - Testing

NATA Accredited Laboratory Number 14561

MICK CROWE  
(Approved Signatory)

Issue Date: 30/1/2023





**GEOTECHNICAL  
LABORATORIES**

**GEOTECHNICAL LABORATORIES  
ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023  
Email: info@geolab.com.au PH: (03) 8361-9140

<b>CLIENT: SYMON BROS</b>  <b>LOCATION: Mambourin, Stage 23</b>  <b>Sketch indicating compaction test locations</b>	<b>DATE: 25/01/2023</b>	<b>JOB No.: 9042/054</b>
	<b>OPERATOR: PS</b>	<b>CHECKED: KK</b>
	<b>SCALE: NTS</b>	<b>FIGURE No: -</b>





**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/056

LOCATION: SYMON BROS - Mambourin Estate, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)
27/01/23	43	<i>Refer to #9042/057 for approx. test site locations.</i>	1.93	21.5	99.5	1.94	25.5	175	4.5 Drier	83.0	0	0	0
27/01/23	44		1.95	19.0	100.5	1.94	23.5	175	4.5 Drier	81.5	0	0	0
27/01/23	45		1.93	18.0	99.5	1.94	22.5	175	4.0 Drier	82.0	0	0	0
27/01/23	46		1.88	24.0	101.5	1.85	27.5	175	3.5 Drier	87.5	0	0	0
27/01/23	47		1.94	20.5	100.0	1.94	25.0	175	4.5 Drier	82.5	0	0	0
27/01/23	48		1.92	18.5	102.0	1.88	22.5	175	4.0 Drier	82.0	0	0	0

NOTES: Clayey Fill Ex. Onsite

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 8.50AM Finish Time: 10.30AM

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

Soil Layer thickness: 200mm

Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1

Field Density, Nuclear Gauge: AS 1289 5.8.1

Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)



*Accredited for compliance with ISO/IEC*

*17025 - Testing*

*NATA Accredited Laboratory Number 14561*

**MICK CROWE**  
(Approved Signatory)

Issue Date: 31/1/2023



# GEOTECHNICAL LABORATORIES

**GEOTECHNICAL LABORATORIES**

**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023

Email: info@geolab.com.au PH: (03) 8361-9140

**CLIENT: SYMON BROS**

**LOCATION: Mambourin, Stage 23**

**Sketch indicating compaction test locations**

**DATE: 27/01/2023**

**JOB No.: 9042/057**

**OPERATOR: PS/OK**

**CHECKED: NF**

**SCALE: NTS**

**FIGURE No: -**



**GEOTECHNICAL LABORATORIES**  
 ACN 102 571 077  
 14 Ravenhall Way, Ravenhall, Vic 3023  
 Email: info@geolab.com.au PH: (03) 8361-9140

## DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 9042/059  
 LOCATION: SYMON BROS - Mambourin, Stage 23

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m <sup>3</sup> )	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m <sup>3</sup> )	STANDARD OPTIMUM MOISTURE CONTENT (%)	PROBE DEPTH SETTING (mm)	VARIATION FROM OPTIMUM MOISTURE CONTENT (%)	MOISTURE RATIO (%)	WET +19mm (%)	WET +37.5mm (%)	APPROX. DEPTH BELOW FINISH LEVEL (mm)	
6/02/23	49	<i>Refer to #9042/060 for approx. test site locations.</i>	1.88	26.5	106.5	1.77	31.5	175	5.5 Drier	83.0	0	0	0	
6/02/23	50		1.85	28.0	104.0	1.79	32.0	175	3.5 Drier	88.5	0	0	0	
6/02/23	51		1.92	29.5	108.0	1.77	31.5	175	2.5 Drier	92.5	0	0	0	
6/02/23	52		1.87	28.5	104.5	1.79	33.0	175	4.5 Drier	86.5	0	0	0	
-	-		-	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite Compaction specimens sampled after compaction.  
 Test sites located - Geolab Procedure 4, Part 4.4. Start Time: 11:45am Finish Time: 12:10pm

A Hilf Rapid Compaction test was carried out on a sample taken from each Field Density location to obtain the Compaction Parameters tabulated on this Report.  
 Moisture Content: AS 1289 2.1.1  
 Compaction Test: AS 1289 5.7.1  
 Soil Layer thickness: 200mm  
 Hilf Density Ratio and Hilf Moisture Variation ,Hilf Adjusted (APCWD) & Peak (PCWD) Converted Wet Density AS 1289 5.7.1  
 Field Density, Nuclear Gauge: AS 1289 5.8.1  
 Materials Sampled : AS 1289 1.2.1 Clause 6.4(b)

*Accredited for compliance with ISO/IEC 17025 - Testing*  
*NATA Accredited Laboratory Number 14561*

**MICK CROWE**  
 (Approved Signatory)  
 Issue Date: 10/2/2023





# GEOTECHNICAL LABORATORIES

**GEOTECHNICAL LABORATORIES**

**ACN 102 571 077**

14 Ravenhall Way, Ravenhall, Vic 3023

Email: info@geolab.com.au PH: (03) 8361-9140

**CLIENT: SYMON BROS**

**LOCATION: Mambourin, Stage 23**

**Sketch indicating compaction test locations**

**DATE: 6/02/2023**

**OPERATOR: SA**

**SCALE: NTS**

**JOB No.: 9042/060**

**CHECKED: KK**

**FIGURE No: -**