LEVEL ONE

Reference No.: 2306-064

SURVEILLANCE

AND INSPECTION REPORT

Carried Out By



PREPARED FOR: -

SYMON BROS. CONSTRUCTIONS PTY LTD



GEOTECHNICAL LABORATORIES PTY LTD ABN 51 102 571 077 14 RAVENHALL WAY RAVENHALL 3023 PH. (03) 8361-9140

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Appendix A Construction Drawings

Appendix B Daily Field Compaction Summary Results



GEOTECHNICAL LABORATORIES PTY LTD ABN 51 102 571 077 14 RAVENHALL WAY RAVENHALL 3023 PH. (03) 8361-9140

Client Name: Symon Bros. Constructions Pty Ltd

Project Name: The Grove West Stage 66

Date: 7th December 2021 Author: Mr. Sam Loza

Reference No.: 2306-064

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 28th of June 2021 to the 30th of June 2021 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) Road & Drainage Layout Plan Drawing No. 2190E-66-91 – Rev B.

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

Site inspections were undertaken on the 28th of June 2021 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 offsite.

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 site cut areas.



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The fill material is best described as a silty CLAY, brown, grey-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:

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

The sheepsfoot compactor and scrapers 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 nine compaction tests were performed on the fill construction. Results are presented in Appendix B of this report.

6. <u>Testing Frequency</u>

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.



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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 28th of June 2021 to the 30th of June 2021 can be categorised as CONTROLLED FILL in accordance with AS 2870-2011.

8. <u>Limitations and Liability of this Report</u>

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.

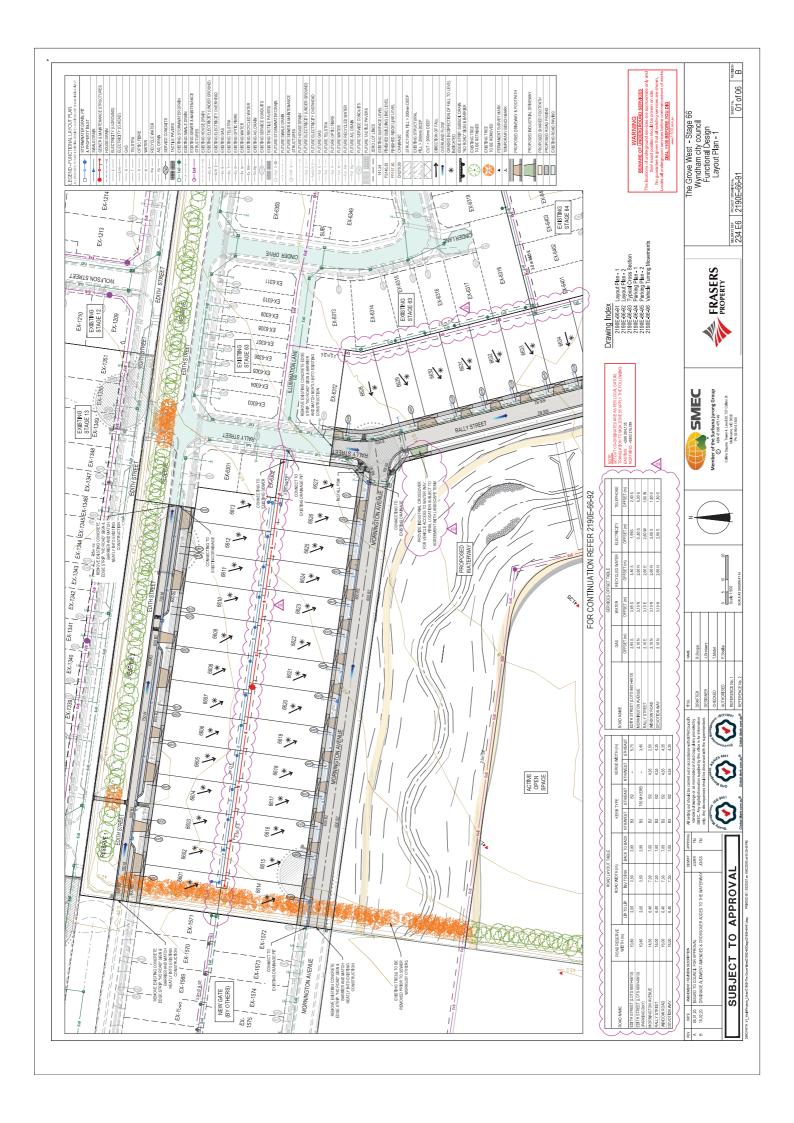
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LEVEL ONE

SURVEILLANCE

AND INSPECTION REPORT

APPENDIX A



GEOTECHNICAL LABORATORIES PTY LTD ABN 51 102 571 077 14 RAVENHALL WAY RAVENHALL 3023 PH. (03) 8361-9140

LEVEL ONE

SURVEILLANCE

AND INSPECTION REPORT

APPENDIX B



DAILY SUMMARY - FIELD DENSITY TESTS

GEOTECHNICAL LABORATORIES ACN 102 571 077

14 Ravenhall Way, Ravenhall, Vic 3023

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

REPORT NO.: # 2305/300

LOCATION: SYMON BROS - The Grove West Stage 66

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m³)	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)
28/06/21	1		1.93	27.0	102.5	1.87	28.5	175	2.0 Drier	94.0	0	0	0
28/06/21	2		1.87	27.5	101.5	1.84	29.5	175	2.0 Drier	93.0	0	0	0
28/06/21	3	Refer to #2305/301 for	1.88	27.5	97.0	1.94	28.0	175	0.5 Drier	98.0	0	0	0
-	-	approx. test site locations.	1	ı	-	1	-	-	-	-	1	-	-
-	-					ı	1	ı	-	-	ı	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Compaction specimens sampled after compaction.

Test sites located - Geolab Procedure 4, Part 4.4.

Start Time: 11:25am Finish Time: 12:00pm

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.

NATA

TECHNICAL

Moisture Content: AS 1289 2.1.1

Soil Layer thickness: 200mm

Compaction Test: AS 1289 5.7.1

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

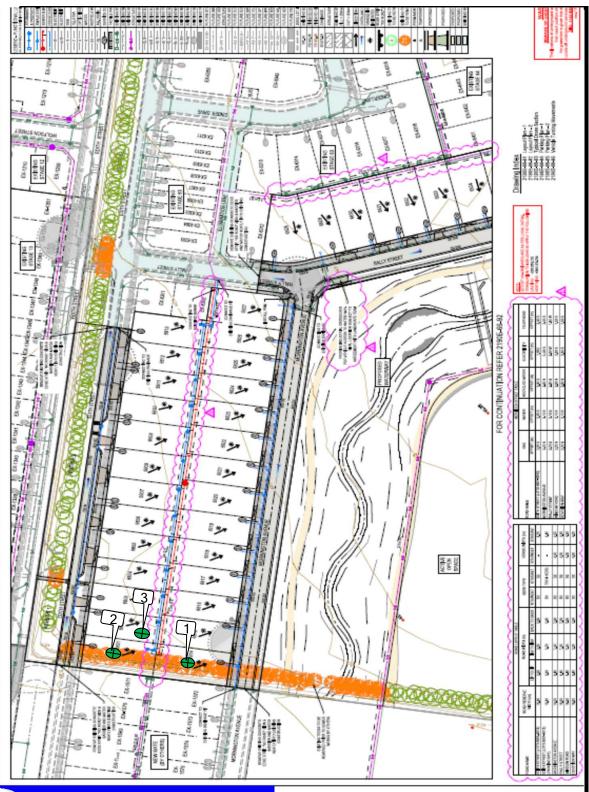
17025 - Testing

NATA Accredited Laboratory Number 14561

MICK CROWE (Approved Signatory)

Issue Date: 30/6/2021

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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: The Grove West Stage 66

Sketch indicating compaction test locations

DATE: 28/06/2021	JOB No.: 2305/301
OPERATOR: DB	CHECKED: KK
SCALE: NTS	FIGURE No: -



DAILY SUMMARY - FIELD DENSITY TESTS

GEOTECHNICAL LABORATORIES ACN 102 571 077

14 Ravenhall Way, Ravenhall, Vic 3023

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

REPORT NO.: # 2305/302

LOCATION: SYMON BROS - The Grove Stage 66

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m³)	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)
29/06/21	1		1.84	25.0	98.0	1.87	26.0	175	1.0 Drier	96.0	0	0	0
29/06/21	2		1.86	25.5	100.0	1.86	27.5	175	2.0 Drier	92.5	0	0	0
29/06/21	3	Refer to #2305/303 for	1.83	26.5	96.0	1.91	26.5	175	0.5 Drier	99.0	0	0	0
-	-	approx. test site locations.	-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Soil Layer thickness: 200mm

Compaction specimens sampled after compaction.

Test sites located - Geolab Procedure 4, Part 4.4.

Start Time: 11:00am 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.

NATA

TECHNICAL

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

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

<u> 17025 - Testing</u>

NATA Accredited Laboratory Number 14561

MICK CROWE (Approved Signatory)

Issue Date: 2/7/2021

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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: The Grove West Stage 66

Sketch indicating compaction test locations

DATE: 29/06/2021	JOB No.: 2305/303
OPERATOR: DB	CHECKED: KK
SCALE: NTS	FIGURE No: -



DAILY SUMMARY - FIELD DENSITY TESTS

GEOTECHNICAL LABORATORIES ACN 102 571 077

14 Ravenhall Way, Ravenhall, Vic 3023

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

REPORT NO.: # 2305/304

SYMON BROS - The Grove West, Stage 66 LOCATION:

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m³)	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)
30/06/21	1	Refer to #2305/305 for approx. test site locations.	1.88	26.0	97.0	1.94	26.0	175	0.0 Drier	100.0	0	0	0
30/06/21	2		1.94	25.0	98.5	₩ 1.97	25.5	175	0.5 Drier	99.0	6	0	0
30/06/21	3		1.96	25.5	103.5	1.89	26.5	175	1.0 Drier	97.0	0	0	0
-	-		-	-	-	-	1	1	-	-	1	-	-
-	-		-	-	-	-	1	1	-	-	1	-	-
-	-		-	-	-	-	-	-	-	-	-	-	-

NOTES: Clayey Fill Ex. Onsite

Soil Layer thickness: 200mm

Compaction specimens sampled after compaction.

Test sites located - Geolab Procedure 4, Part 4.4.

Start Time: 8:40am Finish Time: 9:00am

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.

NATA

TECHNICAL

Moisture Content: AS 1289 2.1.1

Compaction Test: AS 1289 5.7.1

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: 5/7/2021





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: The Grove West Stage 66

Sketch indicating compaction test locations

DATE: 30/06/2021	JOB No.: 2305/305
OPERATOR: DB	CHECKED: KK
SCALE: NTS	FIGURE No