

Reference
No.: 1886-103

LEVEL ONE

SURVEILLANCE

AND INSPECTION REPORT

*Carried Out
By*



PREPARED FOR: -

DRAPERS CIVIL CONTRACTING PTY LTD



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Appendix A Construction Drawings

Appendix B Daily Field Compaction Summary Results



Client Name: Drapers Civil Contracting Pty Ltd

Project Name: Sanctuary Estate Stage 3

Date: 9th of August 2018

Author: Mr. Sam Loza

Reference No.: 1886-103

Revision: 0

Project Manager: Mr. Chris Nation

1. Introduction & Scope

At the request of Drapers Civil Contracting Pty Ltd, Geotechnical Laboratories has carried out inspection and testing of the above-mentioned site on the 16th of December 2017 to the 3rd of August 2018 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 Drapers Civil Contracting Pty Ltd and was used to determine compliance of earthworks in conjunction with the requirements of AS 3798 – 2007 (See Appendix A).

(1). Calibre Consulting Construction Drawing No. C02 Rev 04.

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 16th of December 2017 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.

Initial proof roll inspections were performed and subsequently 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 service trenches and road boxing.



The fill material is best described as a CLAY, brown, grey-brown, medium plasticity, slightly silty, slightly moist to moist with basalt gravel 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 and / or highway trucks
- A watercart
- A sheepsfoot compactor (815)

The sheepsfoot compactor placed material in horizontal loose layers of approximately 250mm-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 twelve 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, Drapers Civil Contracting 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 Drapers Civil Contracting Pty Ltd from the 16th of December 2017 to the 3rd of August 2018 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 Drapers Civil Contracting 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 Drapers Civil Contracting 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

DRAWING TITLE LAYOUT PLAN	DRAWING No. C02	REVISION 4
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LEVEL ONE
SURVEILLANCE
AND INSPECTION REPORT

APPENDIX B



GEOTECHNICAL LABORATORIES
ACN 102 571 077
 Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043
 PO Box 2693 Gladstone Park VIC 3043
 PH: (03) 9335 1225

DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1897/597

LOCATION: DRAPERS - Sanctuary Estate Stage 3

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m ³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m ³)	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)
16/12/17	1	Refer to #1897/598 for approx. test site locations.	1.95	18.5	98.5	1.98	20.5	175	2.0 Drier	91.0	0	0	700
16/12/17	2		1.97	17.0	100.5	1.95	20.0	175	3.0 Drier	85.0	0	0	700
16/12/17	3		2.01	20.0	103.0	1.95	21.5	175	1.5 Drier	93.5	0	0	700
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NOTES: Onsite Clayey Fill

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 9.55am Finish Time: 10.15am

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.

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)

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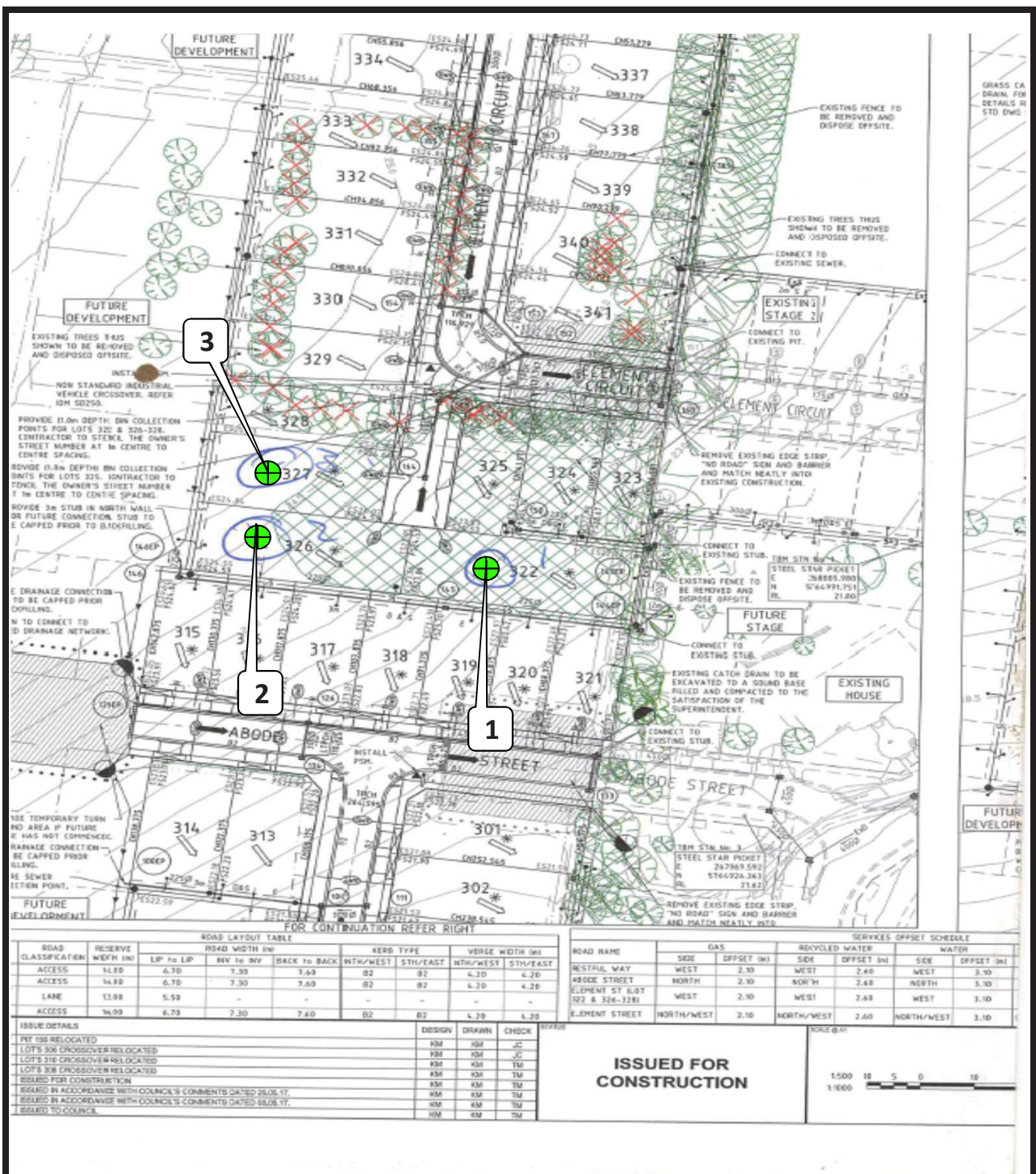
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NATA Accredited Laboratory Number 14561

SAM LOZA

(Approved Signatory)

Issue Date: 19/12/2017



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CLIENT: DRAPERS

DATE: 16/12/17

JOB No.: 1897/598

LOCATION: Sanctuary Estate Stage 2

OPERATOR: NM

CHECKED: EG

Sketch indicating compaction test locations

SCALE: NTS



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DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1897/599

LOCATION: DRAPERS - Sanctuary Estate Stage 3

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m ³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m ³)	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)
18/12/17	1	<i>Refer to #1897/600 for approx. test site locations.</i>	2.03	18.5	99.5	2.04	18.5	175	0.0 Drier	100.0	0	0	400
18/12/17	2		2.13	19.0	103.0	2.07	19.0	175	0.0 Drier	99.0	0	0	400
18/12/17	3		1.99	22.0	97.0	2.06	22.0	175	0.0 Drier	99.0	0	0	200
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NOTES: Onsite Clayey Fill

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 9.42am 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.

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)

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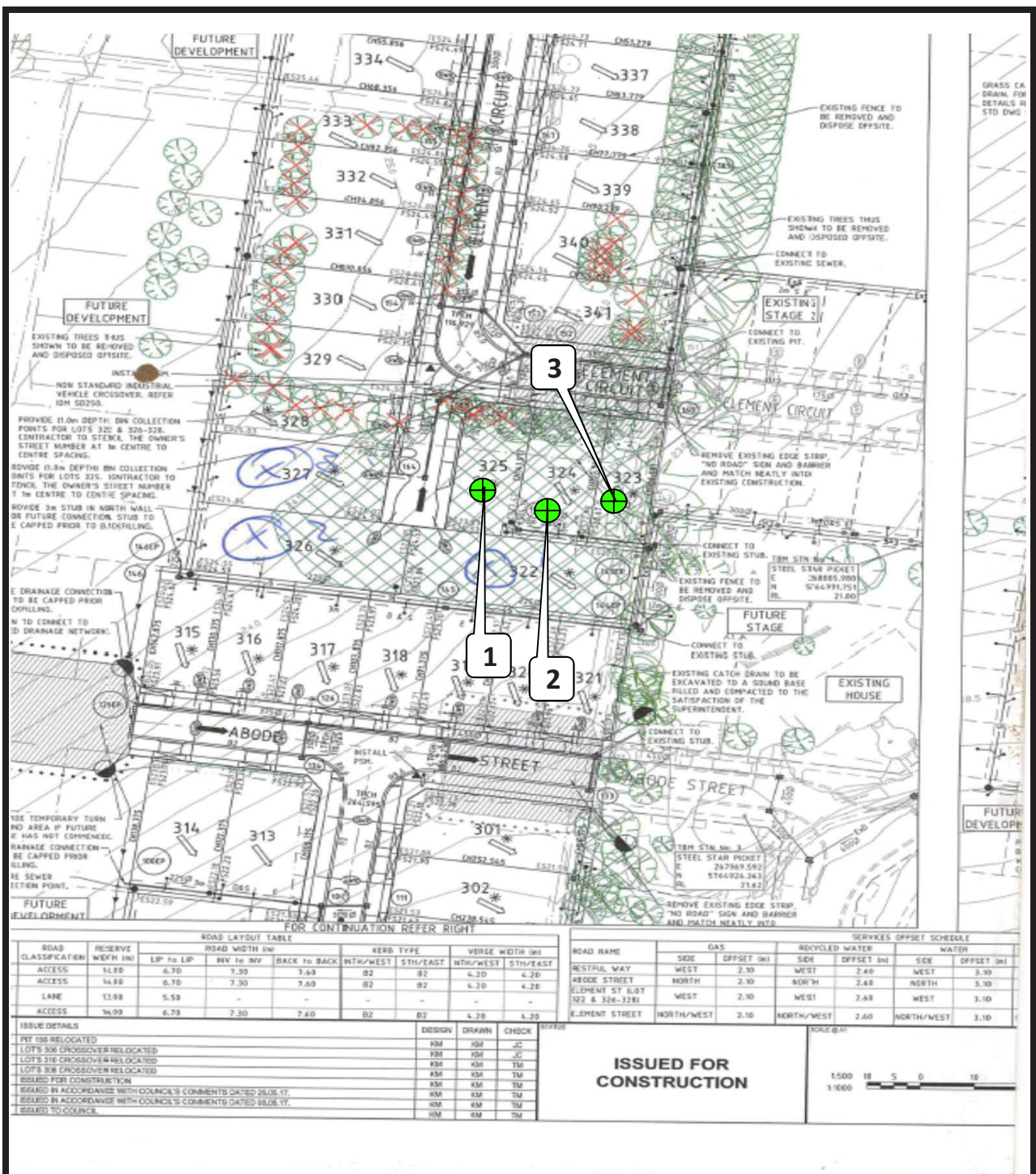
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SAM LOZA

(Approved Signatory)

Issue Date: 20/12/2017



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CLIENT: DRAPERS

LOCATION: Sanctuary Estate Stage 2

Sketch indicating compaction test locations

DATE: 18/12/17

OPERATOR: JC

SCALE: NTS

JOB No.: 1897/600

CHECKED: EG



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Factory 1/8-10 Catalina Drive, Tullamarine Vic 3043
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DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1897/603

LOCATION: DRAPERS - Sanctuary Estate Stage 3

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m ³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m ³)	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)
19/12/17	1	Refer to #1897/604 for approx. test site locations.	2.12	21.5	107.5	1.97	24.0	175	2.5 Drier	90.0	0	0	0
19/12/17	2		1.98	22.5	99.0	2.00	22.0	175	0.5 Wetter	102.0	0	0	0
19/12/17	3		2.04	19.5	99.5	2.05	19.5	175	0.0 Drier	100.0	0	0	0
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NOTES: Onsite Clayey Fill

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 1.08pm Finish Time: 1.36pm

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.

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)



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NATA Accredited Laboratory Number 14561

SAM LOZA

(Approved Signatory)

Issue Date: 21/12/2017



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CLIENT: DRAPERS

LOCATION: Sanctuary Estate Stage 2

Sketch indicating compaction test locations

DATE: 19/12/17

OPERATOR: JC

SCALE: NTS

JOB No.: 1897/604

CHECKED: EG



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PO Box 2693 Gladstone Park VIC 3043
PH: (03) 9335 1225

DAILY SUMMARY - FIELD DENSITY TESTS

REPORT NO.: # 1897/771A

LOCATION: DRAPERS - Sancturary Estate Stage 3

DATE OF TESTS	TEST NUM.	TEST LOCATION	FIELD WET DENSITY (t/m ³)	FIELD MOISTURE CONTENT (%)	HILF DENSITY RATIO STANDARD (%)	STANDARD PCWD OR APCWD (t/m ³)	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)
3/08/18	1	<i>Refer to #1897/772 for approx. test site locations.</i>	2.00	17.0	97.0	2.05	17.5	175	0.5 Drier	97.5	0	0	0
3/08/18	2		2.02	20.0	98.5	2.05	20.0	175	0.0 Wetter	101.0	0	0	400
3/08/18	3		1.96	20.5	96.0	2.04	21.0	175	0.5 Drier	97.5	0	0	200
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NOTES: Onsite Clayey Fill

Test sites located - Geolab Procedure 4, Part 4.4.

Compaction specimens sampled after compaction.

Start Time: 9.37am Finish Time: 10.14am

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.

This report supersedes report #1897/771

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)



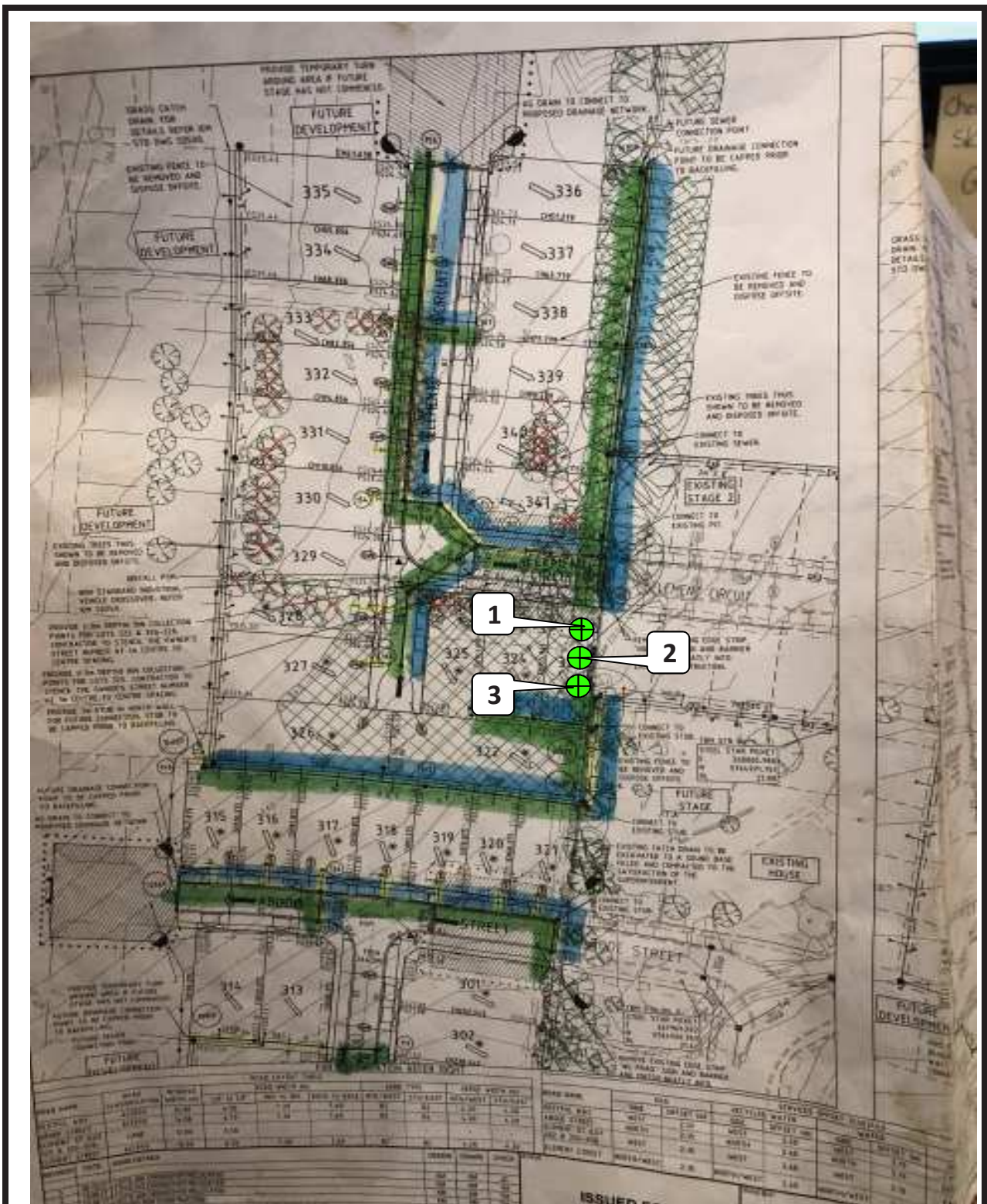
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M. Crowe

MICK CROWE
(Approved Signatory)

Issue Date: 8/8/2018



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CLIENT: DRAPERS

LOCATION: Sancturary Estate Stage 3

Sketch indicating compaction test locations

DATE: 3/8/18

OPERATOR: NW

SCALE: NTS

JOB No.: 1897/772

CHECKED: EG