

# Newhaven Estate - Stage 17, Tarneit

## Level 1 Inspection & Testing Report

Reference: 1120 0289-1



### Prepared for:

BMD Urban

February 2022



**A&Y ASSOCIATES**  
GEOTECHNICAL ENGINEERING CONSULTANTS

# Document Control Record

Prepared by:

**A&Y Associates Pty Ltd**

ABN 92 614 244 665

5/16 Network Drive

Truganina, VIC 3029

**T:** (03) 8754 8325

**E:** info@ayassociates.com.au

**W:** www.ayassociates.com.au

## Document control

<b>Report title</b>	Level 1 Inspection & Testing				
<b>Project reference number</b>	1120 0289-1				
<b>Client</b>	BMD Urban				
<b>Contact name</b>	Mark Martino				
<b>Contact number</b>	0400 846 438				
<b>Contact e-mail</b>	Mark.Martino@bmd.com.au				
<b>Revision</b>	<b>Date</b>	<b>Descriptions/Status</b>	<b>Author</b>	<b>Reviewer</b>	<b>Approver</b>
0	02/02/2022	Final	B Mu	A Tan	A Tan

## Approver



Alvin Tan

(BE Civil and Infrastructure), MIEAust

Senior Geotechnical Engineer

E: alvin@ayassociates.com.au | M: 0449 288 338



ENGINEERS  
AUSTRALIA  
Professional Engineer  
MEMBER

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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.

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.

This report has been prepared exclusively for use by our client. This report cannot be reproduced without the written authorisation of A&Y and then can only be reproduced in its entirety.

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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.

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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 Newhaven Estate - Stage 17, Tarneit.

## 2 Project Summary

It is understood that BMD Urban require the fill platforms within Newhaven Estate - Stage 17, Tarneit, 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 seven (7) working days on **18<sup>th</sup> November 2021 to 19<sup>th</sup> November 2021, 22<sup>nd</sup> November 2021 to 25<sup>th</sup> November 2021 and 29<sup>th</sup> November 2021**.

This report is applicable for fill placed by BMD Urban for the following lots located in Newhaven Estate - Stage 17, Tarneit, as shown in Appendix A – Site Plan.

- Lot 1701 – 1702
- Lot 1704 – 1730

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### 3 Project Specifications

No specification on the compaction and moisture requirement has been provided for the construction works in Newhaven Estate - Stage 17, Tarneit. However, based on drawing (ref: 304670CR100-Rev0 prepared by Spiire Australia PTY LTD) all filling on lots and within road reserves greater than 200mm is to be undertaken under level 1 supervision in accordance with AS3798. The supervision and inspections were performed based on AS3798. A short summary of the requirements outline in AS3798 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.
- Compaction to achieve a dry density ratio of at least 98% 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 **18<sup>th</sup> November 2021** as mentioned in report *1120 0289-1 (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-450mm. 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.

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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 21 field density tests were performed during the earthworks. All of the test results met the specified compaction requirement of 98% Standard Compaction.

The locations of the 21 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**

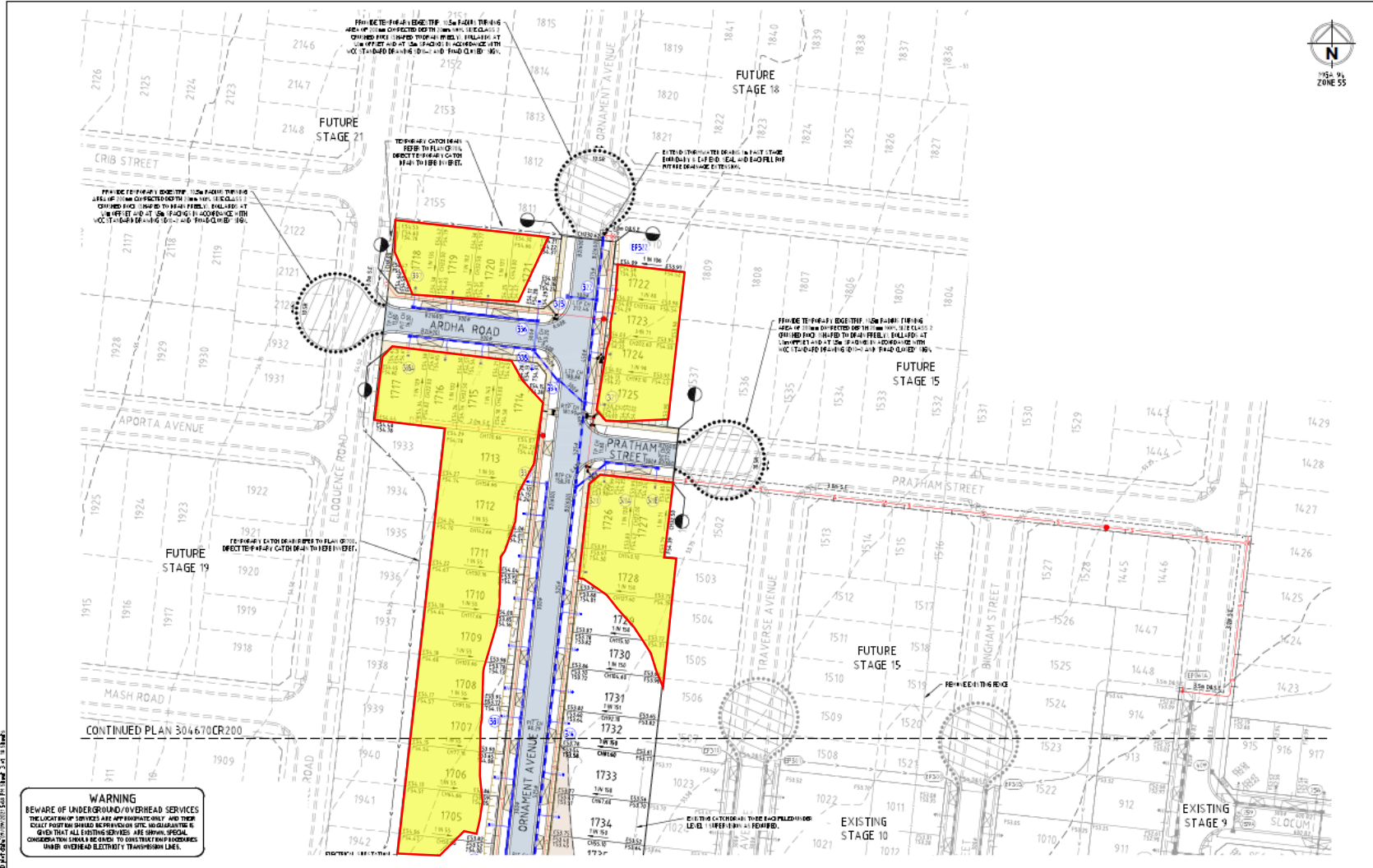
On the completion of the earthworks and after analysing the materials used, it has been concluded that the filling procedure conducted by BMD Urban appears to be consistent with the requirements of AS 3798 in regards to the placement of fill materials on a project under Level 1 Supervision and in accordance with the project specification as provided to A&Y Associates.

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# **Appendix A - Site Plan**



Area Inspected and Tested



**WARNING**  
 BEWARE OF UNDERGROUND/OVERHEAD SERVICES  
 THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THESE  
 CALLS SHOULD BE OBTAINED PRIOR TO CONSTRUCTION. THE  
 CLIENT IS ADVISED THAT ALL EXISTING SERVICES ARE SHOWN. SPECIAL  
 CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTING PIPE ROOSTERS  
 UNDER OVERHEAD ELECTRICAL TRANSMISSION LINES.

Rev	Amendment	Approved	Date



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 10/14 LA TROIE STREET PO BOX 1804 MELBOURNE  
 VICTORIA 3001 AUSTRALIA T 03 9000 7000  
 spiire.com.au ABN 55 050 029 635

**PEET**  
 Designed: P. CUFTON  
 Checked: J. KOEHLER  
 Authored: M. HOLMES  
 Date: 30/07/21

**NEWHAVEN ESTATE  
 STAGE 17  
 ROAD AND DRAINAGE  
 FACE PLAN - SHEET 2  
 WYNDHAM CITY COUNCIL  
 PEET NO. 1895 PTY LTD  
 CONSTRUCTION 304670CR201 0**

**PROJECT:**  
 Newhaven Estate – Stage 17 (Level 1)

**LOCATION:**  
 Tarneit

**CLIENT:**  
 BMD Urban

**PROJECT No:**  
 1120 0289-1

**SITE PLAN SKETCH—NOT TO SCALE**

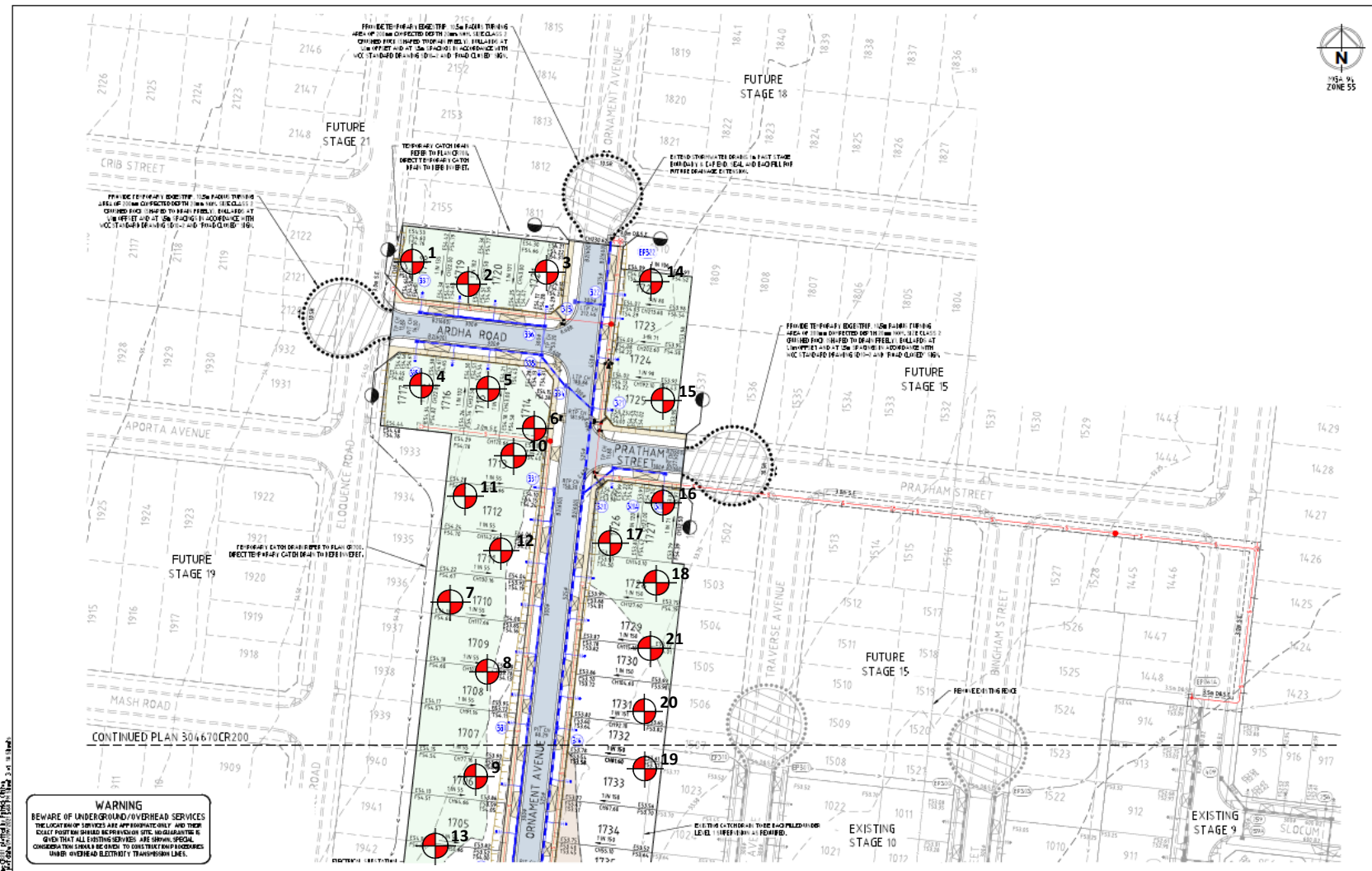


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## **Appendix B – Test Locations**



Indicative Test Location



**WARNING**  
 BEWARE OF UNDERGROUND/OVERHEAD SERVICES  
 THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THESE  
 CALLS SHOULD BE MADE PRIOR TO ANY WORK. THE CONTRACTOR IS  
 TO VERIFY THE LOCATION OF SERVICES AND TO TAKE ALL NECESSARY  
 PRECAUTIONS TO AVOID DAMAGE TO SERVICES. SPECIAL  
 CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTING PROCEDURES  
 UNDER OVERHEAD ELECTRICAL TRANSMISSION LINES.

			<p>spiire        18/4 LA TROIE STREET BOX 1804 MELBOURNE        VICTORIA 3001 AUSTRALIA T 61 3 8600 7000        spiire.com.au ABN 55 050 028 635</p>	<p>Designed        P. CUFFTON        Authored        M. HOLMES</p> <p>Checked        J. KOEHLER        Date        30/07/21</p>	<p>NEWHAVEN ESTATE        STAGE 17        ROAD AND DRAINAGE        FACE PLAN - SHEET 2        WYNDHAM CITY COUNCIL        PEET NO. 1895 PTY LTD  <b>CONSTRUCTION 304670CR201</b> 0</p>
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**PROJECT:**  
 Newhaven Estate – Stage 17 (Level 1)

**LOCATION:**  
 Tarneit

**CLIENT:**  
 BMD Urban

**PROJECT No:**  
 1120 0289-1

**SITE PLAN SKETCH—NOT TO SCALE**




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# **Appendix C – Test Results Summary**

Project No		1120 0289-1			Client	BMD Urban				
Project Name		Newhaven Estate - Stage 17			Specification			Density Ratio $\geq$ 98% of Peak Wet Density		
Location		Tarneit								
Test No	Retest of Test	Date	Location	Layer	Oversize	Density Ratio	Moisture Ratio	Moisture Variation	Pass / Fail	Retest
#	#		Lot #	#	%	%	%	%		Pass / Fail
1	-	18/11/2021	-	FSL	0.0	98.5	98.5	-0.5	Pass	-
2	-	18/11/2021	-	FSL	0.0	98.5	98.5	-1.0	Pass	-
3	-	18/11/2021	-	FSL	0.0	98.5	99.0	-0.5	Pass	-
4	-	19/11/2021	-	FSL	0.0	99.5	97.5	-0.5	Pass	-
5	-	19/11/2021	-	FSL	0.0	98.0	97.5	-0.5	Pass	-
6	-	19/11/2021	-	FSL	0.0	99.0	97.5	-1.0	Pass	-
7	-	22/11/2021	-	FSL	0.0	99.5	97.0	-1.0	Pass	-
8	-	22/11/2021	-	FSL	0.0	98.0	98.0	-0.5	Pass	-
9	-	22/11/2021	-	FSL	0.0	99.0	97.5	-1.0	Pass	-
10	-	23/11/2021	-	FSL	0.0	99.0	98.0	-0.5	Pass	-
11	-	23/11/2021	-	FSL	0.0	98.5	97.5	-1.0	Pass	-
12	-	23/11/2021	-	FSL	0.0	99.5	99.0	-0.5	Pass	-
13	-	24/11/2021	-	FSL	0.0	99.0	97.5	-1.0	Pass	-
14	-	24/11/2021	-	FSL	0.0	98.0	97.5	-1.0	Pass	-
15	-	24/11/2021	-	FSL	0.0	98.5	98.5	-0.5	Pass	-
16	-	25/11/2021	-	FSL	0.0	99.5	97.5	-0.5	Pass	-
17	-	25/11/2021	-	FSL	0.0	98.5	96.5	-0.5	Pass	-
18	-	25/11/2021	-	FSL	0.0	98.0	97.0	-1.0	Pass	-
19	-	29/11/2021	-	FSL	0.0	98.5	96.5	-1.0	Pass	-
20	-	29/11/2021	-	FSL	0.0	98.0	97.0	-0.5	Pass	-
21	-	29/11/2021	-	FSL	0.0	100.0	98.0	-0.5	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>	BMD Urban	<b>Job No:</b>	BMD1969
<b>Project:</b>	Newhaven Estate - Stage 17 (Level 1)	<b>Report:</b>	1
<b>Location:</b>	Tarneit		

Sample No	1	2	3			
Date Tested	18/11/2021	18/11/2021	18/11/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL	FSL	FSL			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 1.74	t/m <sup>3</sup> 1.82	t/m <sup>3</sup> 1.82			
Field Moisture Content	% 32.0	% 34.4	% 34.6			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, %	0.0	0.0	0.0		
Sieve Size	mm	19	19	19		
Peak Converted Wet Density	t/m <sup>3</sup>	1.77	1.85	1.85		
Optimum Moisture Content	%	32.5	35	35		

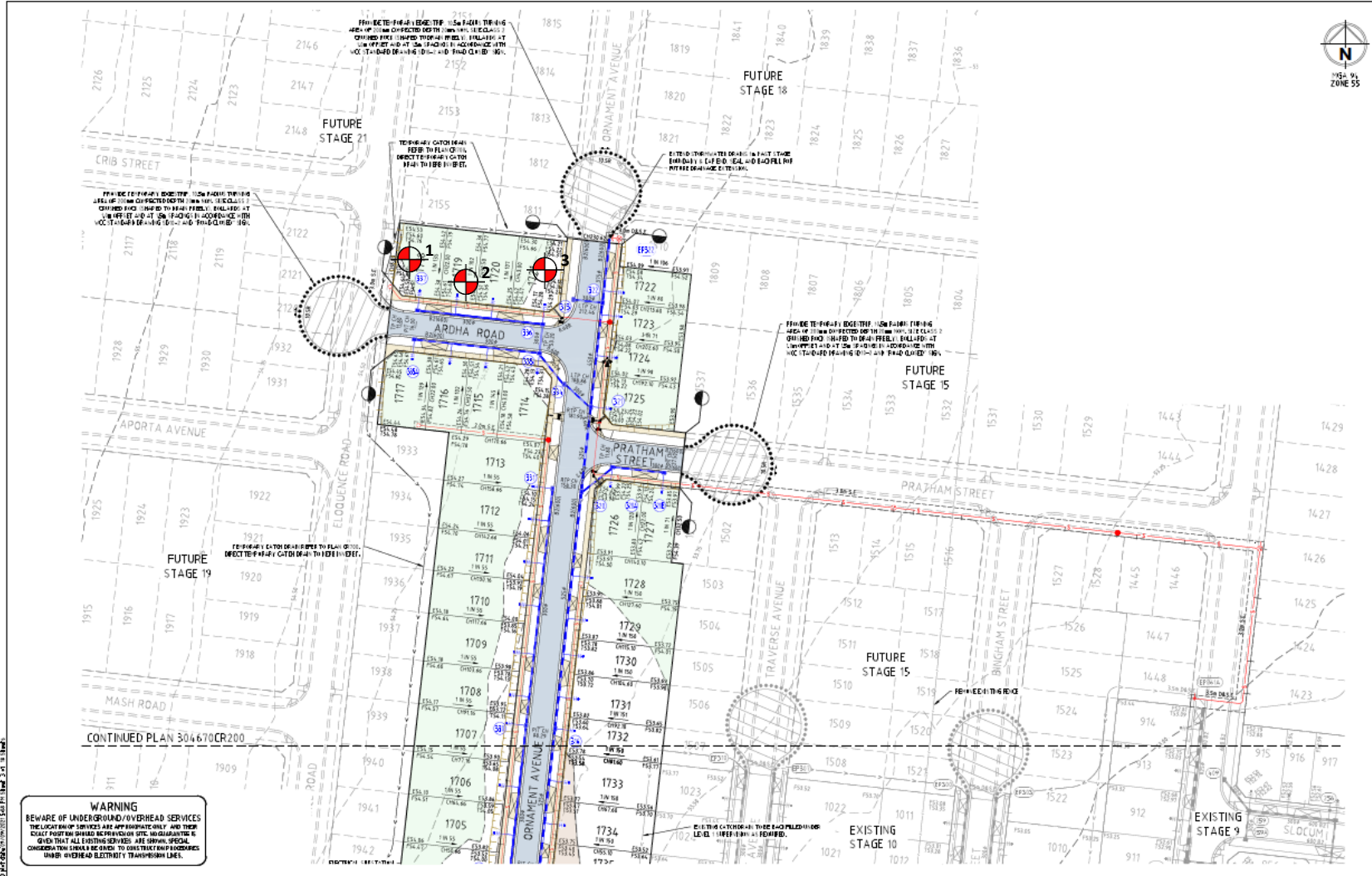
<b>Moisture Ratio</b>	%	98.5	98.5	99		
<b>Moisture Variation from OMC</b>	%	-0.5	-1.0	-0.5		
<b>Density Ratio</b>	%	98.5	98.5	98.5		

<b>Specification:</b>	98% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref: 1120 0289-1 (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)

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Test Location



**WARNING**  
 BEWARE OF UNDERGROUND/OVERHEAD SERVICES  
 THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THESE  
 LOCATIONS SHOULD BE VERIFIED BY A REGISTERED PROFESSIONAL  
 ENGINEER. ALL SERVICES SHOULD BE IDENTIFIED AND RECORDED  
 PRIOR TO CONSTRUCTION. SPECIAL CONSIDERATION SHOULD  
 BE GIVEN TO CONSTRUCTING OVERHEAD SERVICES UNDER  
 OVERHEAD ELECTRICAL TRANSMISSION LINES.

Rev	Amendment	Approved	Date



**spiire**  
 18/11 LA TROIE STREET PO BOX 18064 MELBOURNE  
 VICTORIA 3000 AUSTRALIA TEL: 03 9000 7000  
 spiire.com.au ASB 55 050 028 635

**PEET**  
 Designed: J. CUFTON  
 Authorized: M. HOLMES  
 Checked: J. KOEHLER  
 Date: 30/07/21

**NEWHAVEN ESTATE  
 STAGE 17  
 ROAD AND DRAINAGE  
 FACE PLAN - SHEET 2  
 WYNDHAM CITY COUNCIL  
 PLAN NO. 1895 PTY LTD  
 CONSTRUCTION 304670CR201 0**

**PROJECT:**  
 Newhaven Estate – Stage 17 (Level 1)

**LOCATION:**  
 Tarneit

**CLIENT:**  
 BMD Urban

**PROJECT No:**  
 1120 0289-1 (SI01)

**DATE:**  
 18/11/2021

**SITE PLAN SKETCH—NOT TO SCALE**



## Field Density Test Results AS1289.5.7.1

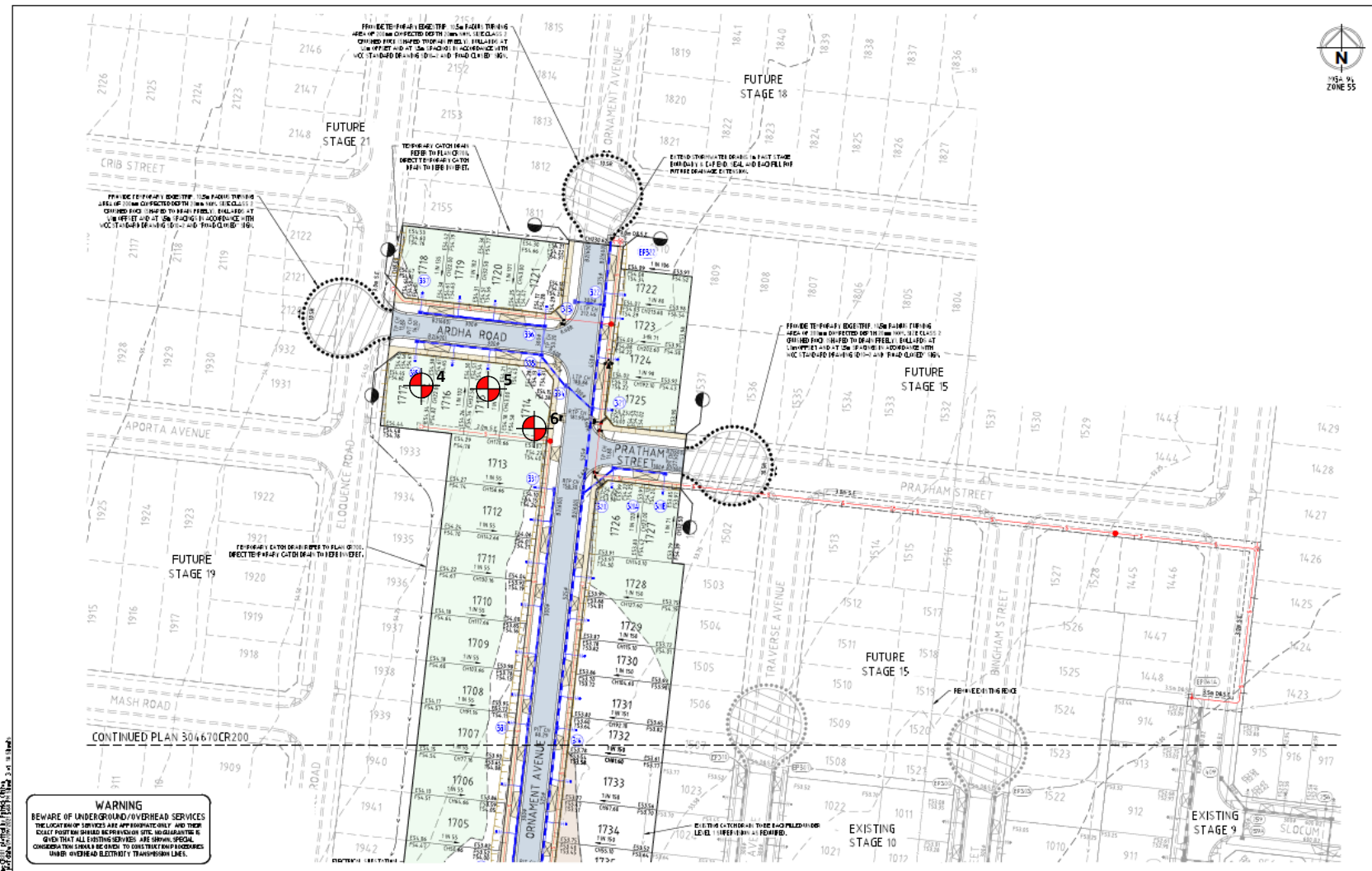
<b>Client:</b>	BMD Urban	<b>Job No:</b>	BMD1969
<b>Project:</b>	Newhaven Estate - Stage 17 (Level 1)	<b>Report:</b>	2
<b>Location:</b>	Tarneit		
Sample No	4	5	6
Date Tested	19/11/2021	19/11/2021	19/11/2021
Time Tested	PM	PM	PM
Test Location	Refer to Plan	Refer to Plan	Refer to Plan
Level/Layer	FSL	FSL	FSL
Layer Thickness	mm 200	mm 200	mm 200
Test Depth	mm 175	mm 175	mm 175
Field Wet Density	t/m <sup>3</sup> 1.79	t/m <sup>3</sup> 1.85	t/m <sup>3</sup> 1.83
Field Moisture Content	% 31.1	% 32.7	% 33.6
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill
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 <sup>3</sup> 1.80	t/m <sup>3</sup> 1.88	t/m <sup>3</sup> 1.85
Optimum Moisture Content	% 32	% 33.5	% 34.5
<b>Moisture Ratio</b>	% 97.5	% 97.5	% 97.5
<b>Moisture Variation from OMC</b>	% -0.5 Drier	% -0.5 Drier	% -1.0 Drier
<b>Density Ratio</b>	% 99.5	% 98.0	% 99.0

<b>Specification:</b>	98% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref: 1120 0289-1 (SI02)		
<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)

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Test Location



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 Checked: J. KOEHLER  
 Authored: M. HOLMES  
 Date: 30/07/21

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 STAGE 17  
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 Newhaven Estate – Stage 17 (Level 1)

**LOCATION:**  
 Tarneit

**CLIENT:**  
 BMD Urban

**PROJECT No:**  
 1120 0289-1 (SI02)

**DATE:**  
 19/11/2021

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## Field Density Test Results AS1289.5.7.1

<b>Client:</b>	BMD Urban	<b>Job No:</b>	BMD1969
<b>Project:</b>	Newhaven Estate - Stage 17 (Level 1)	<b>Report:</b>	3
<b>Location:</b>	Tarneit		
Sample No	7	8	9
Date Tested	22/11/2021	22/11/2021	22/11/2021
Time Tested	PM	PM	PM
Test Location	Refer to Plan	Refer to Plan	Refer to Plan
Level/Layer	FSL	FSL	FSL
Layer Thickness	mm 200	mm 200	mm 200
Test Depth	mm 175	mm 175	mm 175
Field Wet Density	t/m <sup>3</sup> 1.85	t/m <sup>3</sup> 1.85	t/m <sup>3</sup> 1.85
Field Moisture Content	% 37.9	% 33.9	% 36.0
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill
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 <sup>3</sup> 1.86	t/m <sup>3</sup> 1.89	t/m <sup>3</sup> 1.88
Optimum Moisture Content	% 39	% 34.5	% 37
<b>Moisture Ratio</b>	% 97	% 98	% 97.5
<b>Moisture Variation from OMC</b>	% -1.0 Drier	% -0.5 Drier	% -1.0 Drier
<b>Density Ratio</b>	% 99.5	% 98.0	% 99.0

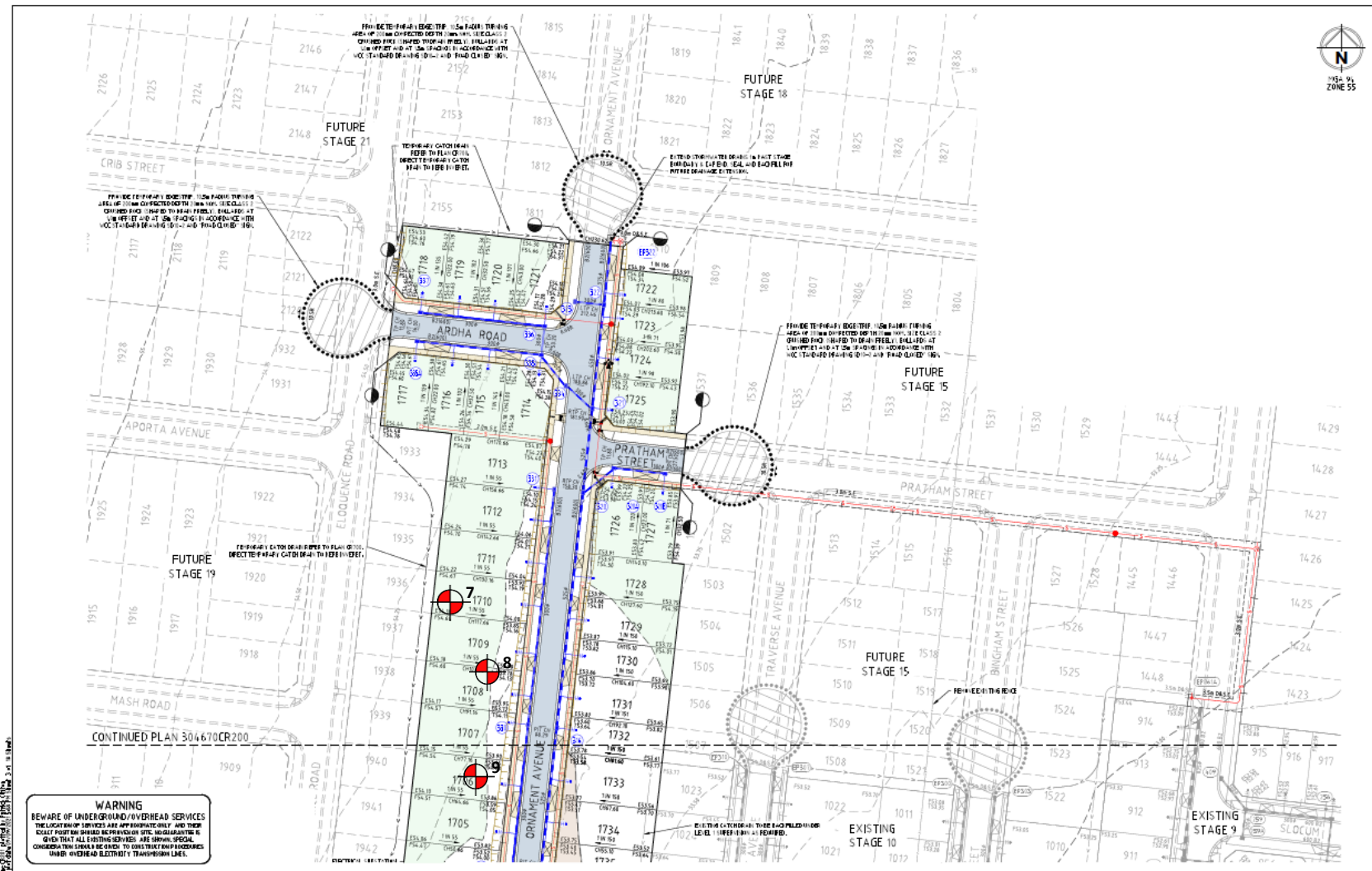
<b>Specification:</b>	98% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref: 1120 0289-1 (SI03)		
<b>Test Method</b>	AS1289 5.8.1, 5.7.1, 2.1.1, 1.1	<b>Sampling Method:</b>	AS 1289 1.2.1 6.4(b)

 <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: 25/11/2021</p>
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Test Location



**WARNING**  
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THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THESE  
CALCULATIONS SHOULD BE VERIFIED ON SITE. AN APPROPRIATE  
GND THAT ALL EXISTING SERVICES ARE SHOWN. SPECIAL  
CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTING PROTECTORS  
UNDER OVERHEAD ELECTRICAL TRANSMISSION LINES.

Rev	Amendment	Approved	Date



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spiire.com.au ABN 55 050 028 635

**PEET**  
Designed: J. CUFTON  
Checked: J. KOEHLER  
Authorised: M. HOLMES  
Date: 30/07/21

**NEWHAVEN ESTATE  
STAGE 17  
ROAD AND DRAINAGE  
FACE PLAN - SHEET 2**  
WYNDHAM CITY COUNCIL  
PEET NO. 1895 PTY LTD  
**CONSTRUCTION 304670CR201 0**

**PROJECT:**  
Newhaven Estate – Stage 17 (Level 1)

**LOCATION:**  
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**CLIENT:**  
BMD Urban

**PROJECT No:**  
1120 0289-1 (SI03)

**DATE:**  
22/11/2021

**SITE PLAN SKETCH—NOT TO SCALE**



# Field Density Test Results

## AS1289.5.7.1

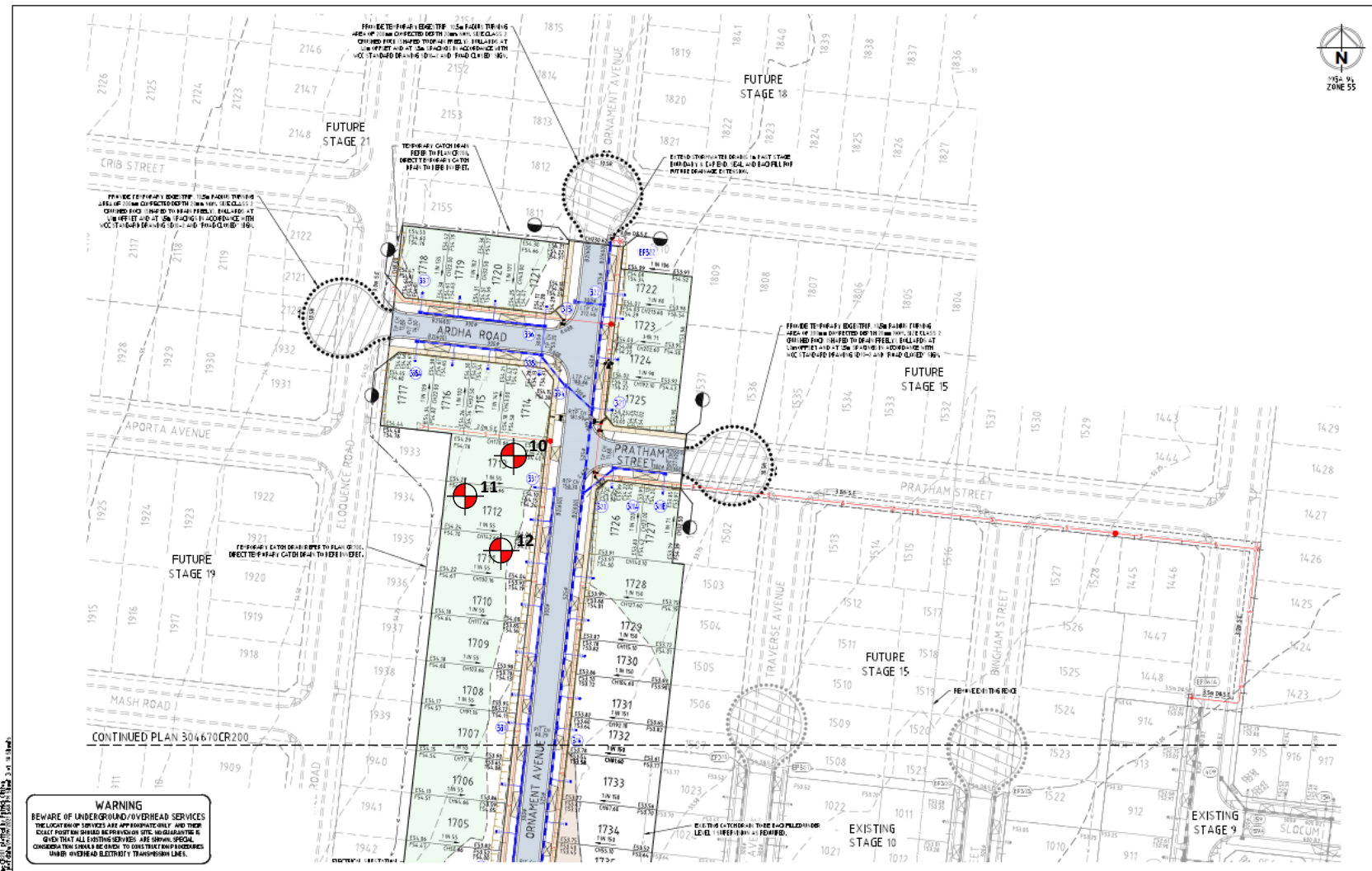
<b>Client:</b>	BMD Urban	<b>Job No:</b>	BMD1969
<b>Project:</b>	Newhaven Estate - Stage 17 (Level 1)	<b>Report:</b>	4
<b>Location:</b>	Tarneit		
Sample No	10	11	12
Date Tested	23/11/2021	23/11/2021	23/11/2021
Time Tested	PM	PM	PM
Test Location	Refer to Plan	Refer to Plan	Refer to Plan
Level/Layer	FSL	FSL	FSL
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> 1.83	t/m <sup>3</sup> 1.80
Field Moisture Content	% 35.3	% 33.2	% 32.6
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill
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 <sup>3</sup> 1.80	t/m <sup>3</sup> 1.85	t/m <sup>3</sup> 1.81
Optimum Moisture Content	% 36	% 34	% 33
<b>Moisture Ratio</b>	% 98	% 97.5	% 99
<b>Moisture Variation from OMC</b>	% -0.5 Drier	% -1.0 Drier	% -0.5 Drier
<b>Density Ratio</b>	% 99.0	% 98.5	% 99.5

<b>Specification:</b>	98% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref: 1120 0289-1 (SI04)		
<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 style="font-size: small;">WORLD RECOGNISED ACCREDITATION</p>	<p style="font-size: small;">NATA Accredited Laboratory No. 20172</p> <p style="font-size: small;">Accreditation for compliance with ISO/IEC 17025 - Testing</p> <p style="font-size: small;">The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards</p>	<p>Approved Signatory:</p>  <p>David Burns</p>	<p>Date:</p> <p>25/11/2021</p>
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Test Location



**WARNING**  
 BEWARE OF UNDERGROUND/OVERHEAD SERVICES  
 THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THESE  
 LOCATIONS SHOULD BE VERIFIED BY A REGISTERED ELECTRICAL  
 ENGINEER (REE) PRIOR TO CONSTRUCTION. SPECIAL  
 CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTING PROTECTIVE  
 UNDER OVERHEAD ELECTRICAL TRANSMISSION LINES.

Rev	Amendment	Approved	Date



**spiire**  
 18/4 LA TROIE STREET BOX 804 MELBOURNE  
 VICTORIA 3000 AUSTRALIA T 03 9600 7000  
 spiire.com.au ABN 55 050 028 635

**PEET**  
 Designed: J. CUFTON  
 Authorized: M. HOLMES  
 Checked: J. KOEHLER  
 Date: 30/07/21

**NEWHAVEN ESTATE  
 STAGE 17  
 ROAD AND DRAINAGE  
 FACE PLAN - SHEET 2  
 WYNDHAM CITY COUNCIL  
 PLAN NO. 1895 PTY LTD  
 CONSTRUCTION 304670CR201 0**

**PROJECT:**  
 Newhaven Estate – Stage 17 (Level 1)

**LOCATION:**  
 Tarneit

**CLIENT:**  
 BMD Urban

**PROJECT No:**  
 1120 0289-1 (SI04)

**DATE:**  
 23/11/2021

**SITE PLAN SKETCH—NOT TO SCALE**





# Field Density Test Results

## AS1289.5.7.1

<b>Client:</b>	BMD Urban	<b>Job No:</b>	BMD1969
<b>Project:</b>	Newhaven Estate - Stage 17 (Level 1)	<b>Report:</b>	5
<b>Location:</b>	Tarneit		

Sample No	13	14	15			
Date Tested	24/11/2021	24/11/2021	24/11/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL	FSL	FSL			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 1.86	t/m <sup>3</sup> 1.88	t/m <sup>3</sup> 1.79			
Field Moisture Content	% 36.5	% 35.5	% 37.0			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, %	0.0	0.0	0.0		
Sieve Size	mm	19	19	19		
Peak Converted Wet Density	t/m <sup>3</sup>	1.88	1.92	1.82		
Optimum Moisture Content	%	37.5	36.5	37.5		

<b>Moisture Ratio</b>	%	97.5	97.5	98.5		
<b>Moisture Variation from OMC</b>	%	-1.0	-1.0	-0.5		
<b>Density Ratio</b>	%	99.0	98.0	98.5		

<b>Specification:</b>	98% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref: 1120 0289-1 (SI05)		
<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)



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Approved Signatory:

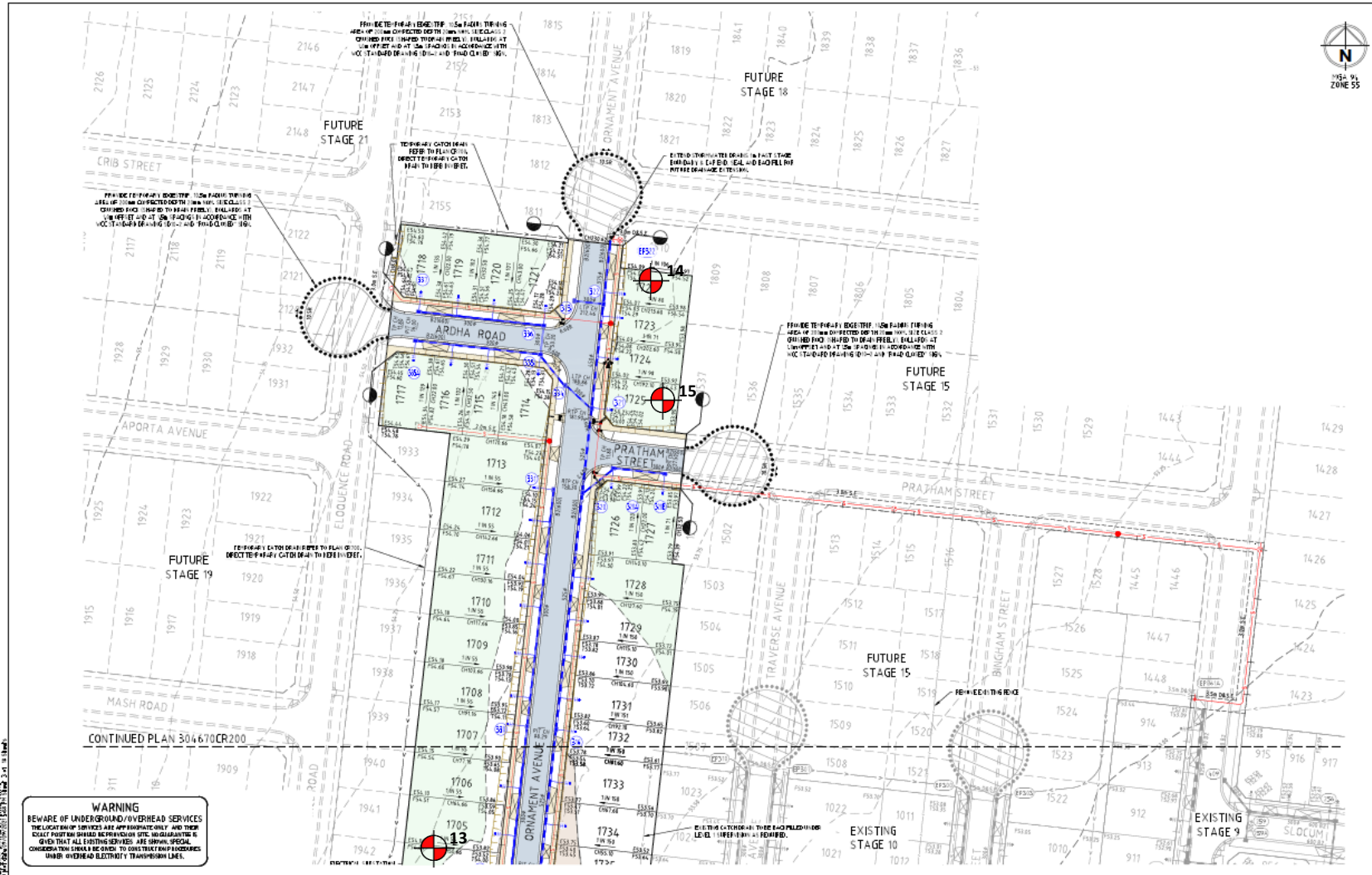


David Burns

Date: 25/11/2021



Test Location



**WARNING**  
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 ENGINEER PRIOR TO CONSTRUCTION. SPECIAL  
 CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTING OVERHEAD  
 UNDER OVERHEAD ELECTRICAL TRANSMISSION LINES.

Rev	Amendment	Approved	Date



**spiire**  
 10/14 LA TROIE STREET PO BOX 1804 MELBOURNE  
 VICTORIA 3001 AUSTRALIA T 03 9600 7000  
 spiire.com.au ABN 55 050 028 635

**PEET**  
 Designed J. CUFTON  
 Authorised M. HOLMES  
 Checked J. KOEHLER  
 Date 30/07/21

**NEWHAVEN ESTATE  
 STAGE 17  
 ROAD AND DRAINAGE  
 FACE PLAN - SHEET 2  
 WYNDHAM CITY COUNCIL  
 PEET NO. 1895 PTY LTD  
 CONSTRUCTION 304670CR201 0**

**PROJECT:**  
 Newhaven Estate – Stage 17 (Level 1)

**LOCATION:**  
 Tarneit

**CLIENT:**  
 BMD Urban

**PROJECT No:**  
 1120 0289-1 (SI05)

**DATE:**  
 24/11/2021

**SITE PLAN SKETCH—NOT TO SCALE**



## Field Density Test Results AS1289.5.7.1

<b>Client:</b>	BMD Urban	<b>Job No:</b>	BMD1969
<b>Project:</b>	Newhaven Estate - Stage 17 (Level 1)	<b>Report:</b>	6
<b>Location:</b>	Tarneit		

Sample No	16	17	18			
Date Tested	25/11/2021	25/11/2021	25/11/2021			
Time Tested	PM	PM	PM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL	FSL	FSL			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 1.79	t/m <sup>3</sup> 1.87	t/m <sup>3</sup> 1.87			
Field Moisture Content	% 24.9	% 24.1	% 23.3			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, %	0.0	0.0	0.0		
Sieve Size	mm	19	19	19		
Peak Converted Wet Density	t/m <sup>3</sup>	1.80	1.90	1.91		
Optimum Moisture Content	%	25.5	25	24		

<b>Moisture Ratio</b>	%	97.5	96.5	97		
<b>Moisture Variation from OMC</b>	%	-0.5	-0.5	-1.0		
<b>Density Ratio</b>	%	99.5	98.5	98.0		

<b>Specification:</b>	98% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref: 1120 0289-1 (SI06)		
<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)



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The results of tests, calibrations and/or measurements included in this document, are traceable to Australian / National Standards

Approved Signatory:



David Burns

Date: 26/11/2021



## Field Density Test Results AS1289.5.7.1

<b>Client:</b>	BMD Urban	<b>Job No:</b>	BMD1969
<b>Project:</b>	Newhaven Estate - Stage 17 (Level 1)	<b>Report:</b>	7
<b>Location:</b>	Tarneit		

Sample No	19	20	21			
Date Tested	29/11/2021	29/11/2021	29/11/2021			
Time Tested	AM	AM	AM			

Test Location	Refer to Plan	Refer to Plan	Refer to Plan			
Level/Layer	FSL	FSL	FSL			
Layer Thickness	mm 200	mm 200	mm 200			
Test Depth	mm 175	mm 175	mm 175			
Field Wet Density	t/m <sup>3</sup> 1.85	t/m <sup>3</sup> 1.87	t/m <sup>3</sup> 1.86			
Field Moisture Content	% 24.1	% 25.2	% 24.5			
Material:	Site Derived Clay Fill	Site Derived Clay Fill	Site Derived Clay Fill			

Oversize Material	WET, %	0.0	0.0	0.0		
Sieve Size	mm	19	19	19		
Peak Converted Wet Density	t/m <sup>3</sup>	1.88	1.91	1.86		
Optimum Moisture Content	%	25	26	25		

<b>Moisture Ratio</b>	%	96.5	97	98		
<b>Moisture Variation from OMC</b>	%	-1.0	-0.5	-0.5		
<b>Density Ratio</b>	%	98.5	98.0	100.0		

<b>Specification:</b>	98% STD	<b>Test Selection:</b>	N/A
<b>Notes:</b>	Ref: 1120 0289-1 (SI07)		
<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)



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:



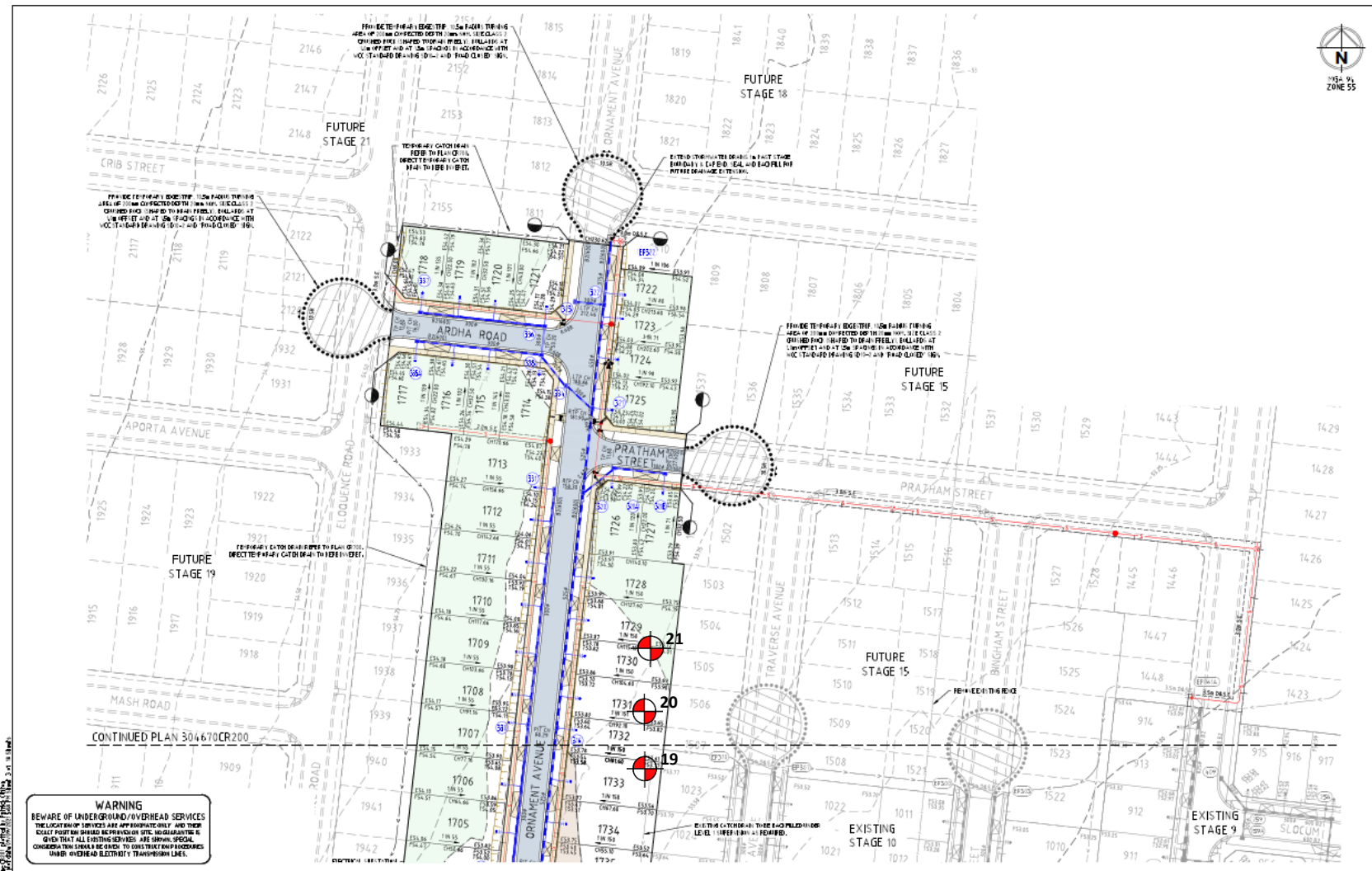
David Burns

Date: 30/11/2021





Test Location



			<p>spiire LEVEL 4/14 THE TRODE STREET BOX 8004 MELBOURNE VICTORIA 3007 AUSTRALIA TEL: 03 9000 7000 spiire.com.au ABN 55 050 028 635</p>	<p>Designed <b>J. CUFTON</b> Authorised <b>M. HOLMES</b></p> <p>Checked <b>J. KOEHLER</b> Date <b>30/07/21</b></p>	<p><b>NEWHAVEN ESTATE STAGE 17 ROAD AND DRAINAGE FACE PLAN - SHEET 2 WYNDHAM CITY COUNCIL PEET NO. 1895 PTY LTD</b></p> <p><b>CONSTRUCTION 304670CR201 0</b></p>
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**PROJECT:**  
Newhaven Estate – Stage 17 (Level 1)

**LOCATION:**  
Tarneit

**CLIENT:**  
BMD Urban

**PROJECT No:**  
1120 0289-1 (SI07)

**DATE:**  
29/11/2021

**SITE PLAN SKETCH—NOT TO SCALE**

