Geotechnical | Environmental | Residential | Pavements | Investigations & Design



Site: Newhaven Estate - Stage 10, Tarneit

Project No: 1120 0193-1



Prepared for: BMD Urban

February 2021



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Revision Chart											
Version	Description	Author	Reviewer	Release Approval	Release Date	Client Copy					
0	Level 1 Inspection & Testing Report	YZ	AT	AT	9/02/2021	Soft copy (email)					

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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 10, Tarneit.

2. Project Summary

It is understood that BMD Urban require the fill platforms within Newhaven Estate - Stage 10 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 4 working days from the 12th of October 2020 to 15th of October 2020.

This report is applicable for fill placed by BMD Urban for the following lots located in Newhaven Estate - Stage 10, Tarneit as shown in Appendix A - Site Plan.

- Lot 1001 to Lot 1005
- Lot 1007 to Lot 1022



3. Project Specifications

No specification has been provided for the construction works in Newhaven Estate - Stage 10, Tarneit. The supervision and inspections were performed based on AS3798. A short summary of the requirements outlined in AS3798 is provided below:

- All filling in excess of 300mm depth within the building envelope of allotments shall be undertaken to specifications satisfying the requirements of AS3798.
- 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;
 - o 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;
 - o 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 95% Standard, as the project was classified as **Residential**.



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 9th of October 2020 as mentioned in report 1120 0193-1 (SSI1).

The exposed subgrade was rolled by a 20 tonne compactor. 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 average fill thickness placed is as follows:

Approximately 200mm to 600mm

6. Fill Material

The fill material used for the platform consisted of stockpiled on-site boxed out material. The stockpiled material was predominantly comprising of Clay fill.



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).

Test were performed using 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 test per day's production based on the minimum requirements of AS 3798-2007 and taken from each layer of fill placed.

A total of 12 field density tests were performed during the earthworks. All of the test results met the specified compaction requirement of 95% Standard Compaction.

The locations of the 12 field density tests are shown in Appendix B - Test Locations. A summary of the test results obtained from the filed 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. 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.



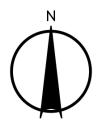
9. Conclusion

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.

This report has been prepared for the benefit of 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. No responsibility for this report will be taken by A & Y Associates if it is altered in any way, or not reproduced in full.

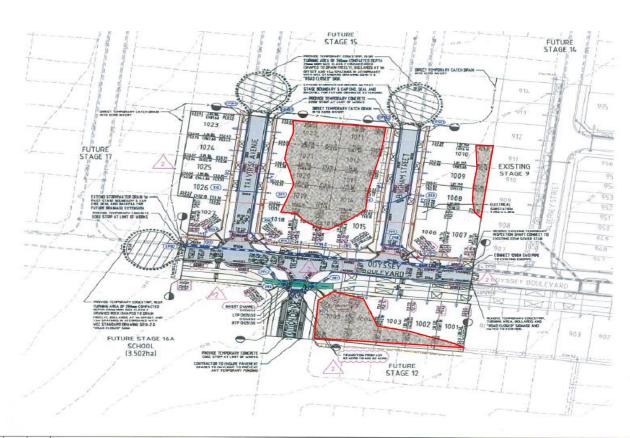


Appendix A – Site Plan





MGA 96 ZONE 55



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		1	-	N 5584		-	-	- 10	28	1
l			1	1	-	_	_			_
			1	1						
	KEMINS CHANGED FROM 450MM TO 600MM	MH	22/67/20	1						
1	AMELEIED LOTS 1006 & 1954 DRIVEWAYS, DRAINAGE ACKNIMENT AMERICAL	MH	10/04/20	5						
	ABBUED FOR CONSTRUCTION	M.FC	25/03/19	1						







NEWHA VEN
STAGE 10
NOAD AND DRIANNAGE
FACE PLAN
WYNDHAM CITY ODLANCII,
PEET NO 1885 PTY LTD

PROJECT:	CLIENT:	T
Newhaven Estate – Stage 10	BMD Urban	
LOCATION:	PROJECT No:	٦
Tarneit	1120 0193-1	۱

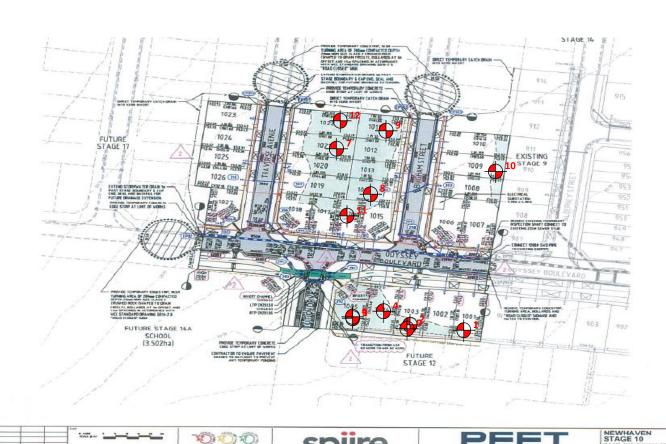
SITE PLAN SKETCH—NOT TO SCALE





Appendix B – Test Locations





PROJECT:

Newhaven Estate – Stage 10

LOCATION:

Tarneit

CLIENT:

BMD Urban

PROJECT No:

1120 0193-1

YOU DIG

A&Y ASSOCIATES
GEOTECHNICAL ENGINEERING CONSULTANTS

FACE PLAN WYNDHAM CITY COUNCIL

SITE PLAN SKETCH—NOT TO SCALE



Appendix C – Test Results Summary

Project No	Project No 1120 0193-1		Client	BMD Urban						
Project Na	ame	Newhaven Est	ate - Stag	e 10	Specification Density Ratio ≥ 95% of Peak Wet Density					
Location	Location Tarneit				Specification Density Ratio ≥ 95% of Peak Wet Density					
Test No	Retest of Test	Date	Location	Layer	Oversize	Density Ratio	Moisture Ratio	Moisture Variation	Pass / Fail	Retest
#	#		Lot #	#	%	%	%	%		Pass / Fail
1	-	12/10/2020	-	1	0.0	99.0	92.0	-2.5	Pass	-
2	-	12/10/2020	-	1	0.0	101.0	92.0	-2.5	Pass	-
3	-	12/10/2020	-	1	0.0	99.5	92.0	-2.5	Pass	-
4	-	13/10/2020	-	2	0.0	98.0	90.5	-3.0	Pass	-
5	-	13/10/2020	-	FSL	0.0	98.0	90.5	-3.0	Pass	-
6	-	13/10/2020	-	FSL	0.0	96.5	93.0	-2.0	Pass	-
7	-	14/10/2020	-	1	0.0	98.0	90.5	-3.0	Pass	-
8	-	14/10/2020	-	1	0.0	97.5	91.0	-3.0	Pass	-
9	-	14/10/2020	-	1	0.0	97.0	92.0	-2.5	Pass	-
10	-	15/10/2020	-	FSL	0.0	97.5	90.0	-3.0	Pass	-
11	-	15/10/2020	-	FSL	0.0	98.0	92.0	-2.5	Pass	-
12	-	15/10/2020	-	FSL	0.0	96.0	91.5	-2.5	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)



Appendix D – NATA Test Results



A & Y Associates Pty Ltd 5/16 Network Drive Truganina VIC 3029 PH: 0400 413 531 info@ayassociates.com.au

Client:		BMD Urban Job No: BMD					BMD1322	
Project:		Newhaven Esta	ite - Stage 10 (Level 1)	Report: 1			
Location:		Tarneit						
	İ						1	
Sample No		1	2	3				
Date Tested		12/10/2020	12/10/2020	12/10/2020				
Time Tested		PM	PM	PM				
	1						T	
Test Location		Refer	Refer	Refer				
		to	to	to				
		Plan	Plan	Plan				
Level/Layer		1	1	1				
Layer Thickness	mm	200	200	200				
Test Depth	mm	175	175	175				
Field Wet Density	t/m³	1.751	1.79	1.794				
Field Moisture Content	%	29.5	29.0	28.0				
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/m³	1.77	1.77	1.80				
Optimum Moisture Content	%	32	31.5	30.5				
	ı							
Moisture Ratio	%	92	92	92				
Moisture Variation	%		-2.5	-2.5				
from OMC		Drier	Drier	Drier				
Density Ratio	%	99.0	101.0	99.5				
Specification:	95% STD				Test Selection:	N	/A	
Notes:	Ref: 1120	0193-1 (SI01)						
Test Method	AS1289 5.	8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289 1	.2.1 6.4(b)	

WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory No. 20172

Accreditation for compliance with ISO/IEC 17025 - Testing

The results of tests, calibrations and/or measurements included

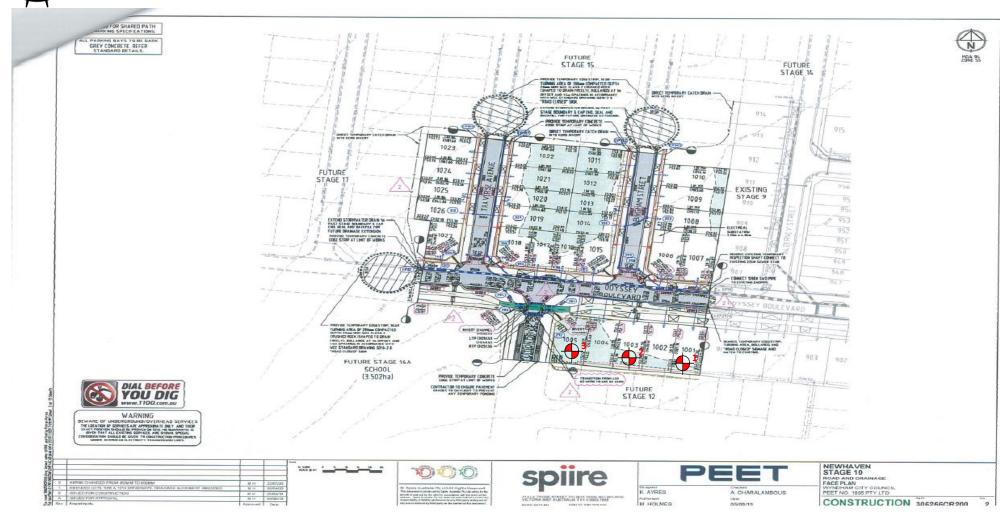
in this document, are traceable to Australian / National Standards

Approved Signatory:

David Burns : 13/10/2020







PROJECT:	CLIENT:	DATE:	
Newhaven Estate – Stage 10 (Level 1)	BMD Urban	12/10/2020	2
LOCATION:	PROJECT No:		
Tarneit	1120 0193-1 (SI01)	SITE PLAN SKETCH—NOT TO SCALE	





A & Y Associates Pty Ltd 5/16 Network Drive Truganina VIC 3029 PH: 0400 413 531 info@ayassociates.com.au

Client:		BMD Urban		Job No:	BMD1322		
Project:		Newhaven Estate - Stage 10 (Level 1) Report:					
Location:		Tarneit					
	ľ		_				T
Sample No		4	5	6			ļ
Date Tested		13/10/2020	13/10/2020	13/10/2020			
Time Tested		AM	PM	PM			
	I						T
Test Location		Refer	Refer	Refer			
		to	to	to			
		Plan	Plan	Plan			
Level/Layer		2	FSL	FSL			
Layer Thickness	mm	200	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m³	1.863	1.873	1.865			
Field Moisture Content	%	29.0	29.0	30.2			
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/m³	1.90	1.92	1.94			
Optimum Moisture Content	%	32	32	32.5			
	Ī						
Moisture Ratio	%	90.5	90.5	93			
Moisture Variation	%	-3.0	-3.0	-2.0			
from OMC	0.4	Drier	Drier	Drier			
Density Ratio	%	98.0	98.0	96.5			
Specification:	95% STD				Test Selection:	-	N/A
Notes:	Ref: 1120	0193-1 (SI02)					
Test Method	AS1289 5.8	8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289	1.2.1 6.4(b)



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Accreditation for compliance with ISO/IEC 17025 - Testing

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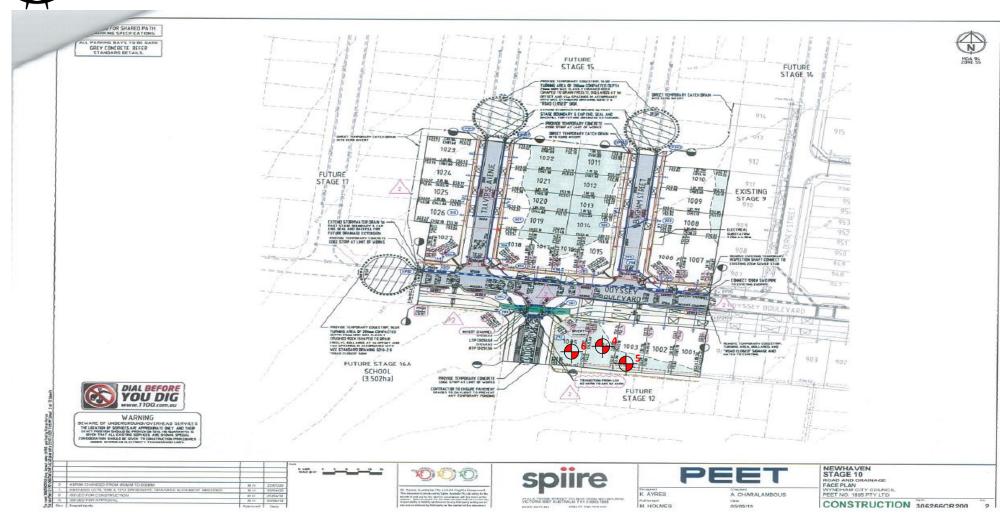
Approved Signatory:

David Burns 19/10/2020

Date:







PROJECT:	CLIENT:	DATE:	
Newhaven Estate - Stage 10 (Level 1)	BMD Urban	13/10/2020	ı
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LOCATION:	PROJECT No:		
Tarneit	1120 0193-1 (SI02)	SITE PLAN SKETCH—NOT TO SCALE	i
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A & Y Associates Pty Ltd 5/16 Network Drive Truganina VIC 3029 PH: 0400 413 531 info@ayassociates.com.au

Client:		BMD Urban	Job No:	BMD1322			
Project:		Newhaven Estate - Stage 10 (Level 1) Report:					3
Location:		Tarneit					
	ľ				1 1		
Sample No		7	8	9			
Date Tested		14/10/2020	14/10/2020	14/10/2020			
Time Tested		AM	AM	AM			
	Г		T				•
Test Location		Refer	Refer	Refer			
		to	to	to			
		Plan	Plan	Plan			
Level/Layer		1	1	1			
Layer Thickness	mm	200	200	200			
Test Depth	mm	175	175	175			
Field Wet Density	t/m³	1.865	1.853	1.87			
Field Moisture Content	%	29.0	29.1	28.0			
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/m³	1.91	1.90	1.93			
Optimum Moisture Content	%	32	32	30.5			
Moisture Ratio	%	90.5	91	92			
Moisture Variation	%	-3.0	-3.0	-2.5			
from OMC		Drier	Drier	Drier			
Density Ratio	%	98.0	97.5	97.0			
Specification:	95% STD				Test Selection:		N/A
Notes:	Ref: 1120	0193-1 (SI03)					
Test Method	AS1289 5.8	8.1, 5.7.1, 2.1.1, 1.1	l		Sampling Method:	AS 128	9 1.2.1 6.4(b)



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The results of tests, calibrations and/or measurements included

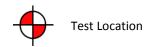
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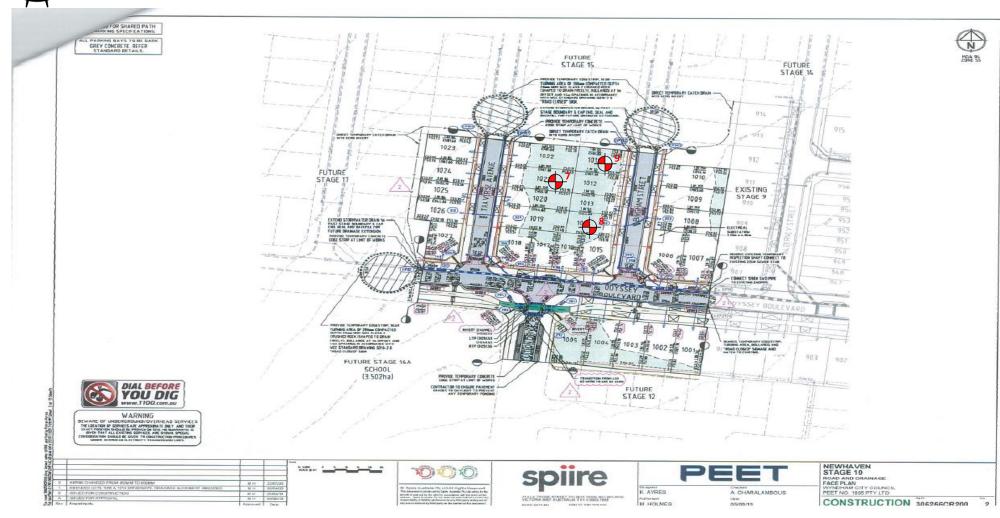
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David Burns 19/10/2020

Date:







PROJECT:	CLIENT:	DATE:	
Newhaven Estate – Stage 10 (Level 1)	BMD Urban	14/10/2020	
LOCATION:	PROJECT No:		
Tarneit	1120 0193-1 (SI03)	SITE PLAN SKETCH—NOT TO SCALE	
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A & Y Associates Pty Ltd 5/16 Network Drive Truganina VIC 3029 PH: 0400 413 531 info@ayassociates.com.au

Client:		BMD Urban		Job No:	BMD1322		
Project:		Newhaven Estate - Stage 10 (Level 1) Report:					
Location:		Tarneit					
	i						<u> </u>
Sample No		10	11	12			
Date Tested		15/10/2020	15/10/2020	15/10/2020			
Time Tested		AM	AM	AM			
Test Location		Refer	Refer	Refer			
		to	to	to			
		Plan	Plan	Plan			
Level/Layer		FSL	FSL	FSL			
Layer Thickness	mm	300	200	200			
Test Depth	mm	275	175	175			
Field Wet Density	t/m³	1.821	1.81	1.836			
Field Moisture Content	%	27.5	28.0	27.0			
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/m³	1.87	1.85	1.91			
Optimum Moisture Content	%	30.5	30.5	29.5			
							_
Moisture Ratio	%	90	92	91.5			
Moisture Variation	%	-3.0	-2.5	-2.5			
from OMC		Drier	Drier	Drier			
Density Ratio	%	97.5	98.0	96.0			
Specification:	95% STD				Test Selection:		N/A
Notes:	Ref: 1120	0193-1 (SI04)					
Test Method	AS1289 5.8	8.1, 5.7.1, 2.1.1, 1.1			Sampling Method:	AS 1289	1.2.1 6.4(b)



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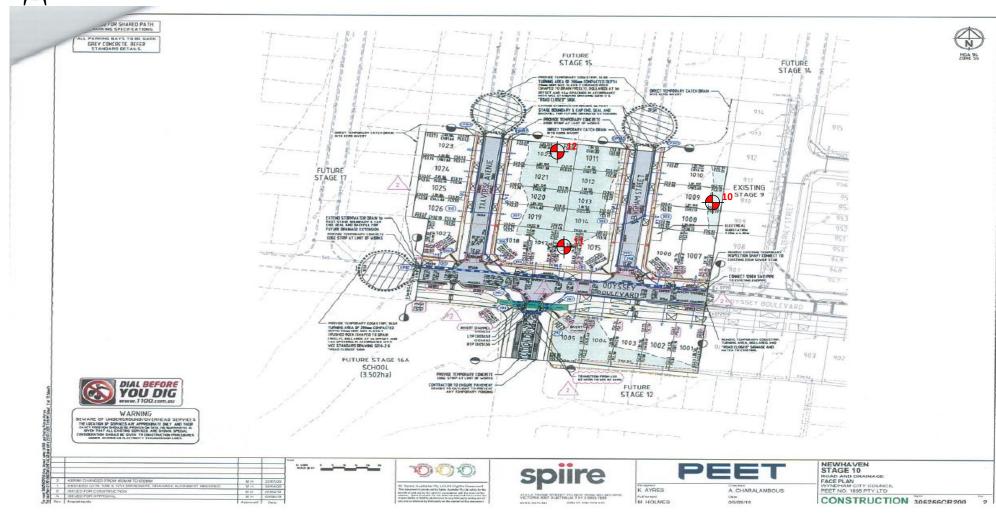
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David Burns 19/10/2020







PROJECT:	CLIENT:	DATE:	
Newhaven Estate – Stage 10 (Level 1)	BMD Urban	15/10/2020	
LOCATION:	PROJECT No:		7
Tarneit	1120 0193-1 (SI04)	SITE PLAN SKETCH—NOT TO SCALE	
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