



**DARACON CONTRACTORS PTY LTD**

**NEWPARK PRECINCT 4  
MARSDEN PARK**

**SITE CLASSIFICATIONS**

**REPORT NO 8599/17-AA 5 DECEMBER 2018**



Job No: 8599/17  
Our Ref: 8599/17-AA  
5 December 2018

Daracon Contractors Pty Ltd  
184 Adderley Street  
AUBURN NSW 2144  
Email: [SimpsonW@daracon.com.au](mailto:SimpsonW@daracon.com.au)

Attention: Mr S Wong / Mr J Letby

Dear Sirs

Re: **Newpark - Precinct 4, Marsden Park  
Site Classifications Report**

Please find herewith our site classifications report for the proposed dwellings to be constructed at the above subdivision (Newpark - Precinct 4). A total of 270 lots are covered in this report (Lots 4001 to 4270).

This report contains information on surface and sub-surface conditions encountered at the site, together with an assessment of the site classifications in accordance with Australian Standard AS2870-2011 "Residential Slabs & Footings".

If you have any questions, please do not hesitate to contact the undersigned.

Yours faithfully  
GEOTECH TESTING PTY LTD

A handwritten signature in black ink, appearing to read "Ziauddin Ahmed".

ZIAUDDIN AHMED  
Associate Geotechnical Engineer

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Woorong Park - Precinct 4, Marsden Park

## **1.0 INTRODUCTION**

This report provides the results of a geotechnical investigation for the site classification of the proposed lots at Newpark - Precinct 4. A total of 270 lots are covered in this report (Lots 4001 to 4270).

Site classification in accordance with AS2870-2011 is only applicable for design of footing systems for a single dwelling, house, townhouse or similar structure that would be detached or separated by a party wall or common wall including buildings classified as Class 1 and Class 10a in the Building Code of Australia (BCA). AS2870 is not suitable for dwellings situated vertically above or below another dwelling. Therefore, a geotechnical investigation would be required for other dwellings to be classified in accordance with the BCA.

It is understood that the proposed dwellings are of brick veneer construction, and wall loadings are expected to be in the range of 15kN/m to 50kN/m. The maximum working load (safe bearing pressure) would be in the order of 50kPa for ground supported floor slabs and 100kPa for strip and pad footings (AS2870-2011).

## **2.0 FIELD WORK**

Field work for the investigation was carried out from 13 to 15 November 2018, under the supervision of a Geotechnical Engineer from the company and consisted of excavating ninety-eight (98) test pits (TP1 to TP98), using an excavator. The test pits were terminated at a depth of 1.5m below existing ground levels. The approximate locations of the test pits are shown on the attached Drawing No 8599/17-AA1. The brief description of materials encountered in the test pits are provided in the attached Table A.

## **3.0 SITE CONDITIONS**

### **3.1 Site Surface Conditions**

Newpark Precinct 4 is bounded to the north by the Little Creek, to the south by Road C102 and Education Precinct, to the west by temporary detention basin and to the east by Basin 3. At the time of field work earthworks were mostly completed, with most lots covered with topsoil and the site possessing no vegetation.

### **3.2 Sub-Surface Conditions**

Subsurface conditions encountered in the test pits are detailed in the attached Table A and summarised below.

Fill	Silty Clay, low to medium plasticity, brown, yellow, with some gravels Silty Clay, medium plasticity, grey, red, with ironstone gravels
Natural	Clayey SAND, fine to medium grained, brown Silty CLAY, medium to high plasticity, grey

### **3.3 Groundwater Condition**

Groundwater was not observed in the test pits during the short time that they remained open. It must be noted that fluctuations in the level of groundwater might occur due to variations in rainfall, temperature, and/or other factors not evident during investigation.

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#### 4.0 LABORATORY TESTING

During the course of the investigation, laboratory tests were conducted on a number samples recovered from the test pits, aimed at determining Shrink/Swell Index as per relevant Australian Standards. The detailed test results are included in Appendix C, and are summarised below:

Table 1 : Shrink/Swell Index Test Results

TP	Depth (m)	Material Description	I <sub>ss</sub> (% <sub>p</sub> F)
2	0.5 – 0.7	FILL : Silty Clay, low plasticity, grey, red, brown, trace of fine to medium gravel	1.6
7	0.4 – 0.6	FILL : Silty Clay, medium to high plasticity, yellow, brown, trace of fine to medium gravel	2.8
12	0.4 – 0.6	FILL : Silty Clay, low plasticity, yellow, brown, trace of fine to medium gravel	0.4
18	0.5 – 0.7	FILL : Silty Clay, high plasticity, grey, red, brown, trace of fine to medium gravel	4.0
25	0.3 – 0.5	FILL : Silty Clay, low plasticity, yellow, brown, trace of fine to medium gravel	1.2
31	0.3 – 0.5	FILL : Silty Clay, low plasticity, yellow, brown, some of fine to medium gravel	1.2
40	0.4 – 0.55	FILL : Silty Clay, high plasticity, yellow, brown, trace of fine to medium gravel	3.8
63	0.5 – 0.7	FILL : Silty Clay, low plasticity, yellow, brown, some of fine to medium gravel	0.8
64	0.5 – 0.7	FILL : Silty Clay, high plasticity, yellow, brown, trace of fine to medium gravel	3.8
68	0.4 – 0.6	FILL : Silty Clay, low to medium plasticity, yellow, brown, some of fine to medium gravel	1.8
72	0.3 – 0.5	FILL : Silty Clay, high plasticity, grey, red, brown, trace of fine to medium gravel	4.1
80	0.3 – 0.5	FILL : Silty Clay, medium to high plasticity, yellow, brown, trace of fine to medium gravel	2.6
84	0.3 – 0.5	FILL : Silty Clay, medium, yellow, brown, trace of fine to medium gravel	2.4
90	0.5 – 0.7	FILL : Silty Clay, medium to high plasticity, yellow, brown, trace of fine to medium gravel	2.6

#### 5.0 DISCUSSION & RECOMMENDATIONS

##### 5.1 Assessment of Fill

Geotech Testing Pty Ltd provided Level 1 supervision and testing during fill placement (Report Nos 8599/14-R1 and R2) at the site. Based on the test pit results and the compaction test results, the fill material found at the site is classified as "Controlled" fill.

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## **5.2 Site Classifications**

Based on the above information site classifications to AS2870-2011 are summarised in Appendix B. It should be noted that lots containing more than 400mm of clay fill (assessed as controlled fill) would originally be classified as Class "P" in accordance with AS2870-2011. However, based on the results of this investigation, which included laboratory testing, the lots are classified as detailed in Appendix B.

It is recommended that footings for the proposed dwellings are founded on the same stratum, below any topsoil, loose or deleterious material, to minimise the potential for differential movement. In the event that bedrock is encountered in any portion of the footing excavations, the remainder of the foundations must be supported on bedrock to ensure even bearing. The classifications presented in Appendix B of this report are applicable to the Lots at the dates of conducting the investigation, being 13 to 15 November 2018 and are made on the following assumptions:

- The design and construction requirements of AS2870 must be followed.
- The recommendations for foundation performance and site maintenance set out in Appendix B of AS2870 must be followed.
- The proposed dwellings must be in accordance with AS2870. A detailed geotechnical investigation will be required for other dwellings to be classified in accordance with the BCA.
- It is recommended that house owners are made aware of recommendations in the CSIRO publication, "Guide to Home Owners on Foundation Maintenance and Footing Performance" and AS2870 Appendix H of AS2871-2011.

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**APPENDIX A**

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**TABLE A  
(Test Pit Summary)**

**TEST PIT LOCATION PLAN  
(Drawing Nos 8599/17-AA1)**

**TABLE A**

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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP1	0.0-0.4		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.4-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP2	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP3	0.0-0.9		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.9-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP4	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP5	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP6	0.0-0.9		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.9-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP7	0.0-0.6	0.4-0.6	FILL: Silty Clay, medium to high plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone



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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP8	0.0-1.4		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.4-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP9	0.0-1.2		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.2-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP10	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP11	0.0-1.2		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.2-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense
TP12	0.0-1.3		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.3-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP13	0.0-0.9		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.9-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP14	0.0-1.3		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.3-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP15	0.0-1.1		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.1-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone

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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP16	0.0-0.8	0.5-0.7	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP17	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP18	0.0-0.5		FILL: Silty Clay, high plasticity, brown yellow, with some gravel
	0.5-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP19	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP20	0.0-1.1		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.1-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense
TP21	0.0-1.3	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel	
	1.3-1.5	FILL: Silty Clay, medium plasticity, grey red, with ironstone	
TP22	0.0-0.8	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel	
	0.8-1.3	FILL: Silty Clay, medium plasticity, grey red, with ironstone	
	1.3-1.5	(SC) Clayey SAND, fine to medium grained, brown, medium dense	

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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP23	0.0-0.5		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.5-1.3		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.3-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense
TP24	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP25	0.0-0.5	0.3-0.5	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.5-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP26	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP27	0.0-0.4		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.4-1.5		(CH) Silty CLAY, medium to high plasticity, orange, brown (M<PL)
TP28	0.0-0.5		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.5-1.5		(CH) Silty CLAY, medium to high plasticity, orange, brown (M<PL)
TP29	0.0-0.4		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.4-1.5		(CH) Silty CLAY, medium to high plasticity, orange, brown (M<PL)

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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP30	0.0-0.3		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.3-1.0		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.0-1.5		(CH) Silty CLAY, medium to high plasticity, orange, brown (M<PL)
TP31	0.0-0.8	0.3-0.5	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.1		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.1-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense
TP32	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.2		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.2-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense
TP33	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.2		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.2-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense
TP34	0.0-0.3		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.3-1.2		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.2-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense

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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP35	0.0-0.4		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.4-1.4		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.4-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense
TP36	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.3		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.3-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense
TP37	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP38	0.0-0.9		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.9-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP39	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP40	0.0-0.8	0.4-0.55	FILL: Silty Clay, high plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP41	0.0-0.9		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.9-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone

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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP42	0.0-0.2	0.3-0.5	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.2-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP43	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP44	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP45	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.2		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.2-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense
TP46	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5	FILL: Silty Clay, medium plasticity, grey red, with ironstone	
TP47	0.0-0.8	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel	
	0.8-1.3	FILL: Silty Clay, medium plasticity, grey red, with ironstone	
	1.3-1.5	(SC) Clayey SAND, fine to medium grained, brown, medium dense	
TP48	0.0-0.7	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel	
	0.7-1.5	FILL: Silty Clay, medium plasticity, grey red, with ironstone	

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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP49	0.0-0.3		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.3-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP50	0.0-0.3		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.3-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP51	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP52	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.3		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.3-1.5		(CI-CH) Silty CLAY, medium to high plasticity, grey, stiff to hard, M<PL
TP53	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP54	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP55	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
TP56	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone

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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP57	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP58	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP59	0.0-0.6		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	0.6-1.5		(CI-CH) Silty CLAY, medium to high plasticity, grey, stiff to hard, M<PL
TP60	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.2		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.2-1.5		(CI-CH) Silty CLAY, medium to high plasticity, grey, stiff to hard, M<PL
TP61	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.3		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.3-1.5		(CI-CH) Silty CLAY, medium to high plasticity, grey, stiff to hard, M<PL
TP62	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.4		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.4-1.5		(CI-CH) Silty CLAY, medium to high plasticity, grey, stiff to hard, M<PL



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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP63	0.0-0.7	0.5-0.7	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.3		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.3-1.5		(CI-CH) Silty CLAY, medium to high plasticity, grey, stiff to hard, M<PL
TP64	0.0-0.7	0.5-0.7	FILL: Silty Clay, high plasticity, brown yellow, with some gravel
	0.7-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP65	0.0-1.2		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.2-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP66	0.0-1.1		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.1-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP67	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP68	0.0-0.8	0.4-0.6	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP69	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP70	0.0-1.5		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel

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TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP71	0.0-1.2	0.3-0.5	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	1.2-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP72	0.0-0.3		FILL: Silty Clay, high plasticity, brown yellow, with some gravel
	0.3-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP73	0.0-0.4		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.4-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP74	0.0-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP75	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP76	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP77	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP78	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone

**TABLE A**

Job No: 8599/17  
Our Ref: 8599/17-AA

Page 12 of 14

TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP79	0.0-0.8	0.3-0.5	FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP80	0.0-0.5		FILL: Silty Clay, medium to high plasticity, brown yellow, with some gravel
	0.5-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP81	0.0-0.5		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.5-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP82	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP83	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP84	0.0-0.8		FILL: Silty Clay, medium to high plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP85	0.0-0.7		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.7-1.4		FILL: Silty Clay, medium plasticity, grey red, with ironstone
	1.4-1.5		(SC) Clayey SAND, fine to medium grained, brown, medium dense

**TABLE A**

Job No: 8599/17  
Our Ref: 8599/17-AA

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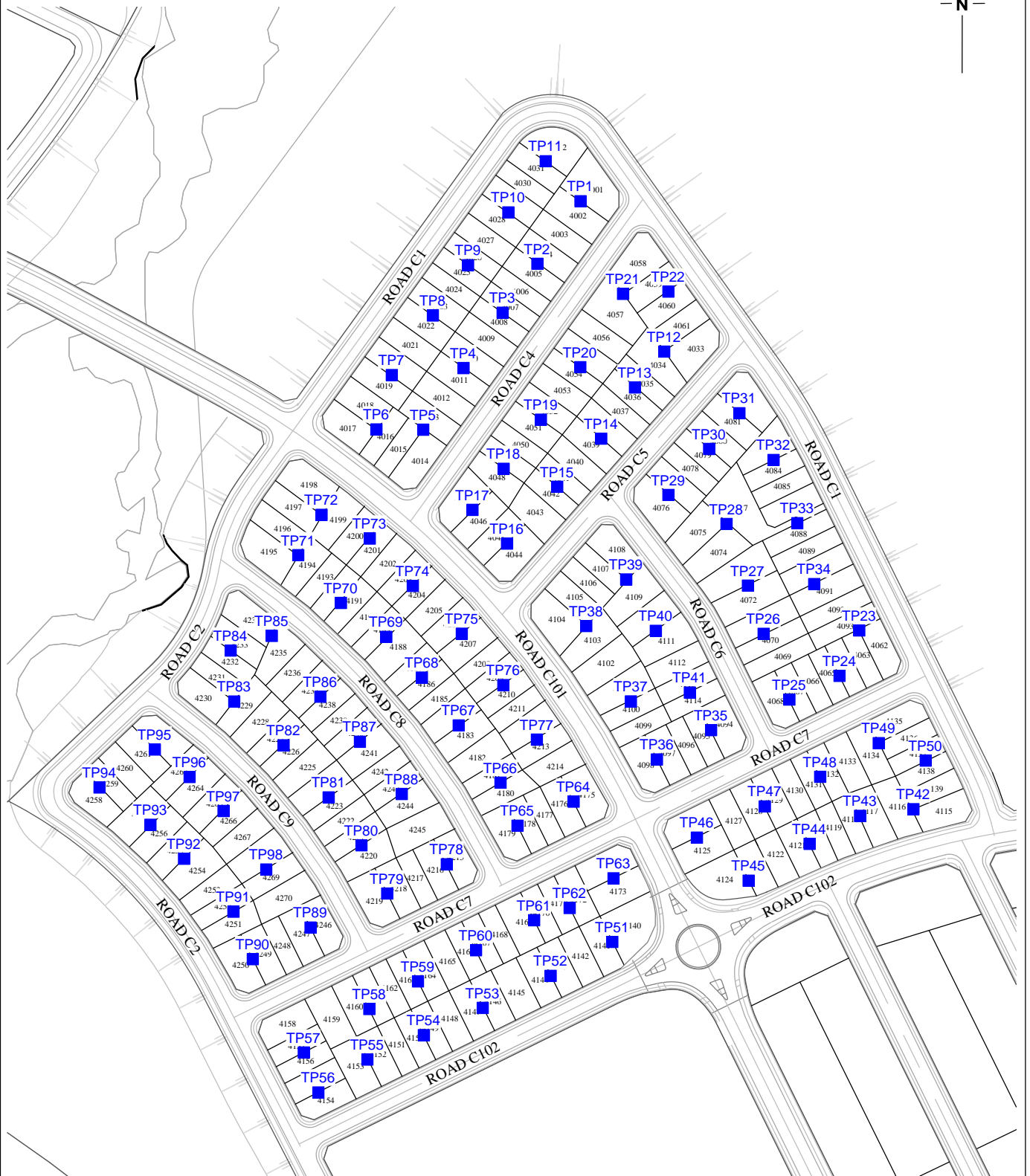
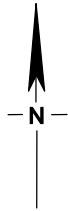
TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP86	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP87	0.0-0.8		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP88	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP89	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP90	0.0-0.8	0.5-0.7	FILL: Silty Clay, medium to high plasticity, brown yellow, with some gravel
	0.8-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP91	0.0-0.4		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.4-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP92	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP93	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone

**TABLE A**

Job No: 8599/17  
Our Ref: 8599/17-AA

Page 14 of 14

TEST PIT NUMBER	DEPTH (m)	SAMPLE DEPTH (m)	MATERIAL DESCRIPTION
TP94	0.0-0.3		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.3-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP95	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP96	0.0-0.4		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.4-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP97	0.0-0.4		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.4-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone
TP98	0.0-0.6		FILL: Silty Clay, low to medium plasticity, brown yellow, with some gravel
	0.6-1.5		FILL: Silty Clay, medium plasticity, grey red, with ironstone



**LEGEND**

■ Test Pit

PREPARED BY:



34 Borec Road  
Penrith  
NSW 2750  
ABN 71 076 676 321

Tel: 02 4722 2744  
Fax: 02 4722 2777  
e-mail: info@geotech.com.au  
www.geotech.com.au

Daracon Contractors Pty Ltd  
Residential Development  
Woorong Park - Precinct 4  
Marsden Park

Test Pit Locations

Drawing No: 8599/17-AA1  
Job No: 8599/17  
Drawn By: MH  
Date: 2 November 2018  
Checked By: AK

File No: 8599-17  
Layers: 0, AA1

## **APPENDIX B**

---

### **SUMMARY OF SITE CLASSIFICATIONS**

Job No: 8599/17  
Our Ref: 8599/17-AA

**TABLE B**

**Summary of Site Classifications  
NEWPARK PRECINCT 4, MARSDEN PARK**

Lot No	Site Classification	Lot No	Site Classification	Lot No	Site Classification
4001	Class "M"	4031	Class "M"	4061	Class "M"
4002	Class "M"	4032	Class "M"	4062	Class "M"
4003	Class "M"	4033	Class "M"	4063	Class "M"
4004	Class "M"	4034	Class "M"	4064	Class "M"
4005	Class "M"	4035	Class "M"	4065	Class "M"
4006	Class "M"	4036	Class "M"	4066	Class "M"
4007	Class "M"	4037	Class "M"	4067	Class "M"
4008	Class "M"	4038	Class "M"	4068	Class "M"
4009	Class "H1"	4039	Class "M"	4069	Class "M"
4010	Class "H1"	4040	Class "H2"	4070	Class "M"
4011	Class "H1"	4041	Class "H2"	4071	Class "M"
4012	Class "H1"	4042	Class "H2"	4072	Class "M"
4013	Class "H1"	4043	Class "H2"	4073	Class "M"
4014	Class "H1"	4044	Class "H2"	4074	Class "M"
4015	Class "H1"	4045	Class "H2"	4075	Class "M"
4016	Class "H1"	4046	Class "H2"	4076	Class "M"
4017	Class "H1"	4047	Class "H2"	4077	Class "M"
4018	Class "H1"	4048	Class "H2"	4078	Class "M"
4019	Class "H1"	4049	Class "H2"	4079	Class "M"
4020	Class "H1"	4050	Class "H2"	4080	Class "M"
4021	Class "H1"	4051	Class "H2"	4081	Class "M"
4022	Class "H1"	4052	Class "M"	4082	Class "M"
4023	Class "H1"	4053	Class "M"	4083	Class "M"
4024	Class "M"	4054	Class "M"	4084	Class "M"
4025	Class "M"	4055	Class "M"	4085	Class "M"
4026	Class "M"	4056	Class "M"	4086	Class "M"
4027	Class "M"	4057	Class "M"	4087	Class "M"
4028	Class "M"	4058	Class "M"	4088	Class "M"
4029	Class "M"	4059	Class "M"	4089	Class "M"
4030	Class "M"	4060	Class "M"	4090	Class "M"

*Class "M" : 20-40mm; Class "H1" : 40-60mm; Class "H2" : 60-75mm*



Job No: 8599/17  
Our Ref: 8599/17-AA

**TABLE B (Cont'd)**

**Summary of Site Classifications  
NEWPARK PRECINCT 4, MARSDEN PARK**

Lot No	Site Classification	Lot No	Site Classification	Lot No	Site Classification
4091	Class "M"	4121	Class "M"	4151	Class "M"
4092	Class "M"	4122	Class "M"	4152	Class "M"
4093	Class "M"	4123	Class "M"	4153	Class "M"
4094	Class "H2"	4124	Class "M"	4154	Class "M"
4095	Class "H2"	4125	Class "M"	4155	Class "M"
4096	Class "H2"	4126	Class "M"	4156	Class "M"
4097	Class "H2"	4127	Class "M"	4157	Class "M"
4098	Class "H2"	4128	Class "M"	4158	Class "M"
4099	Class "H2"	4129	Class "M"	4159	Class "M"
4100	Class "H2"	4130	Class "M"	4160	Class "M"
4101	Class "H2"	4131	Class "M"	4161	Class "M"
4102	Class "H2"	4132	Class "M"	4162	Class "M"
4103	Class "H2"	4133	Class "M"	4163	Class "M"
4104	Class "H2"	4134	Class "M"	4164	Class "M"
4105	Class "H2"	4135	Class "M"	4165	Class "M"
4106	Class "H2"	4136	Class "M"	4166	Class "M"
4107	Class "H2"	4137	Class "M"	4167	Class "M"
4108	Class "H2"	4138	Class "M"	4168	Class "M"
4109	Class "H2"	4139	Class "M"	4169	Class "M"
4110	Class "H2"	4140	Class "M"	4170	Class "M"
4111	Class "H2"	4141	Class "M"	4171	Class "M"
4112	Class "H2"	4142	Class "M"	4172	Class "M"
4113	Class "H2"	4143	Class "M"	4173	Class "M"
4114	Class "H2"	4144	Class "M"	4174	Class "M"
4115	Class "M"	4145	Class "M"	4175	Class "H2"
4116	Class "M"	4146	Class "M"	4176	Class "H2"
4117	Class "M"	4147	Class "M"	4177	Class "H2"
4118	Class "M"	4148	Class "M"	4178	Class "H2"
4119	Class "M"	4149	Class "M"	4179	Class "H2"
4120	Class "M"	4150	Class "M"	4180	Class "H2"

*Class "M" : 20-40mm; Class "H1" : 40-60mm; Class "H2" : 60-75mm*

Job No: 8599/17  
Our Ref: 8599/17-AA

**TABLE B (Cont'd)**

**Summary of Site Classifications  
NEWPARK PRECINCT 4, MARSDEN PARK**

Lot No	Site Classification	Lot No	Site Classification	Lot No	Site Classification
4181	Class "H2"	4211	Class "H2"	4241	Class "H1"
4182	Class "H2"	4212	Class "H2"	4242	Class "H1"
4183	Class "H2"	4213	Class "H2"	4243	Class "H1"
4184	Class "H2"	4214	Class "H2"	4244	Class "H1"
4185	Class "M"	4215	Class "H1"	4245	Class "H1"
4186	Class "M"	4216	Class "H1"	4246	Class "H1"
4187	Class "M"	4217	Class "H1"	4247	Class "H1"
4188	Class "M"	4218	Class "H1"	4248	Class "H1"
4189	Class "M"	4219	Class "H1"	4249	Class "H1"
4190	Class "M"	4220	Class "H1"	4250	Class "H1"
4191	Class "M"	4221	Class "H1"	4251	Class "H1"
4192	Class "M"	4222	Class "H1"	4252	Class "M"
4193	Class "M"	4223	Class "H1"	4253	Class "M"
4194	Class "M"	4224	Class "H1"	4254	Class "M"
4195	Class "M"	4225	Class "H1"	4255	Class "M"
4196	Class "M"	4226	Class "H1"	4256	Class "M"
4197	Class "M"	4227	Class "H1"	4257	Class "M"
4198	Class "M"	4228	Class "H1"	4258	Class "M"
4199	Class "M"	4229	Class "H1"	4259	Class "M"
4200	Class "M"	4230	Class "H1"	4260	Class "M"
4201	Class "M"	4231	Class "H1"	4261	Class "M"
4202	Class "M"	4232	Class "H1"	4262	Class "M"
4203	Class "M"	4233	Class "H1"	4263	Class "M"
4204	Class "M"	4234	Class "H1"	4264	Class "M"
4205	Class "M"	4235	Class "H1"	4265	Class "M"
4206	Class "M"	4236	Class "H1"	4266	Class "M"
4207	Class "M"	4237	Class "H1"	4267	Class "M"
4208	Class "M"	4238	Class "H1"	4268	Class "H1"
4209	Class "H2"	4239	Class "H1"	4269	Class "H1"
4210	Class "H2"	4240	Class "H1"	4270	Class "H1"

*Class "M" : 20-40mm; Class "H1" : 40-60mm; Class "H2" : 60-75mm*

## **APPENDIX C**

---

### **LABORATORY TEST RESULTS (Shrink/Swell)**

DARACON CONTRACTORS PTY LTD  
184 ADDERLEY STREET WEST  
AUBURN NSW 2144

Job No: 8599/17  
Tested By: AK & DS  
Checked By: AK  
Date Tested: 28/11/2018  
Laboratory: Penrith

SITE CLASSIFICATION  
RESIDENTIAL DEVELOPMENT.WOORONG PARK, MARSDEN PARK, PRECINCT 4

**TEST RESULTS - SHRINK / SWELL INDEX**

Page 1 of 4

Test Procedure: AS 1289 7.1.1				
Sample Identification	Test Pit 2	Test Pit 7	Test Pit 12	Test Pit 18
Depth (m)	0.5 - 0.7	0.4 - 0.6	0.4 - 0.6	0.5 - 0.7
Laboratory Number	8599/17-1	8599/17-2	8599/17-3	8599/17-4
Test Description				
Moisture Content				
Initial %	16.8	16.1	11.4	23.2
Final %	17.1	21.3	12.4	29.6
Swell %	0.1	4.4	Nil	7.5
Shrinkage %	2.9	2.8	0.7	3.5
Shrink/Swell Index %/pF	1.6	2.8	0.4	4.0
Material Description	FILL: Silty Clay, low plasticity, grey & red-brown, trace of fine to medium gravel	FILL: Silty Clay, medium to high plasticity, yellow-brown, trace of fine to medium gravel	FILL: Silty Clay, low plasticity, yellow-brown, trace of fine to medium gravel	FILL: Silty Clay, high plasticity, grey & red-brown, trace of fine to medium gravel

Form No R007 Version 12 06/13



NATA Accreditation Number 2734  
Corporate Site Number 2727

Accredited for compliance with  
ISO/IEC 17025 - Testing.

A Kench

28/11/2018

Approved Signatory

Head Office:  
34 Borec Road, Penrith NSW 2750  
P O Box 880 Penrith NSW 2751  
Telephone: (02) 4722 2744 Facsimile: (02) 4722 2777

Prestons Laboratory:  
Unit 4, 18-20 Whyalla Place, Prestons NSW 2170  
Telephone: (02) 9607 6111 Facsimile: (02) 9607 6200

email: info@geotech.com.au www.geotech.com.au

DARACON CONTRACTORS PTY LTD  
184 ADDERLEY STREET WEST  
AUBURN NSW 2144

Job No: 8599/17  
Tested By: AK & DS  
Checked By: AK  
Date Tested: 28/11/2018  
Laboratory: Penrith

SITE CLASSIFICATION  
RESIDENTIAL DEVELOPMENT.WOORONG PARK, MARSDEN PARK, PRECINCT 4

**TEST RESULTS - SHRINK / SWELL INDEX**

Page 2 of 4

Test Procedure: AS 1289 7.1.1				
Sample Identification	Test Pit 25	Test Pit 31	Test Pit 40	Test Pit 63
Depth (m)	0.3 - 0.5	0.3 - 0.5	0.4 - 0.55	0.5 - 0.7
Laboratory Number	8599/17-5	8599/17-6	8599/17-7	8599/17-8
Test Description				
Moisture Content				
Initial %	12.8	8.8	16.3	14.3
Final %	18.4	13.2	25.0	15.2
Swell %	2.6	1.8	5.5	Nil
Shrinkage %	0.9	1.3	4.1	1.4
Shrink/Swell Index % <sub>p</sub> F	1.2	1.2	3.8	0.8
Material Description	FILL: Silty Clay, low plasticity, yellow-brown, trace of fine to medium gravel	FILL: Silty Clay, low plasticity, yellow-brown, some fine to medium gravel	FILL: Silty Clay, high plasticity, yellow-brown, trace of fine to medium gravel	FILL: Silty Clay, low plasticity, yellow-brown, some fine to medium gravel

Form No R007 Version 12 06/13



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DARACON CONTRACTORS PTY LTD  
184 ADDERLEY STREET WEST  
AUBURN NSW 2144

Job No: 8599/17  
Tested By: AK & DS  
Checked By: AK  
Date Tested: 28/11/2018  
Laboratory: Penrith

SITE CLASSIFICATION  
RESIDENTIAL DEVELOPMENT.WOORONG PARK, MARSDEN PARK, PRECINCT 4

**TEST RESULTS - SHRINK / SWELL INDEX**

Page 3 of 4

Test Procedure: AS 1289 7.1.1				
Sample Identification	Test Pit 64	Test Pit 68	Test Pit 72	Test Pit 80
Depth (m)	0.5 - 0.7	0.4 - 0.6	0.3 - 0.5	0.3 - 0.5
Laboratory Number	8599/17-9	8599/17-10	8599/17-11	8599/17-12
Test Description				
Moisture Content				
Initial %	25.0	13.4	25.8	20.9
Final %	29.1	16.9	28.1	26.1
Swell %	3.0	2.4	4.6	4.5
Shrinkage %	5.3	2.0	5.1	2.5
Shrink/Swell Index % <sub>p</sub> F	3.8	1.8	4.1	2.6
Material Description	FILL: Silty Clay, high plasticity, yellow-brown, trace of fine to medium gravel	FILL: Silty Clay, low to medium plasticity, yellow-brown, some fine to medium gravel	FILL: Silty Clay, high plasticity, grey & red-brown, trace of fine to medium gravel	FILL: Silty Clay, medium to high plasticity, yellow-brown, trace of fine to medium gravel

Form No R007 Version 12 06/13



NATA Accreditation Number 2734  
Corporate Site Number 2727

Accredited for compliance with  
ISO/IEC 17025 - Testing.

A Kench 28/11/2018  
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DARACON CONTRACTORS PTY LTD  
184 ADDERLEY STREET WEST  
AUBURN NSW 2144

Job No: 8599/17  
Tested By: AK & DS  
Checked By: AK  
Date Tested: 28/11/2018  
Laboratory: Penrith

SITE CLASSIFICATION  
RESIDENTIAL DEVELOPMENT.WOORONG PARK, MARSDEN PARK, PRECINCT 4

**TEST RESULTS - SHRINK / SWELL INDEX**

Page 4 of 4

Test Procedure: AS 1289 7.1.1				
Sample Identification	Test Pit 84	Test Pit 90		
Depth (m)	0.3 - 0.5	0.5 - 0.7		
Laboratory Number	8599/17-13	8599/17-14		
Test Description				
Moisture Content				
Initial %	17.9	23.5		
Final %	23.6	29.6		
Swell %	1.8	5.9		
Shrinkage %	3.5	1.7		
Shrink/Swell Index %/pF	2.4	2.6		
Material Description	FILL: Silty Clay, medium plasticity, yellow-brown, trace of fine to medium gravel	FILL: Silty Clay, medium to high plasticity, yellow-brown, trace of fine to medium gravel		

Form No R007 Version 12 06/13



NATA Accreditation Number 2734  
Corporate Site Number 2727

Accredited for compliance with  
ISO/IEC 17025 - Testing.

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