



**CIVIL GEOTECHNICAL SERVICES**  
**ABN 26 474 013 724**  
**PO Box 678 Croydon Vic 3136**  
**Telephone: 9723 0744 Facsimile: 9723 0799**

18<sup>th</sup> October 2018

Our Reference: 17447:NB304

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING  
ARMSTRONG ESTATE – STAGE 34 (MOUNT DUNEED)**

Please find attached our Report No's 17447/R001 and 17447/R002 which relate to the field density testing that was conducted within the filled allotments at the above subdivision. The level 1 inspections and associated field density testing was performed in August 2017.

The inspections and testing of the earthworks was undertaken in general accordance with the Level 1 requirements of AS 3798 - Guidelines on Earthworks for Commercial and Residential Developments.

The site inspection and testing was performed by experienced geotechnicians from this office. Any areas that were deemed unsatisfactory were reworked and retested under their supervision. The testing was performed to the relevant Australian Standards and the accompanying test reports carry NATA endorsement. The attached compaction results, which were located randomly throughout the fill profile, are considered to be representative of the bulk fill materials that were placed across the reported allotments by Winslow Constructors during the aforementioned period. The approximate locations of the field density tests can be seen on the attached plan (Figure 1).

We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

A handwritten signature in blue ink, appearing to read 'Nick Brock', is written over a light blue circular stamp.

Nick Brock

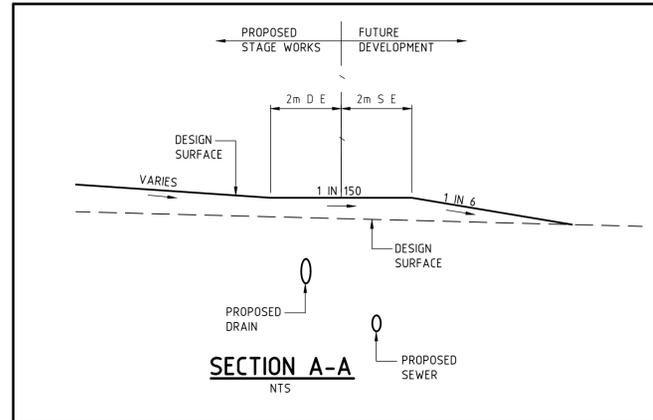
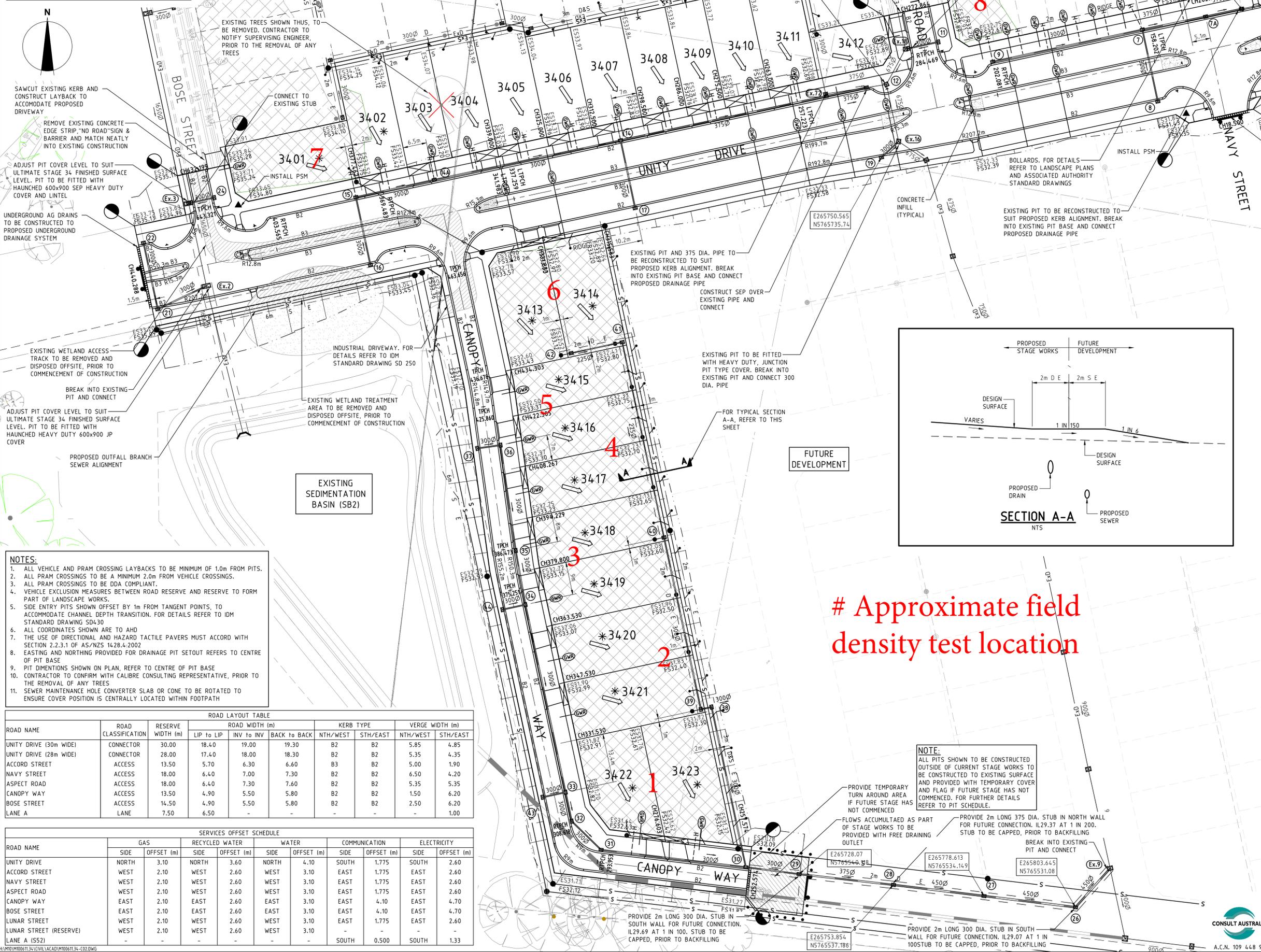
# FIGURE 1 (1 of 2)

**WARNING**  
**BEWARE OF UNDERGROUND & OVERHEAD SERVICES**  
 The locations of underground & overhead services are approximate only & their exact position should be proven on site. No guarantee is given that all existing services are shown. Locate all underground services before commencement of works  
**DIAL 1100 BEFORE YOU DIG**  
 www.1100.com.au

611473 GROUND COORDINATES  
 E 265 570.885  
 N 5 765 829.811  
 RL 25.274  
 STAR PICKET

**LEGEND**

- Electricity (Underground)
- Gas
- Optic
- Recycled Water
- Telstra
- Water
- Stormwater Drain, Pit and Property Inlet
- Swale Drain
- Sewer, Maintenance Structures and Property Connection
- House Drain
- Gas & Water Conduits
- Tactile Paver - Directional
- Tactile Paver - Hazard
- Existing Electricity (Underground)
- Existing Electricity (Overhead)
- Existing Gas
- Existing Telstra
- Existing Water
- Existing Stormwater Drain
- Existing Sewer
- Existing House Drain
- Existing Tree to Remain
- Existing Tree to be Removed
- Existing Swale Drain
- Existing Surface Level
- Finished Building Line Level
- Finished Ridge Line Level
- Top of Retaining Wall
- Bottom of Retaining Wall
- Retaining Wall
- Intersection Threshold Treatment
- Structural Fill > 200mm Deep
- Ex. Structural Fill > 200mm Deep
- Proposed Driveway
- Allotment to be graded evenly in direction of fall to levels indicated
- Direction of Fall
- Overland Flow
- Permanent Survey Mark
- Temporary Bench Mark
- Concrete Edge Strip with Subsoil Drain underneath "No Road" sign and Barrier
- Building Envelope
- Limit of Works



# Approximate field density test location

- NOTES:**
- ALL VEHICLE AND PRAM CROSSING LAYBACKS TO BE MINIMUM OF 1.0m FROM PITS.
  - ALL PRAM CROSSINGS TO BE A MINIMUM 2.0m FROM VEHICLE CROSSINGS.
  - ALL PRAM CROSSINGS TO BE ODA COMPLIANT.
  - VEHICLE EXCLUSION MEASURES BETWEEN ROAD RESERVE AND RESERVE TO FORM PART OF LANDSCAPE WORKS.
  - SIDE ENTRY PITS SHOWN OFFSET BY 1m FROM TANGENT POINTS, TO ACCOMMODATE CHANNEL DEPTH TRANSITION. FOR DETAILS REFER TO IDM STANDARD DRAWING SD430
  - ALL COORDINATES SHOWN ARE TO AHD
  - THE USE OF DIRECTIONAL AND HAZARD TACTILE PAVERS MUST ACCORD WITH SECTION 2.2.3.1 OF AS/NZS 1428.4:2002
  - EASTING AND NORTHING PROVIDED FOR DRAINAGE PIT SETOUT REFERS TO CENTRE OF PIT BASE
  - PIT DIMENSIONS SHOWN ON PLAN, REFER TO CENTRE OF PIT BASE
  - CONTRACTOR TO CONFIRM WITH CALIBRE CONSULTING REPRESENTATIVE, PRIOR TO THE REMOVAL OF ANY TREES
  - SEWER MAINTENANCE HOLE CONVERTER SLAB OR CONE TO BE ROTATED TO ENSURE COVER POSITION IS CENTRALLY LOCATED WITHIN FOOTPATH

**ROAD LAYOUT TABLE**

ROAD NAME	ROAD CLASSIFICATION	RESERVE WIDTH (m)	ROAD WIDTH (m)			KERB TYPE		VERGE WIDTH (m)	
			LIP to LIP	INV to INV	BACK to BACK	NTH/WEST	STH/EAST	NTH/WEST	STH/EAST
UNITY DRIVE (30m WIDE)	CONNECTOR	30.00	18.40	19.30	19.30	B2	B2	5.85	4.85
UNITY DRIVE (28m WIDE)	CONNECTOR	28.00	17.40	18.00	18.30	B2	B2	5.35	4.35
ACCORD STREET	ACCESS	13.50	5.70	6.30	6.60	B3	B2	5.00	1.90
NAVY STREET	ACCESS	18.00	6.40	7.00	7.30	B2	B2	6.50	4.20
ASPECT ROAD	ACCESS	18.00	6.40	7.30	7.60	B2	B2	5.35	5.35
CANOPY WAY	ACCESS	13.50	4.90	5.50	5.80	B2	B2	1.50	6.20
BOSE STREET	ACCESS	14.50	4.90	5.50	5.80	B2	B2	2.50	6.20
LANE A	LANE	7.50	6.50	-	-	-	-	-	1.00

**SERVICES OFFSET SCHEDULE**

ROAD NAME	SIDE	GAS		RECYCLED WATER		WATER		COMMUNICATION		ELECTRICITY	
		OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	
UNITY DRIVE	NORTH	3.10	NORTH	3.60	NORTH	4.10	SOUTH	1.775	SOUTH	2.60	
ACCORD STREET	WEST	2.10	WEST	2.60	WEST	3.10	EAST	1.775	EAST	2.60	
NAVY STREET	WEST	2.10	WEST	2.60	WEST	3.10	EAST	1.775	EAST	2.60	
ASPECT ROAD	WEST	2.10	WEST	2.60	WEST	3.10	EAST	1.775	EAST	2.60	
CANOPY WAY	EAST	2.10	EAST	2.60	EAST	3.10	EAST	4.10	EAST	4.70	
BOSE STREET	EAST	2.10	EAST	2.60	EAST	3.10	EAST	4.10	EAST	4.70	
LUNAR STREET	WEST	2.10	WEST	2.60	WEST	3.10	EAST	1.775	EAST	2.60	
LUNAR STREET (RESERVE)	WEST	2.10	WEST	2.60	WEST	3.10	-	-	-	-	
LANE A (S52)	-	-	-	-	-	-	SOUTH	0.500	SOUTH	1.33	

FOR CONTINUATION REFER C03

B	15/02/17	PIT 7A ADDED	
A		ISSUED FOR APPROVAL	
DATE		ISSUED FOR APPROVAL	COMMENTS



STAGE 34



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 CALIBRE CONSULTING (MELB) PTY LTD  
 Level 2, 55 Southbank Boulevard  
 Southbank VIC 3006 T 03 9203 9000

LAYOUT PLAN - 1



SCALE @ A1	DRAWN	DESIGNED
1:500	R.KOZUL	R.KOZUL
PROJECT ENGINEER	PROJECT MANAGER	DATE FIRST ISSUE
J.CONSIGLIO	T.PALIOS	DECEMBER 2016

ISSUED FOR APPROVAL

SIGNED	DATE
DRAWING NUMBER	REVISION
M100611.34-C02	B



A.C.N. 109 448 982





# COMPACTION ASSESSMENT

Job No 17447  
 Report No 17447/R001  
 Date Issued 29/08/2017

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	ARMSTRONG - STAGE 34	Date tested	10/08/17
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 13:46
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### Test procedure AS 1289.2.1.1 & 5.8.1

Test No		1	2	3	4	5	6
Location		REFER TO FIGURE 1					
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m <sup>3</sup>	2.05	2.07	2.06	1.95	2.02	1.95
Field moisture content	%	16.7	19.8	15.1	22.6	18.4	19.3

### Test procedure AS 1289.5.7.1

Test No		1	2	3	4	5	6
Compactive effort		Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	0	0	0	0
Peak Converted Wet Density	t/m <sup>3</sup>	2.04	2.11	2.02	2.03	2.02	2.02
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content	%	18.0	20.0	16.5	25.5	21.0	22.0

Moisture Variation From Optimum Moisture Content	1.5% dry	0.5% dry	1.5% dry	2.5% dry	2.5% dry	2.5% dry
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Density Ratio ( R <sub>HD</sub> )	%	100.5	98.5	101.5	96.0	100.0	96.5
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### Material description

No 1 - 6 Clay Fill
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The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. Accredited for compliance to ISO/IEC 17025. Accreditation No 9909

Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 17447  
 Report No 17447/R002  
 Date Issued 31/08/2017

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	ARMSTRONG - STAGE 34	Date tested	11/08/17
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 15:25
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No		7	8	9	10	11	12
Location		REFER TO FIGURE 1					
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m <sup>3</sup>	2.01	2.03	1.99	1.99	2.02	1.95
Field moisture content	%	18.8	16.1	18.6	18.7	20.5	21.2

Test procedure AS 1289.5.7.1

Test No		7	8	9	10	11	12
Compactive effort		Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	0	0	0	0
Peak Converted Wet Density	t/m <sup>3</sup>	2.04	2.11	2.02	2.03	2.10	2.00
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content	%	21.0	19.5	20.0	20.5	21.5	22.5

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	1.5% dry	2.0% dry	1.0% dry	1.5% dry
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Density Ratio ( R <sub>HD</sub> )	%	98.5	96.0	98.5	98.0	96.5	97.5
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Material description

No 7 - 12 Clay Fill
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The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards. Accredited for compliance to ISO/IEC 17025. Accreditation No 9909

Approved Signatory : Justin Fry