



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

29th January 2018

Our Reference: 17386:NB125

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
ARMSTRONG ESTATE – STAGE 22 (MOUNT DUNEED)

Please find attached our Report No's 17386/R001 and 17386/R005 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 commenced in mid September 2017 and were completed in early 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).

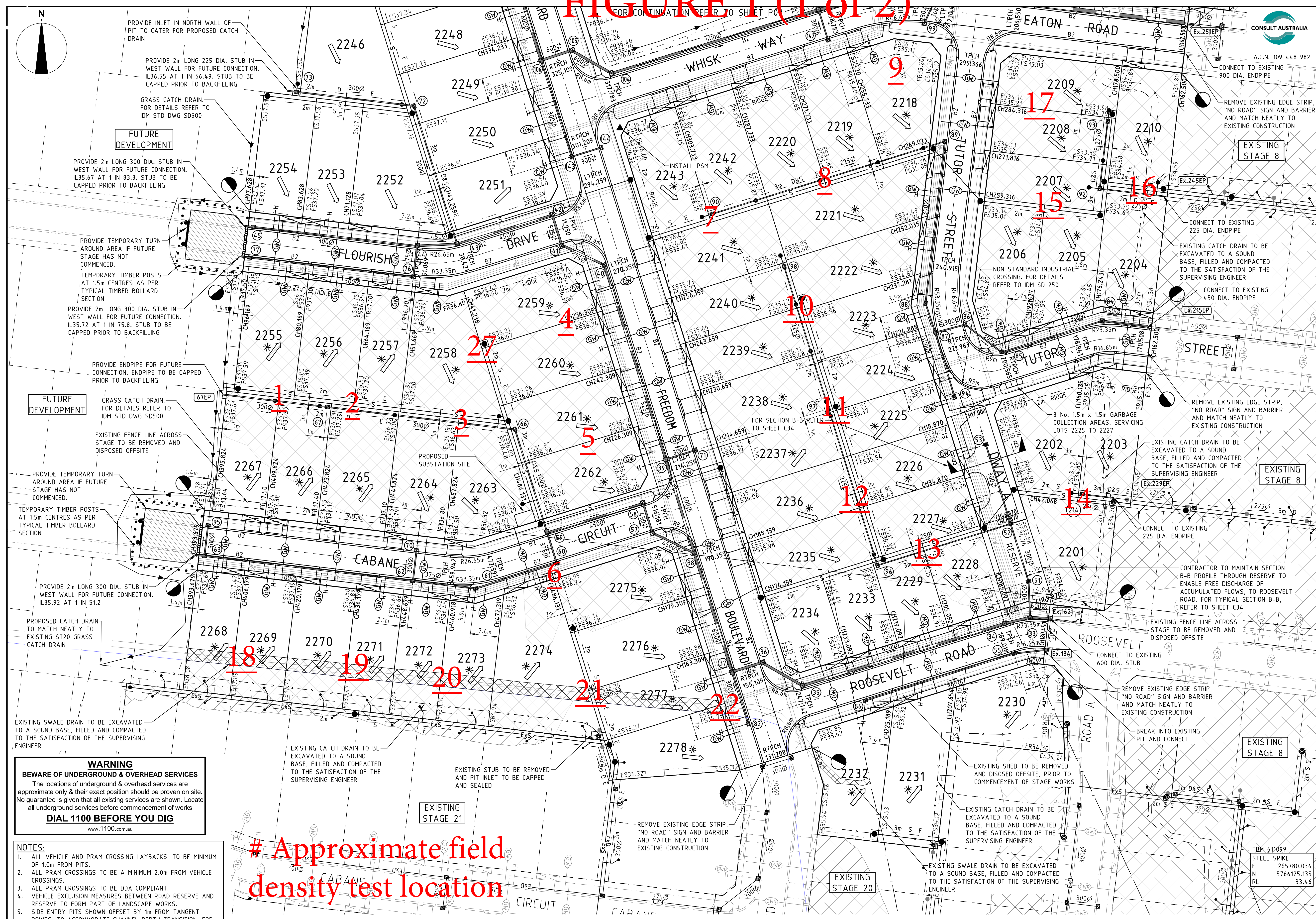
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

FIGURE 1 (1 of 2)



LEGEND

- Electricity (Underground)
- Gas
- Telstra
- Water
- Stormwater Drain, Pit and Property Inlet
- Sewer
- 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

REV	DATE	ISSUED FOR APPROVAL	COMMENTS
A	28/02/17	ISSUED FOR APPROVAL	

COMMUNITIES DESIGNED FOR LIVING

PROJECT

MT DUNEED

STAGE 22

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

TITLE

LAYOUT PLAN - 1

1:500 10 5 0 10 20 A1
1:1000 A3

SCALE @ A1	DRAWN	DESIGNED
1:500	R.KOZUL	R.KOZUL

PROJECT ENGINEER	PROJECT MANAGER	DATE FIRST ISSUE
J.CONSIGLIO	T.PALIOS	MARCH 2017

ISSUED FOR APPROVAL

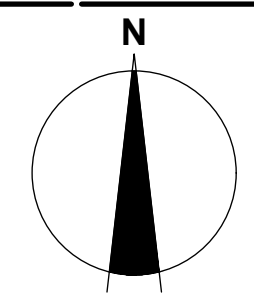
SIGNED	DATE
M100611.22-C02	A

WARNING
BWARE 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

NOTES:
1. ALL VEHICLE AND PRAM CROSSING LAYBACKS, TO BE MINIMUM OF 1.0m FROM PITS.
2. ALL PRAM CROSSINGS TO BE A MINIMUM 2.0m FROM VEHICLE CROSSINGS.
3. ALL PRAM CROSSINGS TO BE DDA COMPLIANT.
4. VEHICLE EXCLUSION MEASURES BETWEEN ROAD RESERVE AND RESERVE TO FORM PART OF LANDSCAPE WORKS.
5. SIDE ENTRY PITS SHOWN OFFSET BY 1m FROM TANGENT POINTS, TO ACCOMMODATE CHANNEL DEPTH TRANSITION. FOR DETAILS REFER TO IDN STANDARD DRAWING SD430
6. ALL COORDINATES SHOWN ARE TO AHD
7. THE USE OF DIRECTIONAL AND HAZARD TACTILE PAVERS MUST ACCORD WITH SECTION 2.2.3.1 OF AS/NZS 1428.4:2002
8. CONTRACTOR TO CONFIRM, WITH CALIBRE CONSULTING REPRESENTATIVE, PRIOR TO THE REMOVAL OF ANY TREES
9. PIT DIMENSIONS SHOWN ON PLANS, REFER TO THE CENTRE OF PIT BASE
10. SEWER MAINTENANCE HOLE CONVERTER SLAB OR CONE, TO BE ROTATED TO ENSURE COVER POSITION IS CENTRALLY LOCATED WITHIN FOOTPATH
11. CHAINAGES FOR SETOUT OF PROPERTY INLET POINTS, SERVING FUTURE LOTS, ARE MEASURED FROM THE DOWNSTREAM PIT
12. CONTRACTOR TO LOCATE ALL EXISTING ASSETS PRIOR TO COMMENCEMENT OF WORKS. ANY DAMAGE TO EXISTING ASSETS TO BE RECTIFIED AT CONTRACTORS EXPENSE.

ROAD NAME	ROAD CLASSIFICATION	RESERVE WIDTH (m)	ROAD WIDTH (m)				KERB TYPE		VERGE WIDTH (m)			
							NTH/WEST	STH/EAST			NTH/WEST	STH/EAST
			LIP to LIP	INV to INV	BACK to BACK							
FREEDOM BOULEVARD	ACCESS	20.00	6.70	7.30	7.60	B2	B2	B2	6.20	6.20		
ROOSEVELT ROAD	ACCESS	16.00	6.70	7.30	7.60	B2	B2	B2	4.20	4.20		
CABANE CIRCUIT	ACCESS	16.00	6.70	7.30	7.60	B2	B2	B2	4.20	4.20		
FLOURISH DRIVE	ACCESS	16.00	6.70	7.30	7.60	B2	B2	B2	4.20	4.20		
WHISK WAY	ACCESS	13.50	6.70	7.30	7.60	B2	B2	B2	0.70	5.20		
EATON ROAD	ACCESS	18.00	6.70	7.30	7.60	B2	B2	B2	5.20	5.20		
ELEVON WAY	ACCESS	13.50	4.90	5.50	5.80	B2	B2	B2	1.50	6.20		
TUTOR STREET	ACCESS	16.00	6.70	7.30	7.60	B2	B2	B2	4.20	4.20		
CELADON PARADE	ACCESS	VARIES	6.70	7.30	7.60	B2	B2	B2	5.20	VARIES		
DWAY A	ACCESS	12.50	5.50	-	-	-	-	-	5.25	1.75		

ROAD NAME	SERVICES OFFSET SCHEDULE											
	GAS		RECYCLED WATER		WATER		COMMUNICATION		ELECTRICITY			
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
FREEDOM BOULEVARD	WEST	2.10	WEST	2.60	WEST	3.10	EAST	1.775	EAST	2.60		
ROOSEVELT ROAD	NORTH	2.10	NORTH	2.60	NORTH	3.10	SOUTH	1.775	SOUTH	2.60		
CABANE CIRCUIT	SOUTH	2.10	SOUTH	2.60	SOUTH	3.10	NORTH	1.775	NORTH	2.60		
FLOURISH DRIVE	SOUTH	2.10	SOUTH	2.60	SOUTH	3.10	NORTH	1.775	NORTH	2.60		
WHISK WAY	SOUTH	2.10	SOUTH	2.60	SOUTH	3.10	SOUTH	3.60	SOUTH	4.30		
EATON ROAD	NORTH	2.10	NORTH	2.60	NORTH	3.10	SOUTH	1.775	SOUTH	2.60		
ELEVON WAY	EAST	2.10	EAST	2.60	EAST	3.10	EAST	4.10	EAST	4.70		
TUTOR STREET (LOT 2206-2209)	WEST	2.10	WEST	2.60	WEST	3.10	EAST	1.775	EAST	2.60		
CELADON PARADE	SOUTH	2.10	SOUTH	2.60	SOUTH	3.10	NORTH	1.775	NORTH	2.60		
DWAY A	WEST	2.10	WEST	2.60	WEST	3.10	WEST	3.90	WEST	4.40		
TUTOR STREET (LOT 2204-2206)	NORTH	2.10	NORTH	2.60	NORTH	3.10	SOUTH	1.775	SOUTH	2.60		

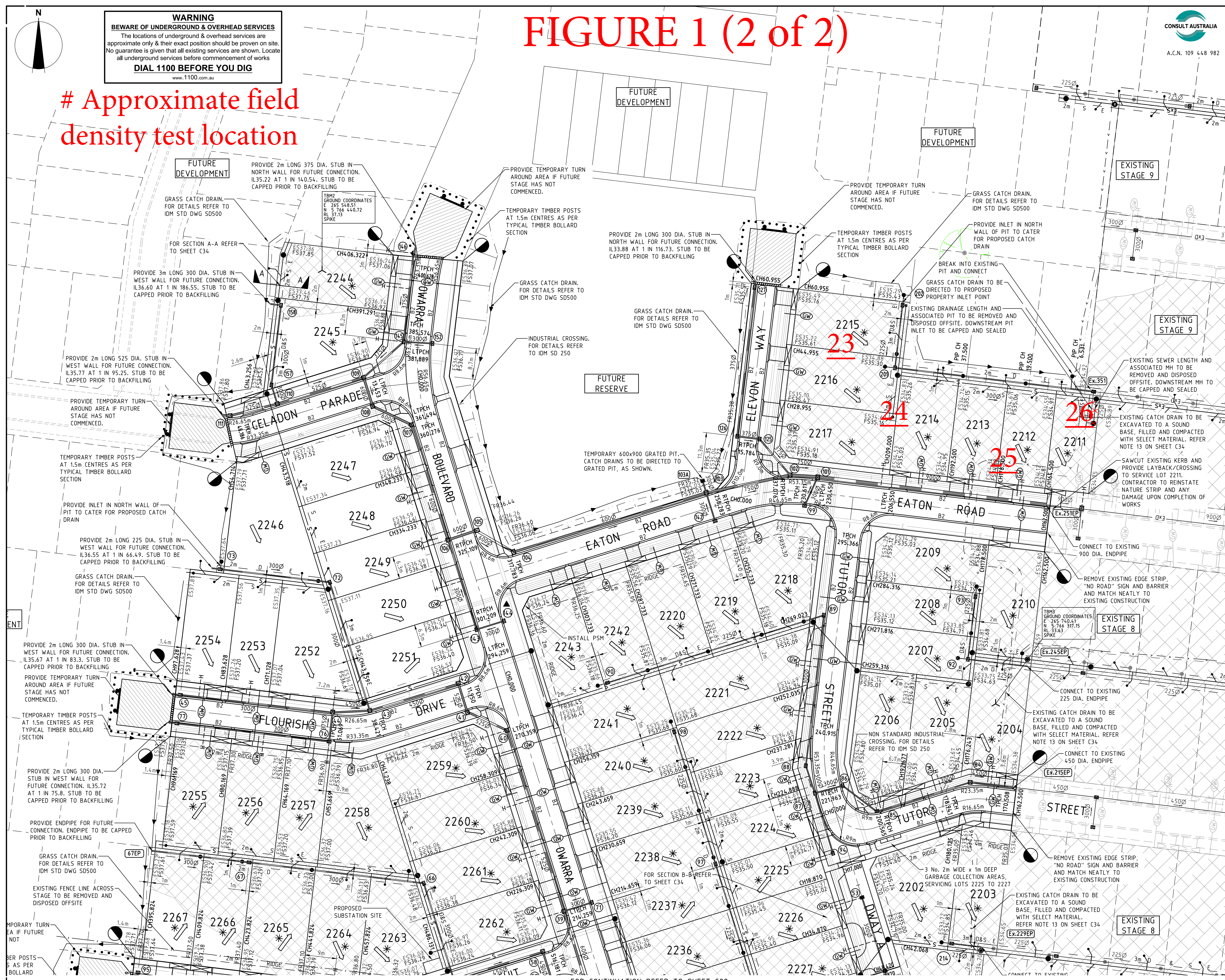


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www.1100.com.au

FIGURE 1 (2 of 2)



Approximate field density test location



- LEGEND**
- E Electricity (Underground)
 - G Gas
 - T Telstra
 - W Water
 - W Stormwater Drain, Pit and Property Inlet
 - S Swale Drain
 - S Sewer, Maintenance Structures and Property Connection
 - H House Drain
 - GW Gas & Water Conduits
 - H Tactile Paver - Directional
 - H Tactile Paver - Hazard
 - Ex E Existing Electricity (Underground)
 - Ex H Existing Electricity (Overhead)
 - Ex G Existing Gas
 - Ex T Existing Telstra
 - Ex W Existing Water
 - Ex D Existing Stormwater Drain
 - Ex S Existing Sewer
 - Ex H Existing House Drain
 - Ex T Existing Tree to Remain
 - Ex S Existing Tree to be Removed
 - Ex S Existing Swale Drain
 - ES14.34 Existing Surface Level
 - FS14.35 Finished Building Line Level
 - FR17.40 Finished Ridge Line Level
 - TW159.30 Top of Retaining Wall
 - BW159.30 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

1	20/06/17	ROAD NAME CHANGED
0	06/06/17	CONSTRUCTION ISSUE
D	26/05/17	COUNCIL COMMENTS DATED 24/05/17
C	10/05/17	COUNCIL COMMENTS DATED 08/05/17
B	08/05/17	COUNCIL COMMENTS DATED 27/04/17
A	28/02/17	ISSUED FOR APPROVAL



ARMSTRONG
MT DUNEED
STAGE 22



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

LAYOUT PLAN - 2
1:500 10 5 0 10 20 A1
1:1000 A3

SCALE @ A1	DRAWN	DESIGNED
1:500	R.KOZUL	R.KOZUL
PROJECT ENGINEER	PROJECT MANAGER	DATE FIRST ISSUE
J.CONSIGLIO	T.PALIOS	MARCH 2017

CONSTRUCTION	
SIGNED	DATE
DRAWING NUMBER	REVISION
M100611.22-C03	1



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 17386

Report No 17386/R001

Date Issued 03/10/2017

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)

Tested by AG

Project ARMSTRONG - STAGE 22

Date tested 12/07/17

Location MOUNT DUNEED

Checked by JHF

Feature EARTHWORKS

Layer thickness 300 mm

Time: 12:28

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	1	2	3	4	5	6
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL						
Measurement depth mm	175	175	175	175	175	175
Field wet density t/m ³	1.98	1.93	1.97	1.97	1.92	1.94
Field moisture content %	19.9	22.8	23.3	21.7	22.4	32.5

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	7	0	0	0	0	0
Peak Converted Wet Density t/m ³	2.06	2.01	2.06	2.03	2.02	1.89
Adjusted Peak Converted Wet Density t/m ³	2.08	-	-	-	-	-
Optimum Moisture Content %	20.0	23.0	23.0	21.5	22.5	33.0

Moisture Variation From Optimum Moisture Content	0.0%	0.5% dry	0.5% wet	0.0%	0.0%	0.5% dry
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Density Ratio (R_{HD})	%	95.0	96.0	95.5	97.0	95.0	102.5
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Material description

No 1 - 6 Clay Fill



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

AVRLOT HILF V1.10 MAR 13



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 17386
Report No 17386/R002
Date Issued 10/08/2017

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	ARMSTRONG - STAGE 22	Date tested	13/07/17
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:25
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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	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL						
Measurement depth mm	175	175	175	175	175	175
Field wet density t/m ³	2.07	2.02	2.06	2.05	2.00	2.04
Field moisture content %	18.2	18.6	18.7	21.2	19.5	20.2

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	15	14	11	10	0	0
Peak Converted Wet Density t/m ³	2.10	2.09	2.08	2.06	2.04	2.05
Adjusted Peak Converted Wet Density t/m ³	2.13	2.12	2.11	2.09	-	-
Optimum Moisture Content %	16.5	17.5	18.5	20.0	19.5	20.5

Moisture Variation From Optimum Moisture Content	1.5% wet	0.5% wet	0.0%	1.0% wet	0.0%	0.5% dry
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Density Ratio (R _{HD})	%	97.0	95.5	98.0	98.0	98.0	99.5
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Material description

No 7 - 12 Clay Fill



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Justin Fry

Approved Signatory : Justin Fry

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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 17386
Report No 17386/R003
Date Issued 27/07/2017

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	ARMSTRONG - STAGE 22	Date tested	18/07/17
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:02
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	13	14	15	16	17	18
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL						
Measurement depth mm	175	175	175	175	175	175
Field wet density t/m ³	1.93	1.91	2.02	1.91	1.95	1.95
Field moisture content %	21.9	23.1	21.7	22.9	23.2	23.6

Test procedure AS 1289.5.7.1

Test No	13	14	15	16	17	18
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 ³	1.98	1.95	2.01	2.01	1.97	1.97
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	22.5	24.0	21.5	22.0	22.5	24.0

Moisture Variation From Optimum Moisture Content	0.5% dry	1.0% dry	0.0%	1.0% wet	1.0% wet	0.5% dry
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Density Ratio (R_{HD})	%	97.5	98.0	100.0	95.5	99.0	99.5
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Material description

No 13 - 18 Clay Fill



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Justin Fry

Approved Signatory : Justin Fry

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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project ARMSTRONG - STAGE 22
Location MOUNT DUNEED

Job No 17386
Report No 17386/R004
Date Issued 17/08/2017

Tested by AG
Date tested 03/08/17
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 13:44

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	19	20	21	22	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1		
Approximate depth below FSL						
Measurement depth mm	175	175	175	175	-	-
Field wet density t/m ³	1.98	1.97	2.11	2.11	-	-
Field moisture content %	18.8	18.4	17.4	17.4	-	-

Test procedure AS 1289.5.7.1

Test No	19	20	21	22	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	19.0	-	-
Percent of oversize material wet	0	0	3	4	-	-
Peak Converted Wet Density t/m ³	1.99	1.98	2.05	2.04	-	-
Adjusted Peak Converted Wet Density t/m ³	-	-	2.11	2.12	-	-
Optimum Moisture Content %	20.5	20.5	18.5	18.0	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	1.0% dry	0.5% dry	-	-
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Density Ratio (R_{HD})	%	99.5	99.5	100.0	99.5	-	-
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Material description

No 19 - 22 Clay Fill



The results of the tests, calibrations
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Accreditation No 9909

Justin Fry

Approved Signatory : Justin Fry

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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 17386
Report No 17386/R005
Date Issued 12/10/2017

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	ARMSTRONG - STAGE 22	Date tested	03/08/17
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 13:51
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	23	24	25	26	27	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	
Approximate depth below FSL						
Measurement depth mm	175	175	175	175	175	-
Field wet density t/m ³	2.06	2.01	1.99	2.06	1.99	-
Field moisture content %	17.1	16.3	17.7	18.0	18.1	-

Test procedure AS 1289.5.7.1

Test No	23	24	25	26	27	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	19.0	19.0	-
Percent of oversize material wet	0	0	0	2	0	-
Peak Converted Wet Density t/m ³	2.06	2.05	1.99	2.00	1.99	-
Adjusted Peak Converted Wet Density t/m ³	-	-	-	2.05	-	-
Optimum Moisture Content %	18.0	16.0	20.0	19.0	21.0	-

Moisture Variation From Optimum Moisture Content	0.5% dry	0.0%	2.5% dry	1.0% dry	2.5% dry	-
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Density Ratio (R _{HD})	%	100.0	98.0	100.0	100.5	100.0	-
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Material description

No 23 - 27 Clay Fill



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

Justin Fry

Approved Signatory : Justin Fry

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