



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

20th August 2021

Our Reference: 21330:NB1019

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
ARMSTRONG – STAGE 66 (MOUNT DUNEED)**

Please find attached our Report No's 21330/R001 to 21330/R008 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 May 2021 and was completed in July 2021.

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).

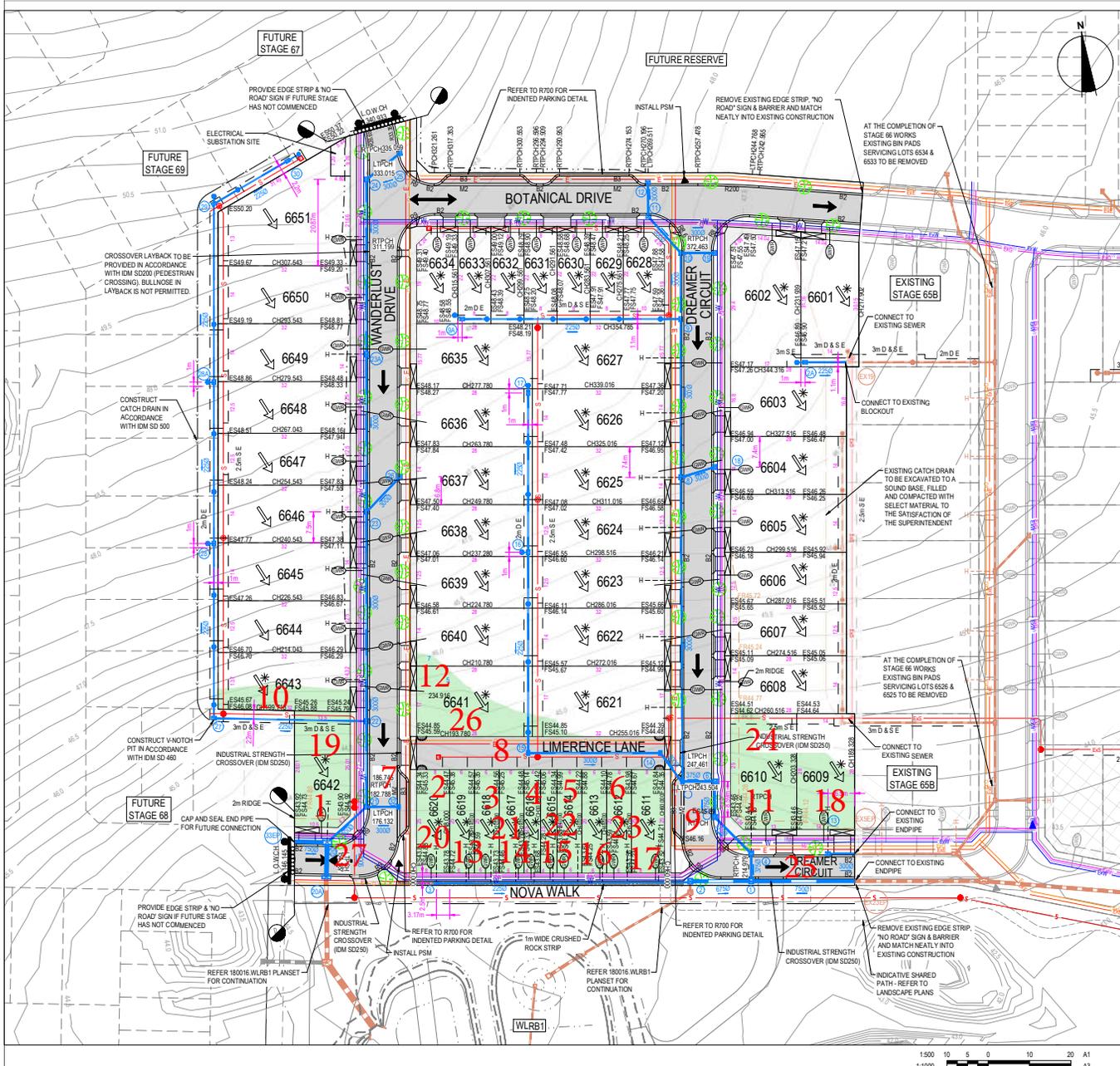
Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

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

Nick Brock

FIGURE 1



CITY OF GREATER GEELONG TO STAMP HERE UPON APPROVAL
 GREATER GEELONG CITY COUNCIL
 PLANNING ENVIRONMENT ACT 1987
 GREATER GEELONG PLANNING SCHEME

Endorsed Plan
 Planning Permit No: PP-282-2019
 Sheet 2 of 25
 Approved By Daniel Cromberg
 Approved Date 18/05/2021

NOTE: THIS IS NOT A BUILDING APPROVAL

Certification No: 15091

NOTE: STREET TREE LOCATIONS SHOWN ARE INDICATIVE ONLY. ULTIMATE LOCATION IS TO BE PROVIDED/CONFIRMED BY LANDSCAPE ARCHITECTS

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

- NOTES:**
- ALL VEHICLE AND PRAM CROSSING LAYBACKS, TO BE MINIMUM 1.0m FROM PITS.
 - ALL PRAM CROSSINGS TO BE A MINIMUM 2.0m FROM VEHICLE CROSSINGS.
 - ALL PRAM CROSSINGS TO BE DDA COMPLIANT.
 - VEHICLE EXCLUSION MEASURES BETWEEN ROAD RESERVE AND RESERVE TO FORM PART OF LANDSCAPE WORKS.
 - THE USE OF DIRECTIONAL AND HAZARD TACTILE PAVERS MUST ACCORD WITH SECTION 2.2.3.1 OF AS/NZS 4428.4:2002
 - SEWER MAINTENANCE HOLE CONVERTER SLAB OR CONE, TO BE ROTATED TO ENSURE COVER POSITION IS CENTRALLY LOCATED WITHIN FOOTPATH
 - CHANGES FOR SETOUT OF PROPERTY INLET POINTS, SERVICING FUTURE LOTS, ARE MEASURED FROM THE DOWNSTREAM PIT
 - CONTRACTOR TO LOCATE ALL EXISTING ASSETS PRIOR TO COMMENCEMENT OF WORKS. ANY DAMAGE TO EXISTING ASSETS TO BE RECTIFIED AT CONTRACTORS EXPENSE.
 - CONTRACTOR TO VERIFY DEPTH OF EXISTING SERVICES, PRIOR TO COMMENCEMENT OF CONSTRUCTION
 - LOTS WITH FRONTAGES OF 12.50m OR LESS ARE TO BE PROVIDED WITH CROSSOVERS OF MAXIMUM 3.50m WIDTH

LEGEND - LAYOUT PLAN

- PROPOSED ELECTRICITY (UNDERGROUND)
- PROPOSED GAS
- PROPOSED OPTIC FIBRE
- PROPOSED TELS TRA
- PROPOSED WATER
- STORMWATER DRAIN, PIT & PROPERTY INLET
- SWALE DRAIN
- SEWER & MAINTENANCE STRUCTURES
- HOUSE DRAIN
- SERVICE CONDUITS
- TACTILE PAVERS
- EXISTING ELECTRICITY (UNDERGROUND)
- EXISTING ELECTRICITY (OVERHEAD)
- EXISTING GAS
- EXISTING OPTIC FIBRE
- EXISTING TELS TRA
- EXISTING WATER
- EXISTING RECYCLED WATER
- EXISTING STORMWATER DRAIN
- EXISTING SEWER
- BUILDING ENVELOPES
- EXISTING SURFACE LEVEL
- FINISHED BUILDING LINE LEVEL
- FINISHED RIDGE LINE LEVEL
- PAVEMENT TREATMENT
- STRUCTURAL FILL > 200mm DEEP
- CRUSHED ROCK
- EXISTING STRUCTURAL FILL > 200mm DEEP
- PERMANENT SURVEY MARK
- TEMPORARY BENCH MARK
- DIRECTION OF FALL
- OVERLAND FLOW
- ALLOTMENT TO BE GRADED EVENLY IN DIRECTION OF FALL TO LEVELS INDICATED
- CONCRETE EDGE STRIP WITH SUBSOL DRAIN
- 'NO ROAD' SIGN & BARRIER
- LIMIT OF WORKS
- EXISTING TREE TO BE REMOVED
- PROPOSED DRIVEWAY
- TOP OF BATTER
- RIDGE LINE
- TREE PROTECTION ZONE
- STORM WATER PIT SETOUT POINT

Approximate field density test location

SERVICES OFFSET SCHEDULE

ROAD NAME	GAS		RECYCLED WATER		POTABLE WATER		OPTIC FIBRE		ELECTRICITY		PUBLIC LIGHTING	
	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET	SIDE	OFFSET
BOTANICAL DRIVE	S	2.10	S	2.50	S	3.10	N	0.80	N	1.60	N	1.00*
DREAMER CIRCUIT (EASTWEST)	N	2.10	N	2.50	N	3.20	N	4.00	N	4.80	N	1.00*
DREAMER CIRCUIT (NORTH/SOUTH)	E	2.10	E	2.50	E	3.20	W	1.80	W	2.50	W	1.00*
WANDERLUST DRIVE (NORTH/SOUTH)	W	2.10	W	2.50	W	3.20	E	1.80	E	2.60	E	1.00*
WANDERLUST DRIVE (EASTWEST)	N	1.80	N	2.20	N	2.70	S	VARIABLES	S	VARIABLES	S	-
LIMERENCE LANE	-	-	-	-	-	-	N	1.00	N	1.80	-	-
NOVA WALK	N	0.50	N	1.00	N	1.70	-	-	-	-	-	-

1. * DENOTES OFFSET FROM BACK OF KERB.

REVISION	DATE	ISSUE DESCRIPTION	DRAWN	CHECKED	APPROVED	CLIENT
0	14/05/21	CONSTRUCTION ISSUE AMENDED TO COUNCIL COMMENTS (28/4/21)	C.RHODE	M.TROUNCE	T.PALIOS	 Level 7, 176 Wellington Parade East Melbourne, VIC, Australia 3002
C	10/05/21		L.HOGAN	M.TROUNCE	T.PALIOS	
B	16/04/21	TENDER ISSUE	C.RHODE	M.TROUNCE	T.PALIOS	
A	01/04/21	ISSUED FOR APPROVAL	L.HOGAN	M.TROUNCE	T.PALIOS	

ARMSTRONG - STAGE 66 LAYOUT PLAN

ISSUED FOR CONSTRUCTION

SCALE AT A1: 1:500 @ A1

PROJECT ENGINEER: M.TROUNCE
 PROJECT MANAGER: T.PALIOS
 DATE FIRST ISSUE: FEBRUARY 2021

PROJECT NO: 180016.66
 DRAWING NO: R200
 REVISION: 0



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21330
Report No 21330/R001
Date Issued 20/08/2021

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	ARMSTRONG - STAGE 66	Date tested	13/05/21
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	09:52
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	1	2	3	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth	mm	175	175	175	-	-
Field wet density	t/m ³	1.97	1.96	1.96	-	-
Field moisture content	%	25.2	22.7	25.1	-	-

Test procedure AS 1289.5.7.1

Test No	1	2	3	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	-	-
Percent of oversize material	wet	0	0	0	-	-
Peak Converted Wet Density	t/m ³	2.01	2.03	2.01	-	-
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	27.0	23.0	26.5	-	-

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

No 1 - 3 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 21330
 Report No 21330/R002
 Date Issued 20/08/2021

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	ARMSTRONG - STAGE 66	Date tested	14/05/21
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	09:31
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	4	5	6	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth	mm	175	175	175	-	-
Field wet density	t/m ³	1.84	1.83	1.84	-	-
Field moisture content	%	25.7	23.2	24.1	-	-

Test procedure AS 1289.5.7.1

Test No	4	5	6	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	-	-
Percent of oversize material	wet	0	0	0	-	-
Peak Converted Wet Density	t/m ³	1.92	1.91	1.91	-	-
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	26.5	25.5	24.5	-	-

Moisture Variation From Optimum Moisture Content	1.0% dry	2.5% dry	0.5% dry	-	-	-
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Density Ratio (R _{HD})	%	95.5	96.0	96.0	-	-
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Material description

No 4 - 6 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21330
Report No 21330/R003
Date Issued 24/06/2021

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	ARMSTRONG - STAGE 66	Date tested	15/05/21
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	09:15
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	7	8	9	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth	mm	175	175	175	-	-
Field wet density	t/m ³	1.89	1.89	1.88	-	-
Field moisture content	%	22.9	22.7	23.3	-	-

Test procedure AS 1289.5.7.1

Test No	7	8	9	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	-	-
Percent of oversize material	wet	0	0	0	-	-
Peak Converted Wet Density	t/m ³	1.90	1.92	1.90	-	-
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	24.0	25.0	25.5	-	-

Moisture Variation From Optimum Moisture Content	1.0% dry	2.5% dry	2.0% dry	-	-	-
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Density Ratio (R _{HD})	%	99.5	98.5	99.0	-	-
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Material description

No 7 - 9 Clay Fill

AVRLOT HILF V1.10 MAR 13



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21330
 Report No 21330/R004
 Date Issued 20/08/2021

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	ARMSTRONG - STAGE 66	Date tested	17/05/21
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 10:31
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	10	11	12	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m³	1.96	1.93	1.93	-	-	-
Field moisture content %	22.1	23.2	24.9	-	-	-

Test procedure AS 1289.5.7.1

Test No	10	11	12	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	0	0	0	-	-	-
Peak Converted Wet Density t/m³	2.02	1.99	2.02	-	-	-
Adjusted Peak Converted Wet Density t/m³	-	-	-	-	-	-
Optimum Moisture Content %	22.5	25.0	26.5	-	-	-

Moisture Variation From Optimum Moisture Content	0.5% dry	1.5% dry	1.5% dry	-	-	-
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Density Ratio (R_{HD})	%	96.5	97.0	95.5	-	-	-
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Material description

No 10 - 12 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 21330
 Report No 21330/R005
 Date Issued 20/08/2021

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	ARMSTRONG - STAGE 66	Date tested	18/05/21
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 08:28
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	13	14	15	-	-	-	
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1				
Approximate depth below FSL							
Measurement depth	mm	175	175	175	-	-	-
Field wet density	t/m ³	1.97	1.97	1.96	-	-	-
Field moisture content	%	19.7	19.6	21.4	-	-	-

Test procedure AS 1289.5.7.1

Test No	13	14	15	-	-	-	
Compactive effort	Standard						
Oversize rock retained on sieve	mm	19.0	19.0	19.0	-	-	-
Percent of oversize material	wet	0	0	0	-	-	-
Peak Converted Wet Density	t/m ³	2.03	2.04	2.02	-	-	-
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-	-
Optimum Moisture Content	%	21.0	20.5	24.0	-	-	-

Moisture Variation From Optimum Moisture Content	1.0% dry	1.0% dry	2.5% dry	-	-	-
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Density Ratio (R _{HD})	%	97.0	96.5	97.5	-	-	-
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Material description

No 13 - 15 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 21330
 Report No 21330/R006
 Date Issued 13/07/2021

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	ARMSTRONG - STAGE 66	Date tested	22/06/21
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 13:42
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	16	17	18	19	20	21
Location	REFER TO FIGURE 1					
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m ³	2.00	2.00	1.99	1.99	1.96
Field moisture content	%	22.4	14.9	21.6	16.9	26.4

Test procedure AS 1289.5.7.1

Test No	16	17	18	19	20	21
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	0	0
Peak Converted Wet Density	t/m ³	1.97	2.06	2.03	2.04	1.99
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	24.0	14.0	22.5	17.5	27.0

Moisture Variation From Optimum Moisture Content	1.5% dry	1.0% wet	0.5% dry	0.5% dry	1.0% dry	0.5% dry
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Density Ratio (R _{HD})	%	101.5	97.5	97.5	97.5	98.5	100.0
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Material description

No 16 - 21 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21330
 Report No 21330/R007
 Date Issued 20/08/2021

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	ARMSTRONG - STAGE 66	Date tested	13/07/21
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 11:39
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	22	23	24	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	175	175	175	-	-	-
Field wet density t/m³	1.97	1.97	1.97	-	-	-
Field moisture content %	24.1	21.6	21.9	-	-	-

Test procedure AS 1289.5.7.1

Test No	22	23	24	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	-	-	-
Percent of oversize material wet	0	0	0	-	-	-
Peak Converted Wet Density t/m³	2.03	2.05	2.03	-	-	-
Adjusted Peak Converted Wet Density t/m³	-	-	-	-	-	-
Optimum Moisture Content %	21.5	19.0	21.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% wet	2.5% wet	1.0% wet	-	-	-
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Density Ratio (R_{HD})	%	97.0	96.0	97.0	-	-	-
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Material description

No 22 - 24 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 21330
Report No 21330/R008
Date Issued 20/08/2021

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BGG
Project	ARMSTRONG - STAGE 66	Date tested	21/07/21
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	11:48
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	25	26	27	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth	mm	175	175	175	-	-
Field wet density	t/m ³	2.01	2.02	2.01	-	-
Field moisture content	%	21.7	18.1	18.0	-	-

Test procedure AS 1289.5.7.1

Test No	25	26	27	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	-	-
Percent of oversize material	wet	0	0	0	-	-
Peak Converted Wet Density	t/m ³	2.02	2.05	2.04	-	-
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	22.0	20.0	19.5	-	-

Moisture Variation From Optimum Moisture Content	0.0%	1.5% dry	1.0% dry	-	-	-
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Density Ratio (R _{HD})	%	99.5	98.5	98.5	-	-
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Material description

No 25 - 27 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry