



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

29<sup>th</sup> April 2023

Our Reference: 22751:NB1457 (Rev.2)

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING**  
**ARMSTRONG – STAGE 69 (MOUNT DUNEED)**

Please find attached our Report No's 22751/R001 to 22751/R006 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 November 2022 and was completed in April 2023.

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).

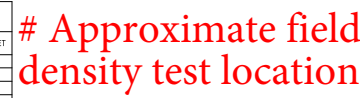
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

**Rec'd A.Hall - 24/10/2022**





## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 22751  
Report No 22751/R001  
Date Issued 09/11/2022

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JD
Project	ARMSTRONG - STAGE 69	Date tested	04/11/22
Location	MOUNT DUNEED	Checked by	JHF

Feature	DAM BACKFILL	Layer thickness	200 mm	Time: 15:10
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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	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL	2.0	1.8	1.6	1.4	1.2	1.0
Measurement depth	175	175	175	175	175	175
Field wet density	1.93	1.99	1.86	2.06	2.00	2.10
Field moisture content	24.9	25.6	23.2	29.1	26.5	21.1

Test procedure AS 1289.5.7.1

Test No	1	2	3	4	5	6
Compactive effort	Standard					
Oversize rock retained on sieve	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	0	0	0	0	0	0
Peak Converted Wet Density	1.97	2.00	1.93	2.08	2.04	2.10
Adjusted Peak Converted Wet Density	-	-	-	-	-	-
Optimum Moisture Content	26.5	28.5	23.0	31.5	26.5	23.5

Moisture Variation From Optimum Moisture Content	1.5% dry	2.5% dry	0.0%	2.0% dry	0.0%	2.0% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio ( $R_{HD}$ )	98.0	99.5	96.5	99.0	98.5	100.0
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Material description

No 1 - 6 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

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)  
Project ARMSTRONG - STAGE 69  
Location MOUNT DUNEED

Job No 22751  
Report No 22751/R002  
Date Issued 09/11/2022

Tested by JD  
Date tested 07/11/22  
Checked by JHF

Feature **DAM BACKFILL** Layer thickness 200 mm Time: 12:24

#### 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	m	0.8	0.6	0.4	0.2	fsl	fsl
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m <sup>3</sup>	1.83	1.93	2.01	1.83	1.98	2.04
Field moisture content	%	31.2	27.1	27.3	27.2	25.9	21.8

#### 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>	1.86	1.97	2.05	1.88	2.02	2.06
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content	%	33.0	29.5	29.5	27.5	27.0	24.0

Moisture Variation From Optimum Moisture Content	1.5% dry	2.0% dry	2.0% dry	0.5% dry	1.0% dry	2.0% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio ( $R_{HD}$ )	%	98.5	97.5	98.0	98.0	98.0	99.0
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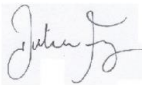
#### Material description

No 7 - 12 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 22751  
Report No 22751/R003  
Date Issued 14/02/2023

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JD
Project	ARMSTRONG - STAGE 69	Date tested	25/01/23
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 15:29
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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 <sup>3</sup>	1.99	1.93	1.77	1.98	1.97	2.00
Field moisture content %	26.1	23.4	21.2	21.2	25.4	24.6

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 <sup>3</sup>	2.06	2.00	1.85	2.00	2.00	2.03
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	27.5	25.5	21.5	23.0	27.5	27.5

Moisture Variation From Optimum Moisture Content	1.5% dry	2.0% dry	0.5% dry	2.0% dry	2.0% dry	2.5% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio ( $R_{HD}$ )	%	96.0	96.5	95.5	99.0	98.5	98.5
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Material description

No 13 - 18 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 22751  
Report No 22751/R004  
Date Issued 14/02/2023

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JD
Project	ARMSTRONG - STAGE 69	Date tested	25/01/23
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 15:33
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	19	20	21	-	-	-
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 <sup>3</sup>	1.95	1.79	1.95	-	-	-
Field moisture content %	25.1	20.0	21.5	-	-	-

Test procedure AS 1289.5.7.1

Test No	19	20	21	-	-	-
Compactive effort	Standard					
Override 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 <sup>3</sup>	2.01	1.84	2.00	-	-	-
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	27.0	22.5	23.5	-	-	-

Moisture Variation From Optimum Moisture Content	1.5% dry	2.5% dry	1.5% dry	-	-	-
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio ( $R_{HD}$ )	%	97.5	97.0	97.5	-	-	-
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Material description

No 19 - 21 Clay Fill

AVRLOT HILF V1.10 MAR 13



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ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



## COMPACTION ASSESSMENT

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No 22751  
Report No 22751/R005  
Date Issued 27/03/2023

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JD
Project	ARMSTRONG - STAGE 69	Date tested	08/03/23
Location	MOUNT DUNEED	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 08:11
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	22	23	24	25	-	-
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 <sup>3</sup>	2.00	1.89	1.89	1.90	-	-
Field moisture content %	24.4	21.8	23.7	23.7	-	-

Test procedure AS 1289.5.7.1

Test No	22	23	24	25	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	19.0	-	-
Percent of oversize material wet	0	0	0	0	-	-
Peak Converted Wet Density t/m <sup>3</sup>	2.00	1.92	1.93	1.95	-	-
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	26.5	24.0	25.5	25.5	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	2.0% dry	2.0% dry	-	-
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio ( $R_{HD}$ )	%	100.0	98.5	97.5	97.5	-	-
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Material description

No 22 - 25 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 22751  
Report No 22751/R006  
Date Issued 29/04/2023

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JD
Project	ARMSTRONG - STAGE 69	Date tested	19/04/23
Location	MOUNT DUNEED	Checked by	JHF

Feature	TRENCH FILL	Layer thickness	200 mm	Time: 16:26
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	26	27	28	29	30	31
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 <sup>3</sup>	1.81	1.83	1.80	1.83	1.82	1.86
Field moisture content %	21.7	20.9	25.3	20.7	20.6	19.9

Test procedure AS 1289.5.7.1

Test No	26	27	28	29	30	31
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>	1.90	1.91	1.86	1.92	1.90	1.91
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content %	23.0	23.0	26.5	22.5	21.0	22.0

Moisture Variation From Optimum Moisture Content	1.5% dry	2.0% dry	1.0% dry	2.0% dry	0.5% dry	2.0% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio ( $R_{HD}$ )	%	95.5	96.0	97.0	95.5	96.0	97.5
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Material description

No 26 - 31 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