



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

10<sup>th</sup> May 2018

Our Reference: 17470:NB038 Rev.2

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING**  
**CORNERSTONE ESTATE – STAGE 5**

Please find attached our Report No's 17470/R003 to 17470/R009 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-August 2017 and was completed in early-May 2018

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





# COMPACTION ASSESSMENT

Job No 17470  
 Report No 17470/R003  
 Date Issued 19/09/2017

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	CORNERSTONE - STAGE 5	Date tested	05/09/17
Location	WYNHDAM VALE	Checked by	JHF

Feature	DAM BACKFILL	Layer thickness	200 mm	Time: 07:47
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### Test procedure AS 1289.2.1.1 & 5.8.1

Test No		1	2	-	-	-	-
Location		REFER TO FIGURE 1	REFER TO FIGURE 1				
Approximate depth below FSL	m	2.4	2.1				
Measurement depth	mm	175	175	-	-	-	-
Field wet density	t/m <sup>3</sup>	1.78	1.79	-	-	-	-
Field moisture content	%	36.4	33.6	-	-	-	-

### Test procedure AS 1289.5.7.1

Test No		1	2	-	-	-	-
Compactive effort		Standard					
Oversize rock retained on sieve	mm	19.0	19.0	-	-	-	-
Percent of oversize material	wet	0	0	-	-	-	-
Peak Converted Wet Density	t/m <sup>3</sup>	1.76	1.82	-	-	-	-
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content	%	36.5	34.5	-	-	-	-

Moisture Variation From Optimum Moisture Content	0.5% dry	1.0% dry	-	-	-	-
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Density Ratio ( R <sub>HD</sub> )	%	101.5	98.0	-	-	-	-
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### Material description

No 1 - 2 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 17470  
 Report No 17470/R004  
 Date Issued 28/09/2017

**CIVIL GEOTECHNICAL SERVICES**

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	CORNERSTONE - STAGE 5	Date tested	05/09/17
Location	WYNDHAM VALE	Checked by	JHF

<b>Feature</b>	DAM BACKFILL	Layer thickness	200 mm	Time: 15:04
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*Test procedure AS 1289.2.1.1 & 5.8.1*

Test No	3	4	5	6	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1		
Approximate depth below FSL	1.8	1.5	1.2	0.9		
Measurement depth	175	175	175	175	-	-
Field wet density	1.77	1.81	1.83	1.80	-	-
Field moisture content	29.3	32.1	38.1	33.5	-	-

*Test procedure AS 1289.5.7.1*

Test No	3	4	5	6	-	-
Compactive effort	Standard					
Oversize rock retained on sieve	19.0	19.0	19.0	19.0	-	-
Percent of oversize material	0	0	0	0	-	-
Peak Converted Wet Density	1.75	1.78	1.82	1.83	-	-
Adjusted Peak Converted Wet Density	-	-	-	-	-	-
Optimum Moisture Content	31.0	35.0	36.0	33.5	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.0% wet	0.0%	-	-
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<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>101.5</b>	<b>101.5</b>	<b>101.0</b>	<b>98.5</b>	-	-
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*Material description*

No 3 - 6 Clay Fill
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Approved Signatory : Justin Fry



## COMPACTION ASSESSMENT

Job No 17470  
 Report No 17470/R005  
 Date Issued 28/09/2017

**CIVIL GEOTECHNICAL SERVICES**

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	CORNERSTONE - STAGE 5	Date tested	06/09/17
Location	WYNDHAM VALE	Checked by	JHF

<b>Feature</b>	DAM BACKFILL / LOT FILL	Layer thickness	200 mm	Time: 13:20
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	7	8	9	10	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	Lot 501 / 502		
Approximate depth below FSL	m	0.6	0.3	FSL	FSL	
Measurement depth	mm	175	175	175	175	-
Field wet density	t/m <sup>3</sup>	1.72	1.71	1.71	1.74	-
Field moisture content	%	32.4	37.8	37.9	36.9	-

Test procedure AS 1289.5.7.1

Test No	7	8	9	10	-	-
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>	1.75	1.79	1.78	1.82	-
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	35.0	36.0	36.5	34.5	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% wet	1.5% wet	2.5% wet	-	-
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<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>%</b>	<b>98.0</b>	<b>95.5</b>	<b>96.0</b>	<b>96.0</b>	<b>-</b>	<b>-</b>
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Material description

No 7 - 10 Clay Fill
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Approved Signatory : Justin Fry



## COMPACTION ASSESSMENT

Job No 17470  
 Report No 17470/R006  
 Date Issued 18/09/2017

**CIVIL GEOTECHNICAL SERVICES**

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	CORNERSTONE - STAGE 5	Date tested	07/09/17
Location	WYNDHAM VALE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	100 mm	Time: 16:14
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*Test procedure AS 1289.2.1.1 & 5.8.1*

Test No	11	12	13	14	15	16
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 <i>mm</i>	75	75	75	75	75	75
Field wet density <i>t/m<sup>3</sup></i>	2.07	1.95	2.18	2.13	2.13	1.94
Field moisture content %	13.6	12.7	15.4	25.4	24.8	24.9

*Test procedure AS 1289.5.7.1*

Test No	11	12	13	14	15	16
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material <i>wet</i>	0	2	0	9	10	0
Peak Converted Wet Density <i>t/m<sup>3</sup></i>	2.11	1.89	2.13	1.90	1.92	1.92
Adjusted Peak Converted Wet Density <i>t/m<sup>3</sup></i>	-	1.93	-	2.10	2.14	-
Optimum Moisture Content %	11.5	10.5	13.5	27.0	24.0	22.5

Moisture Variation From Optimum Moisture Content	2.5% wet	2.0% wet	2.5% wet	1.5% dry	0.5% wet	2.5% wet
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<b>Density Ratio ( R<sub>HD</sub> )</b> %	<b>98.0</b>	<b>101.0</b>	<b>102.0</b>	<b>101.5</b>	<b>99.5</b>	<b>101.5</b>
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*Material description*

No 11 - 16 Clay Fill



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Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 17470  
 Report No 17470/R007  
 Date Issued 18/04/2018

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	CORNERSTONE - STAGE 5	Date tested	08/09/17
Location	WYNDHAM VALE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	13:39
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### Test procedure AS 1289.2.1.1 & 5.8.1

Test No	17	18	19	20	-	-
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>	1.81	1.80	1.87	1.86	-
Field moisture content	%	32.3	25.9	27.9	27.0	-

### Test procedure AS 1289.5.7.1

Test No	17	18	19	20	-	-
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>	1.86	1.88	1.88	1.88	-
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	29.5	23.5	26.5	26.5	-

Moisture Variation From Optimum Moisture Content	2.5% wet	2.5% wet	1.5% wet	0.5% wet	-	-
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Density Ratio ( R <sub>HD</sub> )	%	97.5	96.0	99.5	99.0	-
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### Material description

No 17 - 20 Clay Fill
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Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 17470  
 Report No 17470/R008  
 Date Issued 10/05/2018

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	B G G
Project	CORNERSTONE - STAGE 5	Date tested	03/05/18
Location	WYNDHAM VALE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	08:39
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### Test procedure AS 1289.2.1.1 & 5.8.1

Test No	21	22	23	24	25	26
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	1.75	1.5	1.25	1.0	0.75
Measurement depth mm	175	175	175	175	175	175
Field wet density t/m <sup>3</sup>	1.78	1.94	1.93	1.83	1.84	1.81
Field moisture content %	23.6	13.4	24.0	18.9	19.2	22.1

### Test procedure AS 1289.5.7.1

Test No	21	22	23	24	25	26
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	5	10	4	8	0
Peak Converted Wet Density t/m <sup>3</sup>	1.77	1.99	1.99	1.81	1.81	1.79
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	-	2.01	2.02	1.83	1.85	1.84
Optimum Moisture Content %	25.5	16.0	27.0	21.5	21.5	24.0

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.5% dry	2.5% dry	2.0% dry	2.0% dry
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Density Ratio ( R <sub>HD</sub> )	%	101.0	97.0	95.5	100.5	99.5	98.5
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### Material description

No 21 - 26 Clay Fill



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Approved Signatory : Justin Fry





## COMPACTION ASSESSMENT

Job No 17470  
 Report No 17470/R009  
 Date Issued 10/05/2018

**CIVIL GEOTECHNICAL SERVICES**

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	B G G
Project	CORNERSTONE - STAGE 5	Date tested	03/05/18
Location	WYNDHAM VALE	Checked by	JHF

<b>Feature</b>	EARTHWORKS	Layer thickness	200 mm	Time: 08:41
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*Test procedure AS 1289.2.1.1 & 5.8.1*

Test No	27	28	29	30	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1		
Approximate depth below FSL	2.0	1.5	2.0	1.5		
Measurement depth mm	175	175	175	175	-	-
Field wet density t/m <sup>3</sup>	1.90	1.78	1.98	2.00	-	-
Field moisture content %	20.0	21.5	14.9	13.4	-	-

*Test procedure AS 1289.5.7.1*

Test No	27	28	29	30	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	19.0	-	-
Percent of oversize material wet	6	0	4	5	-	-
Peak Converted Wet Density t/m <sup>3</sup>	1.86	1.81	1.98	2.00	-	-
Adjusted Peak Converted Wet Density t/m <sup>3</sup>	1.88	-	1.99	2.01	-	-
Optimum Moisture Content %	22.0	24.0	17.5	16.0	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.5% dry	2.5% dry	-	-
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<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>%</b>	<b>101.0</b>	<b>98.5</b>	<b>99.5</b>	<b>99.5</b>	<b>-</b>	<b>-</b>
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*Material description*

No 27 - 30 Clay Fill



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Approved Signatory : Justin Fry