



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

25<sup>th</sup> March 2020

Our Reference: 19232:NB704

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING  
FLORIAN – STAGE 4 (BONSHAW)**

Please find attached our Report No's 19232/R001 to 19232/R004 which relates to the field density testing that was conducted within the filled allotments of the above subdivision. The level 1 inspections and associated field density testing was performed in April 2019.

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



# Approximate field density test location

**FOR APPROVAL**

ISSUE	DESCRIPTION	DATE
A	ISSUED FOR APPROVAL	14/05/2018

LEGEND	
<span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span>	LOT CUT (CUT GREATER THAN 200mm DEEP)
<span style="display:inline-block; width:15px; height:15px; background-color:green; border:1px solid black;"></span>	LOT FILL (FILL GREATER THAN 200mm DEEP)
<span style="display:inline-block; width:15px; border-bottom:1px solid black;"></span>	BATTERS
<span style="display:inline-block; width:15px; border-bottom:1px dashed black;"></span>	PROPOSED EASEMENTS
<span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span>	FINISHED SURFACE LEVEL
<span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span>	EXISTING SURFACE LEVEL
<span style="display:inline-block; width:15px; height:15px; border:1px solid black;"></span>	SLOPE & FALL ARROW

 <small>Quality Certified                  Conformity                  ISO9001:2008                  REGISTRATION                  No. 004801-02-001</small>	DESIGNED: <b>M PARKER</b>	SCALE: <b>1:500</b>
	CHECKED: <b>T CLIFTON</b>	SHEET SIZE: <b>A1</b>
	AUTHORISED: <b>C COUGHLAN</b>	DATE: <b>14/05/2018</b>

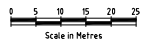
**AXIOM CONSULTING ENGINEERS**

ACN 100 526 458  
 W. axiom@ce.com.au  
 E. admin@axiomce.com.au

P. 03 9331 2686  
 6 Webster Street,  
 Balaclava Victoria 3200

PROJECT: <b>FLORIAN - STAGE 4 TAIT ST BONSHAW</b>
CLIENT: <b>BONSHAW PROJECTS PTY LTD</b>

CIVIL REF. No. <b>802RD-04-04</b>	SHEET <b>4</b>	REV <b>A</b>
DRAWING TITLE: <b>ROAD &amp; DRAINAGE LAYOUT &amp; EARTHWORKS PLAN</b>		





# COMPACTION ASSESSMENT

Job No 19232  
 Report No 19232/R001  
 Date Issued 18/04/2019

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	WS
Project	FLORIAN ESTATE - STAGE 4	Date tested	12/04/19
Location	BONSHAW	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	09:00
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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 <sup>3</sup>	1.87	2.01	2.01	-	-
Field moisture content	%	12.7	15.4	18.2	-	-

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	1	3	-	-
Peak Converted Wet Density	t/m <sup>3</sup>	1.95	2.03	2.01	-	-
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	2.05	2.07	-	-
Optimum Moisture Content	%	15.0	18.0	20.5	-	-

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

No 1 - 3 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 19232  
 Report No 19232/R002  
 Date Issued 18/05/2019

**CIVIL GEOTECHNICAL SERVICES**

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	WS
Project	FLORIAN ESTATE - STAGE 4	Date tested	16/04/19
Location	BONSHAW	Checked by	JHF

<b>Feature</b>	EARTHWORKS	Layer thickness	200 mm	Time: 09:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	4	5	6	7	8	9
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>	175	175	175	175	175	175
Field wet density <i>t/m<sup>3</sup></i>	1.98	2.12	2.21	1.98	1.92	2.00
Field moisture content <i>%</i>	18.2	16.4	18.2	18.9	18.6	18.9

Test procedure AS 1289.5.7.1

Test No	4	5	6	7	8	9
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	0	0	0	0	0
Peak Converted Wet Density <i>t/m<sup>3</sup></i>	2.03	2.19	2.23	2.04	1.95	2.04
Adjusted Peak Converted Wet Density <i>t/m<sup>3</sup></i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	20.0	19.0	20.0	21.0	21.0	21.5

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.0% dry	2.0% dry	2.5% dry	2.5% dry
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<b>Density Ratio ( <math>R_{HD}</math> )</b>	<b>%</b>	<b>97.5</b>	<b>97.0</b>	<b>99.0</b>	<b>97.5</b>	<b>98.5</b>	<b>98.5</b>
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Material description

No 4 - 9 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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Accreditation No 9909

Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 19232  
 Report No 19232/R003  
 Date Issued 31/05/2019

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	WS
Project	FLORIAN ESTATE - STAGE 4	Date tested	16/04/19
Location	BONSHAW	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	09:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	10	11	12	13	14	15	
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	
Field wet density	t/m <sup>3</sup>	1.82	1.80	1.87	1.95	1.91	1.88
Field moisture content	%	23.5	23.4	21.1	19.3	20.1	22.7

Test procedure AS 1289.5.7.1

Test No	10	11	12	13	14	15	
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 <sup>3</sup>	1.88	1.87	1.95	2.04	2.00	1.97
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content	%	26.0	26.0	23.0	21.0	22.0	24.5

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.0% dry	1.5% dry	2.0% dry	2.0% dry
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Density Ratio (R <sub>HD</sub> )	%	96.5	96.0	96.5	95.5	96.0	95.5
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Material description

No 10 - 15 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



## COMPACTION ASSESSMENT

Job No 19232  
 Report No 19232/R004  
 Date Issued 22/05/2019

**CIVIL GEOTECHNICAL SERVICES**

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	WS
Project	FLORIAN ESTATE - STAGE 4	Date tested	16/04/19
Location	BONSHAW	Checked by	JHF

<b>Feature</b>	EARTHWORKS	Layer thickness	200 mm	Time: 09:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	16	17	18	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth <i>mm</i>	175	175	175	-	-	-
Field wet density <i>t/m<sup>3</sup></i>	1.87	1.78	1.77	-	-	-
Field moisture content <i>%</i>	17.9	16.4	15.5	-	-	-

Test procedure AS 1289.5.7.1

Test No	16	17	18	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	-	-	-
Percent of oversize material <i>wet</i>	7	0	0	-	-	-
Peak Converted Wet Density <i>t/m<sup>3</sup></i>	1.92	1.80	1.80	-	-	-
Adjusted Peak Converted Wet Density <i>t/m<sup>3</sup></i>	1.94	-	-	-	-	-
Optimum Moisture Content <i>%</i>	20.0	19.0	18.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.0% dry	2.5% dry	2.5% dry	-	-	-
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<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>%</b>	<b>96.0</b>	<b>99.0</b>	<b>98.5</b>	-	-	-
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Material description

No 16 - 18 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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