



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

12th October 2016

Our Reference: 16262:GB055

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
LIVINGSTON ESTATE – STAGE 14, CRANBOURNE**

Please find attached our Report Nos 16262/R001 to 16262/R004 that relate to the field density testing that was conducted across the filled allotments at the above subdivision. The level 1 inspections and associated field density testing commenced in early June 2016 and was completed in mid June 2016.

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).

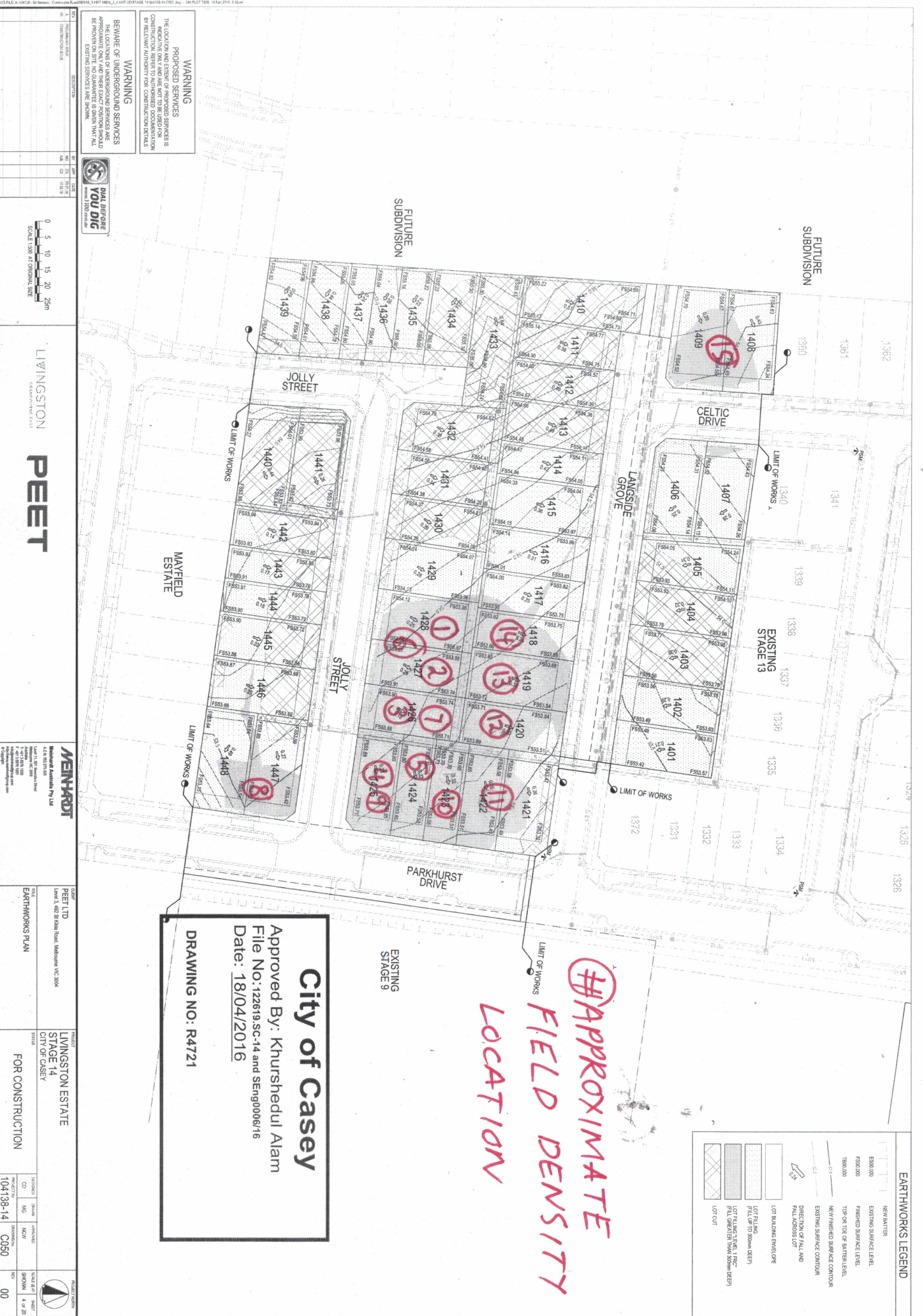
Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

A handwritten signature in black ink, appearing to read 'Griffin Brown', written over a light blue horizontal line.

Griffin Brown

FIGURE 7





COMPACTION ASSESSMENT

Job No 16262
 Report No 16262/R001
 Date Issued 09/06/16

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by JWM
 Date tested 04/06/16
 Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
 Project LIVINGSTON ESTATE - STAGE 14
 Location CRANBOURNE

Feature	EARTHWORKS	<i>Layer thickness</i>	400 mm	<i>Time:</i> 09:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	1	2	3	4	5	-
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 <i>mm</i>	300	300	300	300	300	-
Field wet density <i>t/m³</i>	2.08	2.10	2.11	2.08	2.05	-
Field moisture content %	11.1	11.3	11.2	12.4	11.5	-

Test procedure AS 1289.5.7.1

Test No	1	2	3	4	5	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	19.0	19.0	-
Percent of oversize material <i>wet</i>	0	0	0	0	0	-
Peak Converted Wet Density <i>t/m³</i>	2.12	2.16	2.17	2.18	2.17	-
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content %	9.0	9.5	9.5	10.0	9.5	-

Moisture Variation From Optimum Moisture Content	2.0% wet	2.0% wet	2.0% wet	2.5% wet	2.5% wet	-
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Density Ratio (R_{HD})	%	98.0	97.0	97.0	95.5	95.0	-
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Material description

No 1 - 5 Sand 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



COMPACTION ASSESSMENT

Job No 16262
 Report No 16262/R002
 Date Issued 09/06/16

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JWM
Project	LIVINGSTON ESTATE - STAGE 14	Date tested	07/06/16
Location	CRANBOURNE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	400 mm	Time: 08:56
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	6	7	8	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth mm	300	300	300	-	-	-
Field wet density t/m ³	2.11	2.06	2.11	-	-	-
Field moisture content %	10.9	11.6	11.3	-	-	-

Test procedure AS 1289.5.7.1

Test No	6	7	8	-	-	-
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	2.13	2.17	2.20	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	10.0	9.5	9.0	-	-	-

Moisture Variation From Optimum Moisture Content	1.0% wet	2.0% wet	2.5% wet	-	-	-
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Density Ratio (R _{HD})	%	99.0	95.0	96.0	-	-	-
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Material description

No 6 - 8 Sand Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 16262
 Report No 16262/R003
 Date Issued 23/06/16

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JWM
Project	LIVINGSTON ESTATE - STAGE 14	Date tested	08/06/16
Location	CRANBOURNE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	400 mm	Time: 02:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	9	10	-	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1				
Approximate depth below FSL						
Measurement depth mm	300	300	-	-	-	-
Field wet density t/m ³	2.15	2.00	-	-	-	-
Field moisture content %	12.1	10.6	-	-	-	-

Test procedure AS 1289.5.7.1

Test No	9	10	-	-	-	-
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 ³	2.21	2.07	-	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	10.0	8.0	-	-	-	-

Moisture Variation From Optimum Moisture Content	2.0% wet	2.5% wet	-	-	-	-
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Density Ratio (R _{HD})	%	97.5	96.5	-	-	-	-
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Material description

No 9 - 10 Sand Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 16262
 Report No 16262/R004
 Date Issued 23/06/16

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JWM
Project	LIVINGSTON ESTATE - STAGE 14	Date tested	08/06/16
Location	CRANBOURNE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	02:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	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	
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	-
Field wet density	t/m ³	2.02	2.08	2.05	2.12	2.03
Field moisture content	%	15.6	13.5	19.7	17.5	18.2

Test procedure AS 1289.5.7.1

Test No	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 ³	2.07	2.05	2.05	2.07	2.06
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	13.5	14.5	17.0	17.0	17.5

Moisture Variation From Optimum Moisture Content	2.0% wet	1.0% dry	2.5% wet	0.5% wet	1.0% wet	-
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Density Ratio (R _{HD})	%	98.0	102.0	100.0	102.5	98.5	-
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Material description

No 11 - 15 Clay Fill



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