



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

14th July 2017

Our Reference: 17182:GB215

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
KINGS LEIGH – STAGE 7, WERRIBEE

Please find attached our Report No's 17182/R001 to 17182/R008 which relate to the field density testing that was conducted on the filled allotments of the above subdivision. The level 1 inspections and associated field density testing commenced in late March 2017 and was completed in early April 2017

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

Griffin Brown

FIGURE 1

APPROXIMATE FIELD DENSITY TEST LOCATION



0	ISSUED FOR CONSTRUCTION	M.T.S.	21-02-17
Rev	Amendments	App'd	Date

File name 301525R2-FP-Shop layout name R2-1
 File location G:\301525R2\ACAD
 Plotted by Michael Shelley plot date 21/02/2017 3:38 PM
 © Spiire Australia Pty Ltd
 Standard Drawing RDA1 - Version 20120911

Scale 1:500 A1
 Horizontal 1: 0 10 20 30 40

Designed
 Checked
 Authorised

Map Reference MELWAY 244 C2
 Sheet Number 02
 Drg Status CONSTRUCTION

KING'S LEIGH BY DACEAND **spiire**

spiire ABN 55 020 029 635
 403 La Trobe Street PO Box 16084 Melbourne Victoria 3007 Australia T 61 3 9993 7888
 spiire.com.au

Innovation in Infrastructure

75 / 110 / WYP 5437 / 11 - STAGE 7

KING'S LEIGH, WERRIBEE STAGE 7
 ROAD & DRAINAGE
 DETAIL PLAN
 WERRIBEE PROJECT PTY LTD
 CITY OF WYNDHAM

Rev 0
 Drg No 301525R02



COMPACTION ASSESSMENT

Job No 17182
 Report No 17182/R001
 Date Issued 12/04/2017

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by AG
 Date tested 30/03/17
 Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
 Project KINGS LEIGH - STAGE 7
 Location WERRIBEE

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 12:08

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	2.16	1.96	2.03	-	-	-
Field moisture content	%	7.4	20.1	18.0	-	-	-

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	6	2	4	-	-	-
Peak Converted Wet Density	t/m ³	2.27	2.05	2.08	-	-	-
Adjusted Peak Converted Wet Density	t/m ³	2.28	2.05	2.09	-	-	-
Optimum Moisture Content	%	8.0	20.0	17.0	-	-	-

Moisture Variation From Optimum Moisture Content	0.5% dry	0.0%	1.0% wet	-	-	-
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Density Ratio (R_{HD})	%	95.0	96.0	97.0	-	-	-
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Material description

No 1 - 3 Clay 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 17182
 Report No 17182/R002
 Date Issued 12/04/2017

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	KINGS LEIGH - STAGE 7	Date tested	31/03/17
Location	WERRIBEE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:24
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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 <i>mm</i>	175	175	175	-	-	-
Field wet density <i>t/m³</i>	1.81	1.85	1.84	-	-	-
Field moisture content <i>%</i>	18.3	20.0	21.3	-	-	-

Test procedure AS 1289.5.7.1

Test No	4	5	6	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	-	-	-
Percent of oversize material <i>wet</i>	0	7	2	-	-	-
Peak Converted Wet Density <i>t/m³</i>	1.88	1.92	1.88	-	-	-
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	1.93	1.91	-	-	-
Optimum Moisture Content <i>%</i>	21.0	22.0	23.5	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% dry	2.0% dry	-	-	-
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Density Ratio (R_{HD}) <i>%</i>	96.5	95.5	96.5	-	-	-
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Material description

No 4 - 6 Clay Fill						
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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 17182
 Report No 17182/R003
 Date Issued 12/04/2017

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	KINGS LEIGH - STAGE 7	Date tested	03/04/17
Location	WERRIBEE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:19
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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							
Measurement depth	mm	175	175	175	175	175	
Field wet density	t/m ³	1.89	1.88	1.87	1.88	1.85	1.86
Field moisture content	%	16.8	17.6	18.0	17.5	17.6	16.5

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	
Percent of oversize material	wet	2	2	0	7	11	11
Peak Converted Wet Density	t/m ³	1.97	1.98	1.95	1.94	1.89	1.92
Adjusted Peak Converted Wet Density	t/m ³	1.98	1.98	-	1.97	1.94	1.96
Optimum Moisture Content	%	18.0	18.0	20.5	18.5	19.0	18.0

Moisture Variation From Optimum Moisture Content	1.0% dry	0.5% dry	2.5% dry	1.0% dry	1.5% dry	1.5% dry
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Density Ratio (R _{HD})	%	96.0	95.0	95.5	95.0	95.5	95.0
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Material description

No 7 - 12 Clay 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 17182
 Report No 17182/R004
 Date Issued 27/04/2017

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	KINGS LEIGH - STAGE 7	Date tested	04/04/17
Location	WERRIBEE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 15:38
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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
Field wet density	t/m ³	1.92	1.94	1.85	1.94	1.97
Field moisture content	%	20.7	23.5	24.3	29.6	21.3

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	37.5	19.0	19.0
Percent of oversize material	wet	0	4	32	0	13
Peak Converted Wet Density	t/m ³	2.03	2.01	-	2.04	2.01
Adjusted Peak Converted Wet Density	t/m ³	-	2.03	-	-	2.08
Optimum Moisture Content	%	21.0	21.5	24.5	27.0	22.0

Moisture Variation From Optimum Moisture Content	0.0%	1.5% wet	0.0%	2.0% wet	0.5% dry	0.5% dry
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Density Ratio (R _{HD})	%	95.0	95.5	#DIV/0!	95.0	95.0	95.5
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Material description

No 13 - 18 Clay Fill Sample No. 15 unable to test due to excessive oversize



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 17182
 Report No 17182/R005
 Date Issued 12/04/2017

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	KINGS LEIGH - STAGE 7	Date tested	05/04/17
Location	WERRIBEE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:42
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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 ³	1.98	1.85	1.86	-	-
Field moisture content	%	12.9	18.2	17.5	-	-

Test procedure AS 1289.5.7.1

Test No	19	20	21	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	-	-
Percent of oversize material	wet	3	0	0	-	-
Peak Converted Wet Density	t/m ³	2.08	1.95	1.95	-	-
Adjusted Peak Converted Wet Density	t/m ³	2.09	-	-	-	-
Optimum Moisture Content	%	14.5	19.5	20.0	-	-

Moisture Variation From Optimum Moisture Content	1.5% dry	1.0% dry	2.5% dry	-	-	-
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Density Ratio (R _{HD})	%	95.0	95.0	95.5	-	-
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Material description

No 19 - 21 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 17182
 Report No 17182/R006
 Date Issued 28/04/2017

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	KINGS LEIGH - STAGE 7	Date tested	06/04/17
Location	WERRIBEE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 15:03
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	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	
Approximate depth below FSL						
Measurement depth mm	175	175	175	175	175	-
Field wet density t/m ³	1.93	1.92	1.98	1.98	2.09	-
Field moisture content %	19.6	18.9	22.5	23.9	18.5	-

Test procedure AS 1289.5.7.1

Test No	22	23	24	25	26	-
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	6	0	0	12	-
Peak Converted Wet Density t/m ³	1.92	1.91	1.93	1.94	2.14	-
Adjusted Peak Converted Wet Density t/m ³	-	2.02	-	-	2.20	-
Optimum Moisture Content %	22.0	21.5	23.5	24.0	15.5	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	1.0% dry	0.0%	2.5% wet	-
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Density Ratio (R _{HD})	%	101.0	95.0	103.0	102.0	95.0	-
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Material description

No 22 - 26 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 17182
 Report No 17182/R007
 Date Issued 19/04/17

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AG
Project	KINGS LEIGH - STAGE 7	Date tested	07/04/17
Location	WERRIBEE	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:19
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	27	28	29	30	31	32
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 ³	1.89	1.83	1.87	1.82	1.87
Field moisture content	%	22.6	21.7	20.5	19.7	25.1

Test procedure AS 1289.5.7.1

Test No	27	28	29	30	31	32
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	6	13	12	6	5
Peak Converted Wet Density	t/m ³	1.96	1.89	1.97	1.88	1.95
Adjusted Peak Converted Wet Density	t/m ³	1.97	1.92	1.97	1.91	-
Optimum Moisture Content	%	23.5	24.5	21.0	22.5	25.0

Moisture Variation From Optimum Moisture Content	0.5% dry	2.5% dry	0.5% dry	2.5% dry	0.0%	0.0%
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Density Ratio (R _{HD})	%	96.0	95.0	95.0	95.5	96.0	97.0
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Material description

No 27 - 32 Clay Fill



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Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 17182
 Report No 17182/R008
 Date Issued 01/05/2017

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Tested by AG
 Date tested 08/04/2017
 Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
 Project KINGS LEIGH STAGE 5
 Location WERRIBEE

Feature EARTHWORKS *Layer thickness* 200 mm *Time:* 12:57

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	33	34	35	36	-	-
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 ³	1.96	1.86	1.97	1.87	-	-
Field moisture content %	20.8	22.4	23.9	22.2	-	-

Test procedure AS 1289.5.7.1

Test No	33	34	35	36	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	19.0	-	-
Percent of oversize material wet	3	8	2	13	-	-
Peak Converted Wet Density t/m ³	1.93	1.92	1.91	1.89	-	-
Adjusted Peak Converted Wet Density t/m ³	1.99	1.96	1.94	1.94	-	-
Optimum Moisture Content %	21.5	23.0	23.5	23.5	-	-

Moisture Variation From Optimum Moisture Content	0.5% dry	0.5% dry	0.5% wet	1.5% dry	-	-
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Density Ratio (R_{HD}) %	98.5	95.0	101.5	96.5	-	-
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Material description

No 33 - 36 Clay Fill



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Approved Signatory : Justin Fry