



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

16<sup>th</sup> July 2020

Our Reference: 20158:NB773

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING  
EMERALD PARK – STAGE 12 (TARNEIT)**

Please find attached our Report No's 20158/R001 to 20158/R007 which relate 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 July 2020.

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).

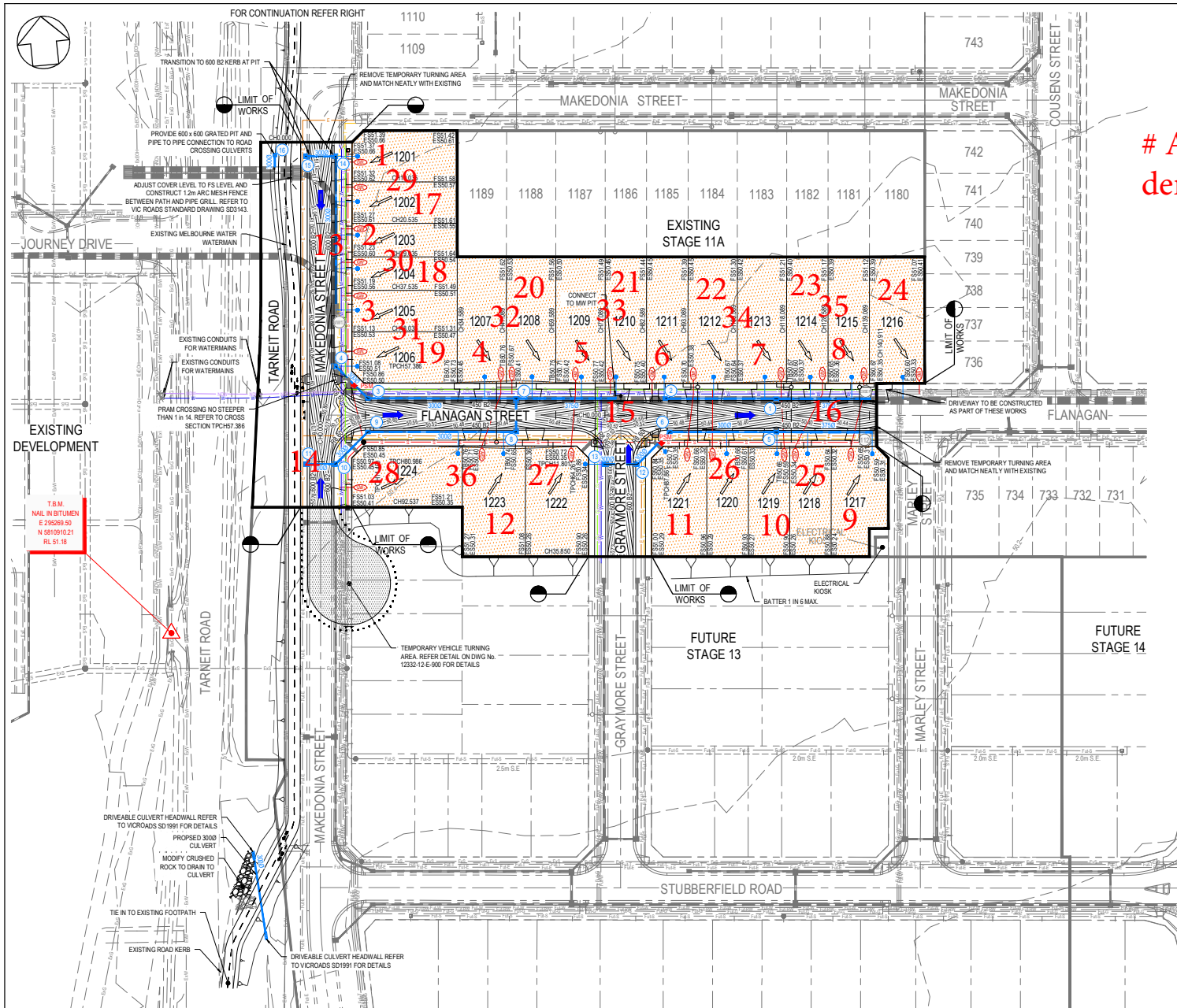
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

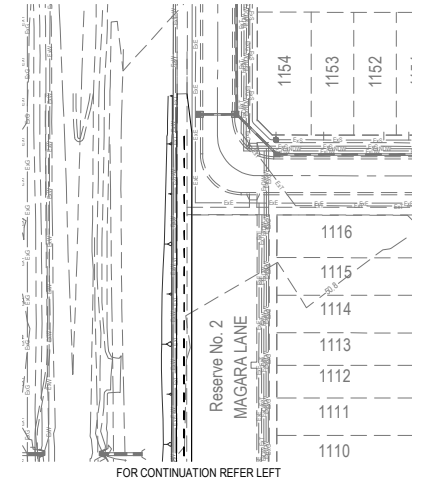
# FIGURE 1



### NOTES:

1. ALL EXISTING SERVICES UNDER NEW PAVEMENTS, PATHS AND VEHICLE CROSSINGS TO BE BACKFILLED WITH FOR.
2. ALL EXISTING PITS AND MANHOLES WITHIN NEW WORKS TO BE ADJUSTED TO NEATLY MATCH NEW FINISHED SURFACE.
3. ALL EXISTING SEWER PROPERTY BRANCHES AND HOUSE DRAINS DAMAGED BY WORKS TO BE REPLACED BY CONTRACTOR.
4. ALL EXISTING OPEN DRAINS TO BE DRAINED, DESLUDGED AND BACKFILLED TO LEVEL 1 REQUIREMENTS.

# Approximate field density test location



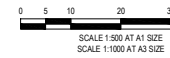
TBM SCHEDULE			
TYPE	EASTING	NORTHING	RL
IRON PIPE	29317.03	581129.77	51.65
STEEL PIPE	296122.48	5810943.336	48.47



**WARNING**  
**BEWARE OF UNDERGROUND SERVICES**  
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVED ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. A MCS ENQUIRY ON 1100 MUST BE MADE BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS.

**WARNING**  
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE SETOUT INFORMATION PROVIDED ON THIS PLAN WITH THE DESIGN INTENT WHICH INCLUDES, BUT IS NOT LIMITED TO ITEMS SUCH AS LENGTHS, CO-ORDINATES, SETOUT DIMENSIONS AND BEGGED TITLES BY THE PRINCIPAL'S LICENSED SURVEYOR.

**CONTRACTOR**



**CONSTRUCTION**  
 ISSUED FOR CONSTRUCTION

VER	DATE	ISSUED FOR CONSTRUCTION	REVISION
0	05/03/2020	ISSUED FOR CONSTRUCTION	

APPD.	REVISION
RCH	



LEGEND	
EXISTING GAS MAIN	PROPOSED GAS MAIN
EXISTING WATER MAIN	PROPOSED WATER MAIN
EXISTING ELECTRICITY CABLE	PROPOSED NEW WORKING WATER
EXISTING TELECO CABLE & PIT	PROPOSED ELECTRICITY CABLE
EXISTING SEWER MAIN & M.H.	PROPOSED TELECO CABLE
EXISTING DRAIN & PIT	PROPOSED SEWER MAIN & M.H.
EXISTING OVERHEAD CABLE	PROPOSED OVERHEAD PIPE
	PROPOSED BATTERY

**TAYLORS**  
 Urban Development | Infrastructure  
 4/270 Fernvale Quay Road, Hastings Hill, Victoria, 3168  
 Tel: 61 3 955 2000 | www.taylors.com.au

DESIGNED:	AUTHORISED:	DRAFTED:
RCH	JOY	WGO
CHECKED:	AUTH DATE:	CAD REF:
KMJ		12332-12-E-106

WYNDHAM CITY COUNCIL	
1121 DOHERTY'S ROAD, TARNET EMERALD PARK, STAGE 12	
DETAIL LAYOUT PLAN	
SCALE	1:500 @ A1
VERSION	0
SHEET	7 OF 19
DRAWING No.	
12332-12-E-106	



# COMPACTION ASSESSMENT

Job No 20158  
 Report No 20158/R001  
 Date Issued 16/07/2020

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AM
Project	EMERALD PARK - STAGE 12	Date tested	01/07/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:31
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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>	1.88	1.73	1.80	-	-
Field moisture content	%	26.2	26.7	24.8	-	-

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	0	0	-	-
Peak Converted Wet Density	t/m <sup>3</sup>	1.93	1.78	1.84	-	-
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	23.5	24.0	22.5	-	-

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

No 1 - 3 Clay Fill
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AVRLOT HILF V1.10 MAR 13



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation No 9909

Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 20158  
 Report No 20158/R002  
 Date Issued 16/07/2020

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JB
Project	EMERALD PARK - STAGE 12	Date tested	02/07/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 13:43
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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	mm	175	175	175	-	-
Field wet density	t/m <sup>3</sup>	2.05	2.06	2.07	-	-
Field moisture content	%	20.4	24.7	22.7	-	-

Test procedure AS 1289.5.7.1

Test No	4	5	6	-	-	-
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 <sup>3</sup>	2.08	2.10	2.10	-	-
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	20.5	24.5	22.5	-	-

Moisture Variation From Optimum Moisture Content	0.0%	0.0%	0.0%	-	-	-
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Density Ratio ( R <sub>HD</sub> )	%	98.5	98.5	98.5	-	-
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Material description

No 4 - 6 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 20158  
 Report No 20158/R003  
 Date Issued 16/07/2020

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BS
Project	EMERALD PARK - STAGE 12	Date tested	03/07/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 03:10
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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 <sup>3</sup>	1.94	1.98	2.03	1.96	2.02
Field moisture content	%	23.4	21.7	25.5	23.0	24.7

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	0	0	0	0	0
Peak Converted Wet Density	t/m <sup>3</sup>	1.98	2.02	2.06	2.00	2.06
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	25.5	23.5	28.0	25.0	27.0

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	2.5% dry	2.0% dry	2.5% dry	2.0% dry
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Density Ratio ( R <sub>HD</sub> )	%	98.0	98.0	98.5	98.0	98.5	98.5
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Material description

No 7 - 12 Clay Fill
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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 20158  
Report No 20158/R004  
Date Issued 16/07/2020

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BS
Project	EMERALD PARK - STAGE 12	Date tested	07/07/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	08:55
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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 <sup>3</sup>	1.97	1.97	1.98	2.00	1.98
Field moisture content	%	24.5	23.6	22.7	24.0	23.7

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
Percent of oversize material	wet	0	0	0	0	0
Peak Converted Wet Density	t/m <sup>3</sup>	2.00	2.01	2.02	2.03	2.01
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	26.5	25.5	24.5	26.0	25.5

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	2.0% dry	2.0% dry	2.0% dry	2.5% dry
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Density Ratio ( R <sub>HD</sub> )	%	98.5	98.0	98.0	98.5	98.5	98.0
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Material description

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



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# COMPACTION ASSESSMENT

Job No 20158  
 Report No 20158/R005  
 Date Issued 16/07/2020

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	BS
Project	EMERALD PARK - STAGE 12	Date tested	08/07/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 08:59
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	19	20	21	22	23	24
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>	1.91	2.06	1.99	1.98	2.03
Field moisture content	%	23.8	23.2	22.5	22.7	25.5

Test procedure AS 1289.5.7.1

Test No	19	20	21	22	23	24
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>	2.02	2.09	2.09	2.07	2.12
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	21.5	25.5	25.0	25.0	28.0

Moisture Variation From Optimum Moisture Content	2.5% wet	2.0% dry	2.0% dry	2.0% dry	2.0% dry	2.0% dry
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Density Ratio ( R <sub>HD</sub> )	%	95.0	98.5	95.5	96.0	96.0	98.5
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Material description

No 19 - 24 Clay Fill

AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 20158  
 Report No 20158/R006  
 Date Issued 16/07/2020

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AM
Project	EMERALD PARK - STAGE 12	Date tested	09/07/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:11
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	25	26	27	28	29	30
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>	1.91	2.01	1.99	1.97	1.93
Field moisture content	%	24.9	24.9	25.1	24.3	25.6

Test procedure AS 1289.5.7.1

Test No	25	26	27	28	29	30
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>	1.96	2.07	2.04	2.02	2.03
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	27.5	27.0	27.0	27.0	30.0

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.0% dry	2.5% dry	2.5% dry	2.0% dry
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Density Ratio ( R <sub>HD</sub> )	%	97.0	97.5	97.5	97.5	97.0	98.0
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Material description

No 25 - 30 Clay Fill
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AVRLOT HILF V1.10 MAR 13



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Approved Signatory : Justin Fry





# COMPACTION ASSESSMENT

Job No 20158  
 Report No 20158/R007  
 Date Issued 16/07/2020

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AM
Project	EMERALD PARK - STAGE 12	Date tested	10/07/20
Location	TARNEIT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 15:16
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	31	32	33	34	35	36
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>	2.05	2.02	2.06	1.99	2.00
Field moisture content	%	22.3	21.6	21.8	22.0	24.9

Test procedure AS 1289.5.7.1

Test No	31	32	33	34	35	36
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>	2.09	2.07	2.07	2.04	2.07
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-
Optimum Moisture Content	%	24.5	24.0	19.5	24.5	22.0

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	2.5% wet	2.0% dry	2.5% wet	2.5% wet
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Density Ratio ( R <sub>HD</sub> )	%	98.0	97.5	99.5	98.0	97.5	97.5
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Material description

No 31 - 36 Clay Fill

AVRLOT HILF V1.10 MAR 13



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