



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

16th September 2022

Our Reference: 21698:NB1351

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
RATHDOWNE – STAGE 11 (WOLLERT)

Please find attached our Report No's 21698/R001 to 21698/R005 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 April 2022 and was completed in May 2022.

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).

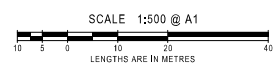
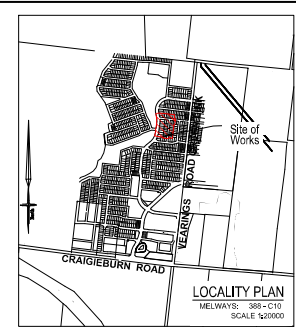
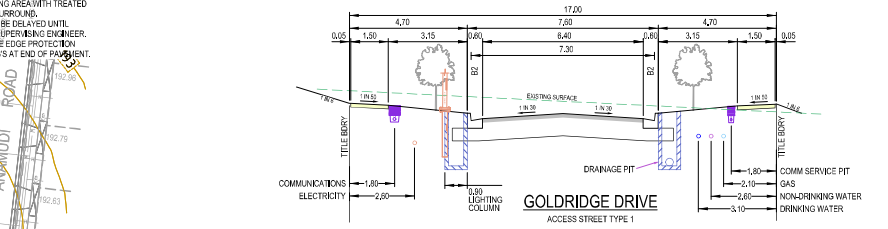
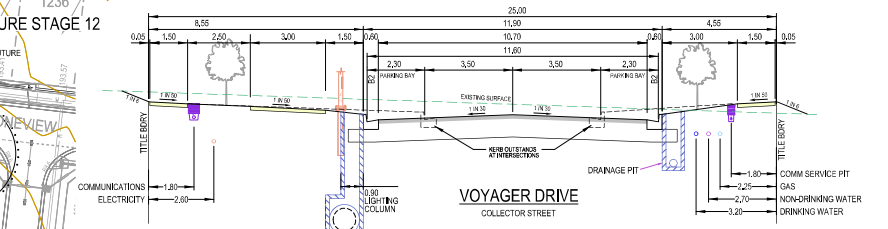
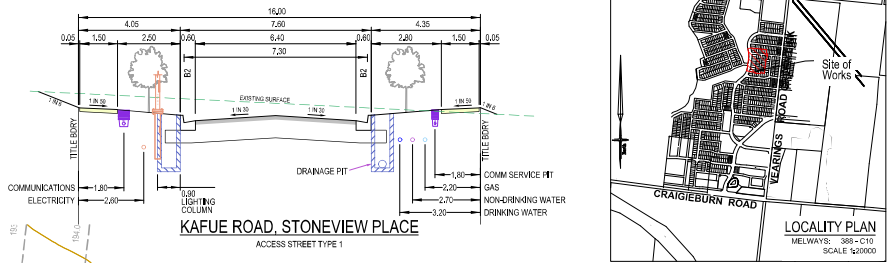
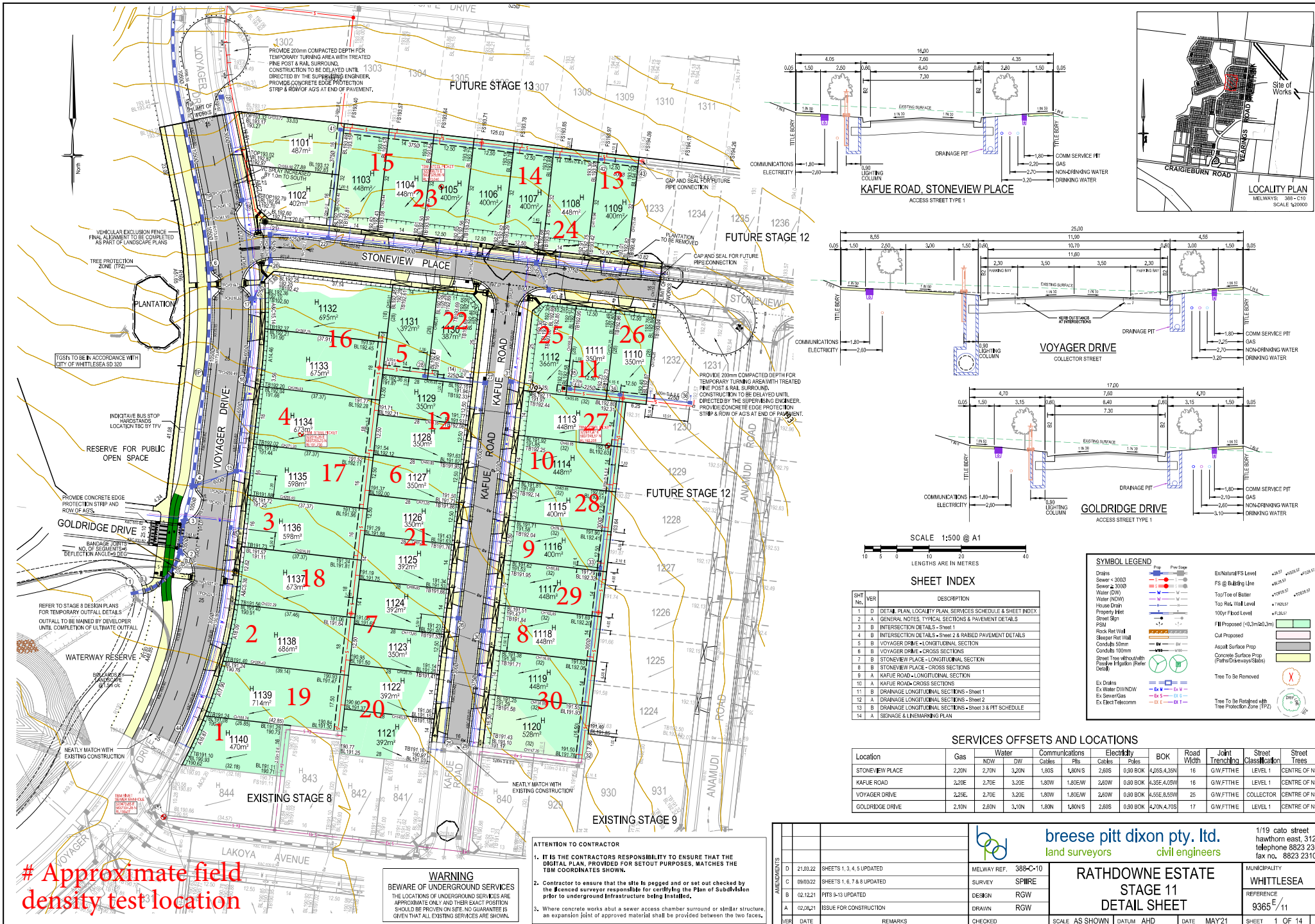
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

FIGURE 1



SHEET INDEX

SHT NO.	VER.	DESCRIPTION
1	D	DETAIL PLAN, LOCALITY PLAN, SERVICES SCHEDULE & SHEET INDEX
2	A	GENERAL NOTES, TYPICAL SECTIONS & PAVEMENT DETAILS
3	B	INTERSECTION DETAILS - Sheet 1
4	B	INTERSECTION DETAILS - Sheet 2 & RAISED PAVEMENT DETAILS
5	B	VOYAGER DRIVE - LONGITUDINAL SECTION
6	B	VOYAGER DRIVE - CROSS SECTIONS
7	B	STONEVIEW PLACE - LONGITUDINAL SECTION
8	B	STONEVIEW PLACE - CROSS SECTIONS
9	A	KAFUE ROAD - LONGITUDINAL SECTION
10	A	KAFUE ROAD - CROSS SECTIONS
11	B	DRAINAGE LONGITUDINAL SECTIONS - Sheet 1
12	A	DRAINAGE LONGITUDINAL SECTIONS - Sheet 2
13	B	DRAINAGE LONGITUDINAL SECTIONS - Sheet 3 & PIT SCHEDULE
14	A	SIGNAGE & LINEMARKING PLAN

SYMBOL LEGEND

Drains	Proposed	Ex/Natural FSL Level	+0.50
Sewer < 300d	Proposed	Fs @ Bldg. Inlet	+0.50
Sewer > 300d	Proposed	Top/Toe of Batter	+0.50
Water (DW)	Proposed	Top/Ret. Wall Level	+0.50
Water (NDW)	Proposed	100yr Flood Level	+0.50
House Drain	Proposed	Fill Proposed (<0.3m to 0.3m)	+0.50
Property Jet	Proposed	Cut Proposed	+0.50
Street Sign	Proposed	Asphalt Surface Prop	+0.50
Rock Ret Wall	Proposed	Concrete Surface Prop (Paved/Driveway/Steps)	+0.50
PSM	Proposed	Tree To Be Removed	+0.50
Conduits 50mm	Proposed	Tree To Be Retained with Tree Protection Zone (TPZ)	+0.50
Conduits 100mm	Proposed		
Street Tree without health	Proposed		
Ex Drains	Proposed		
Ex Water W/D/W/D	Proposed		
Ex Sewer/Gas	Proposed		
Ex Elect/Telecom	Proposed		

SERVICES OFFSETS AND LOCATIONS

Location	Gas		Water		Communications		Electricity		BOK	Road Width	Joint Trenching	Street Classification	Street Trees
	NDW	DW	NDW	DW	Cables	Pipes	Cables	Pipes					
STONEVIEW PLACE	2,20N	2,70N	3,20N	1,80S	1,80N	2,60S	0,90 BOK	4,05S, 4,50N	16	G/W FT/HE	LEVEL 1	CENTRE OF NS	
KAFUE ROAD	2,20E	2,70E	3,20E	1,80W	1,80E	2,60W	0,90 BOK	4,50E, 4,05W	16	G/W FT/HE	LEVEL 1	CENTRE OF NS	
VOYAGER DRIVE	2,25E	2,70E	3,20E	1,80W	1,80E	2,60W	0,90 BOK	4,50E, 4,05W	25	G/W FT/HE	COLLECTOR	CENTRE OF NS	
GOLDGRIDGE DRIVE	2,10N	2,60N	3,10N	1,80N	1,80N	2,60S	0,90 BOK	4,70N, 4,70S	17	G/W FT/HE	LEVEL 1	CENTRE OF NS	

Approximate field density test location

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

ATTENTION TO CONTRACTOR

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE DIGITAL PLAN, PROVIDED FOR SETOUT PURPOSES, MATCHES THE TBM COORDINATES SHOWN.
- Contractor to ensure that the site is pegged and or set out checked by the licensed surveyor responsible for certifying the Plan of Subdivision prior to underground infrastructure being installed.
- Where concrete works about a sewer access chamber surround or similar structure, an expansion joint of approved material shall be provided between the two faces.

<p>DATE SHEETS</p> <p>02/10/22 SHEETS 1, 3, 4, 5 UPDATED</p> <p>09/03/22 SHEETS 1, 6, 7 & 8 UPDATED</p> <p>02/11/21 PITS 9-13 UPDATED</p> <p>02/20/21 ISSUE FOR CONSTRUCTION</p>	<p>REMARKS</p>	<p>MELWAY REF. 388-C-10</p>	<p>breese pitt dixon pty. ltd. land surveyors civil engineers</p>	<p>1/19 cato street hawthorn east, 3123 telephone 8823 2300 fax no. 8823 2310</p>		
		<p>SURVEY SPIRE</p>			<p>RATHDOWNE ESTATE STAGE 11 DETAIL SHEET</p>	<p>MUNICIPALITY WHITTLESEA</p>
		<p>DESIGN RGW</p>			<p>REFERENCE 9365 E/11</p>	<p>SHEET 1 OF 14</p>
		<p>DRAWN RGW</p>			<p>CHECKED</p>	<p>SCALE AS SHOWN DATUM AHD DATE MAY'21</p>



COMPACTION ASSESSMENT

Job No 21698
 Report No 21698/R001
 Date Issued 10/05/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	RATHDOWNNE - STAGE 11	Date tested	07/04/22
Location	WOLLERT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 07:34
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	1	2	3	4	5	6
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	1.93	1.88	1.91	1.94	1.91
Field moisture content	%	22.7	19.6	22.6	26.7	19.2

Test procedure AS 1289.5.7.1

Test No	1	2	3	4	5	6
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	1.97	1.92	1.93	2.01	1.97
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	25.0	22.0	24.5	29.5	21.0

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.0% dry	2.5% dry	2.0% dry	2.5% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	98.0	98.0	99.0	96.5	97.0	97.5
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Material description

No 1 - 6 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 21698
 Report No 21698/R002
 Date Issued 23/05/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	RATHDOWNE - STAGE 11	Date tested	11/04/22
Location	WOLLERT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:03
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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	1.86	1.87	1.93	1.91	1.95
Field moisture content	%	19.0	23.8	20.7	22.5	19.8

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 ³	1.91	1.92	1.98	2.01	1.98
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	21.5	26.0	23.0	22.5	25.0

Moisture Variation From Optimum Moisture Content	2.5% dry	2.0% dry	2.5% dry	0.0%	2.0% dry	0.0%
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	97.5	97.5	97.5	95.5	96.5	97.5
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Material description

No 7 - 12 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 21698
 Report No 21698/R003
 Date Issued 23/05/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	RATHDOWNE - STAGE 11	Date tested	27/04/22
Location	WOLLERT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 07:32
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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	175
Field wet density t/m ³	1.91	1.91	1.92	1.91	1.94	1.90
Field moisture content %	25.3	27.4	30.8	25.0	31.3	28.7

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	19.0
Percent of oversize material wet	0	0	0	0	0	0
Peak Converted Wet Density t/m ³	1.93	1.97	2.00	2.00	1.99	1.99
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	27.5	27.0	33.5	27.5	34.0	31.5

Moisture Variation From Optimum Moisture Content	2.0% dry	0.5% wet	2.5% dry	2.5% dry	2.0% dry	2.5% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R_{HD})	%	99.0	96.5	96.0	95.5	97.5	95.5
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Material description

No 13 - 18 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 21698
 Report No 21698/R004
 Date Issued 07/06/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	RATHDOWNE - STAGE 11	Date tested	03/05/22
Location	WOLLERT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 10:29
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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	175
Field wet density t/m ³	1.91	1.88	1.90	1.93	1.91	1.89
Field moisture content %	24.6	22.3	23.7	26.2	24.5	23.3

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	19.0
Percent of oversize material wet	0	0	0	0	0	0
Peak Converted Wet Density t/m ³	1.95	1.94	1.95	2.01	1.95	1.97
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	24.5	25.0	26.5	28.5	26.0	23.0

Moisture Variation From Optimum Moisture Content	0.0%	2.5% dry	2.5% dry	2.0% dry	1.5% dry	0.5% wet
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	98.0	97.5	97.5	96.5	98.0	96.0
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Material description

No 19 - 24 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 21698
 Report No 21698/R005
 Date Issued 11/05/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	RATHDOWNE - STAGE 11	Date tested	09/05/22
Location	WOLLERT	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 13:17
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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	175
Field wet density t/m ³	1.92	1.91	1.88	1.91	1.90	1.90
Field moisture content %	18.2	17.2	20.4	18.0	17.9	18.9

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	19.0
Percent of oversize material wet	0	0	0	0	0	0
Peak Converted Wet Density t/m ³	1.97	1.99	1.91	1.96	1.93	1.91
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	20.5	19.0	23.0	20.5	20.5	20.5

Moisture Variation From Optimum Moisture Content	2.5% dry	1.5% dry	2.5% dry	2.5% dry	2.5% dry	1.5% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	97.5	96.5	98.5	97.5	98.5	99.5
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Material description

No 25 - 30 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry