



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

14th September 2018

Our Reference: 18159:NB178

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
GRACE – STAGE 3 (TARNEIT)

Please find attached our Report No's 18159/R001 to 18159/R010 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 was performed in February – July 2018.

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 (1 of 2)

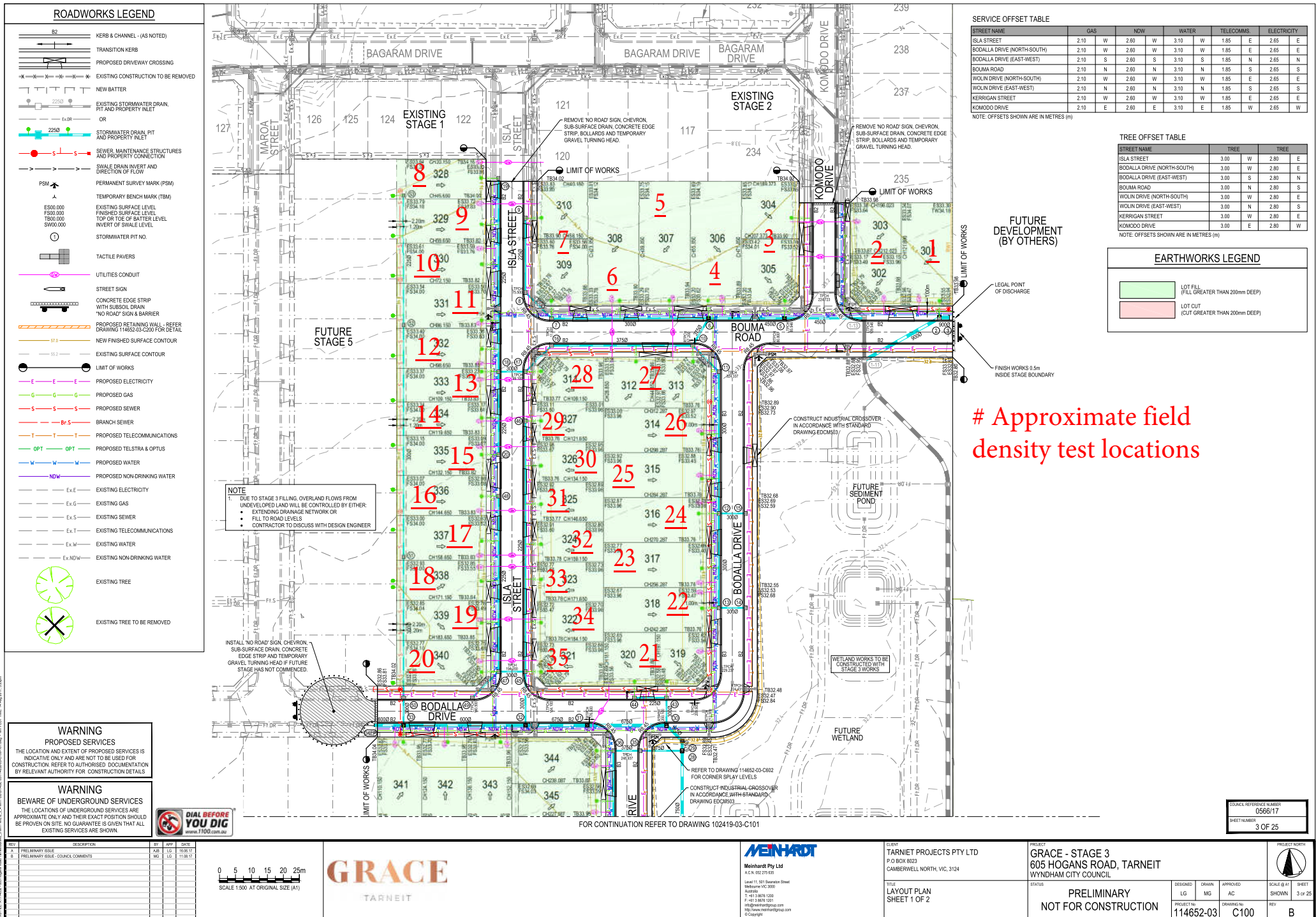
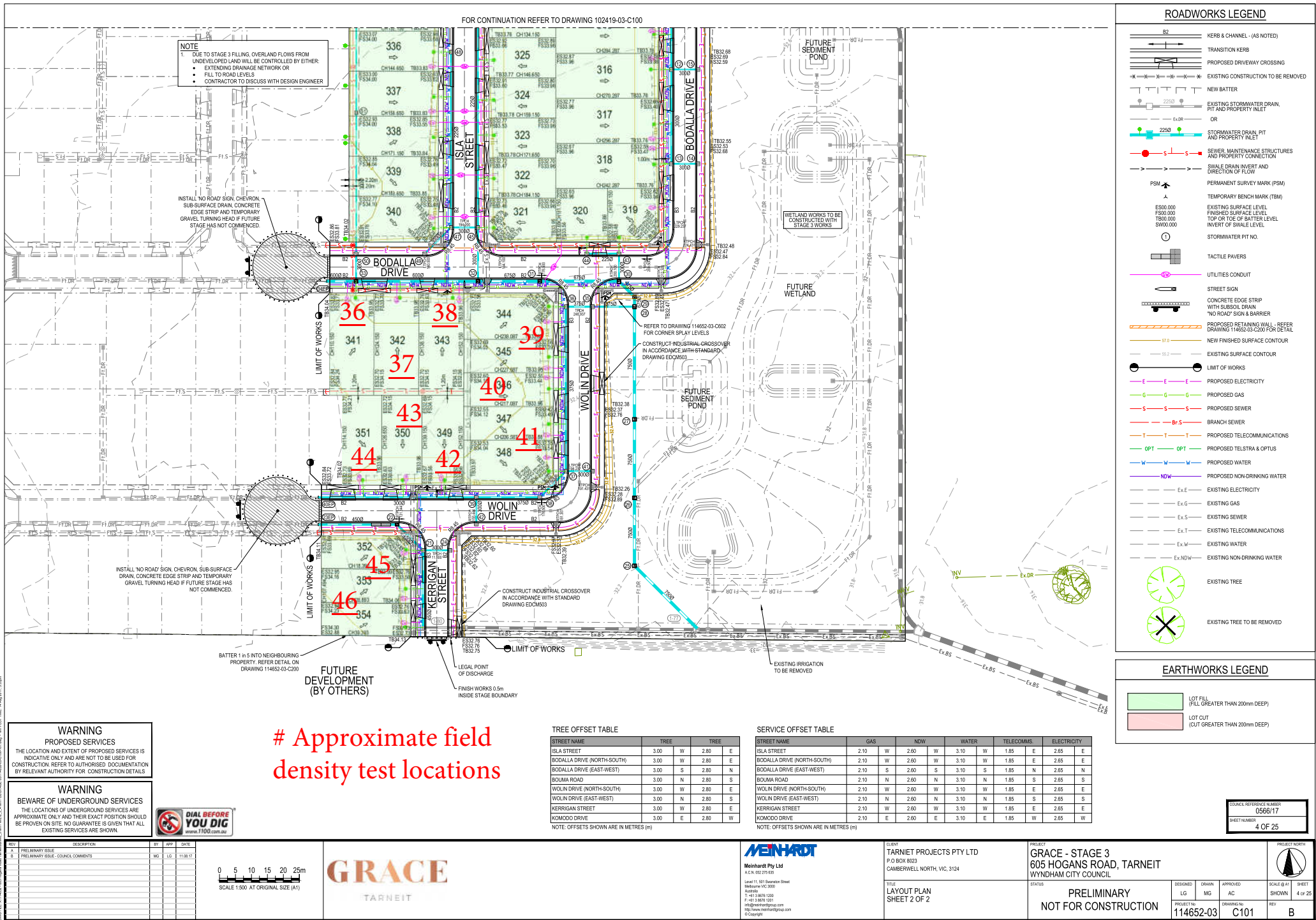


FIGURE 1 (2 of 2)





COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R001
Date Issued 11/04/2018

Tested by JB
Date tested 19/02/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 10:00

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	175
Field wet density t/m ³	1.86	1.91	1.82	1.90	1.87	1.95
Field moisture content %	21.2	25.2	30.4	23.8	23.8	24.4

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	19.0
Percent of oversize material wet	0	0	0	0	0	0
Peak Converted Wet Density t/m ³	1.82	1.92	1.87	1.90	1.96	1.96
Adjusted Peak Converted Wet Density t/m ³	1.87	-	-	-	-	-
Optimum Moisture Content %	24.0	26.0	30.5	24.5	24.0	24.0

Moisture Variation From Optimum Moisture Content	2.5% dry	0.5% dry	0.0%	1.0% dry	0.0%	0.0%
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Density Ratio (R_{HD})	%	99.0	99.5	97.5	100.5	95.5	99.5
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Material description

No 1 - 6 Clay Fill



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Justin Fry

Approved Signatory : Justin Fry

AVRLOT HILF V1.10 MAR 13



COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R002
Date Issued 10/04/2018

Tested by JB
Date tested 20/02/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 09:30

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	175
Field wet density t/m ³	1.88	2.00	2.06	1.97	1.99	1.98
Field moisture content %	24.8	22.7	20.7	20.1	21.2	21.1

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	19.0
Percent of oversize material wet	4	3	15	11	6	7
Peak Converted Wet Density t/m ³	1.95	2.03	2.04	2.03	1.98	2.00
Adjusted Peak Converted Wet Density t/m ³	1.96	2.04	2.09	2.06	2.00	2.02
Optimum Moisture Content %	24.0	22.5	20.5	21.0	22.5	22.0

Moisture Variation From Optimum Moisture Content	1.0% wet	0.5% wet	0.0%	0.5% dry	1.0% dry	0.5% dry
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Density Ratio (R_{HD})	%	96.0	98.5	99.0	95.5	99.5	98.0
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Material description

No 7 - 12 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R003
Date Issued 17/04/2018

Tested by JB
Date tested 21/02/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 08:31

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	13	14	15	16	-	-
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	2.01	1.92	1.91	1.94	-	-
Field moisture content %	16.0	24.7	16.1	18.4	-	-

Test procedure AS 1289.5.7.1

Test No	13	14	15	16	-	-
Compactive effort	Standard					
Oversize rock retained on sieve mm	19.0	19.0	19.0	19.0	-	-
Percent of oversize material wet	8	0	6	0	-	-
Peak Converted Wet Density t/m ³	2.02	2.02	1.91	1.99	-	-
Adjusted Peak Converted Wet Density t/m ³	2.04	-	1.93	-	-	-
Optimum Moisture Content %	18.5	20.5	18.0	19.5	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% wet	2.0% dry	1.5% dry	-	-
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Density Ratio (R_{HD})	%	98.5	95.0	99.0	97.5	-	-
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Material description

No 13 - 16 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R004
Date Issued 13/04/2018

Tested by JB
Date tested 22/02/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 13:01

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	17	18	19	20	21	22
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	1.84	1.80	1.97	1.85	1.81	1.80
Field moisture content %	21.0	21.3	19.6	24.1	25.1	21.2

Test procedure AS 1289.5.7.1

Test No	17	18	19	20	21	22
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	1.92	1.84	1.98	1.85	1.83	1.87
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	23.0	24.5	19.5	26.5	27.5	22.0

Moisture Variation From Optimum Moisture Content	2.0% dry	3.0% dry	0.0%	2.5% dry	2.5% dry	1.0% dry
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Density Ratio (R_{HD})	%	95.5	98.0	99.5	100.0	99.0	96.5
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Material description

No 17 - 22 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R005
Date Issued 10/04/2018

Tested by JB
Date tested 23/02/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 10:35

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	23	24	25	-	-	-
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	1.80	1.76	1.76	-	-	-
Field moisture content %	29.6	36.6	36.3	-	-	-

Test procedure AS 1289.5.7.1

Test No	23	24	25	-	-	-
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	1.83	1.76	1.81	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	31.0	36.5	38.0	-	-	-

Moisture Variation From Optimum Moisture Content	1.5% dry	0.0%	1.5% dry	-	-	-
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Density Ratio (R_{HD})	%	98.5	100.0	97.5	-	-	-
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Material description

No 23 - 25 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R006
Date Issued 06/04/2018

Tested by JB
Date tested 28/03/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 13:07

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	26	27	28	-	-	-
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	1.78	1.78	1.80	-	-	-
Field moisture content %	21.7	23.1	22.2	-	-	-

Test procedure AS 1289.5.7.1

Test No	26	27	28	-	-	-
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	1.84	1.87	1.83	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	24.5	25.5	25.0	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	96.5	95.5	98.5	-	-	-
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Material description

No 26 - 28 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R007
Date Issued 10/04/2018

Tested by JB
Date tested 29/03/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 10:32

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	29	30	31	-	-	-
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	1.85	1.87	1.88	-	-	-
Field moisture content %	23.6	27.1	20.5	-	-	-

Test procedure AS 1289.5.7.1

Test No	29	30	31	-	-	-
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	1.92	1.87	1.95	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	26.5	28.5	23.5	-	-	-

Moisture Variation From Optimum Moisture Content	2.5% dry	1.5% dry	2.5% dry	-	-	-
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Density Ratio (R_{HD})	%	96.5	100.5	96.5	-	-	-
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Material description

No 29 - 31 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R008
Date Issued 06/04/2018

Tested by JB
Date tested 03/04/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 12:05

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	32	33	34	-	-	-
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	1.88	1.88	1.88	-	-	-
Field moisture content %	24.7	26.5	25.0	-	-	-

Test procedure AS 1289.5.7.1

Test No	32	33	34	-	-	-
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	1.97	1.97	1.96	-	-	-
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	24.5	25.0	23.0	-	-	-

Moisture Variation From Optimum Moisture Content	0.5% wet	1.5% wet	2.0% wet	-	-	-
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Density Ratio (R_{HD})	%	95.5	95.5	96.0	-	-	-
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Material description

No 32 - 34 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R009
Date Issued 14/09/2018

Tested by JB
Date tested 17/07/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 11:30

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	35	36	37	38	39	40
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	1.94	1.96	1.92	1.88	1.92	1.87
Field moisture content %	22.4	20.6	21.5	21.1	22.9	21.4

Test procedure AS 1289.5.7.1

Test No	35	36	37	38	39	40
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	1.98	1.97	1.96	1.92	1.94	1.90
Adjusted Peak Converted Wet Density t/m ³	-	-	-	-	-	-
Optimum Moisture Content %	24.0	23.0	23.5	23.0	24.5	23.5

Moisture Variation From Optimum Moisture Content	1.5% dry	2.0% dry	1.5% dry	2.0% dry	1.5% dry	2.0% dry
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Density Ratio (R_{HD})	%	98.0	99.0	98.0	98.0	98.5	98.5
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Material description

No 35 - 40 Clay Fill



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COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)
Project GRACE - STAGE 3
Location TARNEIT

Job No 18159
Report No 18159/R010
Date Issued 14/09/2018

Tested by JB
Date tested 18/07/18
Checked by JHF

Feature EARTHWORKS Layer thickness 200 mm Time: 09:24

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	41	42	43	44	45	46
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	1.96	1.99	1.99	1.96	1.96	1.95
Field moisture content %	20.4	24.6	23.6	22.5	23.4	23.0

Test procedure AS 1289.5.7.1

Test No	41	42	43	44	45	46
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	1	0	0	0
Peak Converted Wet Density t/m ³	1.95	1.98	1.97	1.95	1.95	1.95
Adjusted Peak Converted Wet Density t/m ³	1.95	-	1.97	1.96	-	1.95
Optimum Moisture Content %	22.5	24.0	24.0	23.5	24.0	24.0

Moisture Variation From Optimum Moisture Content	2.0% dry	0.5% wet	0.5% dry	1.0% dry	0.5% dry	0.5% dry
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Density Ratio (R_{HD})	%	100.5	100.5	101.0	100.5	100.5	100.0
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Material description

No 41 - 46 Clay Fill



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