



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

12<sup>th</sup> December 2017

Our Reference: 17552:NB088

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING  
BRIDGEFIELD – STAGES 1 - 4 EARLY EARTHWORKS (ROCKBANK)**

Please find attached our Report No's 17552/R001 to 17552/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 mid-October 2017 and was completed in December 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

A handwritten signature in blue ink, appearing to be 'Nick Brock', is written over a light blue circular stamp.

Nick Brock

# FIGURE 1

## NOTES:

- THE WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT COUNCIL STANDARD DRAWINGS AND SPECIFICATIONS. WORKS TO BE CARRIED OUT TO THE SATISFACTION OF THE WORKS SUPERINTENDENT.
- THE CONTRACTOR IS RESPONSIBLE FOR SAFETY OF WORK ON SITE IN ACCORDANCE WITH APPROPRIATE LEGISLATION. HE/SHE SHALL ERRECT AND MAINTAIN ALL SHORING, PLANKING AND STRUTTING, DEWATERING DEVICES, BARRICADES, SIGNS, LIGHTS, ETC. NECESSARY TO KEEP WORKS IN A SAFE AND STABLE CONDITION, AND TO PROTECT THE PUBLIC FROM HAZARDS ASSOCIATED WITH THE WORKS.
- THE CONTRACTOR SHALL:
  - COMPLY WITH THE SAFETY REQUIREMENTS OF THE MINES ACT, GENERAL REGULATIONS AND STATUTORY RULES, AND THE MINES (TRENCHES) REGULATIONS 1982.
  - NOTIFY THE OCCUPATIONAL HEALTH AND SAFETY AUTHORITY OF HIS INTENTION TO COMMENCE TRENCHING OPERATIONS WHERE TRENCHES ARE 15 METERS OR DEEPER.
  - ENSURE THAT THE MINE MANAGER OR HIS DEPUTY AS REQUIRED BY THE REGULATIONS IS IN ATTENDANCE WHEN TRENCHING OPERATIONS ARE IN PROGRESS.
  - OBTAIN A ROAD OPENING PERMIT FOR ANY WORKS WITHIN EXISTING ROAD RESERVES OR ANY WORKS ON EXISTING INFRASTRUCTURE.
- THE CONTRACTOR SHALL NOTIFY COUNCIL'S SURVEILLANCE CO-ORDINATOR AND ALL SERVICE AUTHORITIES SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- THE LOCATION OF EXISTING SERVICES SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO COMMENCING ANY EXCAVATION BY CONTACTING ALL RELEVANT SERVICE AUTHORITIES. ANY EXISTING SERVICES SHOWN ON THE DRAWINGS ARE OFFERED AS A GUIDE ONLY AND ARE NOT GUARANTEED AS CORRECT.
- ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM.
- TREES AND SHRUBS SHALL BE RETAINED, UNLESS REMOVAL IS DIRECTED BY SUPERINTENDENT.
- REFER TO LEAKES ROAD DRY STONE WALLS (H0204), ROCKBANK, CONSERVATION MANAGEMENT PLAN PREPARED BY ECOLOGY & HERITAGE PARTNERS, FOR EXISTING STONE WALLS TREATMENT.
- THE CONTRACTOR IS TO ENSURE THAT THEIR CONSTRUCTION PROCEDURES AND STANDARDS CONTROL THE VOLUME AND LOCATION FOR COLLECTION OF SEDIMENT RUNOFF ACCORDING TO CONSTRUCTION SITES.
- UPON COMPLETION OF CONSTRUCTION THE WHOLE SITE SHALL BE CLEANED UP, GRADED AND ALL RUBBISH REMOVED. THE SITE IS TO BE LEFT IN A CLEAN AND TIDY CONDITION TO THE SATISFACTION OF THE SUPERINTENDENT.

EXISTING DAM TO BE PUMPED OUT AND STRIPPED TO A FIRM BASE & FILLED:  
 • IN LOTS WITH SITE MATERIAL COMPACTED TO 95% S.C.T.D.  
 • IN ROAD RESERVE FILLED WITH NDOR OR APPROVED SELECTED IMPORTED MATERIAL COMPACTED TO MIN. 98% S.C.T.D.  
 ALL FILL TESTING AND COMPACTION TO BE UNDERTAKEN UNDER LEVEL 1 CONTROL & SUPERVISION

## LEGEND

- 106.0 — DESIGN CONTOURS
- — EXISTING FEATURES
- ⊗ EXISTING TREES AND SHRUBS

# 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.

**CONSTRUCTION PLAN**

THIS DRAWING IS NOT TO BE COPIED OR SCALED

VERSION	REMARKS	DATE	BY
B	CONSTRUCTION ISSUE.	28.08.17	LP
A	ISSUED TO COUNCIL FOR APPROVAL	21.07.17	LP

DRAWN BY	N. KASHA	DESIGNED BY	L. PHAN
MELWAY	34.4.H110	CHECKED BY	
DATUM	AHD	AUTHORISED BY	S. RAVIDA

**REEDS CONSULTING**  
 LAND SURVEYING  
 CIVIL ENGINEERING  
 PLANNING  
 DEVELOPMENT CONSULTING

www.reedsconsulting.com.au  
 engineering@reedsconsulting.com.au

Lvl 6, 440 Elizabeth Street Melbourne Victoria 3000  
 p (03) 8660 3000

CITY OF MELTON  
 BRIDGEFIELD ESTATE, ROCKBANK  
 STAGES 1 - 4  
 BULK EARTHWORKS  
 EXISTING FEATURES

DRAWING No.	102	VERSION	B
REFERENCE	22236E/1		
SHEET	2 OF 2		



# COMPACTION ASSESSMENT

Job No 17552  
 Report No 17552/R001  
 Date Issued 20/10/2017

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	WS
Project	BRIDGEFIELD ESTATE - STAGES 1 - 4 EARLY EARTHWORKS	Date tested	12/10/17
Location	ROCKBANK	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	300 mm	Time:	08:00
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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					
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m <sup>3</sup>	1.80	1.83	1.86	1.83	1.85
Field moisture content	%	28.7	27.9	28.9	27.4	23.7

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	10	0
Peak Converted Wet Density	t/m <sup>3</sup>	1.83	1.82	1.84	1.86	1.84
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	1.90
Optimum Moisture Content	%	28.0	30.0	31.0	30.0	22.5

Moisture Variation From Optimum Moisture Content	1.0% wet	2.0% dry	2.0% dry	2.5% dry	1.5% dry	2.0% dry
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Density Ratio ( R <sub>HD</sub> )	%	98.0	101.0	101.0	99.0	97.0	98.5
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Material description

No 1 - 6 Clay Fill
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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 17552  
 Report No 17552/R002  
 Date Issued 20/10/2017

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	WS
Project	BRIDGEFIELD ESTATE - STAGES 1 - 4 EARLY EARTHWORKS	Date tested	13/10/17
Location	ROCKBANK	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	300 mm	Time: 11:45
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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					
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m <sup>3</sup>	1.75	1.76	1.74	1.70	1.78	1.75
Field moisture content	%	29.1	30.1	28.8	25.9	27.6	30.0

### 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	0	0	0	0	0	0
Peak Converted Wet Density	t/m <sup>3</sup>	1.81	1.82	1.83	1.78	1.84	1.83
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-	-	-	-
Optimum Moisture Content	%	31.5	32.0	31.0	28.0	30.5	32.0

Moisture Variation From Optimum Moisture Content	2.5% dry	1.5% dry	2.0% dry	2.0% dry	2.5% dry	2.0% dry
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Density Ratio ( R <sub>HD</sub> )	%	96.5	96.5	95.0	95.5	97.0	96.0
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### Material description

No 7 - 12 Clay Fill
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Approved Signatory : Justin Fry



# COMPACTION ASSESSMENT

Job No 17552  
 Report No 17552/R003  
 Date Issued 04/12/2017

## CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	WS
Project	BRIDGEFIELD ESTATE - STAGES 1 - 4 EARLY EARTHWORKS	Date tested	18/10/17
Location	ROCKBANK	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	11:30
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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					
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m <sup>3</sup>	1.83	1.80	1.86	1.80	1.83
Field moisture content	%	29.7	29.6	31.2	33.5	33.1

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	2	0	0
Peak Converted Wet Density	t/m <sup>3</sup>	1.81	1.77	1.81	1.78	1.82
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	1.84	-	-
Optimum Moisture Content	%	32.0	32.0	33.5	35.5	33.5

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	2.0% dry	2.0% dry	0.5% dry	2.0% dry
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Density Ratio ( R <sub>HD</sub> )	%	101.0	101.5	101.0	101.0	101.0	100.5
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Material description

No 13 - 18 Clay Fill
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Approved Signatory : Justin Fry



## COMPACTION ASSESSMENT

Job No 17552  
 Report No 17552/R004  
 Date Issued 05/12/2017

**CIVIL GEOTECHNICAL SERVICES**

6 - 8 Rose Avenue, Croydon 3136

Tested by WS  
 Date tested 30/11/2017  
 Checked by JHF

Client WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)  
 Project BRIDGEFIELD ESTATE - STAGES 1 - 4 EARLY EARTHWORKS  
 Location ROCKBANK

**Feature** EARTHWORKS                      *Layer thickness* 300 mm                      *Time:* 08:00

*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 <sup>3</sup>	1.81	1.83	1.78			
Field moisture content	%	23.7	27.9	27.6			

*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	0	0	0			
Peak Converted Wet Density	t/m <sup>3</sup>	1.84	1.82	1.84			
Adjusted Peak Converted Wet Density	t/m <sup>3</sup>	-	-	-			
Optimum Moisture Content	%	26.0	30.0	30.5			

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	2.5% dry			
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<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>%</b>	<b>98.5</b>	<b>101.0</b>	<b>97.0</b>			
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*Material description*

No 19 - 21 Clay Fill



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Approved Signatory : Justin Fry



## COMPACTION ASSESSMENT

Job No 17552  
 Report No 17552/R005  
 Date Issued 12/12/2017

**CIVIL GEOTECHNICAL SERVICES**

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	WS
Project	BRIDGEFIELD ESTATE - STAGES 1 - 4 EARLY EARTHWORKS	Date tested	11/12/2017
Location	ROCKBANK	Checked by	JHF

<b>Feature</b>	EARTHWORKS	Layer thickness	300 mm	Time: 08:32:27
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	22	23			
Location	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL					
Measurement depth <i>mm</i>	175	175			
Field wet density <i>t/m<sup>3</sup></i>	1.76	1.77			
Field moisture content <i>%</i>	29.1	30.1			

Test procedure AS 1289.5.7.1

Test No	22	23			
Compactive effort	Standard				
Oversize rock retained on sieve <i>mm</i>	19.0	19.0			
Percent of oversize material <i>wet</i>	0	0			
Peak Converted Wet Density <i>t/m<sup>3</sup></i>	1.81	1.82			
Adjusted Peak Converted Wet Density <i>t/m<sup>3</sup></i>	-	-			
Optimum Moisture Content <i>%</i>	31.5	32.0			

Moisture Variation From Optimum Moisture Content	2.5% dry	1.5% dry			
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Density Ratio ( $R_{HD}$ )	97.0	97.0			
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Material description

No 22 - 23 Clay Fill
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