



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

25<sup>th</sup> August 2014

Our Reference: 13037:JHF817

Winslow Constructors Pty Ltd  
50 Barry Road  
CAMPBELLFIELD VIC 3061

Dear Sirs,

**RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING  
ESTUARY ESTATE (STAGE 9) – LEOPOLD**

Please find attached our Report Nos 13037/R001 to 13037/R002 that 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 early February 2013.

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 inspections and testing was performed by an experienced geotechnician 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.

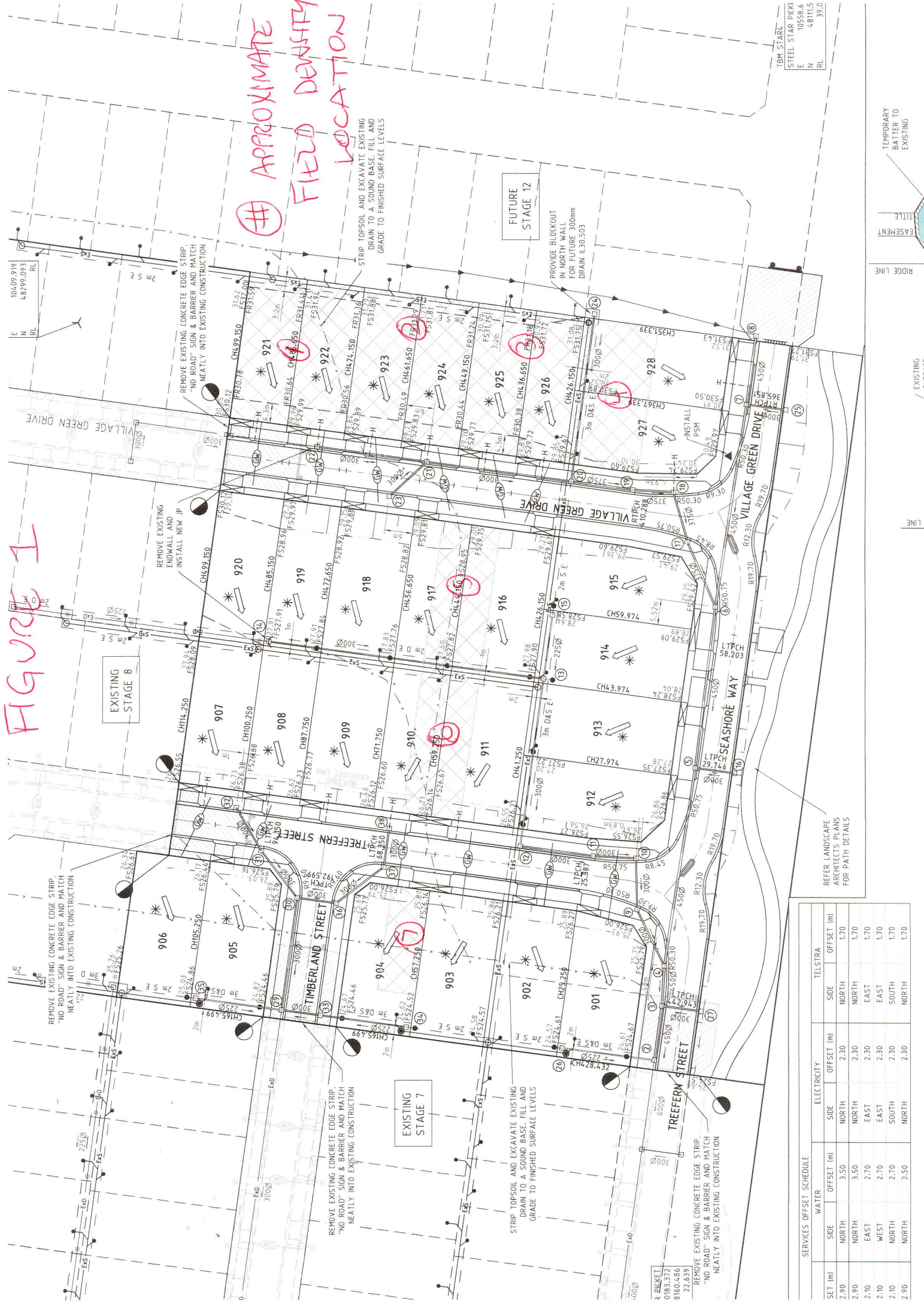
Civil Geotechnical Services

A handwritten signature in black ink, appearing to read 'Justin Fry', written in a cursive style.

Justin Fry

# FIGURE 1

⊕ APPROXIMATE  
FIELD DENSITY  
LOCATION



TBM STARK  
STEEL STAR PICKI  
E 10558.6  
N 48111.5  
RL 39.0



REFER LANDSCAPE ARCHITECTS PLANS FOR PATH DETAILS

SET (m)	WATER		ELECTRICITY		TELSTRA	
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
2.10	EAST	2.70	EAST	2.30	EAST	1.70
2.10	WEST	2.70	EAST	2.30	EAST	1.70
2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70



## COMPACTION ASSESSMENT

Job No 13037  
 Report No 13037/R001  
 Date Issued 22/03/13

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JWM
Project	ESTUARY - STAGE 9	Date tested	07/02/13
Location	LEOPOLD	Checked by	JHF

<b>Feature</b>	<b>EARTHWORKS</b>	Layer thickness	200 mm	Time: 09:31
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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 <i>mm</i>	175	175	175	175	175	175
Field wet density <i>t/m<sup>3</sup></i>	2.14	2.05	2.15	2.09	2.13	2.12
Field moisture content %	10.1	8.7	8.3	10.0	14.5	8.5

Test procedure AS 1289.5.7.1

Test No	1	2	3	4	5	6
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material <i>wet</i>	0	0	0	0	0	0
Peak Converted Wet Density <i>t/m<sup>3</sup></i>	2.06	2.03	2.03	2.03	2.03	2.10
Adjusted Peak Converted Wet Density <i>t/m<sup>3</sup></i>	-	-	-	-	-	-
Optimum Moisture Content %	13.0	12.5	12.0	13.0	17.0	12.0

Moisture Variation From Optimum Moisture Content	2.5% dry	4.0% dry	4.0% dry	3.0% dry	2.5% dry	3.5% dry
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Density Ratio ( $R_{HD}$ ) %	<b>103.5</b>	<b>101.5</b>	<b>106.0</b>	<b>103.5</b>	<b>105.0</b>	<b>100.5</b>
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Material description

No 1 - 6 clayey SAND 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 13037  
 Report No 13037/R002  
 Date Issued 22/03/13  
 Tested by JWM  
 Date tested 07/02/13  
 Checked by JHF

### CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	JWM
Project	ESTUARY - STAGE 9	Date tested	07/02/13
Location	LEOPOLD	Checked by	JHF

<b>Feature</b>	<b>EARTHWORKS</b>	Layer thickness	200 mm	Time: 09:45
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	7	-	-	-	-	-
Location	REFER TO FIGURE 1					
Approximate depth below FSL	-	-	-	-	-	-
Measurement depth <span style="float: right;">mm</span>	175	-	-	-	-	-
Field wet density <span style="float: right;">t/m<sup>3</sup></span>	2.02	-	-	-	-	-
Field moisture content <span style="float: right;">%</span>	14.8	-	-	-	-	-

Test procedure AS 1289.5.7.1

Test No	7	-	-	-	-	-
Compactive effort		Standard				
Oversize rock retained on sieve <span style="float: right;">mm</span>	19.0	-	-	-	-	-
Percent of oversize material <span style="float: right;">wet</span>	0	-	-	-	-	-
Peak Converted Wet Density <span style="float: right;">t/m<sup>3</sup></span>	2.02	-	-	-	-	-
Adjusted Peak Converted Wet Density <span style="float: right;">t/m<sup>3</sup></span>	-	-	-	-	-	-
Optimum Moisture Content <span style="float: right;">%</span>	17.5	-	-	-	-	-

Moisture Variation From Optimum Moisture Content	3.0% dry	-	-	-	-	-
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<b>Density Ratio ( R<sub>HD</sub> )</b>	<b>%</b>	<b>100.5</b>	-	-	-	-
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Material description

No 7 - 7 clayey SAND 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