



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

1st May 2018

Our Reference: 17602:NB183

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
WARATAH ESTATE – STAGE 6 (MICKLEHAM)

Please find attached our Report No's 17602/R001 to 17602/R004 which relates 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 October 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).

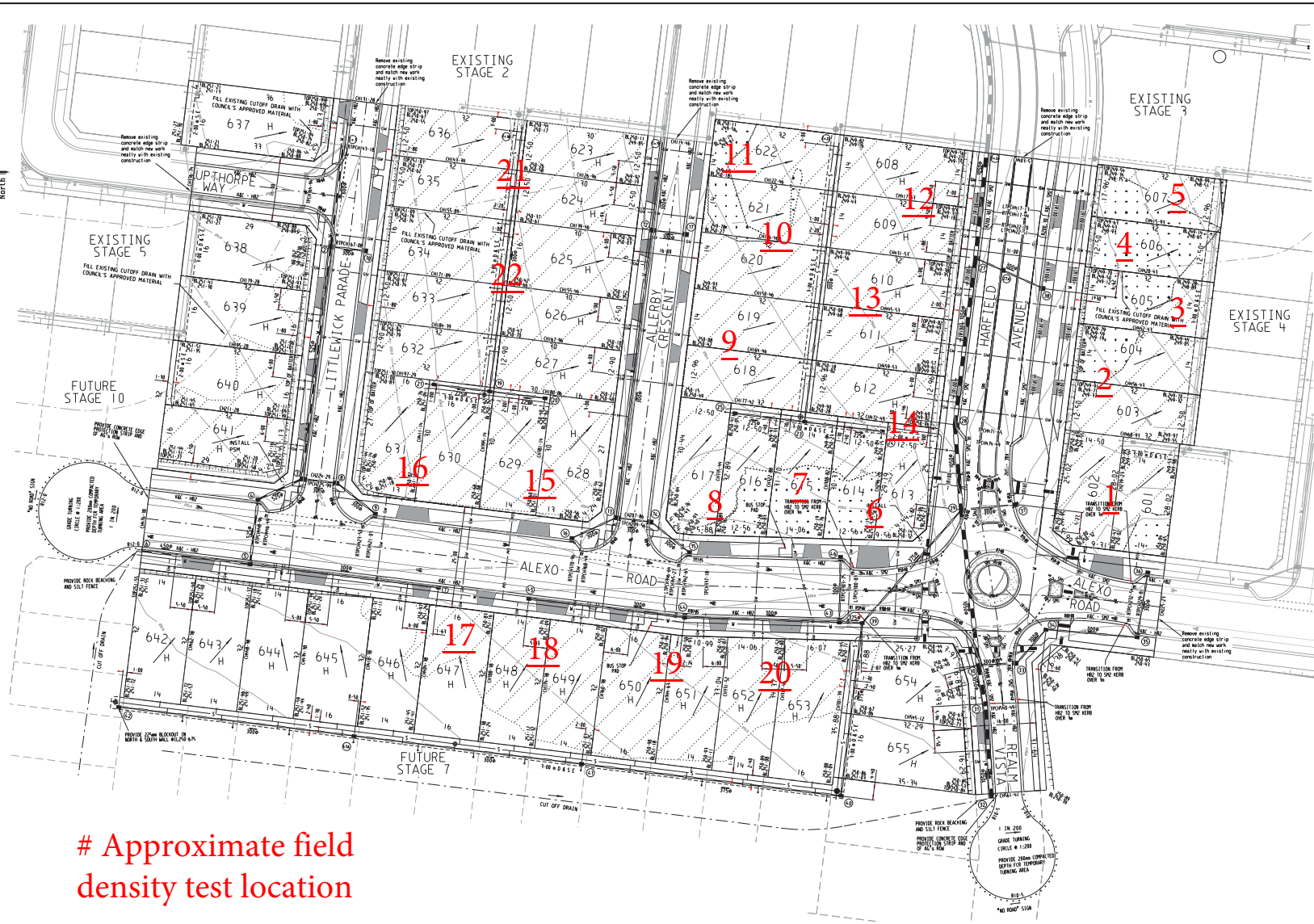
Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

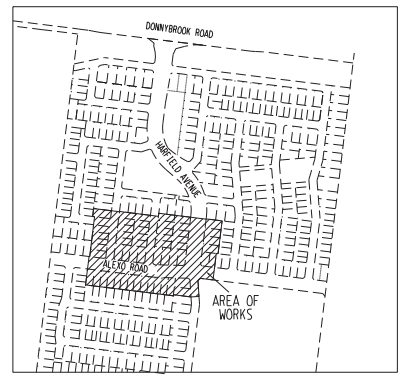
A handwritten signature in blue ink, appearing to read 'Nick Brock', is written over a faint circular stamp.

Nick Brock

FIGURE 1

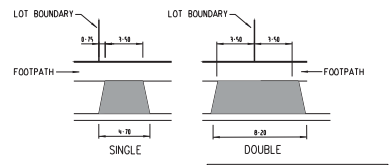


Approximate field density test location



LOCALITY PLAN
NTS
SHEET INDEX

SHT	NO.	DESCRIPTION
1	B	DETAIL PLAN, SHEET INDEX, SERVICES SCHEDULE & LOCALITY PLAN
2	A	TYPICAL CROSS SECTIONS & PAVEMENT DETAIL
3	A	INTERSECTION PLAN - 1
4	A	INTERSECTION PLAN - 2
5	A	LONGITUDINAL SECTION - LITTLEWICK PARADE, ALLEY CRES & UPTHORPE WAY
6	A	LONGITUDINAL SECTION - HARFIELD AVENUE, REALM VISTA & ALEXO ROAD
7	A	CROSS SECTIONS - ALLEY CRES
8	A	CROSS SECTIONS - LITTLEWICK PARADE
9	A	CROSS SECTIONS - HARFIELD AVENUE & REALM VISTA
10	A	CROSS SECTIONS - ALEXO ROAD - 1
11	A	CROSS SECTIONS - ALEXO ROAD - 2 & UPTHORPE WAY
12	A	DRAINAGE LONGITUDINAL SECTIONS-1
13	A	DRAINAGE LONGITUDINAL SECTIONS-2
14	A	DRAINAGE LONGITUDINAL SECTIONS-3
15	B	DRAINAGE LONGITUDINAL SECTIONS-4
16	A	PIT SCHEDULE
17	A	PARKING PLAN
18	A	SEWERING & LINERWORK PLAN
19	A	VEHICLE TURNING PLAN-1
20	A	VEHICLE TURNING PLAN-2
21	A	PAVEMENT LAYOUT PLAN

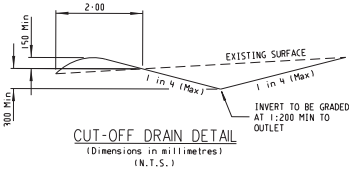


ATTENTION TO CONTRACTOR

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE DIGITAL PLAN, PROVIDED FOR SETUP PURPOSES, MATCHES THE TBM COORDINATES SHOWN.
- Where concrete works abut a sewer access chamber surround or s1mBar structure, an expansion joint of approved material shall be provided between the two faces.

SYMBOL LEGEND

Drains	Prop	Exist	Ex/Natural/FS Level -100
Sewer <300	—●—	—●—	FS Building Line
Sewer >300	—○—	—○—	Top/Toe of Batter
Water	—○—	—○—	Top Ret. Wall Level
House Drain	—○—	—○—	100yr Flood Level
Property Inlet	—○—	—○—	Fill Prop/Ex
Street Sign	—○—	—○—	Cut Prop/Ex
100yr Flood Level	—○—	—○—	Fill Prop/Ex >500mm
Retaining Wall	—○—	—○—	
Conduits 50mm	—○—	—○—	
Conduits 100mm	—○—	—○—	
Ex Gas/Elect/etel	—○—	—○—	



SERVICES OFFSETS AND LOCATIONS

STREET/LOT NAME	Rd. RESERVE	WATER		GAS		ELECTRICITY CABLES		POLES		NBN		Dk. of KERB	JOINT TRENCHING
		DW	NDW	CAS	NCAS	1-00 BOK	1-85 N	1-85 S	1-85 N	1-85 S	NBN PITS		
ALEXO ROAD (EAST OF ROUNDABOUT)	25-00	3-35 S	2-35 S	2-25 S	2-50 N	1-00 BOK	1-85 N	1-85 S	2-85 S	2-85 S		G DW NDW & E NBN	
ALEXO ROAD (WEST OF ROUNDABOUT)	25-00	3-35 N	2-35 N	2-25 N	2-50 S	1-00 BOK	1-85 S	1-85 N	2-85 N	2-85 N		G DW NDW & E NBN	
HARFIELD AVENUE	31-00	3-20 E	2-30 E	2-25 E	2-50 W	1-00 BOK	1-85 W	1-85 E	4-30 W	4-30 E		G DW NDW & E NBN	
REALM VISTA	10-00	3-20 W	2-30 W	2-25 W	2-50 E	1-00 BOK	1-85 E	1-85 W	4-35 W	4-35 E		G DW NDW & E NBN	
LITTLEWICK PARADE	10-00	3-20 W	2-30 W	2-25 W	2-50 E	1-00 BOK	1-85 E	1-85 W	4-20 W	4-20 E		G DW NDW & E NBN	
ALLEY CRES	10-00	3-20 W	2-30 W	2-25 W	2-50 E	1-00 BOK	1-85 E	1-85 W	4-20 W	4-20 E		G DW NDW & E NBN	
UPTHORPE WAY	10-00	3-20 S	2-30 S	2-25 S	2-50 N	1-00 BOK	1-85 N	1-85 S	4-20 S	4-20 N		G DW NDW & E NBN	

breese pitt dixon pty. ltd.
land surveyors civil engineers

1/19 colt street
howthorn east, 3123
telephone 8823 2300
fax no. 8823 2310

WARATAH ESTATE
STAGE 6

MELWAY REF. 966-E-6
SURVEY BJ
DESIGN SBS
DRAWN SBS
CHECKED

MUNICIPALITY
HUME
REFERENCE
8711/6

SCALE AS SHOWN DATUM AHD DATE AUG'16 SHEET 1 OF 21



COMPACTION ASSESSMENT

Job No 17602
 Report No 17602/R001
 Date Issued 10/11/2017

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	WARATAH ESTATE - STAGE 6	Date tested	12/10/17
Location	MICKLEHAM	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:28
---------	------------	-----------------	--------	-------------

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/m³</i>	1.93	1.90	2.00	1.86	1.93	1.90
Field moisture content %	22.9	27.6	20.6	23.0	29.6	25.5

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/m³</i>	1.96	1.92	2.04	1.96	1.94	1.97
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content %	23.0	26.5	21.0	23.5	27.0	25.0

Moisture Variation From Optimum Moisture Content	0.0%	1.0% wet	0.5% dry	0.0%	2.5% wet	0.5% wet
--	------	----------	----------	------	----------	----------

Density Ratio (R_{HD})	%	99.0	99.0	98.5	95.0	99.5	96.5
---	----------	-------------	-------------	-------------	-------------	-------------	-------------

Material description

No 1 - 6 Clay Fill



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 17602
 Report No 17602/R002
 Date Issued 03/01/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	WARATAH ESTATE - STAGE 6	Date tested	16/10/17
Location	MICKLEHAM	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 13:06
----------------	-------------------	-----------------	--------	-------------

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	7	8	9	10	-	-
Location	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	-	-
Field wet density <i>t/m³</i>	2.05	2.06	2.01	2.00	-	-
Field moisture content <i>%</i>	17.5	18.5	18.4	18.5	-	-

Test procedure AS 1289.5.7.1

Test No	7	8	9	10	-	-
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	19.0	-	-
Percent of oversize material <i>wet</i>	2	1	0	0	-	-
Peak Converted Wet Density <i>t/m³</i>	2.07	2.03	2.06	2.06	-	-
Adjusted Peak Converted Wet Density <i>t/m³</i>	2.10	2.04	-	-	-	-
Optimum Moisture Content <i>%</i>	16.5	16.0	17.5	18.5	-	-

Moisture Variation From Optimum Moisture Content	1.0% wet	2.5% wet	1.0% wet	0.0%	-	-
--	----------	----------	----------	------	---	---

Density Ratio (R_{HD})	%	97.5	100.5	97.5	97.0	-	-
---	----------	-------------	--------------	-------------	-------------	----------	----------

Material description

No 7 - 10 Clay Fill



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 17602
 Report No 17602/R003
 Date Issued 03/01/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	WARATAH ESTATE - STAGE 6	Date tested	16/10/17
Location	MICKLEHAM	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 14:00
----------------	------------	-----------------	--------	-------------

Test procedure AS 1289.2.1.1 & 5.8.1

Test No	11	12	13	14	15	16
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/m³</i>	1.94	1.87	1.99	1.88	1.90	1.93
Field moisture content %	23.9	28.0	22.6	21.0	27.6	26.4

Test procedure AS 1289.5.7.1

Test No	11	12	13	14	15	16
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/m³</i>	1.96	1.92	2.04	1.96	1.94	1.97
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content %	23.0	26.5	21.0	23.5	27.0	25.0

Moisture Variation From Optimum Moisture Content	1.0% wet	1.5% wet	1.5% wet	2.0% dry	0.5% wet	1.5% wet
--	----------	----------	----------	----------	----------	----------

Density Ratio (R_{HD})	%	99.0	97.5	97.5	96.0	98.0	98.0
---	----------	-------------	-------------	-------------	-------------	-------------	-------------

Material description

No 11 - 16 Clay Fill



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 17602
 Report No 17602/R004
 Date Issued 10/01/2018

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	AC
Project	WARATAH ESTATE - STAGE 6	Date tested	16/10/17
Location	MICKLEHAM	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	15:40
---------	------------	-----------------	--------	-------	-------

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	1.86	1.86	1.94	1.90	1.91	1.86
Field moisture content	%	24.0	25.3	23.1	22.0	24.5	26.3

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	1.90	1.93	1.98	1.99	1.97	1.95
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-	-
Optimum Moisture Content	%	23.5	25.0	22.0	24.0	24.5	24.5

Moisture Variation From Optimum Moisture Content	0.5% wet	0.5% wet	1.0% wet	2.0% wet	0.0%	2.0% wet
--	----------	----------	----------	----------	------	----------

Density Ratio (R _{HD})	%	98.0	96.5	98.0	95.5	97.0	95.5
-----------------------------------	---	------	------	------	------	------	------

Material description

No 17 - 22 Clay Fill



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