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

16th May 2018

Our Reference: 18258:NB195

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
WARATAH ESTATE – STAGE 7 (MICKLEHAM)

Please find attached our Report No's 18258/R001 to 18258/R003 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 May 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).

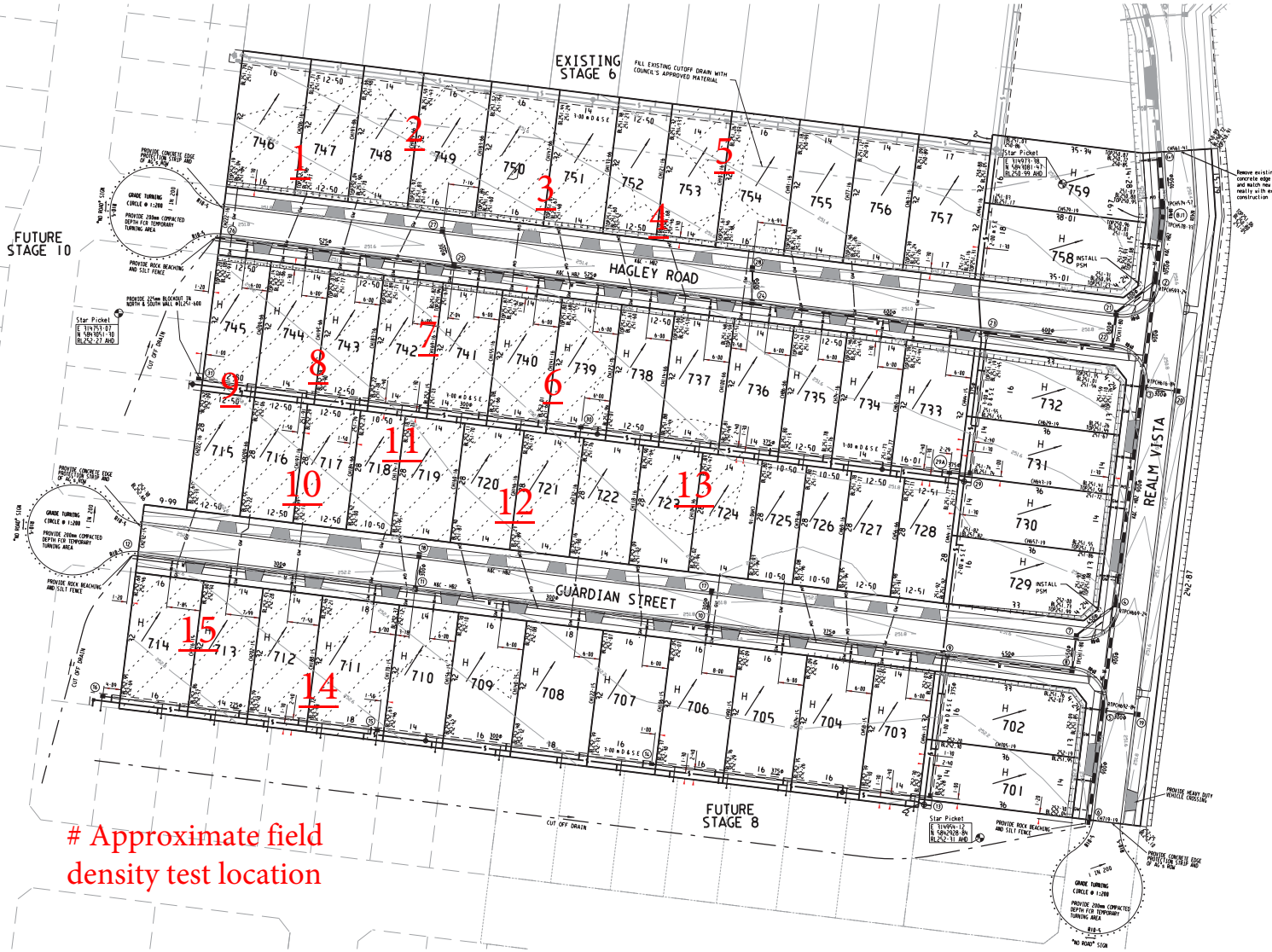
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

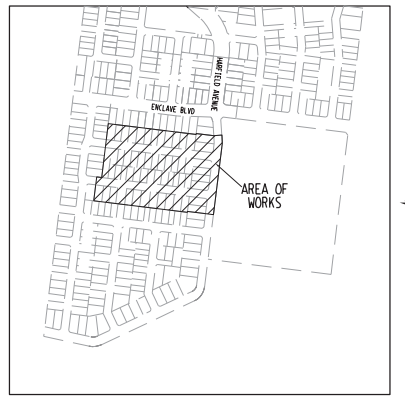
Civil Geotechnical Services

Nick Brock

FIGURE 1



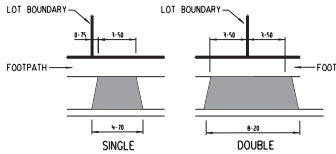
PLAN
SCALE 1:500



LOCALITY PLAN
NTS

SHEET INDEX

SHT No.	VER	DESCRIPTION
1	C	DETAIL PLAN,SHEET INDEX,SERVICES SCHEDULE & LOCALITY PLAN
2	C	TYPICAL CROSS SECTIONS, PAVEMENT DETAIL & INTERSECTION PLAN
3	B	LONGITUDINAL SECTION - HAGLEY ROAD & GUARDIAN STREET
4	C	LONGITUDINAL SECTION - REALM VISTA
5	B	CROSS SECTIONS - HAGLEY ROAD
6	A	CROSS SECTIONS - GUARDIAN STREET
7	C	CROSS SECTIONS - REALM VISTA
8	A	DRAINAGE LONGITUDINAL SECTIONS-1
9	A	DRAINAGE LONGITUDINAL SECTIONS-2
10	A	DRAINAGE LONGITUDINAL SECTIONS-3
11	A	DRAINAGE LONGITUDINAL SECTIONS-4 & PIT SCHEDULE
12	A	PARKING AND SIGNAGE & LINEMARKING PLAN

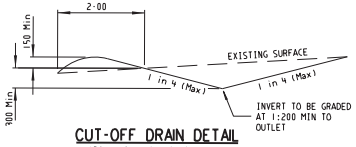


DRIVEWAY PLAN
NOT TO SCALE

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.

SERVICES OFFSETS AND LOCATIONS

STREET/LOT NAME	Rd.RESERVE	WATER		GAS	ELECTRICITY		NBN		Bk. of KERB	JOINT TRENCHING
		DW	NDW		CABLES	POLES	NBN CABLES	NBN PITS		
REALM VISTA	16·00	3·20 W	2·70 W	2·25 W	2·50 E	1·00 BOK	1·85 E	1·85 W	¼·95 W ¼·05 E	G DW NDW & E NBN
HAGLEY ROAD	16·00	3·20 S	2·70 S	2·25 S	2·50 N	1·00 BOK	1·85 N	1·85 S	¼·95 S ¼·05 N	G DW NDW & E NBN
GUARDIAN STREET	16·00	3·20 S	2·70 S	2·25 S	2·50 N	1·00 BOK	1·85 N	1·85 S	¼·95 S ¼·05 N	G DW NDW & E NBN



CUT-OFF DRAIN DETAIL
(Dimensions in millimetres)
(N.T.S.)

NOTE:ALL SEWERS UNDER FOOTPATH ARE TO BE BACKFILLED WITH 20mm CLASS 4 CRUSHED ROCK

ATTENTION TO CONTRACTOR

1. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE DIGITAL PLAN, PROVIDED FOR SETOUT PURPOSES, MATCHES THE TBM COORDINATES SHOWN.
2. Where concrete works abut a sewer access chamber surround or similar structure, an expansion joint of approved material shall be provided between the two faces.

SYMBOL LEGEND

Drains
Sewer <300
Sewer >300
Water
House Drain
Property Inlet
Street Sign
PSM
Retaining Wall
Conduits 50mm
Conduits 100mm
Ex Gas/Elect/Tel
Ex/Natural/FS Level
FS @ Building Line
Top/Toe of Batter
Top Ret. Wall Level
100yr Flood Level
Fill Prop/Ex
Cut Prop/Ex

AMENDMENTS	VER	DATE	REMARKS
	C	21/08/17	LOT LEVELS UPDATED
	B	02/08/17	LOT LEVELS UPDATED
	A	11/07/17	ISSUED FOR CONSTRUCTION

breese pitt dixon pty. ltd.
land surveyors civil engineers
1/19 cato street hawthorn east, 3123
telephone 8823 2300
fax no. 8823 2310

MELWAY REF. 366-E-6
SURVEY BJ
DESIGN SBS
DRAWN SBS
CHECKED

WARATAH ESTATE
STAGE 7

MUNICIPALITY HUME
REFERENCE 8711 E/7
SCALE AS SHOWN DATUM AHD DATE DEC'16
SHEET 1 OF 12 C

COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

		Job No	18258
		Report No	18258/R001
		Date Issued	16/05/2018
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	AC
Project	WARATAH ESTATE - STAGE 7	*Date tested*	01/05/18
Location	MICKLEHAM	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 13:37

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/m³*	1.85	1.86	1.93	1.88	1.89	1.85
Field moisture content	*%*	15.6	17.0	16.2	15.7	15.3	14.9

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	2	7	0	0	0
Peak Converted Wet Density	*t/m³*	1.95	1.85	1.90	1.89	1.90	1.90
Adjusted Peak Converted Wet Density	*t/m³*	-	1.86	1.93	-	-	-
Optimum Moisture Content	*%*	17.5	18.5	17.5	18.0	18.0	17.0

Moisture Variation From Optimum Moisture Content		2.0% dry	1.5% dry	1.5% dry	2.5% dry	2.5% dry	2.0% dry
Density Ratio (R_{HD})	*%*	**95.5**	**99.5**	**100.5**	**99.0**	**99.0**	**97.5**

Material description

No 1 - 6 Clay Fill

NATA ACCREDITED FOR TECHNICAL COMPETENCE

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

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

		Job No	18258
		Report No	18258/R002
		Date Issued	15/05/2018
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	AC
Project	WARATAH ESTATE - STAGE 7	*Date tested*	01/05/18
Location	MICKLEHAM	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 13:39

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/m³*	1.82	1.81	1.81	1.83	1.84	1.85
Field moisture content	*%*	13.5	13.8	14.2	14.7	12.0	11.3

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	2	0
Peak Converted Wet Density	*t/m³*	1.91	1.90	1.90	1.89	1.92	1.84
Adjusted Peak Converted Wet Density	*t/m³*	-	-	-	-	1.93	-
Optimum Moisture Content	*%*	15.5	16.0	17.0	16.5	13.5	13.5

Moisture Variation From Optimum Moisture Content		2.0% dry	2.0% dry	2.5% dry	2.0% dry	2.0% dry	2.5% dry

Density Ratio (R_{HD})	***%***	**95.5**	**95.5**	**95.5**	**96.5**	**95.5**	**100.5**

Material description

No 7 - 12 Clay Fill

NATA ACCREDITED FOR TECHNICAL COMPETENCE

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Accreditation No 9909

Approved Signatory : Justin Fry

COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

		Job No	18258
		Report No	18258/R003
		Date Issued	15/05/2018
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	AC
Project	WARATAH ESTATE - STAGE 7	*Date tested*	01/05/18
Location	MICKLEHAM	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 14:20

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		**13**	**14**	**15**			
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/m³*	1.87	1.86	1.88			
Field moisture content	*%*	14.0	13.1	14.8			

Test procedure AS 1289.5.7.1

Test No		13	14	15			
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/m³*	1.94	1.96	1.91			
Adjusted Peak Converted Wet Density	*t/m³*	-	-	-			
Optimum Moisture Content	*%*	15.0	15.5	16.0			

Moisture Variation From Optimum Moisture Content		1.0% dry	2.5% dry	1.0% dry			

Density Ratio (R_{HD})	*%*	**96.5**	**95.0**	**98.5**			

Material description

No 13 - 15 Clay Fill

NATA ACCREDITED FOR TECHNICAL COMPETENCE

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