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

12th May 2017

Our Reference: 16439:GB165

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
HAVEN ESTATE – STAGE 6, TARNEIT

Please find attached our Report Nos 16439/R001 to 16439/R007 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 commenced in mid September 2016 and was completed in early March 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).

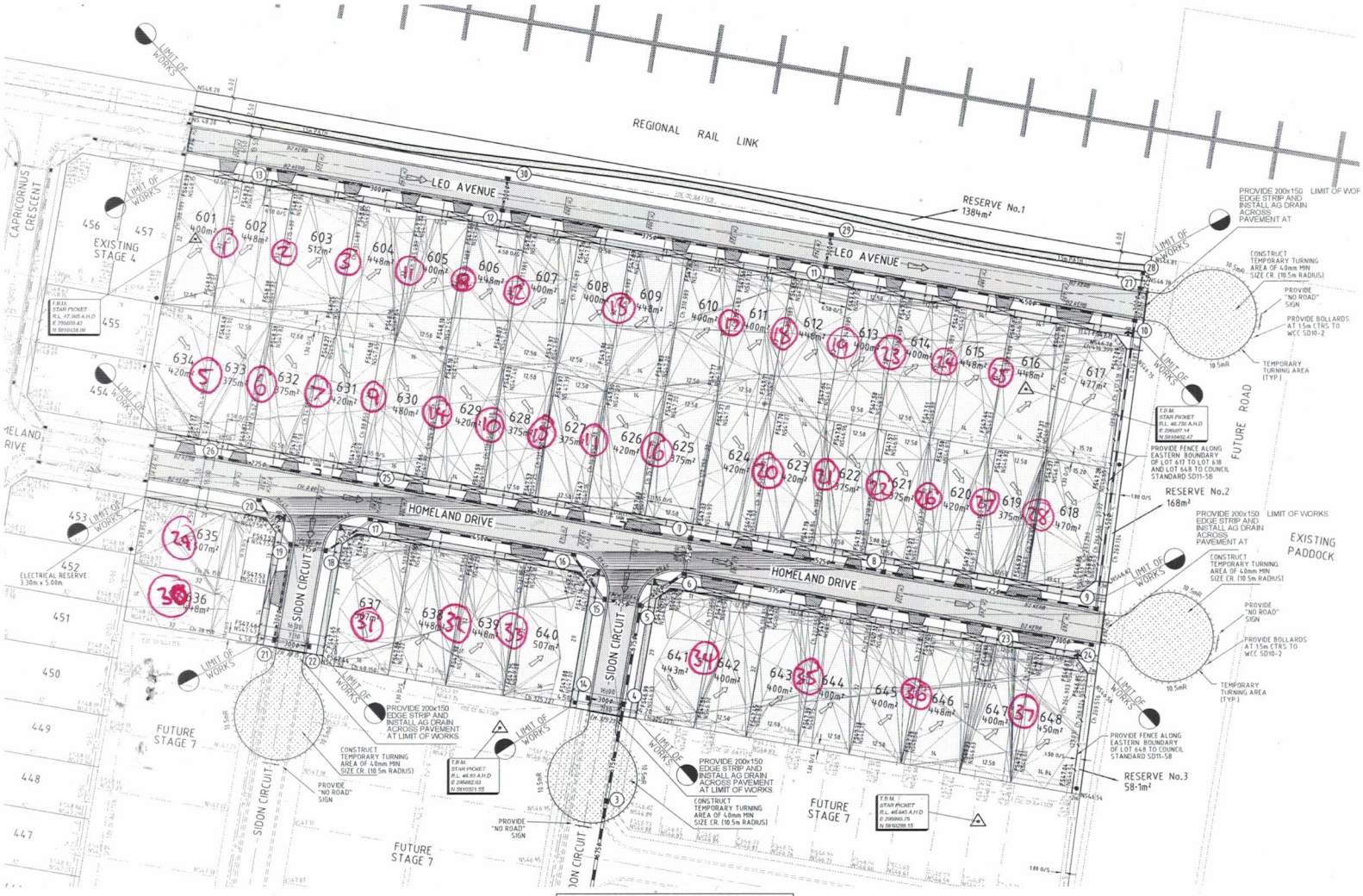
Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Griffin Brown

FIGURE 1

(#) APPROXIMATE FIELD DENSITY TEST LOCATION



DETAIL PLAN

HORIZ 0 5 10 20 30 40

SCALE 1:500H AT A1 SIZE
1:1000H AT A3 SIZE

LEGEND

- 5 ALLOTMENT NUMBER
- Ch68.17 CENTRELINE CHAINAGE
- WATER MAIN OR CONDUIT
- WATER MAIN RECYCLED
- GAS MAIN OR CONDUIT
- S.E.C. CABLE OR CONDUIT
- TELECOM CABLE OR CONDUIT
- HD HOUSE DRAIN
- PROPOSED DRAIN & PIT
- EXISTING DRAIN & PIT
- PROPERTY INLET PIT
- EXISTING PROPERTY INLET PIT
- DRAINAGE PIT NUMBER
- PROPOSED SEWER LINE
- EXISTING SEWER LINE
- T.B.M.
- P.S.M.
- NS53.26 EXISTING SURFACE LEVEL
- FS53.40 FINISHED SURFACE LEVEL
- TOP OF BATTER LEVEL
- PROPOSED KERB & CHANNEL
- EXISTING KERB & CHANNEL
- STREET SIGN
- EXTENT OF FORMED BATTER
- DENOTES FILL GREATER THAN 200mm FOR CONSTRUCTION
- PROPOSED PAVEMENT
- EXISTING PAVEMENT
- PROPOSED FOOTPATH
- PROPOSED DRIVEWAY
- OVERLAND FLOW DIRECTION

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATION OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL SERVICES ARE SHOWN. THE CONTRACTOR MUST VERIFY ALL SERVICES ON SITE PRIOR TO ANY EXCAVATION WORKS.

COUNCIL REFERENCE NO.: 75/115/6826/13/6

DATE	REVISION	APP'D	ISSUE	DATE	ISSUE	APP'D
			02	21.07.2016	ISSUE FOR APPROVAL	JL
14.07.2016	COUNCIL & PEER REVIEW COMMENTS	JL	01	6.06.2016	ISSUE FOR APPROVAL	JL

DESIGNED M.Manafi | DATE 6.06.2016
DRAWN M.Manafi | SCALE 1:500
CHECKED J.Lynch | SHEET SIZE A1
APPROVED J.Lynch | MELWAY 202 C1

© COPYRIGHT TGM GROUP PTY. LTD.

TGM Group Melbourne
765 Glenferrie Road
(PO Box 2304)
Hawthorn Vic 3122
T 03 8862 9333
F 03 9819 4909
ABN 11 125 568 461
www.tgmgroup.com
Melbourne | Geelong | Ballarat
JAS-ANZ Accredited: Quality ISO 9001 - OHSAS AS/NZS 4801 - Environment ISO 14001

CLIENT: PEET

PROJECT: HAVEN AT TARNEIT
STAGE 6
830 LEAKES ROAD, TARNEIT
WYNDHAM CITY COUNCIL

CIVIL DRAWING

DRAWING TITLE: DETAIL PLAN
SHEET 1 OF 2

TGM DRAWING NUMBER	CLIENT DRAWING NUMBER	SHEET	OF	REV	ISSUE
12369-206-C02		2	16	A	2

COMPACTION ASSESSMENT

CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

		Job No	16439
		Report No	16439/R001
		Date Issued	27/09/16
Client	PEETS FUNDS MANAGEMENT	*Tested by*	NB
Project	HAVEN ESTATE - STAGE 6	*Date tested*	20/09/16
Location	TARNEIT	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 10:34

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*	1.91	1.90	1.89	1.90	1.95	1.92
Field moisture content	*%*	32.9	32.2	34.3	35.0	36.4	33.6

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/m³*	1.94	1.94	1.99	1.96	2.04	2.00
Adjusted Peak Converted Wet Density	*t/m³*	-	-	-	-	-	-
Optimum Moisture Content	*%*	30.5	30.0	32.5	32.5	34.5	32.0

Moisture Variation From Optimum Moisture Content		2.0% wet	2.0% wet	1.5% wet	2.5% wet	2.0% wet	1.5% wet
Density Ratio (R_{HD})	*%*	**98.0**	**97.5**	**95.0**	**97.0**	**95.5**	**96.0**

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	16439
		Report No	16439/R002
		Date Issued	05/01/17
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	AG
Project	HAVEN ESTATE - STAGE 6	*Date tested*	11/11/16
Location	TARNEIT	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 14:31

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	*mm*	175	175	175	175	-	-
Field wet density	*t/m³*	1.91	1.87	1.85	1.86	-	-
Field moisture content	*%*	22.6	20.2	21.0	22.2	-	-

Test procedure AS 1289.5.7.1

Test No		7	8	9	10	-	-
Compactive effort		Standard					
Oversize rock retained on sieve	*mm*	19.0	19.0	19.0	19.0	-	-
Percent of oversize material	*wet*	0	0	2	0	-	-
Peak Converted Wet Density	*t/m³*	1.91	1.86	1.91	1.88	-	-
Adjusted Peak Converted Wet Density	*t/m³*	-	-	1.94	-	-	-
Optimum Moisture Content	*%*	24.5	23.0	23.0	24.5	-	-

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

Density Ratio (R_{HD})	*%*	**100.5**	**100.0**	**95.5**	**99.0**	**-**	**-**

Material description

No 7 - 10 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	16439
		Report No	16439/R003
		Date Issued	28/04/2017
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	NB
Project	HAVEN ESTATE - STAGE 6	*Date tested*	28/02/17
Location	TARNEIT	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 300 mm *Time:* 08:01

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	*mm*	175	175	175	175	175	175
Field wet density	*t/m³*	1.89	1.94	1.87	1.89	1.95	1.94
Field moisture content	*%*	15.2	19.2	15.3	14.6	19.2	18.0

Test procedure AS 1289.5.7.1

Test No		11	12	13	14	15	16
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*	9	13	6	7	17	14
Peak Converted Wet Density	*t/m³*	1.92	1.94	1.93	1.92	1.94	1.95
Adjusted Peak Converted Wet Density	*t/m³*	1.98	2.02	1.97	1.96	2.05	2.04
Optimum Moisture Content	*%*	16.0	20.5	16.0	15.5	22.0	19.0

Moisture Variation From Optimum Moisture Content		0.5% dry	1.0% dry	1.0% dry	1.0% dry	2.5% dry	1.0% dry
Density Ratio (R_{HD})	*%*	**95.5**	**96.0**	**95.5**	**96.5**	**95.0**	**95.0**

Material description

No 11 - 16 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	16439
		Report No	16439/R004
		Date Issued	30/03/2017
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	NB
Project	HAVEN ESTATE - STAGE 6	*Date tested*	01/03/17
Location	TARNEIT	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 10:35

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/m³*	1.87	1.85	1.90	1.85	1.85	1.87
Field moisture content	*%*	22.1	26.2	23.2	23.1	23.6	21.5

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*	3	0	2	0	0	6
Peak Converted Wet Density	*t/m³*	1.91	1.93	1.89	1.90	1.91	1.89
Adjusted Peak Converted Wet Density	*t/m³*	1.93	-	1.90	-	-	1.91
Optimum Moisture Content	*%*	24.0	25.0	24.5	24.0	24.5	23.5

Moisture Variation From Optimum Moisture Content		1.5% dry	1.5% wet	1.5% dry	1.0% dry	0.5% dry	2.0% dry
Density Ratio (R_{HD})	*%*	**97.0**	**96.0**	**99.5**	**97.5**	**97.0**	**98.0**

Material description

No 17 - 22 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	16439
		Report No	16439/R005
		Date Issued	21/04/17
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	JB
Project	HAVEN ESTATE - STAGE 6	*Date tested*	02/03/17
Location	TARNEIT	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 09:09

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		**23**	**24**	**25**	**26**	**27**	**28**
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	1.84	1.86	1.86	1.86	1.82
Field moisture content	*%*	16.0	20.7	17.1	15.0	25.7	23.6

Test procedure AS 1289.5.7.1

Test No		23	24	25	26	27	28
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*	2	13	4	3	13	4
Peak Converted Wet Density	*t/m³*	1.89	1.84	1.88	1.88	1.82	1.87
Adjusted Peak Converted Wet Density	*t/m³*	1.89	1.89	1.90	1.89	1.88	1.89
Optimum Moisture Content	*%*	18.5	22.5	18.0	16.5	28.0	25.5

Moisture Variation From Optimum Moisture Content		2.5% dry	1.5% dry	1.0% dry	1.5% dry	2.0% dry	2.0% dry
Density Ratio (R_{HD})	*%*	**98.0**	**97.0**	**97.5**	**98.5**	**99.0**	**96.5**

Material description

No 23 - 28 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	16439
		Report No	16439/R006
		Date Issued	31/03/2017
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	NB
Project	HAVEN ESTATE - STAGE 6	*Date tested*	02/03/17
Location	TARNEIT	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 10:01

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/m³*	1.86	1.89	1.86	-	-	-
Field moisture content	*%*	18.6	19.3	25.3	-	-	-

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*	2	17	17	-	-	-
Peak Converted Wet Density	*t/m³*	1.93	1.90	1.86	-	-	-
Adjusted Peak Converted Wet Density	*t/m³*	1.94	1.97	1.93	-	-	-
Optimum Moisture Content	*%*	20.5	20.0	27.5	-	-	-

Moisture Variation From Optimum Moisture Content		2.0% dry	1.0% dry	2.0% dry	-	-	-

Density Ratio (R_{HD})	*%*	**96.0**	**96.0**	**96.0**	**-**	**-**	**-**

Material description

No 29 - 31 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	16439
		Report No	16439/R007
		Date Issued	07/04/2017
Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	*Tested by*	NB
Project	HAVEN ESTATE - STAGE 6	*Date tested*	07/03/17
Location	TARNEIT	*Checked by*	JHF

Feature **EARTHWORKS** *Layer thickness* 200 mm *Time:* 12:31

Test procedure AS 1289.2.1.1 & 5.8.1

Test No		**32**	**33**	**34**	**35**	**36**	**37**
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*	1.89	1.87	1.83	1.84	1.88	1.90
Field moisture content	*%*	18.9	16.3	15.6	16.9	16.3	17.4

Test procedure AS 1289.5.7.1

Test No		32	33	34	35	36	37
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*	8	0	0	0	11	2
Peak Converted Wet Density	*t/m³*	1.88	1.89	1.91	1.93	1.95	1.93
Adjusted Peak Converted Wet Density	*t/m³*	1.99	-	-	-	1.99	1.94
Optimum Moisture Content	*%*	19.5	16.0	16.5	17.5	17.5	18.5

Moisture Variation From Optimum Moisture Content		0.5% dry	0.0%	0.5% dry	0.5% dry	1.5% dry	1.0% dry
Density Ratio (R_{HD})	*%*	**95.0**	**99.0**	**96.0**	**95.5**	**95.0**	**98.5**

Material description

No 32 - 37 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