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

11th February 2023

Our Reference: 22738:NB1447

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs/Madams,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
UNITY PARK – STAGE 4 (TARNEIT)

Please find attached our Report No's 22738/R001 to 22738/R004 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 February 2023.

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).

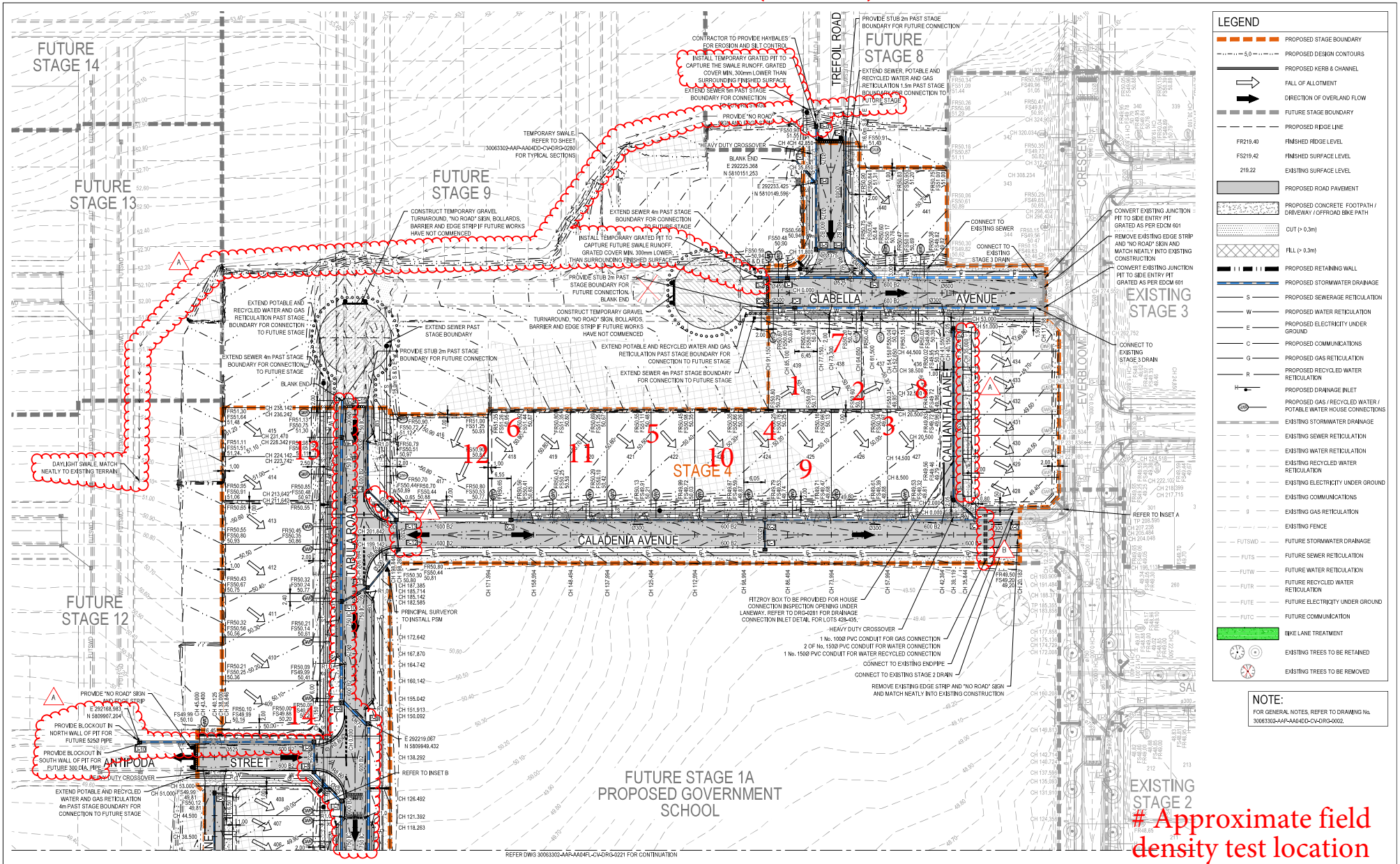
We are of the view that the bulk fill materials that have been placed across the reported allotments by Winslow Constructors during the aforementioned period can be considered as having been placed in a controlled manner to a minimum density ratio of 95% (standard compactive effort).

Please contact the undersigned if you require any additional information.

Civil Geotechnical Services

Nick Brock

# FIGURE 1 (1 of 2)




# Approximate field density test location

| Issue | Description | DR | CH | VE | Date |
|---|---|---|---|---|---|
| B | ADDITIONAL GWR CONDUITS FOR FUTURE SCHOOL | HP | SE | SE | 20.07.22 |
| A | ISSUED FOR CONSTRUCTION | MD | SE | SE | 13.07.22 |
| 05 | DRAINAGE DESIGN UPDATED GOING TO GRAND CENTRAL | MD | CS | SE | 08.06.22 |
| 04 | AMENDED AS PER COUNCIL COMMENTS NO. 3 | HP | EW | SE | 12.05.22 |
| 03 | AMENDED AS PER COUNCIL COMMENTS NO. 2 | HP | KM | SE | 29.03.22 |
| 02 | AMENDED AS PER COUNCIL COMMENTS NO. 1 | HP | KM | SE | 08.03.22 |
| 01 | ISSUED TO COUNCIL FOR APPROVAL | HP | KM | SE | 31.01.22 |

Scales

1 : 250

1 : 500

Client: HB Land, A member of Ho Bee Land

Status: FOR CONSTRUCTION



| Original Issue Signatures | | | |
|---|---|---|---|
| Drawn | H.PALOMIQUE | Original Size | A1 |
| Designed | S.HARMANIS | Height Datum | AHD |
| Project Manager | S.EISEL | Grid | MGA |
| Verified | C.SANTOS | | |

Project: UNITY PARK STAGE 4, WYNDHAM CITY COUNCIL

Title: ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 1 OF 2

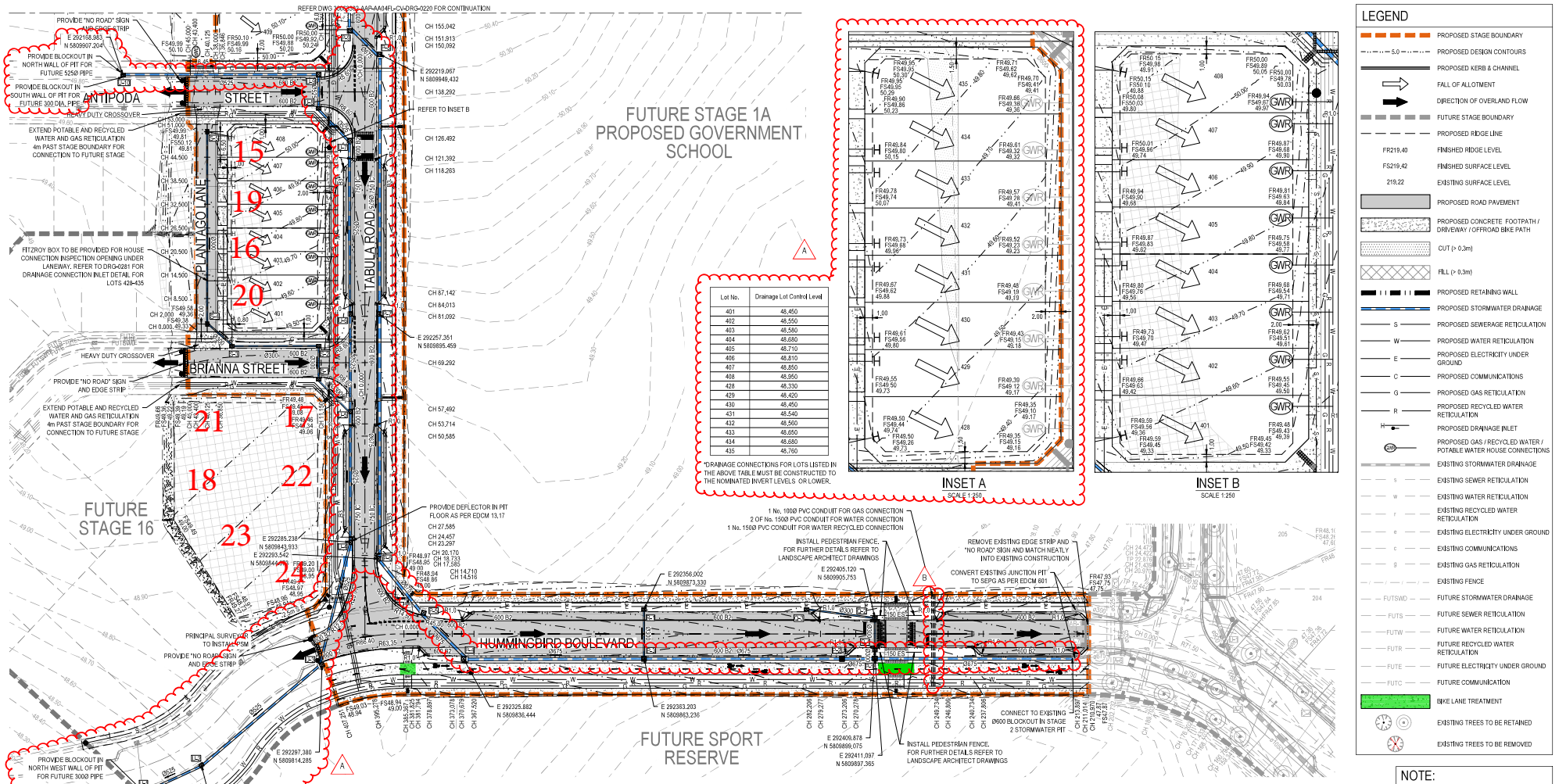
ARCADIS
Arcadis Australia Pacific Pty Limited
Level 18, Queen & Collins Tower
376-390 Collins Street
Melbourne VIC 3000
ABN 76 104 485 289
Tel No: +61 3 8623 4000
www.arcadis.com/au

| Project No. | Originator | Zone/Stage | Phase | Discipline | Type | Drawing No. | Issue |
|---|---|---|---|---|---|---|---|
| 30063302 | AAP | AA04DD | CV | DRG | 0220 | | B |

100mm on Original

Date Plotted: 21 Jul 2022 - 10:07am File Name: C:\Users\palomiqh6754\ACCDocs\Arcadis\A-AU-30063302-Leakes Road Estate\Project Files\01_WORK IN PROGRESS\01_Civil_CV\Stage4\Drawings\30063302-AAP-AA04DD-CV-DRG-0220-Roadworks.dwg V1

# FIGURE 1 (2 of 2)




| Lot No. | Drainage Lot Control Level |
|---|---|
| 401 | 48,450 |
| 402 | 48,550 |
| 403 | 48,580 |
| 404 | 48,680 |
| 405 | 48,710 |
| 406 | 48,810 |
| 407 | 48,850 |
| 408 | 48,950 |
| 428 | 48,330 |
| 429 | 48,420 |
| 430 | 48,450 |
| 431 | 48,540 |
| 432 | 48,560 |
| 433 | 48,650 |
| 434 | 48,680 |
| 435 | 48,760 |

*DRAINAGE CONNECTIONS FOR LOTS LISTED IN THE ABOVE TABLE MUST BE CONSTRUCTED TO THE NOMINATED INVERT LEVELS OR LOWER.

NOTE:
FOR GENERAL NOTES, REFER TO DRAWING No. 30063302-AAP-AA04DD-CV-DRG-0002.

## SERVICES OFFSET TABLE

| ROAD NAME | GAS | | WATER | | RECYCLED WATER | | ELECTRICITY | | COMMUNICATIONS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SIDE | OFFSET (m) | SIDE | OFFSET (m) | SIDE | OFFSET (m) | SIDE | OFFSET (m) | SIDE | OFFSET (m) |
| HUMMINGBIRD BLVD. | SOUTH | 2.10 | SOUTH | 3.80 | SOUTH | 2.90 | NORTH | 3.10 | NORTH | 2.30 |
| TABULA ROAD | WEST | 2.10 | WEST | 3.10 | WEST | 2.60 | EAST | 3.00 | EAST | 2.30 |
| CALADENIA AVENUE | NORTH | 2.00 | NORTH | 3.00 | NORTH | 2.50 | SOUTH | 3.00 | SOUTH | 2.30 |
| GLABELLA AVENUE | SOUTH | 2.10 | SOUTH | 3.10 | SOUTH | 2.60 | NORTH | 2.60 | NORTH | 1.80 |
| TREFOIL ROAD | EAST | 2.10 | EAST | 3.10 | EAST | 2.60 | WEST | 2.60 | WEST | 1.80 |
| BRIANNA STREET | SOUTH | 2.10 | SOUTH | 3.10 | SOUTH | 2.80 | NORTH | 2.60 | NORTH | 1.80 |
| ANTIPODA STREET | SOUTH | 2.10 | SOUTH | 3.10 | SOUTH | 2.60 | NORTH | 2.60 | NORTH | 1.80 |
| PLANTAGO LANE | - | - | - | - | - | - | EAST | 1.00 | - | - |
| CALLIANTHA LANE | - | - | - | - | - | - | EAST | 1.00 | - | - |

## ROAD LAYOUT TABLE

| ROAD NAME | ROAD CLASSIFICATION | RESERVE WIDTH (m) | ROAD WIDTH | | | KERB TYPE | | VERGE WIDTH (m) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | LIP TO LIP | INV TO INV | BACK TO BACK | NTH/WEST | STH/EAST | NTH/WEST | STH/EAST |
| HUMMINGBIRD BLVD. | CS | 25.50 | 6.10/10.30 | 7.0/11.20 | 7.30/11.50 | B2 | B2 | 6.60/4.50 | 11.90/8.80 |
| TABULA ROAD | AS2 | 20.00 | 5.10/8.70 | 6.0/10.60 | 6.30/10.90 | B2/B3 | B2/B3 | 7.00/4.70 | 7.00/4.70 |
| CALADENIA AVENUE | AS1 | 16.00 | 6.40 | 7.30 | 7.60 | B2 | B2 | 4.25 | 4.45 |
| GLABELLA AVENUE | AS1 | 16.00 | 6.40 | 7.30 | 7.60 | B2 | B2 | 4.20 | 4.50 |
| TREFOIL ROAD | AS1 | 16.00 | 6.40 | 7.30 | 7.60 | B2 | B2 | 4.20 | 4.50 |
| BRIANNA STREET | AS1 | 16.00 | 6.40 | 7.30 | 7.60 | B2 | B2 | 4.20 | 4.50 |
| ANTIPODA STREET | AS1 | 16.00 | 6.40 | 7.30 | 7.60 | B2 | B2 | 4.20 | 4.50 |
| PLANTAGO LANE | LW | 8.00 | - | 5.35 | - | - | - | 0.20 | 2.45 |
| CALLIANTHA LANE | LW | 8.00 | - | 5.35 | - | - | - | 0.20 | 2.45 |

| Issue | Description | DR | CH | VE | Date |
|---|---|---|---|---|---|
| B | ADDITIONAL GWR CONDUITS FOR FUTURE SCHOOL | HP | SE | SE | 20.07.22 |
| A | ISSUED FOR CONSTRUCTION | MD | SE | SE | 13.07.22 |
| 05 | DRAINAGE DESIGN UPDATED GOING TO GRAND CENTRAL | MD | CS | SE | 08.06.22 |
| 04 | AMENDED AS PER COUNCIL COMMENTS NO. 3 | HP | EW | SE | 12.05.22 |
| 03 | AMENDED AS PER COUNCIL COMMENTS NO. 2 | HP | KM | SE | 29.03.22 |
| 02 | AMENDED AS PER COUNCIL COMMENTS NO. 1 | HP | KM | SE | 08.03.22 |
| 01 | ISSUED TO COUNCIL FOR APPROVAL | HP | KM | SE | 31.01.22 |

Scales
1 : 250
1 : 500

Client: HB Land, A member of Ho Bee Land

Status: FOR CONSTRUCTION



| Original Issue Signatures | | | |
|---|---|---|---|
| Drawn | H.PALOMIQUE | Original Size | A1 |
| Designed | S.HARMANIS | Height Datum | AHD |
| Project Manager | S.EISEL | Grid | MGA |
| Verified | C.SANTOS | | |

Project: UNITY PARK STAGE 4, WYNDHAM CITY COUNCIL

Title: ROADWORKS AND DRAINAGE LAYOUT PLAN SHEET 2 OF 2

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 18, Queen & Collins Tower
376-390 Collins Street
Melbourne VIC 3000
ABN 76 104 485 289
Tel No: +61 3 8623 4000
www.arcadis.com/au

| Project No. | Originator | Zone/Stage | Phase | Discipline | Type | Drawing No. | Issue |
|---|---|---|---|---|---|---|---|
| 30063302 | AAP | AA04DD | CV | DRG | 0221 | | B |

100mm on Original

Date Plotted: 21 Jul 2022 - 10:05am File Name: C:\Users\palomiqh6754\ACCDocs\Arcadis\A-AU-30063302-Leakes Road Estate\Project Files\01_WORK IN PROGRESS\01_Civil_CV\Stage4\Drawings\30063302-AAP-AA04DD-CV-DRG-0220-Roadworks.dwg V1

# COMPACTION ASSESSMENT

**CIVIL GEOTECHNICAL SERVICES**
6 - 8 Rose Avenue, Croydon 3136

| | | | |
|---|---|---|---|
| | | Job No | 22738 |
| | | Report No | 22738/R001 |
| | | Date Issued | 11/02/2023 |
| Client | WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) | Tested by | JB |
| Project | UNITY PARK - STAGE 4 | Date tested | 03/02/23 |
| Location | TARNEIT | Checked by | JHF |

| | | | | | |
|---|---|---|---|---|---|
| **Feature** | **EARTHWORKS** | *Layer thickness* | 200 mm | *Time:* | 13:00 |

*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* | 1.90 | 1.89 | 1.88 | 1.93 | 1.91 | 1.90 |
| *Field moisture content* | *%* | 20.6 | 18.2 | 21.5 | 21.0 | 20.8 | 19.4 |

*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* | 1.95 | 1.96 | 1.93 | 2.01 | 1.95 | 1.93 |
| *Adjusted Peak Converted Wet Density* | *t/m³* | - | - | - | - | - | - |
| *Optimum Moisture Content* | *%* | 23.0 | 20.0 | 23.0 | 23.0 | 23.0 | 21.5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Moisture Variation From Optimum Moisture Content* | | 2.0% dry | 2.0% dry | 1.5% dry | 1.5% dry | 2.0% dry | 2.0% dry |

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***Density Ratio ( $R_{HD}$ )*** | *%* | **97.5** | **96.5** | **97.0** | **96.0** | **98.0** | **98.5** |

*Material description*

No 1 - 6 Clay Fill





Approved Signatory : Justin Fry

# COMPACTION ASSESSMENT


***CIVIL GEOTECHNICAL SERVICES***

*6 - 8 Rose Avenue, Croydon 3136*


| | | | |
|---|---|---|---|
| | | *Job No* | 22738 |
| | | *Report No* | 22738/R002 |
| | | *Date Issued* | 11/02/2023 |
| *Client* | WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) | *Tested by* | JB |
| *Project* | UNITY PARK - STAGE 4 | *Date tested* | 06/02/23 |
| *Location* | TARNEIT | *Checked by* | JHF |

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

*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* | 1.90 | 1.95 | 1.91 | 1.86 | 1.83 | 1.85 |
| *Field moisture content* | *%* | 24.1 | 20.7 | 17.9 | 18.0 | 21.4 | 22.6 |

*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/m³* | 1.94 | 2.00 | 1.93 | 1.90 | 1.91 | 1.91 |
| *Adjusted Peak Converted Wet Density* | *t/m³* | - | - | - | - | - | - |
| *Optimum Moisture Content* | *%* | 25.5 | 22.5 | 20.5 | 19.5 | 24.0 | 24.5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Moisture Variation From Optimum Moisture Content* | | 1.5% dry | 2.0% dry | 2.5% dry | 1.5% dry | 2.5% dry | 2.0% dry |

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

| ***Density Ratio ( $R_{HD}$ )*** | *%* | **98.0** | **97.0** | **99.0** | **98.0** | **96.0** | **97.0** |
|---|---|---|---|---|---|---|---|

*Material description*

No 7 - 12 Clay Fill



NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry

# COMPACTION ASSESSMENT

**CIVIL GEOTECHNICAL SERVICES**
6 - 8 Rose Avenue, Croydon 3136

| | | | |
|---|---|---|---|
| | | Job No | 22738 |
| | | Report No | 22738/R003 |
| | | Date Issued | 11/02/2023 |
| Client | WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) | Tested by | JB |
| Project | UNITY PARK - STAGE 4 | Date tested | 07/02/23 |
| Location | TARNEIT | Checked by | JHF |

| | | | | | |
|---|---|---|---|---|---|
| **Feature** | **EARTHWORKS** | *Layer thickness* | 200 mm | *Time:* | 08:30 |

*Test procedure AS 1289.2.1.1 & 5.8.1*

| **Test No** | | **13** | **14** | **15** | **16** | **17** | **18** |
|---|---|---|---|---|---|---|---|
| *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 | 1.79 | 1.78 | 1.80 | 1.75 | 1.76 | 1.78 |
| *Field moisture content* | % | 24.2 | 21.1 | 24.0 | 23.9 | 20.6 | 21.0 |

*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 | 19.0 |
| *Percent of oversize material* | wet | 0 | 0 | 0 | 0 | 0 | 0 |
| *Peak Converted Wet Density* | t/m³ | 1.85 | 1.83 | 1.84 | 1.83 | 1.84 | 1.84 |
| *Adjusted Peak Converted Wet Density* | t/m³ | - | - | - | - | - | - |
| *Optimum Moisture Content* | % | 26.5 | 24.0 | 26.0 | 26.0 | 22.5 | 22.5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Moisture Variation From Optimum Moisture Content* | 2.0% dry | 2.5% dry | 2.0% dry | 2.0% dry | 1.5% dry | 1.5% dry |

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***Density Ratio ( $R_{HD}$ )*** | % | **96.5** | **97.0** | **97.5** | **95.5** | **95.5** | **97.0** |

*Material description*

No 13 - 18 Clay Fill





Approved Signatory : Justin Fry

# COMPACTION ASSESSMENT

**CIVIL GEOTECHNICAL SERVICES**
6 - 8 Rose Avenue, Croydon 3136

| | | | |
|---|---|---|---|
| | | Job No | 22738 |
| | | Report No | 22738/R004 |
| | | Date Issued | 10/02/2023 |
| Client | WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD) | Tested by | JB |
| Project | UNITY PARK - STAGE 4 | Date tested | 08/02/23 |
| Location | TARNEIT | Checked by | JHF |

| | | | | | |
|---|---|---|---|---|---|
| **Feature** | **EARTHWORKS** | *Layer thickness* | 200 mm | *Time:* | 09:30 |

*Test procedure AS 1289.2.1.1 & 5.8.1*

| **Test No** | | **19** | **20** | **21** | **22** | **23** | **24** |
|---|---|---|---|---|---|---|---|
| *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* | 1.74 | 1.74 | 1.75 | 1.79 | 1.74 | 1.79 |
| *Field moisture content* | *%* | 21.9 | 26.3 | 19.9 | 19.4 | 22.1 | 18.5 |

*Test procedure AS 1289.5.7.1*

| *Test No* | | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|
| *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* | 1.81 | 1.81 | 1.77 | 1.82 | 1.82 | 1.82 |
| *Adjusted Peak Converted Wet Density* | *t/m³* | - | - | - | - | - | - |
| *Optimum Moisture Content* | *%* | 24.0 | 28.0 | 22.0 | 22.0 | 24.5 | 21.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Moisture Variation From Optimum Moisture Content* | 2.0% dry | 1.5% dry | 2.0% dry | 2.5% dry | 2.5% dry | 2.5% dry |

density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***Density Ratio ( $R_{HD}$ )*** | *%* | **96.0** | **96.0** | **99.0** | **98.0** | **95.5** | **98.0** |

*Material description*

No 19 - 24 Clay Fill





Approved Signatory : Justin Fry