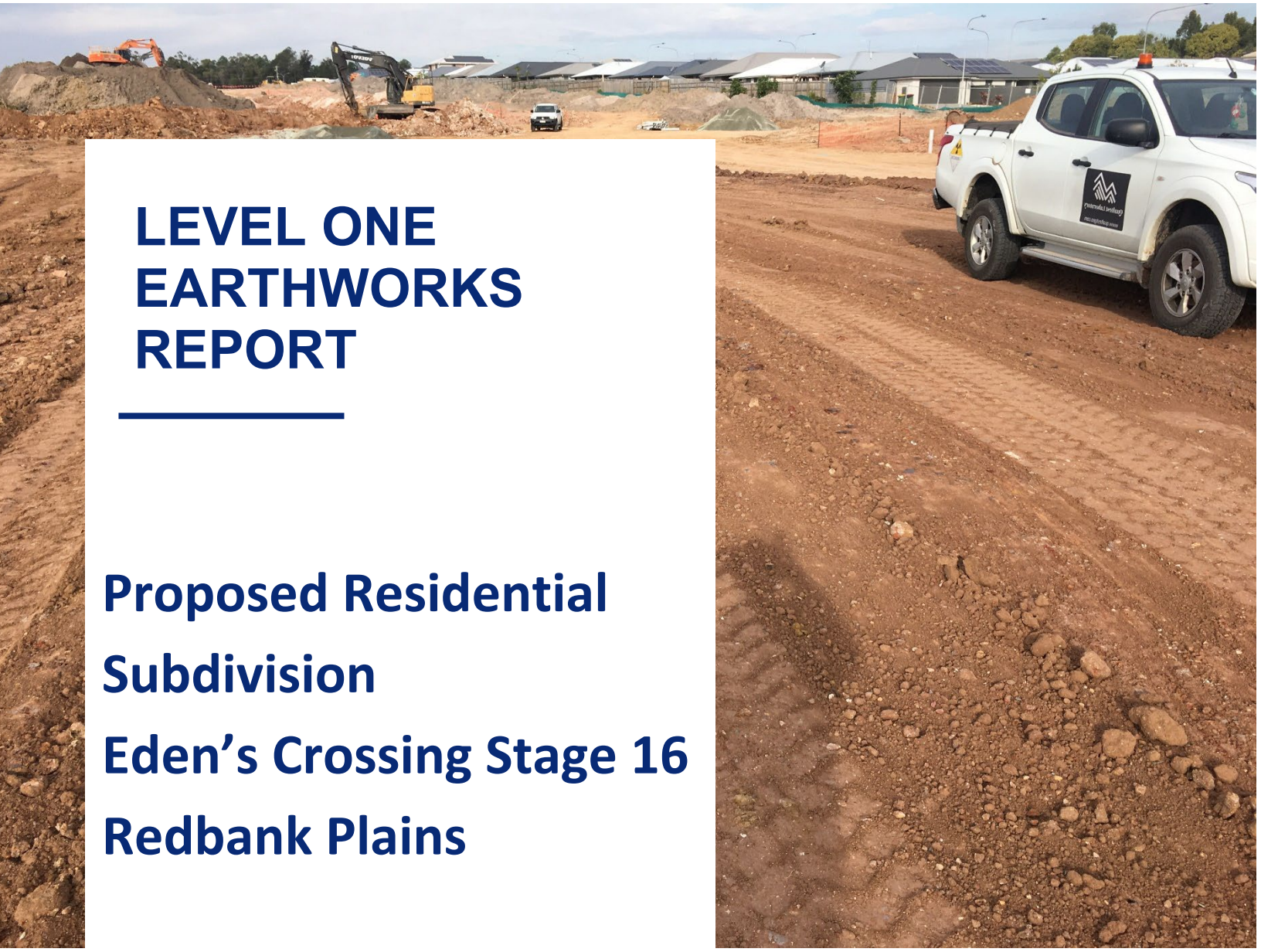

LEVEL ONE EARTHWORKS REPORT

Proposed Residential Subdivision
Eden's Crossing Stage 16
Redbank Plains

APRIL 24 2024

Shadforth Civil

Authored by: QUALTEST LABORATORY PTY LTD

REF: 5700

Qualtest Laboratory
Est. 1987

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Est. 1987

Ref: 5700
Job: 23-469_a
Author: R. Mitchell

24th April 2024

Shadforth Civil
99 Sandalwood Lane
Forest Glen Qld 4556

ATTENTION: **MR RILEY BROOKS**
Email: Riley.Brooks@shadcivil.com.au

Dear Sir,

RE: **LEVEL ONE EARTHWORKS REPORT**

PROJECT: **PROPOSED RESIDENTIAL SUBDIVISION**
EDEN'S CROSSING STAGE 16
REDBANK PLAINS

CLIENT: **SHADFORTH CIVIL**

CONSULTANT: **KN GROUP**

CONTRACTOR: **SHADFORTHS**

Revision	Date	Author	Reviewer	Description
0	**24.04.2024**	**R. Mitchell**	**M. Morrison**	**For Review**

Qualtest Laboratory Pty Ltd
2/40 Boyland Avenue
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ABN 74 010 752 815

1.0 INTRODUCTION

1.1 General

This report presents results and documentation for the Level One Inspection and Testing of earthworks filling operations at the proposed Residential Subdivision the Eden's Crossing Stage 16 development at Redbank Plains (The Site).

Qualtest Laboratory Pty Ltd was commissioned by Shadforth Civil (The Client) to provide Level 1 Earthworks Inspection and Testing services as defined in Section 8 of AS3798.

Filling operations covered by this report were constructed between 14th November 2023 and 9th February 2024.

The purpose of Level 1 commission and this report is to provide an opinion that the earthworks operations carried out by the Client have been carried out in accordance with AS3798, relevant project specifications and Local Authority requirements as appropriate.

This report has been carried out in general accordance with the following: -

- AS3798-2007 - Guidelines on Earthwork for Commercial and Residential Development
- KN Group Consulting Engineers Notes and Drawings
- Ipswich City Council Requirements.

This report does not cover underground services, trench backfill, pavements, retaining walls, filling outside areas shown on Figure 2 or any other works after 9th February 2024.

1.2 Previous Earthworks

Existing fill was present at The Site. Previous fill was constructed by Shadforth Civil under Level One Inspections and Testing by Qualtest Laboratory and Morrison Geotechnic.

For information regarding the existing fill, refer to the below reports: -

- Morrison Geotechnic Report "Level One Compliance Report, Bulk Earthworks Filling Operations, Eden's Crossing Stage 15A, Mt Juillerat Drive, Redbank Plains" dated March 24th 2021 with the fill being constructed between 1st November 2018 and 27th July 2019.
- Morrison Geotechnic Report "Level One Compliance Report, Bulk Earthworks Filling Operations, Eden's Crossing Stage 15B, Redbank Plains" dated May 5th 2021 with the fill being constructed between 1st November 2018 and 28th April 2021.
- Qualtest Laboratory Report "Level One Earthworks Report, Proposed Residential Subdivision, Eden's Crossing Stage 27, 28 and 29" dated 2nd June 2023 with the fill being constructed between 24th January 2023 and 31st March 2023.

The above reports have been reviewed by Qualtest Laboratory. The reports are considered to be appropriate for the existing fill. Qualtest Laboratory relies on the details in this report being correct and accurate but cannot warrant work by others.

1.3 The Development

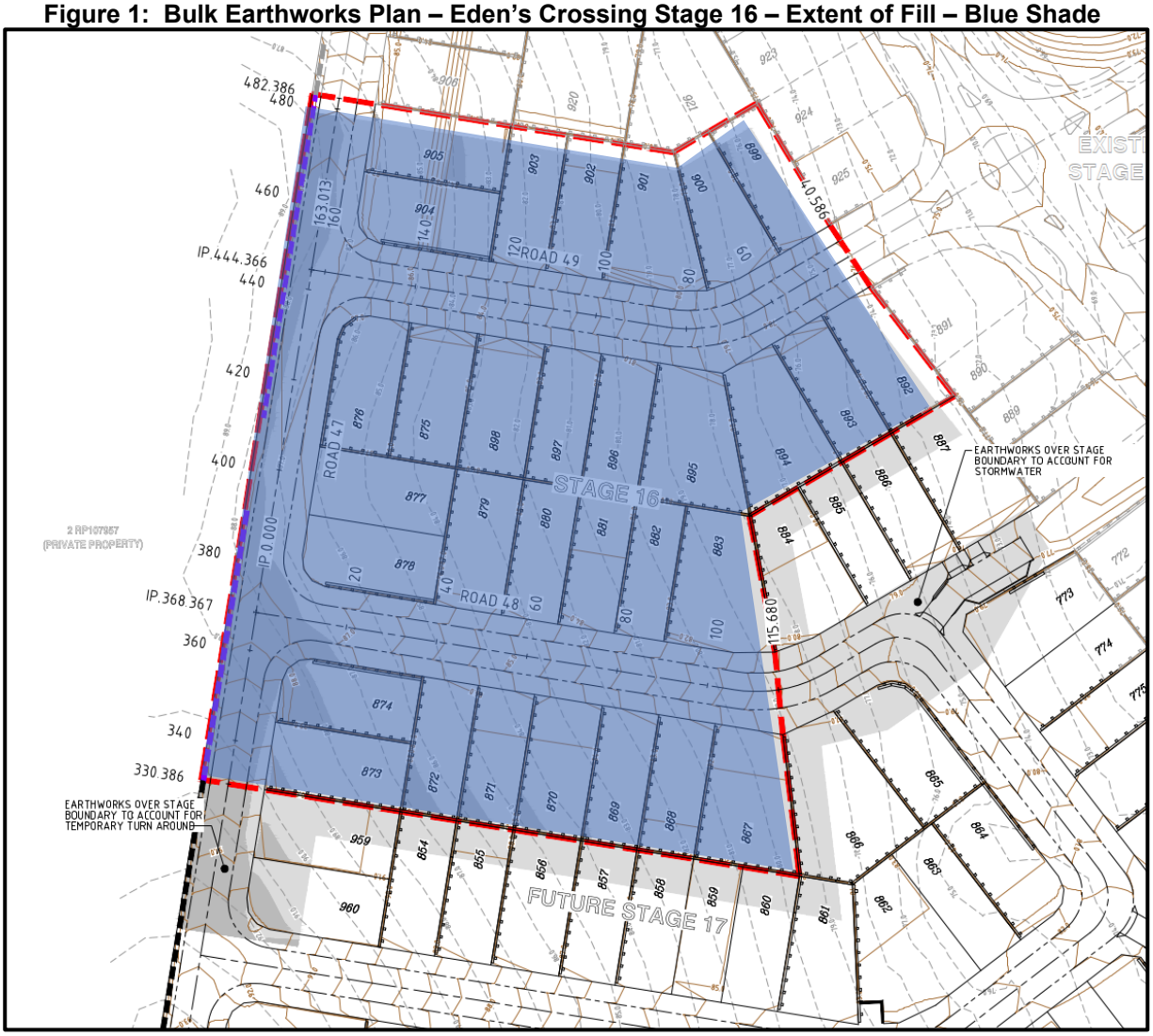
The development comprises of the following: -

- 31 residential lots and associated infrastructure including roads and underground services.

Earthworks to be constructed at the site are presented on KN Group Consulting Engineers Drawings.

A marked-up plan showing the extent of fill covered by this report is presented as Figures 1 below.

Figure 1: Bulk Earthworks Plan – Eden's Crossing Stage 16 – Extent of Fill – Blue Shade



2.0 WORKS AND SPECIFICATIONS

All filling operations at the Site are to be placed and compacted in accordance with the following: -

- Level One Inspection and Testing of the placement and compaction of fill materials in accordance with AS 3798 2007 – "Guidelines on Earthworks for Commercial and Residentail Developments".

- Relative Density Control Testing in accordance with AS 1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS 3798 Table 8.1.

- Ipswich City Council Specifications.

- KN Group Consulting Engineers Drawings and Notes on Drawings.
- Density Ratio – 95% Standard

Low reactive fill materials has been used as capping over potentially reactive soils was to generally conform to the following criteria: -

- Shrink Swell Index (Iss) – 1.5% Max.
- Particle Size Distribution:
  - Max Particle Size – 75mm
  - % passing 19mm – 80% Min.
  - % passing 0.075mm – 10% Min.
- Plasticity:
  - Liquid Limit – 45% Max.
  - Plasticity Index - >7% <20%
- Permeability – 5 x 10^{-7} m/s Max.

3.0 FILL FOUNDATION

Areas to be filled at the site were observed to be stripped of vegetation, grass, redundant services, existing uncontrolled fill, water affected ground and topsoil to depths exposing competent natural ground.

Compliance of the fill foundation and approval to commence filling was on the basis of: -

- Adequate removal of topsoil, organics and existing fill to expose natural soils consisting of: -
  - Sandy Clay (SC), at least stiff, medium plastic fines, orange brown and moist.
  - Sandstone (XW), typically low strength, fine to coarse sands, grey brown.
- Compliant proof roll testing of the stripped surface using onsite earthworks plant.

A picture of the stripped natural surface observed prior to filling are presented below.

Picture 1: Stripped Natural Surface

4.0 FILLING OPERATIONS

Fill at the site was sourced from the following locations: -

- General Fill below 1.2m from Final Earthworks Levels
    - Onsite cuts, stockpiles, trench and road box spoil.

- Low Reactive Capping Fill between the final earthworks level and 1.2m below.
    - Onsite Borrow sources consisting ripped sandstone

All fill materials were appropriately blended and moisture conditions prior to and during placement and compaction.

Materials used as fill can be broadly summarised as: -

- Lower Fill Materials – Below 1.2m from the finished earthworks levels
    - Sandy Clay (CI) medium plasticity, fine to medium sands, orange brown and moist.
    - Silty Clay (CI – CH), medium to high plasticity, traces of sand, dark brown and moist.
    - Silty Sand (SM) fine to medium sands, low elastic fines, grey brown and moist.
- Capping Materials – Upper 1.2m of the fill profile and borrowed from local borrow pit.
    - Clayey Sand (SC), fine to coarse sand, low plasticity fines, traces of fine to medium gravel and moist.
    - Sandy Clay (CL), low to medium plasticity fines, fine to coarse sand and moist.

Fill was constructed using the following plant: -

- Excavators
- Water Truck
- Dozer
- Scrapers
- Padfoot Roller
- Compactor
- Grader
- Articulated Dump Trucks

Fill was observed to be placed in layers within the capacity of the above plant, appropriately moisture conditioned and compacted using several passes.

To the extent that was reasonably practicable, fill materials visibly containing excessive amounts of silts or deleterious materials such as sticks, oversize particles were sorted to remove the contaminants prior to placement or rejected for use. Some cobble sized particles may remain in the body of the fill, however, are unlikely to be in sufficient quantities to adversely affect the performance of the new fill. Sloping areas requiring filling were benched and continually keyed into the slope prior to and during fill placement.

Pictures of the filling operations are presented below.

Picture 2: Filling Operations

Picture 3: Filling Operations

Samples of the capping materials used between the final earthworks level and 1.2m below were collected after compaction and testing generally conformed with the criteria presented in Section 2 and are summarised below in Table 1. Test reports are attached.

Table 1 – Summary of Capping Materials Test Results.

Test Number	Particle Size % Passing			Plasticity Index %		Shrink Swell (%)
	75mm	19mm	0.075mm	LL	PI	
S8359A	100	97	19	35	13	0.5
S8151A	100	100	13	34	11	0.8
S8170A	100	100	21	33	12	0.8
S8525A	100	92	21	34	15	0.6
S8745A	100	100	20	39	24	0.3
S8769A	100	100	31	35	19	0.6
S8829A	100	100	29	36	21	0.8

Notes.
LL – Liquid Limit
PI – Plasticity Index
LS – Linear Shrinkage
Green – Meets Specification
Red – Does not meet specification

The tested materials generally conform to the specification with the exception of Sample S8745A and S8829A, however the outliers do not affect the performance of the fill as a whole.

The permeability testing have passed the required specification of 5 x 10^{-7} m/s Max.

5.0 COMPACTION TESTING

Compaction testing was carried out on the compacted fill materials in accordance with Table 5.1 and 8.1 of AS3798 2007 and tested to AS1289 test methods. All test locations were selected by Qualtest at random and staggered over the fill area and depth. Test locations were not obtained by survey and on this basis, the locations should be considered as approximate only.

Compaction testing achieved the minimum required compaction specification of 95% Standard at the test locations. Areas where the compaction specification was not achieved were reworked and re-tested using random stratified location processes.

The location of the compaction tests and area of fill covered under this report are shown on the Site Plan contained in Appendix A.

Compaction Test Reports and Capping Compliance Testing are contained in Appendix B.

6.0 STATEMENT OF COMPLIANCE

Our representatives observed the relevant earthworks operations during our engagement including the stripped surface, new fill placement and compaction operations, and compaction testing.

As far as Qualtest could assess, the fill at The Site has been observed to be placed and compacted in accordance with the requirements outlined in Section 2.0.

The fill at The Site can be considered to be “Controlled” as defined in AS2870.

7.0 EXCLUSIONS

The compliance statement specifically excludes any topsoil, which may be placed for use as Lot dressing or any other subsequent earthworks after 9th April 2024. All trench backfill, underground services, landscaping fill, fill outside the area shown as Figure 1 and other fill placed without our knowledge is also excluded.

Assessments of batter stability, global stability, and material quality such as soaked CBR and site classifications are excluded from this commission. The stability of any fill batters in the long term must take account of the variable materials used for the construction of the fill platforms and all surface loads including traffic loads near the crest of all batters.

Our on-site attendance specifically excludes assessments of fill material quality and engineering properties that are outside the requirements of AS.3798 - 2007, including soil or fill reactivity and soaked CBR values. We note that the fill materials comprise clay soils, which may result in unfavourable site classifications for individual lots and low subgrade design strengths for pavements.

Controlled fill (Level 1 Fill) provides an overview that the Earthwork Specification has been met. There are instances where significant long-term settlements of controlled fill can occur. Large total and differential settlements can be expected where fill has been placed over soft and compressible soils and where the thickness of controlled fill varies significantly across a lot.

Should you require further information regarding the above please do not hesitate to contact this office.

Yours faithfully,

MICHAEL MORRISON
For and on behalf of
QUALTEST LABORAOTRY PTY LTD.

Appendix A – Site Plan and Compaction Test Locations
Appendix B - Compaction Test Reports

APPENDIX A

Site Plan and Compaction Test Locations

Qualtest Laboratory
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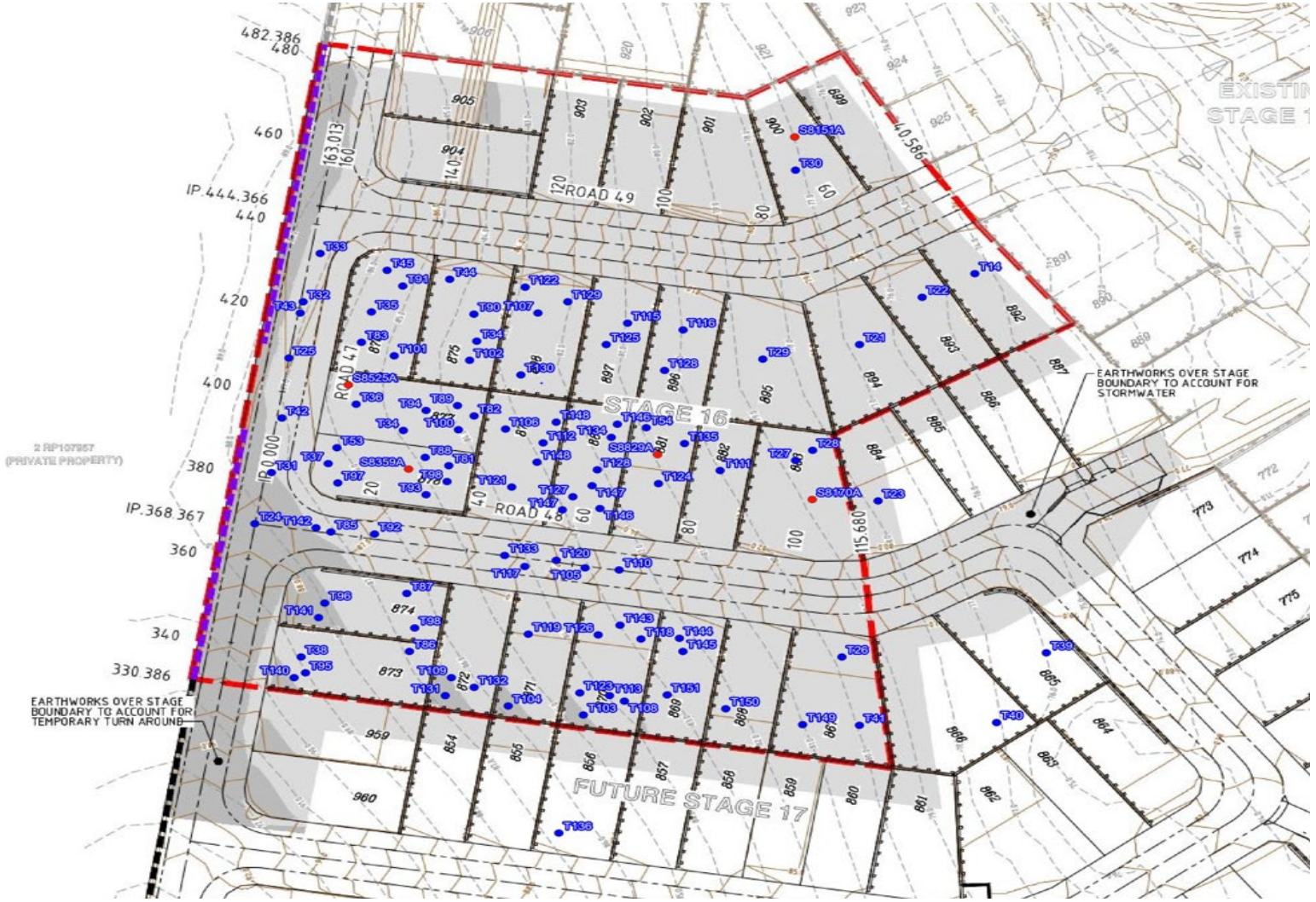

LEGEND:

Test Locations

CLIENT: Shadforth Civil	**TITLE: Test Locations**	**DRAWING NO: 23-469-01**
		DATE: 24th April 2024
LOCATION: Eden's Crossing Stage 16		**PROJECT NO: 23-469**
		CHECKED BY: GG

APPENDIX B

COMPACTION TEST REPORTS

Qualtest Laboratory
Est. 1987

Material Test Report

Report Number: **23-469_a-4**
Issue Number: 1
Date Issued: 21/11/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8126
Date Sampled: 14/11/2023
Dates Tested: 14/11/2023 - 20/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and preparation of soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Stage 16 / 17
Material: General Fill
Material Source: Onsite - Capping

Qualtest Laboratory Pty Ltd
Brisbane Laboratory
2 / 40 Boyland Ave Cooper Plains QLD 4108
Phone: 0417 011 515
Email: rhys@qualtestgeo.com

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	S8126A	S8126B	S8126C	S8126D	S8126E	S8126F
Test Number	18	19	20	21	22	23
Date Tested	14/11/2023	14/11/2023	14/11/2023	14/11/2023	14/11/2023	14/11/2023
Time Tested	14:00	14:05	14:10	14:15	14:20	14:25
Test Request #/Location	Lot 885 - Capping	Lot 886 - Capping	Lot 884 - Capping	Lot 894 - Capping	Lot 893 - Capping	Lot 884 - Capping
Easting	6m from Back Boundary	8m from Back Boundary	6m from Front Boundary	7m from Back Boundary	7m from Front Boundary	5m from Front Boundary
Northing	5m from Left Boundary	5m from Right Boundary	6m from Left Boundary	6m from Right Boundary	5m from Left Bounday	5m from Right Boundary
Layer / Reduced Level	FSL	FSL	0.6m Below FSL	FSL	FSL	FSL
Thickness of Layer (mm)	175	175	175	175	175	175
Soil Description	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.10	2.11	2.08	2.09	2.05	2.05
Field Moisture Content %	10.6	10.0	10.6	11.5	10.3	9.7
Field Dry Density (FDD) t/m^3	1.90	1.92	1.88	1.87	1.86	1.86
Peak Converted Wet Density t/m^3	2.06	2.07	2.01	2.07	2.05	2.06
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	2.5	2.0	2.0	2.0	2.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**102.5**	**102.0**	**103.0**	**101.0**	**100.0**	**99.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-5**
Issue Number: 1
Date Issued: 21/11/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8150
Date Sampled: 15/11/2023
Dates Tested: 15/11/2023 - 20/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and preparation of soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Stage 16 / 17
Material: General Fill
Material Source: Onsite

Qualtest Laboratory Pty Ltd
Brisbane Laboratory
2 / 40 Boyland Ave Cooper Plains QLD 4108
Phone: 0417 011 515
Email: rhys@qualtestgeo.com

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	S8150A	S8150B	S8150C	S8150D	S8150E
Test Number	24	25	26	27	28
Date Tested	15/11/2023	15/11/2023	15/11/2023	15/11/2023	15/11/2023
Time Tested	10:30	10:35	10:40	10:45	14:00
Test Request #/Location	Road 47 - Sub Capping	Road 47 - Sub Capping	Lot 867 - Sub Capping	Lot 883 - Capping	Lot 883 - Capping
Chainage (m)	365	405	5m from Front Boundary	6m from Back Boundary	5m from Front Boundary
Location Offset (m)	2m Right of CL	CL	6m from Right Boundary	5m from Left Boundary	5m from Right Boundary
Layer / Reduced Level	5.0m Below FSL	4.5m Below FSL	1.2m Below FSL	0.6m Below FSL	FSL
Thickness of Layer (mm)	175	175	175	175	175
Soil Description	Sandy CLAY	Sandy CLAY	Sandy CLAY	Clayey SAND	Clayey SAND
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m^3	1.99	2.03	2.04	2.08	2.10
Field Moisture Content %	18.6	18.9	19.0	18.7	18.3
Field Dry Density (FDD) t/m^3	1.68	1.71	1.71	1.75	1.77
Peak Converted Wet Density t/m^3	1.99	2.07	2.09	2.11	2.10
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	-0.5	0.0	1.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**100.0**	**98.5**	**97.5**	**99.0**	**99.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-5**
Issue Number: 1
Date Issued: 21/11/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8150
Date Sampled: 15/11/2023
Dates Tested: 15/11/2023 - 20/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and preparation of soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Stage 16 / 17
Material: General Fill
Material Source: Onsite

Qualtest Laboratory Pty Ltd
Brisbane Laboratory
2 / 40 Boyland Ave Cooper Plains QLD 4108
Phone: 0417 011 515
Email: rhys@qualtestgeo.com

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	S8150F	S8150G	S8150H	S8150I	S8150J
Test Number	29	30	31	32	33
Date Tested	15/11/2023	15/11/2023	15/11/2023	15/11/2023	15/11/2023
Time Tested	14:05	14:10	14:15	14:20	14:25
Test Request #/Location	Lot 895 - Capping	Lot 900 - Capping	Road 47 - Sub Capping	Road 47 - Sub Capping	Road 47 - Sub Capping
Chainage (m)	Centre of Lot	Centre of Lot	380	420	435
Location Offset (m)	**	**	CL	2m Right of CL	1m Right of CL
Layer / Reduced Level	FSL	0.6m Below FSL	4.0m Below FSL	3.5m Below FSL	3.0m Below FSL
Thickness of Layer (mm)	175	175	175	175	175
Soil Description	Clayey SAND	Clayey SAND	Sandy CLAY	Sandy CLAY	Sandy CLAY
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.08	2.06	2.04	2.04	2.05
Field Moisture Content %	18.5	18.5	19.0	18.4	18.6
Field Dry Density (FDD) t/m^3	1.75	1.74	1.72	1.73	1.73
Peak Converted Wet Density t/m^3	2.13	2.09	2.09	2.10	2.10
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.5	0.0	0.0	-0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**97.5**	**98.5**	**98.0**	**97.5**	**97.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-6**
Issue Number: 1
Date Issued: 22/11/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8179
Date Sampled: 17/11/2023 11:00
Dates Tested: 17/11/2023 - 21/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and preparation of soils
Specification: 95% Standard
Site Selection: AS 1289.1.4.1
Location: Edens Crossing - stage 16/17
Material: General Fill
Material Source: Onsite

Qualtest Laboratory Pty Ltd
Brisbane Laboratory
2 / 40 Boyland Ave Cooper Plains QLD 4108
Phone: 0417 011 515
Email: greg@qualtestgeo.com

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
ql-greg
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	S8179A	S8179B	S8179C	S8179D
Test Number	42	43	44	45
Date Tested	17/11/2023	17/11/2023	17/11/2023	17/11/2023
Time Tested	11:06	11:12	11:16	11:20
Test Request #/Location	Road 47	Road 48	Lot 875	Lot 876
Chainage (m)	390	420	5m from North boundary	6m from North boundary
Location Offset (m)	Centre of Road	Centre of Road	3m from West boundary	7m from West boundary
Layer / Reduced Level	1.2m below final level	1.2m below final level	3.3m below final level	2.8m below final level
Thickness of Layer (mm)	175	175	175	175
Soil Description	Silty CLAY	Silty CLAY	Silty CLAY	Silty CLAY
Test Depth (mm)	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	4	0	0	5
Field Wet Density (FWD) t/m^3	2.08	1.96	2.04	2.06
Field Moisture Content %	8.3	11.1	10.7	9.8
Field Dry Density (FDD) t/m^3	1.92	1.76	1.85	1.88
Peak Converted Wet Density t/m^3	**	2.05	2.13	**
Adjusted Peak Converted Wet Density t/m^3	2.18	**	**	2.13
Moisture Variation (Wv) %	**	1.5	2.5	**
Adjusted Moisture Variation %	2.5	**	**	1.0
Hilf Density Ratio (%)	**95.5**	**95.5**	**96.0**	**97.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-7**
Issue Number: 1
Date Issued: 22/11/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8169
Date Sampled: 16/11/2023
Dates Tested: 16/11/2023 - 22/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and preparation of soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Stage 16 / 17
Material: General Fill
Material Source: Onsite

Qualtest Laboratory Pty Ltd
Brisbane Laboratory
2 / 40 Boyland Ave Cooper Plains QLD 4108
Phone: 0417 011 515
Email: rhys@qualtestgeo.com

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	S8169A	S8169B	S8169C	S8169D
Test Number	34	35	36	37
Date Tested	16/11/2023	16/11/2023	16/11/2023	16/11/2023
Time Tested	14:00	14:05	14:10	14:15
Test Request #/Location	Lot 875 - Sub Capping	Lot 876 - Sub Capping	Lot 877 - Sub Capping	Lot 878 - Sub Capping
Easting	3m from Front Boundary	4m from Front Boundary	3m from Front Boundary	2m from Front Boundary
Northing	Centre of Lot	Centre of Lot	Centre of Lot	Centre of Lot
Layer / Reduced Level	5m below FSL	4.5m below FSL	4.5m below FSL	4.0m below FSL
Thickness of Layer (mm)	175	175	175	175
Soil Description	Sandy CLAY	Sandy CLAY	Sandy CLAY	Sandy CLAY
Test Depth (mm)	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0
Field Wet Density (FWD) t/m^3	2.04	2.05	2.08	2.07
Field Moisture Content %	10.7	9.1	11.2	13.1
Field Dry Density (FDD) t/m^3	1.84	1.88	1.88	1.83
Peak Converted Wet Density t/m^3	2.08	2.03	2.14	2.11
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**
Moisture Variation (Wv) %	2.5	3.0	0.5	2.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	**98.5**	**101.0**	**97.5**	**98.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: 23-469_a-7
Issue Number: 1
Date Issued: 22/11/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8169
Date Sampled: 16/11/2023
Dates Tested: 16/11/2023 - 22/11/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and preparation of soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Stage 16 / 17
Material: General Fill
Material Source: Onsite

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	S8169E	S8169F	S8169G	S8169H
Test Number	38	39	40	41
Date Tested	16/11/2023	16/11/2023	16/11/2023	16/11/2023
Time Tested	14:20	14:25	14:30	14:35
Test Request #/Location	Lot 873 - Sub Capping	Lot 865 - Capping	Lot 866 - Capping	Lot 867 - Capping
Easting	3m from Front Boundary	Centre of Lot	6m from Back Boundary	8m from Back Boundary
Northing	Centre of Lot	**	5m from Right Boundary	6m from Left Boundary
Layer / Reduced Level	3.8m below FSL	FSL	0.6m Below FSL	FSL
Thickness of Layer (mm)	175	175	175	175
Soil Description	Sandy CLAY	Clayey SAND	Clayey SAND	Clayey SAND
Test Depth (mm)	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0
Field Wet Density (FWD) t/m^3	2.05	2.06	2.10	2.07
Field Moisture Content %	12.3	10.0	9.7	10.1
Field Dry Density (FDD) t/m^3	1.82	1.87	1.91	1.88
Peak Converted Wet Density t/m^3	2.06	2.11	2.13	2.08
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**
Moisture Variation (Wv) %	2.5	1.0	1.5	3.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	**99.0**	**97.5**	**98.0**	**99.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-18**
Issue Number: 1
Date Issued: 18/12/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8373
Date Sampled: 12/12/2023
Dates Tested: 12/12/2023 - 18/12/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stages 16-26, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	S8373A	S8373B	S8373C	S8373D	S8373E
Test Number	81	82	83	84	85
Date Tested	12/12/2023	12/12/2023	12/12/2023	12/12/2023	12/12/2023
Time Tested	11:00	11:10	11:20	11:30	11:40
Test Request #/Location	Stage 16, Lot 878	Stage 16, Lot 877	Stage 16, Lot 876	Stage 16, Lot 875	Road 48
Line / Offset	O/S NW CNR	O/S NW CNR	O/S NW CNR	O/S NW CNR	CH 20
Offset	4m South, 8m East	3m South, 10m East	8m South, 4m East	12m South, 4m East	CL
Elevation (m)	84.00	82.50	81.50	81.50	81.00
Thickness of Layer (mm)	200	200	200	200	200
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	175	175	175	175	175
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.06	2.04	2.02	2.02	1.98
Field Moisture Content %	17.4	19.5	19.7	20.5	20.0
Field Dry Density (FDD) t/m^3	1.75	1.71	1.69	1.67	1.65
Peak Converted Wet Density t/m^3	2.09	2.04	2.04	2.04	2.02
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	0.5	2.0	2.0	2.5	0.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**98.5**	**100.0**	**99.0**	**99.0**	**98.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-19**
Issue Number: 1
Date Issued: 19/12/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8413
Date Sampled: 14/12/2023 7:30
Dates Tested: 14/12/2023 - 19/12/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stages 16-26, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	S8413A	S8413B	S8413C
Test Number	92	93	94
Date Tested	14/12/2023	14/12/2023	14/12/2023
Time Tested	11:00	11:10	11:30
Test Request #/Location	Stage 16, Road 48	Stage 18, Lot 878	Stage 16, Lot 877
Line / Offset	CH 30	O/S NW CNR	O/S NW CNR
Offset	1m Right of CL	10m East, 3m South	14m East, 5m South
Elevation (m)	RL: 86.66	RL: 86.31	RL: 85.50
Thickness of Layer (mm)	200	200	200
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m^3	2.00	1.98	2.04
Field Moisture Content %	20.2	19.7	19.4
Field Dry Density (FDD) t/m^3	1.67	1.65	1.71
Peak Converted Wet Density t/m^3	2.01	2.01	2.01
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	2.0	1.5	1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**100.0**	**98.0**	**101.5**
Compaction Method	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-20**
Issue Number: 1
Date Issued: 19/12/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8389
Date Sampled: 13/12/2023 7:30
Dates Tested: 13/12/2023 - 18/12/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stages 16-26, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	S8389A	S8389B	S8389C	S8389D	S8389E	S8389F
Test Number	86	87	88	89	90	91
Date Tested	13/12/2023	13/12/2023	13/12/2023	13/12/2023	13/12/2023	13/12/2023
Time Tested	11:00	11:10	11:20	11:30	14:00	14:10
Test Request #/Location	Stage 16, Lot 873	Stage 16, Lot 874	Stage 16, Lot 878	Stage 16, Lot 877	Stage 16, Lot 875	Stage 16, Lot 876
Line / Offset	O/S NE CNR	O/S NE CNR	O/S NE CNR	O/S NE CNR	O/S NE CNR	O/S NE CNR
Offset	**	**	**	**	**	**
Layer / Reduced Level	**	**	**	**	**	**
Thickness of Layer (mm)	200	200	200	200	200	200
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m^3	1.87	1.85	1.86	1.87	1.88	1.93
Field Moisture Content %	33.9	13.6	22.2	19.3	14.4	20.6
Field Dry Density (FDD) t/m^3	1.40	1.63	1.52	1.57	1.64	1.60
Peak Converted Wet Density t/m^3	1.92	1.94	1.94	1.92	1.93	1.93
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	2.0	2.0	2.0	2.0	2.0	2.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**97.5**	**95.5**	**96.0**	**97.5**	**97.0**	**100.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-22**
Issue Number: 1
Date Issued: 20/12/2023
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8432
Date Sampled: 15/12/2023 7:00
Dates Tested: 15/12/2023 - 19/12/2023
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16-26, Ipswich
Material: General Fill
Material Source: Onsite

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
ql-greg
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	S8432A	S8432B	S8432C
Test Number	95	96	97
Date Tested	15/12/2023	15/12/2023	15/12/2023
Time Tested	10:00	10:10	10:20
Test Request #/Location	Stage 16- Lot 873	Stage 16 - Lot 874	Stage 16 - Lot 878
Line / Offset	O/S NE CNR	O/S NE CNR	O/S NE CNR
Offset	5m West, 4m South	5m West, 4m South	5m West, 4m South
Elevation (m)	RL: 86.00	RL: 85.80	RL: 85.60
Thickness of Layer (mm)	200	200	200
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m^3	1.99	1.98	2.04
Field Moisture Content %	19.7	19.6	16.4
Field Dry Density (FDD) t/m^3	1.66	1.66	1.75
Peak Converted Wet Density t/m^3	2.02	1.99	2.06
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	1.0	1.0	1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**98.5**	**99.5**	**99.0**
Compaction Method	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-23**
Issue Number: 1
Date Issued: 22/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8524
Date Sampled: 15/01/2024 7:00
Dates Tested: 15/01/2024 - 16/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Greg Gibson
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NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	S8524A	S8524B	S8524C	S8524D	S8524E
Test Number	98	99	100	101	102
Date Tested	15/01/2024	15/01/2024	15/01/2024	15/01/2024	15/01/2024
Time Tested	10:00	10:10	10:20	10:30	10:40
Test Request #/Location	Stage 16 - Lot 874	Stage 16 - Lot 878	Stage 16 - Lot 877	Stage 16 - Lot 876	Stage 16 - Lot 875
Line / Offset	O/S NW CNR	O/S NW CNR	O/S NW CNR	O/S NW CNR	O/S NW CNR
Offset	4m South, 8m East	4m South, 9m East	3m South, 5m East	4m South, 8m East	3m South, 6m East
Elevation (m)	RL: 87.45	RL: 87.43	RL: 86.83	RL: 86.89	RL: 86.53
Thickness of Layer (mm)	175	175	175	175	175
Soil Description	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.02	1.95	2.02	2.01	2.03
Field Moisture Content %	9.7	6.6	11.1	6.5	8.8
Field Dry Density (FDD) t/m^3	1.84	1.83	1.82	1.89	1.87
Peak Converted Wet Density t/m^3	2.09	2.03	2.10	2.04	2.09
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	1.5	2.0	2.0	2.5	1.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**96.5**	**96.0**	**96.5**	**98.5**	**97.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-26**
Issue Number: 1
Date Issued: 23/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8359
Sample Number: S8359A
Date Sampled: 11/12/2023
Dates Tested: 11/12/2023 - 22/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: **Lot 878, Centre of Lot, Depth: Final Level**

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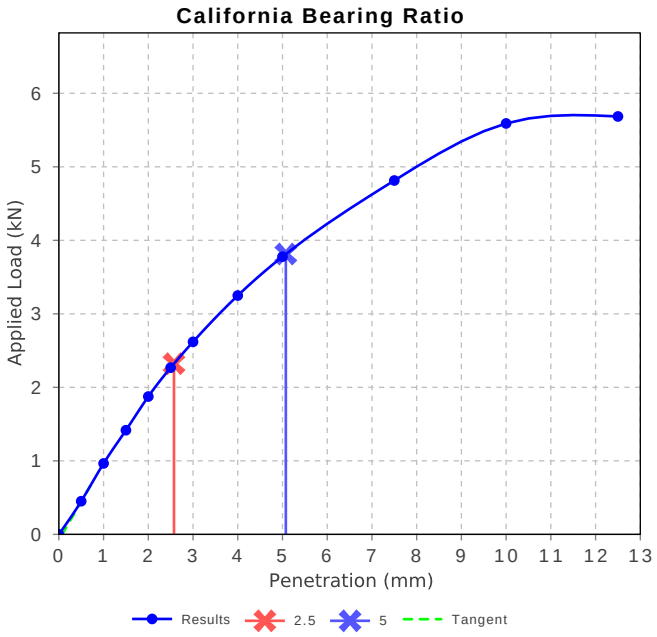
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**19**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.87		
Optimum Moisture Content (%)	10.0		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	103.5		
Dry Density after Soaking (t/m^3)	1.86		
Field Moisture Content (%)	10.3		
Moisture Content at Placement (%)	10.4		
Moisture Content Top 30mm (%)	14.3		
Moisture Content Rest of Sample (%)	13.5		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	191.0		
Swell (%)	0.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: **23-469_a-26**
Issue Number: 1
Date Issued: 23/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8359
Sample Number: S8359A
Date Sampled: 11/12/2023
Dates Tested: 11/12/2023 - 17/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Site Selection: Selected by GTA
Sample Location: **Lot 878, Centre of Lot, Depth: Final Level**

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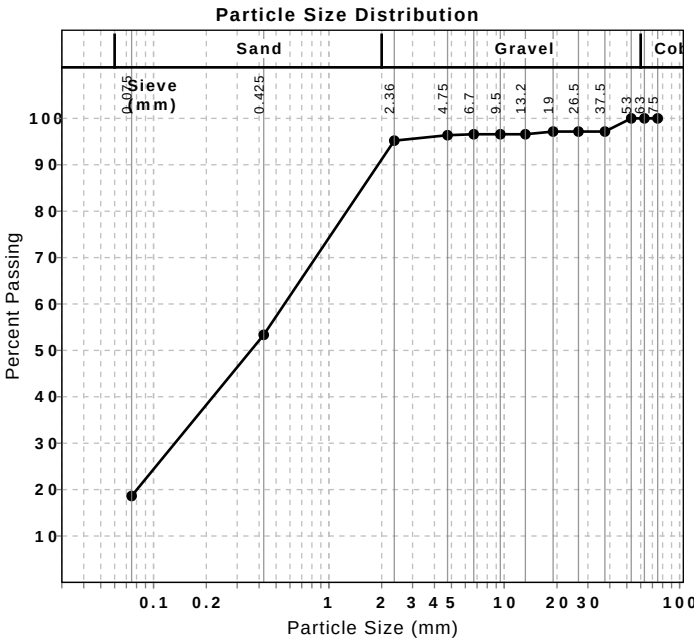
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Particle Size Distribution (Q103A & AS 1289.2.1.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
75 mm	**100**			0		
63 mm	**100**			0		
53 mm	**100**			0		
37.5 mm	**97**			3		
26.5 mm	**97**			0		
19 mm	**97**			0		
13.2 mm	**97**			1		
9.5 mm	**97**			0		
6.7 mm	**97**			0		
4.75 mm	**96**			0		
2.36 mm	**95**			1		
0.425 mm	**53**			42		
0.075 mm	**19**			35		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	35		
Plastic Limit (%)	22		
Plasticity Index (%)	**13**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	**7.0**		
Cracking Crumbling Curling	None		



Material Test Report

Report Number: **23-469_a-26A**
Issue Number: 1
Date Issued: 23/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8359
Dates Tested: 11/12/2023 - 18/01/2024
Location: Edens Crossing, Stages 16-26, Ipswich

Qualtest Laboratory Pty Ltd
Brisbane Laboratory
2 / 40 Boyland Ave Cooper Plains QLD 4108
Phone: 0417 011 515
Email: rhys@qualtestgeo.com

Rhys Mitchell (Field Technician)

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S8359A				
Date Sampled	11/12/2023				
Date Tested	18/01/2024				
Material Source	Onsite				
Sample Location	Lot 878, Centre of Lot (Final Level)				
Inert Material Estimate (%)	**				
Pocket Penetrometer before (kPa)	>600				
Pocket Penetrometer after (kPa)	>600				
Shrinkage Moisture Content (%)	11.5				
Shrinkage (%)	**0.8**				
Swell Moisture Content Before (%)	11.1				
Swell Moisture Content After (%)	12.7				
Swell (%)	**0.1**				
Shrink Swell Index Iss (%)	**0.5**				
Visual Description	Clayey Sand				
Cracking	UC				
Crumbling	No				
Remarks	**				

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report

Report Number: **23-469_a-30**
Issue Number: 1
Date Issued: 24/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8151
Sample Number: S8151A
Date Sampled: 15/11/2023
Dates Tested: 15/11/2023 - 18/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Site Selection: Selected by GTA
Sample Location: **Lot 900, Centre of Lot, Depth: FSL**
Material: Clayey Sand - Ripped Sandstone
Material Source: Onsite

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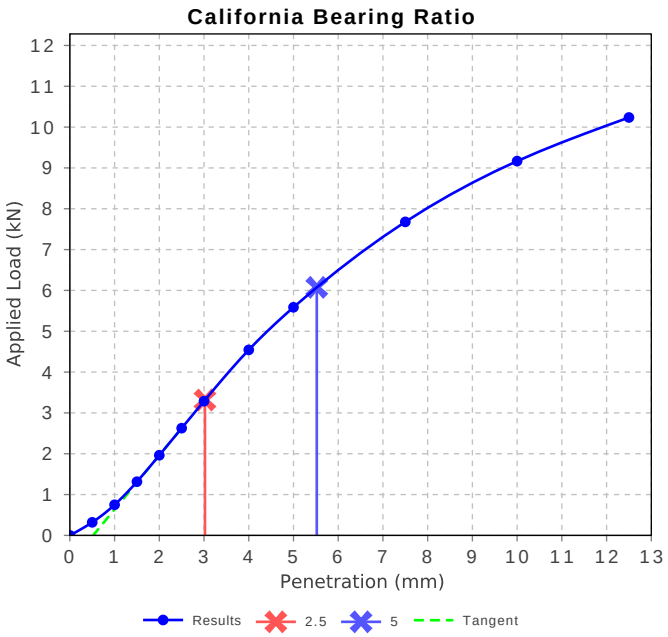
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**30**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.85		
Optimum Moisture Content (%)	14.5		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	97.5		
Dry Density after Soaking (t/m^3)	1.86		
Field Moisture Content (%)	14.0		
Moisture Content at Placement (%)	14.0		
Moisture Content Top 30mm (%)	14.9		
Moisture Content Rest of Sample (%)	14.0		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	379.2		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	9.1		



Material Test Report

Report Number: **23-469_a-30**
Issue Number: 1
Date Issued: 24/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8151
Sample Number: S8151A
Date Sampled: 15/11/2023
Dates Tested: 15/11/2023 - 17/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Site Selection: Selected by GTA
Sample Location: **Lot 900, Centre of Lot, Depth: FSL**
Material: Clayey Sand - Ripped Sandstone
Material Source: Onsite

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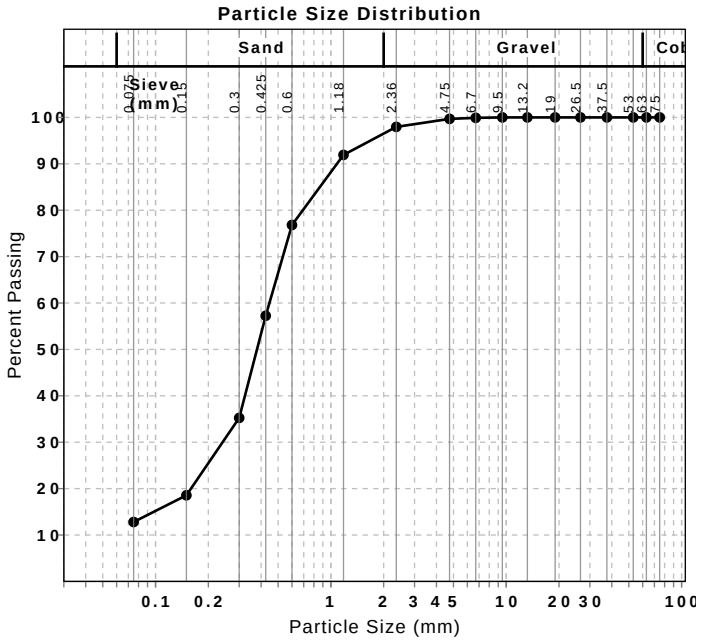
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
75 mm	**100**			0		
63 mm	**100**			0		
53 mm	**100**			0		
37.5 mm	**100**			0		
26.5 mm	**100**			0		
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**100**			0		
2.36 mm	**98**			2		
1.18 mm	**92**			6		
0.6 mm	**77**			15		
0.425 mm	**57**			20		
0.3 mm	**35**			22		
0.15 mm	**19**			17		
0.075 mm	**13**			6		



Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1 & Q252)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Passing 0.425 (%)	57		
Liquid Limit (%)	34		
Plastic Limit (%)	23		
Plasticity Index (%)	**11**		
Weighted Plasticity Index (%)	630		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	**6.5**		
Cracking Crumbling Curling	None		

Material Test Report

Report Number: **23-469_a-30A**
Issue Number: 1
Date Issued: 24/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8151
Dates Tested: 15/11/2023 - 17/01/2024
Location: Stage 16 / 17

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Rhys Mitchell (Field Technician)

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S8151A				
Date Sampled	15/11/2023				
Date Tested	17/01/2024				
Material Source	Onsite				
Sample Location	Lot 900, Centre of Lot (FSL)				
Inert Material Estimate (%)	**				
Pocket Penetrometer before (kPa)	>600				
Pocket Penetrometer after (kPa)	>600				
Shrinkage Moisture Content (%)	13.3				
Shrinkage (%)	**1.4**				
Swell Moisture Content Before (%)	13.1				
Swell Moisture Content After (%)	15.1				
Swell (%)	**-0.0**				
Shrink Swell Index Iss (%)	**0.8**				
Visual Description	Clayey Sand				
Cracking	UC				
Crumbling	No				
Remarks	**				

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report

Report Number: **23-469_a-31**
Issue Number: 1
Date Issued: 24/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8170
Sample Number: S8170A
Date Sampled: 16/11/2023
Dates Tested: 16/11/2023 - 22/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Site Selection: Selected by GTA
Sample Location: **Lot 867, Centre Of Lot, Depth: 0.5m Below FSL**
Material: Clayey Sand
Material Source: Onsite

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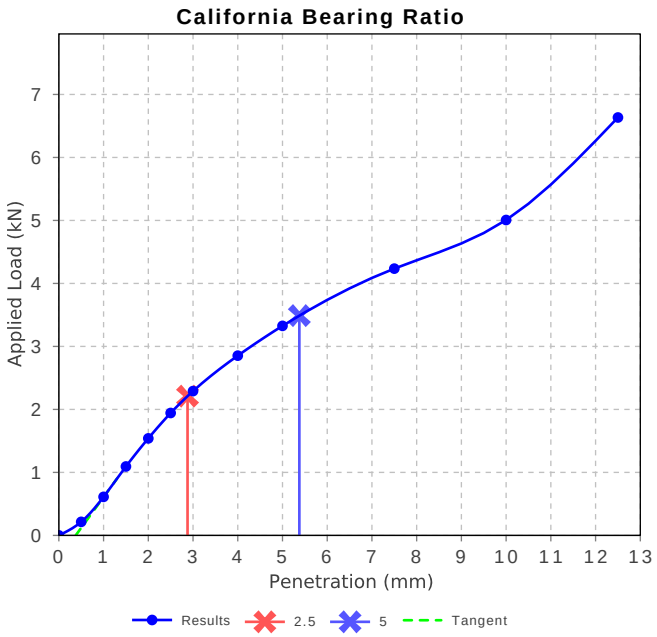
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**18**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.96		
Optimum Moisture Content (%)	12.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	101.5		
Dry Density after Soaking (t/m^3)	1.96		
Field Moisture Content (%)	10.3		
Moisture Content at Placement (%)	12.8		
Moisture Content Top 30mm (%)	15.5		
Moisture Content Rest of Sample (%)	13.6		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	214.7		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	7.7		



Material Test Report

Report Number: **23-469_a-31**
Issue Number: 1
Date Issued: 24/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8170
Sample Number: S8170A
Date Sampled: 16/11/2023
Dates Tested: 16/11/2023 - 17/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Site Selection: Selected by GTA
Sample Location: **Lot 867, Centre Of Lot, Depth: 0.5m Below FSL**
Material: Clayey Sand
Material Source: Onsite

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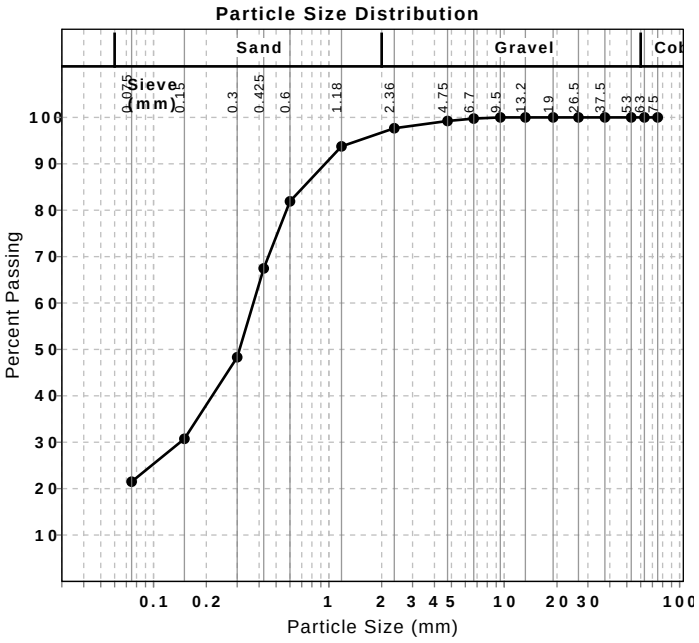
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
75 mm	**100**			0		
63 mm	**100**			0		
53 mm	**100**			0		
37.5 mm	**100**			0		
26.5 mm	**100**			0		
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**99**			1		
2.36 mm	**98**			2		
1.18 mm	**94**			4		
0.6 mm	**82**			12		
0.425 mm	**67**			14		
0.3 mm	**48**			19		
0.15 mm	**31**			18		
0.075 mm	**21**			9		



Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1 & Q252)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Passing 0.425 (%)	67		
Liquid Limit (%)	33		
Plastic Limit (%)	21		
Plasticity Index (%)	**12**		
Weighted Plasticity Index (%)	809		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	**7.0**		
Cracking Crumbling Curling	None		

Material Test Report

Report Number: **23-469_a-31A**
Issue Number: 1
Date Issued: 24/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8170
Dates Tested: 16/11/2023 - 17/01/2024

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Rhys Mitchell (Field Technician)

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S8170A				
Date Sampled	16/11/2023				
Date Tested	17/01/2024				
Material Source	Onsite				
Sample Location	Lot 867, Centre Of Lot (0.5m Below FSL)				
Inert Material Estimate (%)	**				
Pocket Penetrometer before (kPa)	>600				
Pocket Penetrometer after (kPa)	>600				
Shrinkage Moisture Content (%)	11.6				
Shrinkage (%)	**1.4**				
Swell Moisture Content Before (%)	11.9				
Swell Moisture Content After (%)	14.7				
Swell (%)	**0.1**				
Shrink Swell Index Iss (%)	**0.8**				
Visual Description	Clayey Sand				
Cracking	UC				
Crumbling	No				
Remarks	**				

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report

Report Number: **23-469_a-34**
Issue Number: 2 - *This version supersedes all previous issues*
Reissue Reason: *Test Added*
Date Issued: 25/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8591
Date Sampled: 22/01/2024 7:30
Dates Tested: 22/01/2024 - 24/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onite

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Approved Signatory: Greg Gibson
ql-greg

NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	S8591A	S8591B	S8591C	S8591D	S8591E
Test Number	103	104	105	106	107
Date Tested	22/01/2024	22/01/2024	22/01/2024	22/01/2024	22/01/2024
Time Tested	10:00	10:10	10:20	10:30	10:40
Test Request #/Location	Stage 16 - Lot 870	Stage 16 - Lot 871	Stage 16 - Road 48	Stage 16 - Lot 879	Stage 16 -Lot 898
Line / Offset	O/S NE CNR	O/S NE CNR	CH 60	O/S SE CNR	O/S SE CNR
Offset	4m West, 5m South	2m West, 4m South	CL	6m North, 4m West	6m North, 4m West
Elevation (m)	RL: 79.61	RL: 79:26	RL: 79.10	RL: 78.80	RL: 78.90
Thickness of Layer (mm)	175	175	175	175	175
Soil Description	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m^3	1.99	1.96	2.02	2.02	2.00
Field Moisture Content %	19.1	19.5	17.6	18.9	19.5
Field Dry Density (FDD) t/m^3	1.67	1.64	1.72	1.70	1.67
Peak Converted Wet Density t/m^3	2.05	2.06	2.04	2.06	2.05
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	-0.5	-0.5	-0.5	-0.5	-0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**97.0**	**95.5**	**99.0**	**98.0**	**97.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-35**
Issue Number: 1
Date Issued: 25/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8620
Date Sampled: 23/01/2024 9:15
Dates Tested: 23/01/2024 - 24/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
ql-greg
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	S8620A	S8620B	S8620C	S8620D	S8620E
Test Number	108	109	110	111	112
Date Tested	23/01/2024	23/01/2024	23/01/2024	23/01/2024	23/01/2024
Time Tested	10:00	10:10	10:20	10:30	10:40
Test Request #/Location	Stage 16 - Lot 870	Stage 16 - 871	Stage 16 Road	Stage 16 - Lot 881	Stage 16 - Lot 880
Line / Offset	O/S NW CNR	O/S NE CNR	CH: 65	O/S SE CNR	O/S SE CNR
Offset	4m East, 4m South	3m West, 4m South	1m Right of CL	4m West, 6m North	3m West, 7m North
Elevation (m)	RL: 82.29	RL: 82.40	RL: 81.22	RL: 80.83	RL: 80.95
Thickness of Layer (mm)	175	175	175	175	175
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.00	2.01	2.00	2.02	2.07
Field Moisture Content %	18.9	19.3	19.1	22.3	17.3
Field Dry Density (FDD) t/m^3	1.68	1.68	1.68	1.65	1.76
Peak Converted Wet Density t/m^3	2.04	2.04	2.04	2.03	2.05
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	-0.5	-0.5	0.0	-1.5	-0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**98.0**	**98.5**	**98.0**	**99.5**	**100.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-36**
Issue Number: 1
Date Issued: 30/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8525
Sample Number: S8525A
Date Sampled: 15/01/2024
Dates Tested: 15/01/2024 - 22/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 100% Standard
Site Selection: Selected by GTA
Sample Location: **Stage 16, Lot 877 Line / Offset: O/S NW CNR, Offset: 8m East, 4m South, Depth: 0.5m Below FSL**
Material: Cappnig Layer, General Fill
Material Source: Onsite cut

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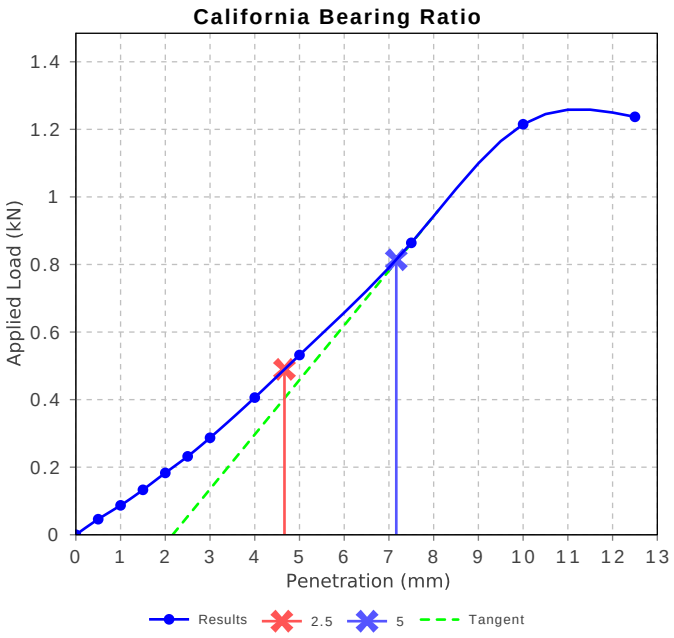
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**4.0**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.94		
Optimum Moisture Content (%)	10.0		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	103.5		
Dry Density after Soaking (t/m^3)	1.91		
Field Moisture Content (%)	6.7		
Moisture Content at Placement (%)	10.5		
Moisture Content Top 30mm (%)	16.3		
Moisture Content Rest of Sample (%)	15.3		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours			
Swell (%)	1.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: **23-469_a-36**
Issue Number: 1
Date Issued: 30/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8525
Sample Number: S8525A
Date Sampled: 15/01/2024
Dates Tested: 15/01/2024 - 24/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 100% Standard
Site Selection: Selected by GTA
Sample Location: **Stage 16, Lot 877 Line / Offset: O/S NW CNR, Offset: 8m East, 4m South, Depth: 0.5m Below FSL**
Material: Cappnig Layer, General Fill
Material Source: Onsite cut

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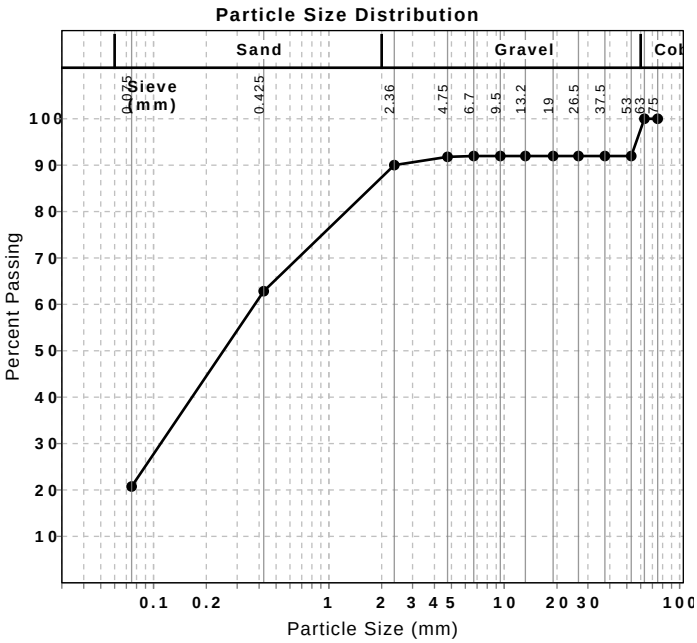
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
75 mm	**100**			0		
63 mm	**100**			0		
53 mm	**92**			8		
37.5 mm	**92**			0		
26.5 mm	**92**			0		
19 mm	**92**			0		
13.2 mm	**92**			0		
9.5 mm	**92**			0		
6.7 mm	**92**			0		
4.75 mm	**92**			0		
2.36 mm	**90**			2		
0.425 mm	**63**			27		
0.075 mm	**21**			42		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	34		
Plastic Limit (%)	19		
Plasticity Index (%)	**15**		
Weighted Plasticity Index (%)	943		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	**7.0**		
Cracking Crumbling Curling	None		



Material Test Report

Report Number: **23-469_a-36A**
Issue Number: 1
Date Issued: 30/01/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8525
Dates Tested: 15/01/2024 - 18/01/2024
Location: Edens Crossing, Stage 16, Ipswich

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Rhys Mitchell (Field Technician)

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S8525A				
Date Sampled	15/01/2024				
Date Tested	18/01/2024				
Material Source	Onsite				
Sample Location	Stage 16, Lot 877 Line / Offset: O/S NW CNR, Offset: 8m East, 4m South (0.5m Below FSL)				
Inert Material Estimate (%)	**				
Pocket Penetrometer before (kPa)	580				
Pocket Penetrometer after (kPa)	550				
Shrinkage Moisture Content (%)	12.8				
Shrinkage (%)	**1.1**				
Swell Moisture Content Before (%)	12.2				
Swell Moisture Content After (%)	14.2				
Swell (%)	**0.1**				
Shrink Swell Index Iss (%)	**0.6**				
Visual Description	Clayey Sand				
Cracking	UC				
Crumbling	No				
Remarks	**				

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report

Report Number: 23-469_a-37
Issue Number: 1
Date Issued: 02/02/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8645
Date Sampled: 24/01/2024 8:00
Dates Tested: 24/01/2024 - 29/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	S8645A	S8645B	S8645C	S8645D	S8645E
Test Number	113	114	115	116	117
Date Tested	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Time Tested	10:00	10:10	10:20	10:30	10:40
Test Request #/Location	Stage 16, Lot 870	Stage 16, Lot 871	Stage 16, Lot 897	Stage 16, Lot 896	Stage 16, Road 48
Line / Offset	O/S NW CNR	O/S SW CNR	O/S SE CNR	O/S SW CNR	CH 50
Offset	6m South, 4m East	6m North, 3m East	4m North, 4m West	8m North, 4m East	1m Left of CL
Elevation (m)	RL: 83.00	RL: 82.70	RL: 82.80	RL: 81.50	RL: 81.60
Thickness of Layer (mm)	175	175	175	175	175
Soil Description	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.01	1.96	1.97	1.92	2.02
Field Moisture Content %	28.8	18.7	18.8	18.9	18.9
Field Dry Density (FDD) t/m^3	1.56	1.65	1.66	1.61	1.69
Peak Converted Wet Density t/m^3	1.94	1.92	1.92	1.93	1.93
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	0.0	-2.0	-2.5	-2.5	-2.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**104.0**	**102.0**	**102.5**	**99.5**	**104.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-38**
Issue Number: 1
Date Issued: 06/02/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8664
Date Sampled: 25/01/2024 7:30
Dates Tested: 25/01/2024 - 31/01/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	S8664A	S8664B	S8664C	S8664D	S8664E
Test Number	118	119	120	121	122
Date Tested	25/01/2024	25/01/2024	25/01/2024	25/01/2024	25/01/2024
Time Tested	11:00	11:10	11:20	11:30	11:40
Test Request #/Location	Stage 16, Lot 870	Stage 16, Lot 871	Road 48	Stage 16, Lot 879	Stage 16, Lot 898
Line / Offset	O/S NW CNR	O/S NE CNR	CH 50	O/S NE CNR	O/S SE CNR
Offset	2m East, 4m South	2m West, 4m South	CL	3m West, 6m South	3m West, 5m North
Elevation (m)	RL: 83.30	RL: 83.00	RL: 82.08	RL: 82.50	RL: 82.50
Thickness of Layer (mm)	175	175	175	175	175
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m^3	1.92	1.93	1.96	1.91	1.93
Field Moisture Content %	17.4	19.0	18.3	19.2	19.7
Field Dry Density (FDD) t/m^3	1.64	1.62	1.66	1.60	1.61
Peak Converted Wet Density t/m^3	1.96	1.93	1.93	1.93	1.94
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	2.0	1.5	2.0	2.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**98.0**	**100.0**	**101.5**	**99.0**	**99.5**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: 23-469_a-39
Issue Number: 1
Date Issued: 06/02/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8709
Date Sampled: 01/02/2024 8:00
Dates Tested: 01/02/2024 - 02/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	S8709A	S8709B	S8709C	S8709D	S8709E
Test Number	126	127	128	129	130
Date Tested	01/02/2024	01/02/2024	01/02/2024	01/02/2024	01/02/2024
Time Tested	10:00	10:10	10:20	10:30	10:40
Test Request #/Location	Stage 16, Lot 870	Stage 16, Lot 880	Stage 16, Lot 897	Stage 16, Lot 898	Stage 16, Lot 898
Line / Offset	O/S NE CNR	O/S NE CNR	4m West, 4m South	O/S SW CNR	O/S NE CNR
Offset	4m West, 4m South	4m West, 7m South	4m West, 7m South	2m North, 4m East	3m West, 2m South
Elevation (m)	RL: 83.85	RL: 83.76	RL: 82.97	RL: 83.20	RL: 83.25
Thickness of Layer (mm)	175	175	175	175	175
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0
Field Wet Density (FWD) t/m^3	2.07	2.02	2.01	2.01	1.93
Field Moisture Content %	17.3	17.4	18.0	18.0	20.0
Field Dry Density (FDD) t/m^3	1.76	1.72	1.70	1.71	1.61
Peak Converted Wet Density t/m^3	1.98	1.98	1.97	1.98	1.97
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**
Moisture Variation (Wv) %	0.0	1.0	0.5	0.5	0.5
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	**104.5**	**102.0**	**102.0**	**101.5**	**98.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-40**
Issue Number: 1
Date Issued: 07/02/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8702
Date Sampled: 31/01/2024
Dates Tested: 31/01/2024 - 06/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	S8702A	S8702B	S8702C
Test Number	123	124	125
Date Tested	31/01/2024	31/01/2024	31/01/2024
Time Tested	14:00	14:10	14:20
Test Request #/Location	Stage 16, Lot 870	Stage 16, Lot 880	Stage 16, Lot 897
Line / Offset	O/S NE CNR	O/S NW CNR	O/S NW CNR
Offset	4m West, 6m South	9m South, 3m East	3m South, 2m East
Elevation (m)	RL: 83.50	RL: 83.20	RL: 82.86
Thickness of Layer (mm)	175	175	175
Soil Description	Sandy Clay, Brown	Sandy Clay, Brown	Sandy Clay, Brown
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m^3	1.96	2.02	1.97
Field Moisture Content %	19.0	19.8	19.8
Field Dry Density (FDD) t/m^3	1.65	1.68	1.65
Peak Converted Wet Density t/m^3	2.04	2.03	2.03
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	0.0	0.0	-0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**96.0**	**99.0**	**97.5**
Compaction Method	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-41**
Issue Number: 1
Date Issued: 09/02/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8731
Date Sampled: 02/02/2024 7:00
Dates Tested: 02/02/2024 - 06/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16 & 17, Ipswich
Material: General Fill
Material Source: Onsite

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Greg Gibson
ql-greg
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	S8731A	S8731B	S8731C	S8731D	S8731E	S8731F
Test Number	131	132	133	134	135	136
Date Tested	02/02/2024	02/02/2024	02/02/2024	02/02/2024	02/02/2024	02/02/2024
Time Tested	10:00	10:10	10:20	10:30	10:40	14:00
Test Request #/Location	Stage 16 - Lot 872	Stage 16, - Lot 871	Road 48	Stage 16 - Lot 879	Stage 16 - Lot 880	Stage 17 - Lot 856
Line / Offset	O/S NE CNR	O/S NW CNR	CH: 50	O/S SW CNR	O/S SW CNR	O/S SE CNR
Offset	3m West, 8m South	3m East, 7m South	CL	9m North, 4m East	8m North, 3m East	2m South, 3m West
Layer / Reduced Level	RL: 85.90	RL: 84.60	RL: 84.50	RL: 84.83	RL: 83.78	RL: 86.49
Thickness of Layer (mm)	175	175	175	175	175	175
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0	0	0	0
Field Wet Density (FWD) t/m^3	1.95	2.00	1.99	2.00	2.02	2.02
Field Moisture Content %	18.4	19.5	20.4	20.9	17.6	16.8
Field Dry Density (FDD) t/m^3	1.65	1.67	1.66	1.65	1.72	1.73
Peak Converted Wet Density t/m^3	2.01	2.05	1.99	1.99	2.04	2.01
Adjusted Peak Converted Wet Density t/m^3	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	-1.0	-0.5	-0.5	-1.0	-0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	**97.0**	**98.0**	**100.0**	**100.0**	**99.0**	**101.0**
Compaction Method	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-43**
Issue Number: 1
Date Issued: 14/02/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8765
Date Sampled: 06/02/2024 7:30
Dates Tested: 06/02/2024 - 12/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Greg Gibson
ql-greg
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	S8765A	S8765B	S8765C
Test Number	140	141	142
Date Tested	06/02/2024	06/02/2024	06/02/2024
Time Tested	10:00	10:10	10:20
Test Request #/Location	Stage 16 - Lot 873	Stage 16 - Lot 874	Road 48
Line / Offset	O/S NE CNR	O/S NE CNR	CH: 20
Offset	8m West, 4m South	8m West, 4m South	CL
Elevation (m)	0.6m Below FSL	0.6m Below FSL	0.3m Below FSL
Thickness of Layer (mm)	175	175	175
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m^3	2.12	2.13	2.05
Field Moisture Content %	11.1	9.9	10.0
Field Dry Density (FDD) t/m^3	1.91	1.93	1.86
Peak Converted Wet Density t/m^3	2.16	2.16	2.12
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**98.5**	**98.5**	**96.5**
Compaction Method	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-44**
Issue Number: 1
Date Issued: 14/02/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8789
Date Sampled: 14/02/2024 8:00
Dates Tested: 12/02/2024 - 14/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Greg Gibson
ql-greg
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	S8789A	S8789B	S8789C
Test Number	143	144	145
Date Tested	07/02/2024	07/02/2024	07/02/2024
Time Tested	10:30	10:40	10:50
Test Request #/Location	Stage 16 - Lot 870	Stage 16 - Lot 869	Stage 16 - Lot 869
Line / Offset	O/S SE CNR	O/S SE CNR	O/S SE CNR
Offset	10m North, 4m West	5m North, 3m West	10m North, 4m West
Elevation (m)	RL: 84.02	RL: 83.10	RL: 83.30
Thickness of Layer (mm)	175	175	175
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m^3	2.04	1.99	1.97
Field Moisture Content %	10.8	13.3	15.2
Field Dry Density (FDD) t/m^3	1.85	1.76	1.71
Peak Converted Wet Density t/m^3	2.08	2.03	1.98
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	2.0	1.5	0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**98.0**	**98.0**	**100.0**
Compaction Method	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-45**
Issue Number: 1
Date Issued: 16/02/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8816
Date Sampled: 08/02/2024 8:00
Dates Tested: 08/02/2024 - 12/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Greg Gibson
ql-greg

NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	S8816A	S8816B	S8816C
Test Number	146	147	148
Date Tested	08/02/2024	08/02/2024	08/02/2024
Time Tested	10:02	10:11	10:19
Test Request #/Location	Stage 16 - Lot 880	Stage 16 - Lot 880	Stage 16 - Lot 879
Line / Offset	O/S NW CNR	O/S NW CNR	O/S NW CNR
Offset	3m South, 4m East	9m South, 4m East	7m South, 4m East
Elevation (m)	RL: 84.60	RL: 84.90	RL: 85.50
Thickness of Layer (mm)	175	175	175
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m^3	2.10	2.04	2.08
Field Moisture Content %	9.5	8.5	10.2
Field Dry Density (FDD) t/m^3	1.92	1.88	1.89
Peak Converted Wet Density t/m^3	2.11	2.09	2.13
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	1.0	1.0	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**100.0**	**97.5**	**97.5**
Compaction Method	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-47**
Issue Number: 1
Date Issued: 21/02/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8836
Date Sampled: 09/02/2024 8:00
Dates Tested: 09/02/2024 - 20/02/2024
Sampling Method: AS 1289.1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 95% Standard
Site Selection: Selected by GTA
Location: Edens Crossing, Stage 16, Ipswich
Material: General Fill
Material Source: Onsite

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Approved Signatory: Greg Gibson
ql-greg
NATA Accredited Laboratory Number: 2316

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	S8836A	S8836B	S8836C
Test Number	149	150	151
Date Tested	09/02/2024	09/02/2024	09/02/2024
Time Tested	08:50	09:00	10:30
Test Request #/Location	Stage 16 - Lot 867	Stage 16 - Lot 868	Stage 16 - Lot 869
Line / Offset	O/S NE CNR	O/S NE CNR	O/S NE CNR
Offset	3m West, 7m South	3m West, 7m South	3m West, 7m South
Layer / Reduced Level	Final Level	Final Level	Final Level
Thickness of Layer (mm)	175	175	175
Soil Description	Sandy CLAY, Brown	Sandy CLAY, Brown	Sandy CLAY, Brown
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0	0	0
Field Wet Density (FWD) t/m^3	1.93	1.96	2.09
Field Moisture Content %	10.3	10.5	13.7
Field Dry Density (FDD) t/m^3	1.75	1.78	1.84
Peak Converted Wet Density t/m^3	2.04	2.03	2.10
Adjusted Peak Converted Wet Density t/m^3	**	**	**
Moisture Variation (Wv) %	1.5	2.0	1.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	**95.0**	**97.0**	**99.5**
Compaction Method	**Standard**	**Standard**	**Standard**
Report Remarks	**	**	**

Moisture Variation Note:
Positive values = test is dry of OMC
Negative values = test is wet of OMC

Material Test Report

Report Number: **23-469_a-49**
Issue Number: 1
Date Issued: 05/03/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8745
Sample Number: S8745A
Date Sampled: 20/02/2024
Dates Tested: 20/02/2024 - 27/02/2024
Sample Location: **Stage 16 - Lot 873, O/S NE CNR, 8m West, 4m South, Depth: 0.6m Below FSL**
Material: Onsite
Material Source: Clayey Sand

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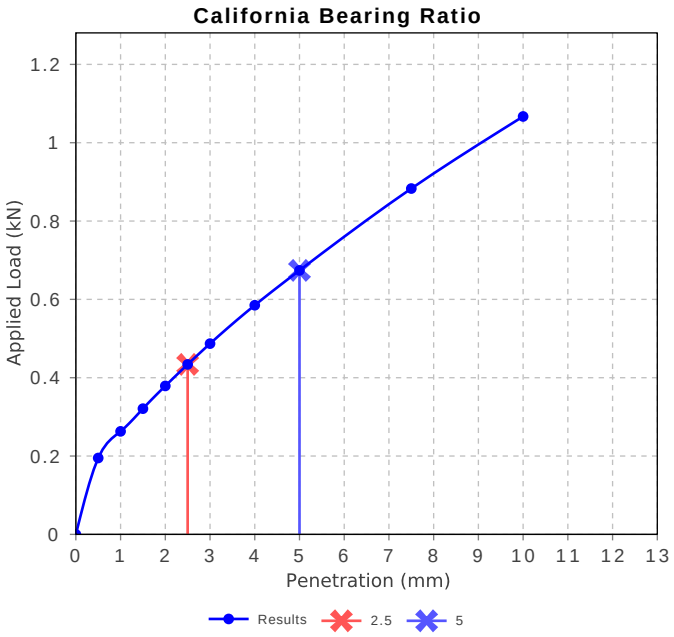
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**3.5**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.87		
Optimum Moisture Content (%)	12.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	103.5		
Dry Density after Soaking (t/m^3)	1.86		
Field Moisture Content (%)	12.2		
Moisture Content at Placement (%)	13.0		
Moisture Content Top 30mm (%)	15.9		
Moisture Content Rest of Sample (%)	15.5		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	74.6		
Swell (%)	0.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: **23-469_a-49**
Issue Number: 1
Date Issued: 05/03/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8745
Sample Number: S8745A
Date Sampled: 20/02/2024
Dates Tested: 20/02/2024 - 29/02/2024
Sample Location: **Stage 16 - Lot 873, O/S NE CNR, 8m West, 4m South, Depth: 0.6m Below FSL**
Material: Onsite
Material Source: Clayey Sand

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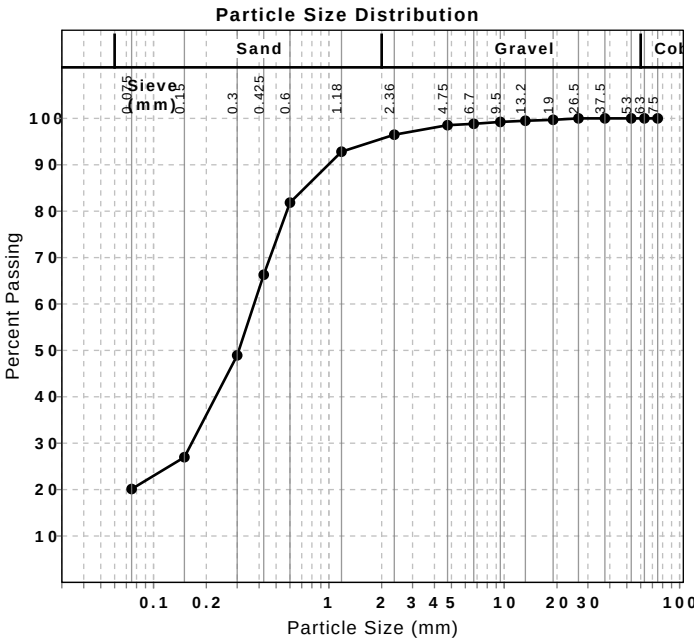
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Particle Size Distribution (AS1141.11.1)						
Sample Washing	Sample was Washed					
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
75 mm	**100**			0		
63 mm	**100**			0		
53 mm	**100**			0		
37.5 mm	**100**			0		
26.5 mm	**100**			0		
19 mm	**100**			0		
13.2 mm	**99**			0		
9.5 mm	**99**			0		
6.7 mm	**99**			0		
4.75 mm	**99**			0		
2.36 mm	**96**			2		
1.18 mm	**93**			4		
0.6 mm	**82**			11		
0.425 mm	**66**			16		
0.3 mm	**49**			17		
0.15 mm	**27**			22		
0.075 mm	**20**			7		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	39		
Plastic Limit (%)	15		
Plasticity Index (%)	**24**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	**9.5**		
Cracking Crumbling Curling	Curling		



Material Test Report

Report Number: **23-469_a-49A**
Issue Number: 1
Date Issued: 05/03/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8745
Dates Tested: 20/02/2024 - 27/02/2024
Location: Edens Crossing, Stage 18, Ipswich

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Rhys Mitchell (Field Technician)

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S8745A				
Date Sampled	20/02/2024				
Date Tested	27/02/2024				
Material Source	Disturbed				
Sample Location	Stage 16 - Lot 873, O/S NE CNR, 8m West, 4m South (0.6m Below FSL)				
Inert Material Estimate (%)	**				
Pocket Penetrometer before (kPa)	>600				
Pocket Penetrometer after (kPa)	>600				
Shrinkage Moisture Content (%)	12.2				
Shrinkage (%)	**0.5**				
Swell Moisture Content Before (%)	12.5				
Swell Moisture Content After (%)	13.5				
Swell (%)	**0.2**				
Shrink Swell Index Iss (%)	**0.3**				
Visual Description	Sandy Clay				
Cracking	UC				
Crumbling	Yes				
Remarks	**				

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report

Report Number: **23-469_a-50**
Issue Number: 1
Date Issued: 05/03/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8769
Sample Number: S8769A
Date Sampled: 06/02/2024
Dates Tested: 06/02/2024 - 27/02/2024
Sampling Method: AS 1141.3.1 10.1 - Sampling from a placed layer of pavement
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 100% Standard
Site Selection: Selected by GTA
Sample Location: **Stage 16, Lot 873 Line / Offset: O/S NW CNR, Offset: 3m South, 7m East, Depth: 0.6m Below FSL**
Material: General Fill
Material Source: Onsite Capping

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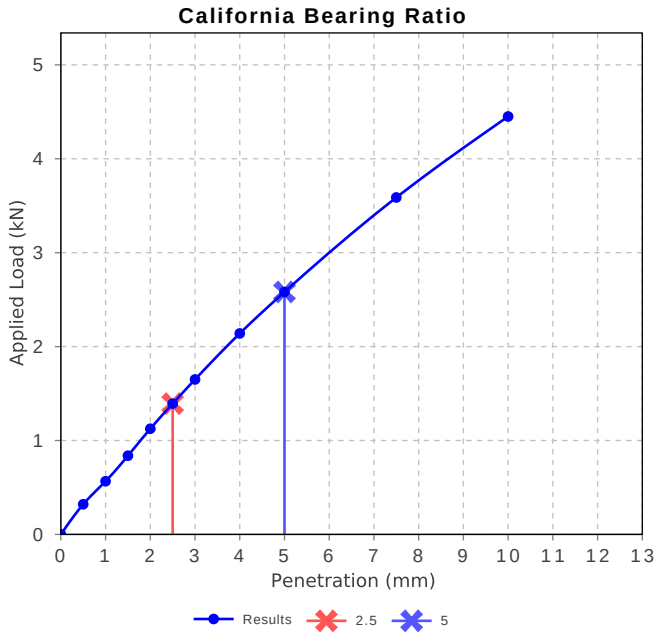
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**13**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.98		
Optimum Moisture Content (%)	10.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	104.0		
Dry Density after Soaking (t/m^3)	1.96		
Field Moisture Content (%)	11.0		
Moisture Content at Placement (%)	10.6		
Moisture Content Top 30mm (%)	12.6		
Moisture Content Rest of Sample (%)	11.7		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	74.0		
Swell (%)	1.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 23-469_a-50
Issue Number: 1
Date Issued: 05/03/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8769
Sample Number: S8769A
Date Sampled: 06/02/2024
Dates Tested: 06/02/2024 - 27/02/2024
Sampling Method: AS 1141.3.1 10.1 - Sampling from a placed layer of pavement
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Specification: 100% Standard
Site Selection: Selected by GTA
Sample Location: **Stage 16, Lot 873 Line / Offset: O/S NW CNR, Offset: 3m South, 7m East, Depth: 0.6m Below FSL**
Material: General Fill
Material Source: Onsite Capping

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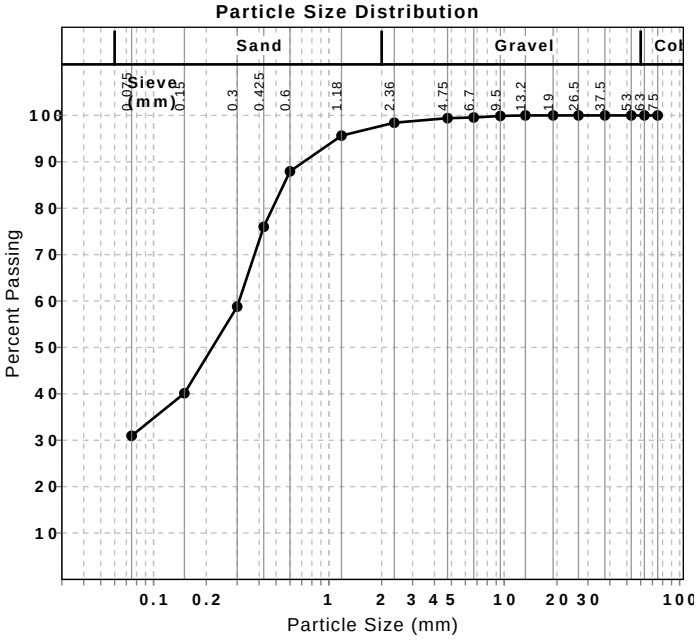
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
75 mm	**100**			0		
63 mm	**100**			0		
53 mm	**100**			0		
37.5 mm	**100**			0		
26.5 mm	**100**			0		
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**100**			0		
4.75 mm	**99**			0		
2.36 mm	**98**			1		
1.18 mm	**96**			3		
0.6 mm	**88**			8		
0.425 mm	**76**			12		
0.3 mm	**59**			17		
0.15 mm	**40**			19		
0.075 mm	**31**			9		



Atterberg Limit (AS1289 3.9.2 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Retained 0.425 (%)	12		
Liquid Limit (%)	35		
Plastic Limit (%)	16		
Plasticity Index (%)	**19**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.9.2		
Linear Shrinkage (%)	**9.0**		
Cracking Crumbling Curling	None		

Material Test Report

Report Number: **23-469_a-50A**
Issue Number: 1
Date Issued: 05/03/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8769
Dates Tested: 06/02/2024 - 26/02/2024
Location: Edens Crossing, Stage 16, Ipswich

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Rhys Mitchell (Field Technician)

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S8769A				
Date Sampled	06/02/2024				
Date Tested	26/02/2024				
Material Source	Disturbed				
Sample Location	Stage 16, Lot 873 Line / Offset: O/S NW CNR, Offset: 3m South, 7m East (0.6m Below FSL)				
Inert Material Estimate (%)	**				
Pocket Penetrometer before (kPa)	>600				
Pocket Penetrometer after (kPa)	>600				
Shrinkage Moisture Content (%)	10.9				
Shrinkage (%)	**0.9**				
Swell Moisture Content Before (%)	10.3				
Swell Moisture Content After (%)	12.7				
Swell (%)	**0.4**				
Shrink Swell Index Iss (%)	**0.6**				
Visual Description	Sandy Clay				
Cracking	UC				
Crumbling	Yes				
Remarks	**				

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report

Report Number: **23-469_a-52**
Issue Number: 1
Date Issued: 15/03/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8829
Sample Number: S8829A
Date Sampled: 08/02/2024
Dates Tested: 08/02/2024 - 11/03/2024
Sample Location: **Stage 16, Lot 881 , Depth: 0.2m Below FSL**

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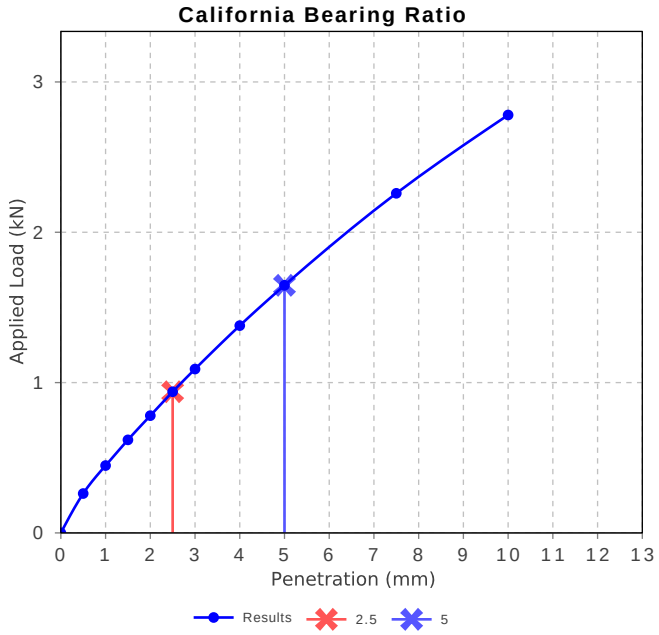
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**8**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m^3)	1.91		
Optimum Moisture Content (%)	12.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	99.5		
Dry Density after Soaking (t/m^3)	1.91		
Field Moisture Content (%)	8.4		
Moisture Content at Placement (%)	12.1		
Moisture Content Top 30mm (%)	13.4		
Moisture Content Rest of Sample (%)	13.9		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	311.9		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: **23-469_a-52**
Issue Number: 1
Date Issued: 15/03/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8829
Sample Number: S8829A
Date Sampled: 08/02/2024
Dates Tested: 08/02/2024 - 29/02/2024
Sample Location: **Stage 16, Lot 881 , Depth: 0.2m Below FSL**

Qualtest Laboratory Pty Ltd
Brisbane Laboratory
2 / 40 Boyland Ave Cooper Plains QLD 4108
Phone: 0417 011 515
Email: rhys@qualtestgeo.com

Accredited for compliance with ISO/IEC 17025 - Testing

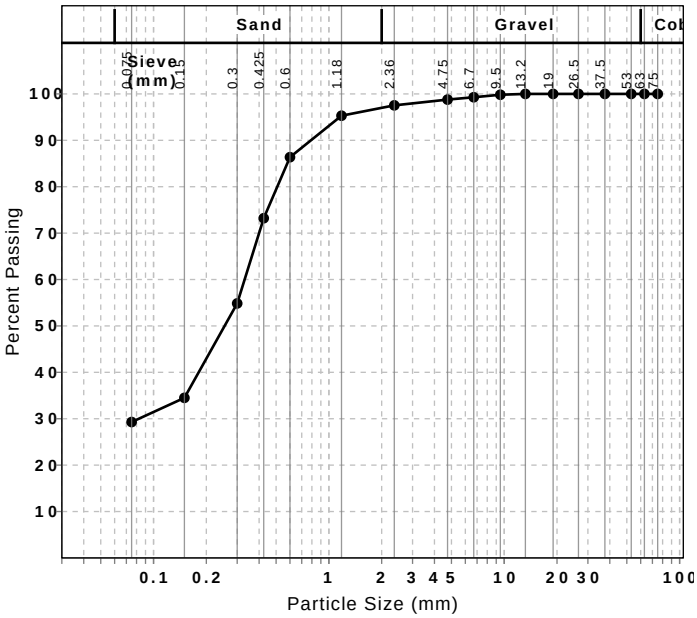
Approved Signatory: Rhys Mitchell
Field Technician
NATA Accredited Laboratory Number: 2316

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
75 mm	**100**			0		
63 mm	**100**			0		
53 mm	**100**			0		
37.5 mm	**100**			0		
26.5 mm	**100**			0		
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**100**			0		
6.7 mm	**99**			1		
4.75 mm	**99**			1		
2.36 mm	**98**			1		
1.18 mm	**95**			2		
0.6 mm	**86**			9		
0.425 mm	**73**			13		
0.3 mm	**55**			18		
0.15 mm	**34**			20		
0.075 mm	**29**			5		

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	36		
Plastic Limit (%)	15		
Plasticity Index (%)	**21**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	**8.5**		
Cracking Crumbling Curling	None		

Particle Size Distribution



Material Test Report

Report Number: **23-469_a-52A**
Issue Number: 1
Date Issued: 15/03/2024
Client: SHADFORTH CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: RILEY BROOKS
Project Number: 23-469_a
Project Name: LEVEL ONE SUPERVISION
Project Location: EDEN'S CROSSING - STAGES 16-26
Client Reference: 626006
Work Request: 8829
Dates Tested: 08/02/2024 - 28/02/2024
Location: Edens Crossing, Stage 16, Ipswich

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Rhys Mitchell (Field Technician)

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S8829A				
Date Sampled	08/02/2024				
Date Tested	28/02/2024				
Material Source	Disturbed				
Sample Location	Stage 16, Lot 881 (0.2m Below FSL)				
Inert Material Estimate (%)	**				
Pocket Penetrometer before (kPa)	>600				
Pocket Penetrometer after (kPa)	>600				
Shrinkage Moisture Content (%)	10.4				
Shrinkage (%)	**1.3**				
Swell Moisture Content Before (%)	10.4				
Swell Moisture Content After (%)	12.3				
Swell (%)	**0.3**				
Shrink Swell Index Iss (%)	**0.8**				
Visual Description	Sandy Clay				
Cracking	UC				
Crumbling	No				
Remarks	**				

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
NATA Accreditation does not cover the performance of pocket penetrometer readings.