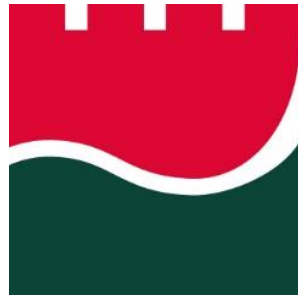


MORRISON GEOTECHNIC PTY LTD



SOLID THINKING // GROUNDED RESULTS

LEVEL ONE EARTHWORKS COMPLIANCE REPORT

Prepared for:

SHADFORTH CIVIL PTY LTD



shadforth

DL18/334– Edens Crossing Estate – Stage 10

Mt Juillerat Drive, Redbank Plains

Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
www.morrisongeo.com.au
a: Unit 1, 35 Limestone Street
Darra, Qld, 4076
Ph: (07) 3279 0900

1st March 2019

Brisbane Office
 Job No: DL18/334
 Ref No: 14371
 Author: L. McDowall

1st March 2019

Shadforths Civil Pty Ltd
 99 Sandalwood Lane
 Forest Glen Qld 4556

ATTENTION: MR MICHAEL PRITCHARD
 Email: Michael.Pritchard@shadcivil.com.au
 Cc: Billy.Vlahos@shadcivil.com.au

Dear Sir,

**RE: LEVEL ONE COMPLIANCE REPORT FOR
 BULK EARTHWORKS FILLING OPERATIONS
 EDEN'S CROSSING ESTATE, STAGE 10
 MT JUILLERAT DRIVE, REDBANK PLAINS**

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1.0 INTRODUCTION

1.1 General

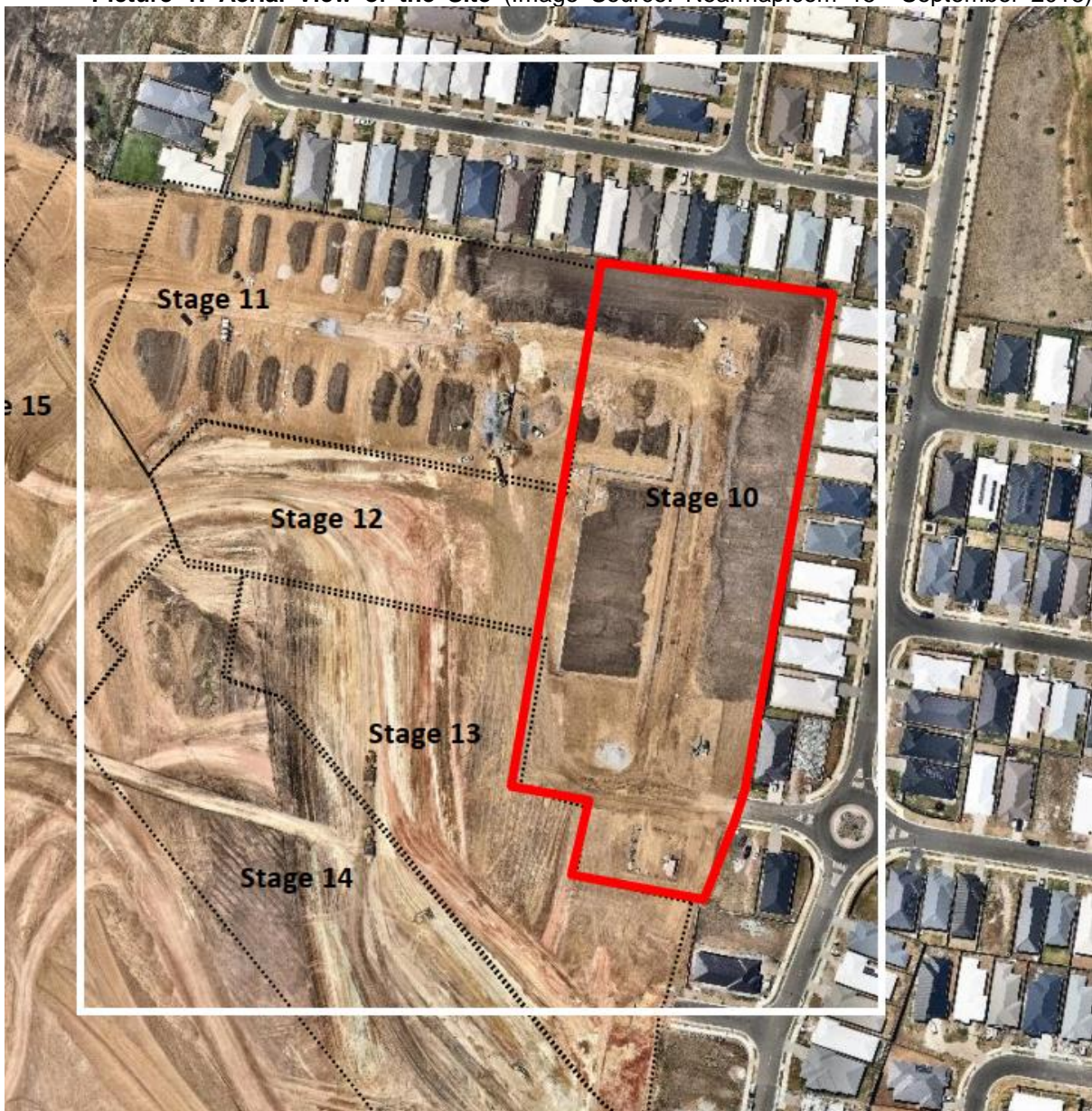
This report presents results of Level One Earthworks Inspections and associated Compaction Compliance testing carried out on Earthworks Fill constructed to form Residential Lots and embankments below subgrade at Eden's Crossing Estate Stages 10, Mount Juillerat Drive, Redbank Plains (The Site).

The work was commissioned by Mr. Billy Vlahos representing Shadforth Civil Pty Ltd (The Client), using Purchase Order 373507.

Earthworks operations were constructed by The Client.

Earthworks filling operations were carried out intermittently between 1st November 2018 and 25th January 2019.

Picture 1: Aerial View of the Site (Image Source: Nearmap.com 15th September 2018)



1.2 Previous Earthworks

As far as could be assessed onsite, no previous Earthworks had been carried out at The Site.

1.3 The Project

The purpose for filling at The Site is to construct a Residential Subdivision which includes new pavements, residential building platforms and associated underground services.

Premise Engineering Pty Ltd, Bulk Earthworks Layout Plan, Job Code PET-0010, Sheet No. C200 Revision B, dated 16th July 2018, indicates the extents and thickness of fill to be constructed at The Site.

The plan is considered a reasonable representation of the fill covered by this report with the following exception: -

- At locations where, potential reactive soils were exposed at the design earthworks levels, excavation below the design earthworks levels to approximately 1.7m below were carried out and replaced with fill of low reactivity.
- Excavation to 1.7m below the design earthworks levels was carried out on the following Lots.
 - 636, 637, 638, 641, 642, 643, 644, 645, 721, 722, 723, 724, 725, 726 and 727

The actual thickness of fill on an individual Lot can be obtained from the Developer as a Lot Disclosure Plan.

The Site is located with-in the Eden's Crossing Development and is bounded by future residential stages to the South and West, and existing residential developments to the North and East.

2.0 THE BRIEF

The Brief from the Client was limited to:

- Level One Inspection and Testing of the placement and compaction of fill materials in accordance with AS3798 2007 – “Guidelines on Earthworks for Commercial and Residential Developments”,
- Relative Density Control Testing in accordance with AS1289 – Testing of Soils for Engineering Purposes and at frequencies required in AS3798 Table 8.1.
- Ipswich City Council Project Specifications
- Notes on Premise Engineering Pty Ltd Earthworks Drawings.

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

- Shrink Swell Index (Iss) – 1% 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 - 5×10^{-7} m/s Max.

3.0 METHODOLOGY

Earthworks Inspection and Testing was carried out on the stripped and exposed ground surfaces and during the placement and compaction of fill materials.

Field and laboratory testing included a walk over assessments of the existing ground conditions, observation of filling and compaction activities and field density testing using a nuclear soil moisture density gauge and Hilf compactions.

All work was carried out in accordance with AS 3798 (Guidelines on Earthworks for Commercial and Residential Developments) and AS1289 (Testing of Soils for Engineering Purposes).

Samples of the fill materials were collected and tested for conformance with the criteria presented in Section 2.

3.1 Stripped Surface Assessment

The fill areas at The Site were observed to be stripped and cleared of visible organic matter, deleterious, loose and unsuitable materials to depths exposing suitable natural ground.

Materials exposed after stripping and clearing the site which formed the natural foundation can be broadly summarised as:

- Natural - Silty Clay (CI - CH) – At least very stiff, medium to high and high plasticity, dark brown, traces of fine to medium grained sands, moist.
- Natural – Sandy Clay (CI) – at least very stiff, medium plasticity, pale brown mottled orange-red, fine to medium grained sand, traces of fine to medium gravel and moist.
- Natural – Basalt Rock (XW) – Extremely weathered, very low strength or better, red – brown – grey.

Following the stripped surface assessment of the fill areas, the natural foundation was approved for filling using the following process:

- Walk over assessments confirming that the competent ground was exposed.
- Proof roll testing using large sized truck carrying out multiple passes confirming no movement of the foundation.

Picture 2: View of The Site During Stripping Operations



3.2 Filling Operations

Fill materials were sourced from onsite cuts, road box excavations and trench excavations. Materials used as fill can be broadly summarized as: -

- Lower Fill Materials – Below 1.7m from the finished earthworks levels
 - Silty Clay, (CI), medium to high plasticity, dark brown, traces of fine to medium sand and moist.
 - Sandy Clay (CI), medium plasticity fines, red – brown, fine to coarse sand, traces of fine to medium gravel and moist.
- Capping Materials – Upper 1.7m of the fill profile.
 - Clayey Sand (SC), fine to coarse sand, light yellow – orange – brown, medium plasticity fines, traces of fine to medium gravel, and moist.
 - Sandy Clay (CI), medium plasticity fines, yellow – brown – red, fine to coarse sand, and moist.

Samples of the capping materials were collected 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	LS	
D18-301A	100	81	6 ⁽¹⁾	39	10	6.0	0.4
D18-301B	100	63 ⁽¹⁾	7 ⁽¹⁾	40	10	7.5	0.2

Notes.
1.Criteria for % passing 19mm Sieve was outside Capping Material Specification.

It is considered likely that the specification for permeability will be met based on the achieved test results.

Placement and compaction of the fill materials was carried out using the following plant:

- Dozer
- Excavators
- Pad foot Roller
- Scrapers
- Water Truck
- Body Trucks
- Skid Steer Loader
- Grader
- Articulated Dump Trucks
- 825 Compactor

The fill materials were moisture conditioned at the fill source and during placement to moisture contents suitable for compaction. Deleterious materials such as organics, sticks, roots and over size particles were sorted and removed during placement or were rejected for use.

Placement of the fill materials was carried out in layers appropriate for the above plant and compacted using the above plant carrying out multiple passes.

Our representative observed the filling process as described above and was assessed to be consistent for the entire thickness of fill.

Field density tests and laboratory compactions were carried out on the fill materials in accordance with Table 5.1 and 8.1 of AS3798 2007 (Guidelines on Earthworks for Commercial and Residential Developments) and tested to AS1289 test methods (Testing of Soils for Engineering Purposes). Testing achieved the required specification of 95% of the Hilt Density

Fill placed and compacted at measured density ratios less than 95% were tyned, moisture conditioned and re-compacted until the required specification was achieved. Retesting was carried out using Random Stratified Location methods.

The Location of the field density tests are shown on the Site Plan contained in Appendix A. These test locations and levels were not obtained by survey and therefore should only be considered as approximate.

Picture 3: View of the Site During Construction



Picture 4: View of the Site During Construction



Picture 5: View of the Site During Construction



4.0 STATEMENT OF COMPLIANCE

Our representatives observed the relevant earthworks operations including the stripped surface, fill placement and compaction operations and carried out field density tests and laboratory compaction tests in accordance with the required standard (AS3798, AS1289) and Specification. Testing achieved the required specification of 95% Standard at the test locations.

It is confirmed that Level One Inspection and Testing has been carried out on the earthworks fill to form the residential Lots and embankments below subgrade. Based on the observations made by our Geotechnicians and the results of the field and laboratory tests, the placed and compacted fill at the above project has, as far as we have been able to assess, been constructed in general accordance with the intent of AS3798 and the Specifications.

The fill can be deemed to be “controlled” in accordance with AS2870.

5.0 EXCLUSIONS

This statement does not include any top soil, which may be placed for use as dressing, trench backfill or any other subsequent earthworks after 25th January 2019.

Assessments of material quality such as soaked CBR and site classifications are excluded from this commission.

Our on-site attendance specifically excludes assessments of fill material quality and engineering properties that are outside the requirements of AS3798 – 2007.

Footings and ground slabs for any structures constructed over natural soils or controlled fill should be designed to accommodate the characteristic ground surface movements and settlement potential.

Assessments of these design parameters are beyond the scope of this Report.

6.0 LIMITATIONS

This Report has been prepared by Morrison Geotechnic Pty Ltd (**Morrison Geotechnic**), and may include contributions from Morrison Geotechnic's officers and employees, sub-contractors, sub-consultants or agents (**Contributors**).

This Report is for the sole benefit and use of Shadforth Civil Pty Ltd (**Client**), its designers, clients and relevant statutory authorities for the sole purpose of providing geotechnical advice and recommendations in respect of the Eden's Crossing Estate, Stage 10, Mount Juillerat Drive, Redbank Plains (**Project**). The Report is only intended to address those issues expressly described in the Brief/ Work Instructions in this Report.

This Report should not be used or relied upon for any other purpose without Morrison Geotechnic's prior written consent. Morrison Geotechnic and the Contributors do not accept any responsibility or liability in any way whatsoever for the use or reliance of this Report by anyone other than Shadforth Civil (**Client**), its designers, its clients and relevant statutory authorities or by anyone else for any purpose other than that for which it has been prepared.

Except with Morrison Geotechnic's prior written consent, this Report may not be:

- (a) released to any other party, whether in whole or in part (other than to the Client's officers, employees, advisers, designers, clients and relevant statutory authorities);
- (b) used or relied upon by any other party.

Morrison Geotechnic and the Contributors do not accept any liability or responsibility whatsoever for, or in respect of, any use or reliance upon this Report by any other party. Morrison Geotechnic is not obliged to enter into discussions with any third party in respect of this Report.

The information (including technical information and information obtained through discussions) on which this report is based has been provided by the Client and third parties. Morrison Geotechnic and the Contributors:

- (a) have relied upon and presumed the accuracy of this information;
- (b) have not verified the accuracy or reliability of this information (other than as expressly stated in this Report);
- (c) have not made any independent investigations or enquiries in respect of those matters of which it has no actual knowledge at the time of giving this Report to the Client; and
- (d) make no warranty or guarantee, expressed or implied, as to the accuracy or reliability of this information.

Morrison Geotechnic and the Contributors do not accept responsibility or liability for any incorrect assumptions related to this Report. For the avoidance of doubt, this Report:

- (a) is not an environmental, contamination or hazardous materials assessment; may be invalid, incomplete or inaccurate (including errors in the scope of work, investigation methodology, observations, opinions and advice) where the information provided to Morrison Geotechnic was invalid, incomplete or inaccurate;
- (b) is limited to observations of those parts of the site described in Section 1.0.

No warranty or guarantee, whether express or implied, is made in respect of the geotechnical data, information, advice, opinions and recommendations present in this Report.

If further information becomes available, or additional assumptions need to be made, Morrison Geotechnic reserves its right to amend this Report.

If you have any queries regarding the above, please contact our Brisbane office.

Yours faithfully



LIAM McDOWALL

For and on behalf of
MORRISON GEOTECHNIC PTY LIMITED

ATTACHMENTS:

Appendix A – Site Plan Showing Test Locations

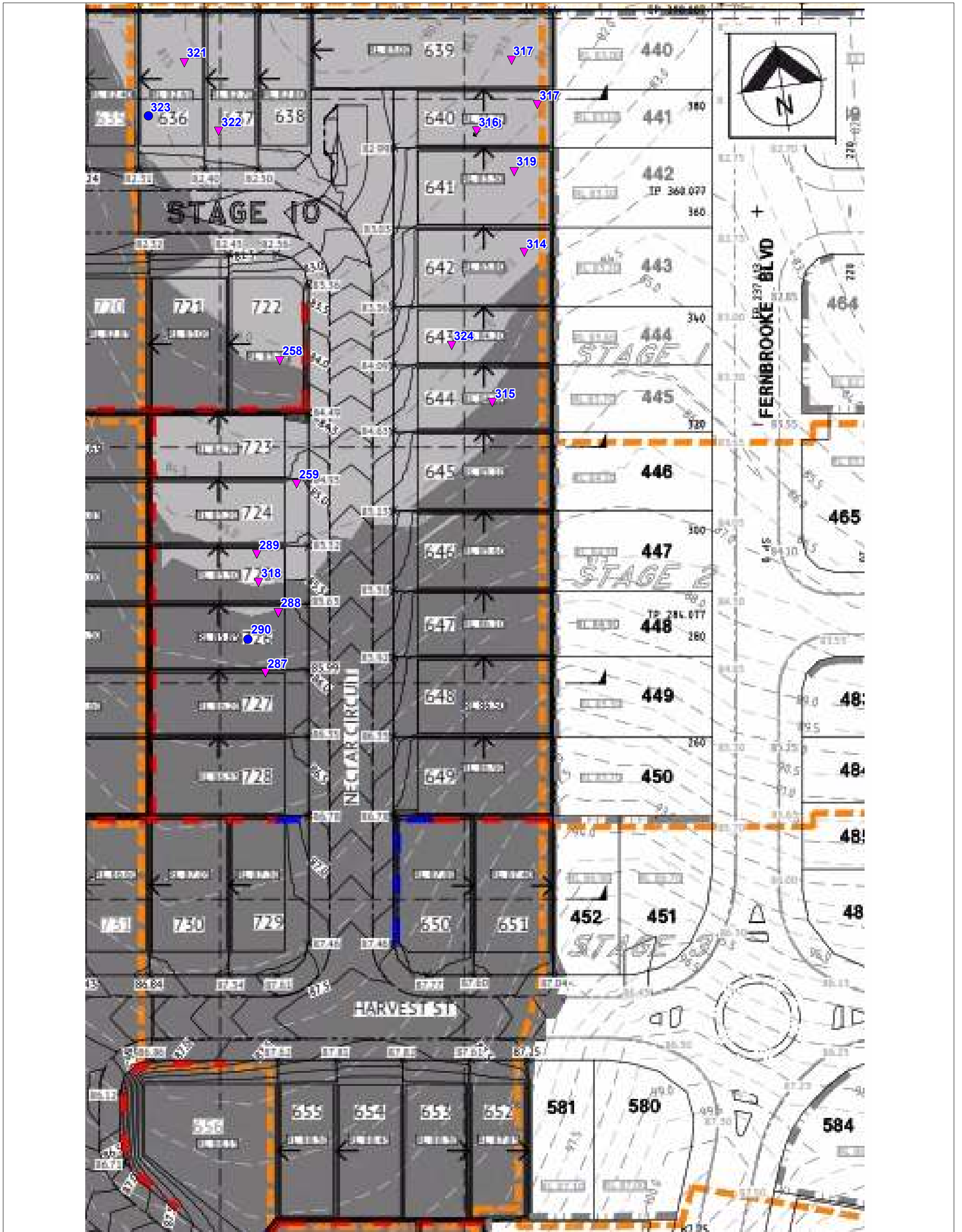
Appendix B – Laboratory Test Results Reports

Brochure – “Important Information About Your Geotechnical Report”

APPENDIX A

SITE PLAN

TEST LOCATIONS



MORRISON GEOTECHNIC PTY LTD

ABN: 51 009 878 899

Unit 1/ 35 Limestone St, Darra 4076 Ph: 3279 0900
 Email: brisbanelab@morrisongeo.com.au Fax: 3279 0955

Engineers: D.Dragun & J.Daly
 Geologists: L.Bexley & R.Howchin
 Laboratory: M.Morrison & L.McDowall

Map Description :	EARTHWORKS FIELD DENSITY TESTING - Level 1 Inspection				
Client :	SHADFORTH'S PTY LTD				
Project :	EDENS CROSSING, STAGE 10				
LEGEND :	▼	R.L 50.0 - 59.99	▼	R.L 80.0 - 89.99	
	▼	R.L 60.0 - 69.99	▼	R.L 90.0 - 99.99	
	▼	R.L 70.0 - 79.99	●	Final Level	
Project No :	DL18/334	Drawing No :	DL18/334 - 02	Scale :	Not to Scale

APPENDIX B

Laboratory Test Results Reports

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-2
Issue Number: 1
Date Issued: 10/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 168
Date Sampled: 02/11/2018 06:30
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Allotment Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D18-168A	D18-168B	D18-168C	D18-168D
Test Number	4	5	6	7
Date Tested	02/11/2018	02/11/2018	02/11/2018	02/11/2018
Time Tested	14:00	14:15	14:30	14:45
Test Request #/Location	Stage 14	Stage 14	Stage 14	Stage 14
Easting	484082	484092	484074	484062
Northing	6939518	6939538	6939567	6939544
Elevation (m)	87.38	87.30	85.91	85.89
Layer / Reduced Level	Fill	Fill	Fill	Fill
Soil Description	Sandy Clay. Brown	Sandy Clay. Brown	Sandy Clay. Brown	Sandy Clay. Brown
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	0.0	**
Field Wet Density (FWD) t/m ³	2.03	2.00	1.99	2.04
Field Moisture Content %	18.6	17.2	21.7	19.2
Field Dry Density (FDD) t/m ³	1.71	1.71	1.63	1.71
Peak Converted Wet Density t/m ³	1.99	2.00	1.95	1.90
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	2.0	2.5	3.0	2.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	101.5	100.0	101.5	107.0
Compaction Method	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-1
Issue Number: 1
Date Issued: 06/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 147
Date Sampled: 01/11/2018 10:00
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-147A	D18-147B	D18-147C
Test Number	1	2	3
Date Tested	01/11/2018	01/11/2018	01/11/2018
Time Tested	09:50	10:10	10:15
Test Request #/Location	Stage 14	Stage 14	Stage 14
Easting	484176	484180	484191
Northing	6939732	6939735	6939736
Elevation (m)	84.56	85.34	86.53
Layer / Reduced Level	General Fill	General Fill	General Fill
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	0.0	0.0
Field Wet Density (FWD) t/m ³	1.94	1.93	2.19
Field Moisture Content %	20.9	17.1	12.8
Field Dry Density (FDD) t/m ³	1.61	1.64	1.94
Peak Converted Wet Density t/m ³	1.94	1.95	2.14
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	0.0	2.0	0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	100.0	99.0	102.5
Compaction Method	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-3
Issue Number: 1
Date Issued: 10/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 188
Date Sampled: 05/11/2018 13:00
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D18-188B	D18-188C
Test Number	9	10
Date Tested	05/11/2018	05/11/2018
Time Tested	13:20	13:30
Test Request #/Location	Stage 15	Stage 15
Easting	484054	484067
Northing	6939972	6940003
Elevation (m)	71.01	70.82
Layer / Reduced Level	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0
Field Wet Density (FWD) t/m ³	1.79	1.88
Field Moisture Content %	14.4	12.2
Field Dry Density (FDD) t/m ³	1.56	1.68
Peak Converted Wet Density t/m ³	1.82	1.94
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	2.0	0.5
Adjusted Moisture Variation %	**	**
Hilf Density Ratio (%)	98.0	97.0
Compaction Method	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-4
Issue Number: 1
Date Issued: 13/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 256
Date Sampled: 07/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-256A	D18-256C	D18-256D	D18-256E	D18-256F	D18-256G
Test Number	21	23	24	25	26	27
Date Tested	07/11/2018	07/11/2018	07/11/2018	07/11/2018	07/11/2018	07/11/2018
Time Tested	10:09	10:19	10:26	10:31	13:10	13:17
Test Request #/Location	Stage 15	Stage 15	Stage 15	Stage 15	Stage 15	Stage 15
Easting	484038	484062	484065	484049	484062	484049
Northing	6939929	6939970	6940018	6939998	6939984	6939950
Elevation (m)	72.652	72.016	69.874	70.226	71.694	72.271
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.85	1.92	1.96	1.91	1.88	1.92
Field Moisture Content %	23.1	25.4	26.3	24.8	26.1	25.4
Field Dry Density (FDD) t/m ³	1.50	1.54	1.55	1.53	1.49	1.53
Peak Converted Wet Density t/m ³	1.95	1.94	1.96	1.89	1.94	1.96
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	1.5	0.0	0.0	0.0	-0.5	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	95.0	99.5	100.0	101.0	96.5	98.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-4
Issue Number: 1
Date Issued: 13/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 256
Date Sampled: 07/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-256H	D18-256I	D18-256J
Test Number	28	29	30
Date Tested	07/11/2018	07/11/2018	07/11/2018
Time Tested	13:23	13:29	13:34
Test Request #/Location	Stage 15	Stage 15	Stage 15
Easting	484054	484040	484047
Northing	6939923	6939914	6939875
Elevation (m)	72.895	73.117	74.247
Layer / Reduced Level	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.90	1.91	1.88
Field Moisture Content %	26.7	24.0	23.6
Field Dry Density (FDD) t/m ³	1.50	1.54	1.52
Peak Converted Wet Density t/m ³	1.88	1.89	1.94
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	-0.5	0.0	1.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	101.0	101.0	97.0
Compaction Method	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-5
Issue Number: 1
Date Issued: 14/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 216
Date Sampled: 06/11/2018 10:00
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-216A	D18-216B	D18-216C	D18-216D	D18-216F	D18-216G
Test Number	11	12	13	14	16	17
Date Tested	06/11/2018	06/11/2018	06/11/2018	06/11/2018	06/11/2018	06/11/2018
Time Tested	10:05	10:10	10:15	10:20	13:00	13:05
Test Request #/Location	Stage15	Stage15	Stage15	Stage15	Stage15	Stage15
Easting	484044	484043	484047	484054	484052	484053
Northing	6939916	6939945	6939972	6939987	6940037	6940005
Elevation (m)	72.876	71.690	71.125	69.947	67.730	69.844
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.85	1.81	1.70	1.90	1.84	1.86
Field Moisture Content %	23.3	26.9	30.6	24.8	31.6	25.6
Field Dry Density (FDD) t/m ³	1.50	1.42	1.30	1.52	1.40	1.48
Peak Converted Wet Density t/m ³	1.90	1.83	1.73	1.84	1.77	1.81
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	1.0	0.5	0.0	2.0	1.5	0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	97.0	98.5	98.0	103.5	104.0	102.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-5
Issue Number: 1
Date Issued: 14/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 216
Date Sampled: 06/11/2018 10:00
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-216H	D18-216I	D18-216J
Test Number	18	19	20
Date Tested	06/11/2018	06/11/2018	06/11/2018
Time Tested	13:10	13:17	13:27
Test Request #/Location	Stage15	Stage15	Stage15
Easting	484054	484049	484044
Northing	6939980	6939943	6939936
Elevation (m)	71.096	72.130	72.589
Layer / Reduced Level	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.83	1.84	1.83
Field Moisture Content %	21.9	24.1	33.2
Field Dry Density (FDD) t/m ³	1.50	1.48	1.37
Peak Converted Wet Density t/m ³	1.88	1.85	1.76
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	2.0	1.0	-0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	97.0	99.0	103.5
Compaction Method	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-9
Issue Number: 1
Date Issued: 17/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 346
Date Sampled: 13/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-346A	D18-346B	D18-346C	D18-346D	D18-346E	D18-346F
Test Number	72	73	74	75	76	77
Date Tested	13/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018
Time Tested	10:05	10:09	10:13	10:18	10:23	10:28
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484083	484074	484060	484024	484015	484028
Northing	6939942	6939915	6939868	6939896	6939922	6939968
Elevation (m)	74.239	74.723	75.674	75.216	74.845	72.843
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Clay	Clay	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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.84	1.88	1.84	1.78	1.80	1.78
Field Moisture Content %	24.1	23.3	21.9	26.4	23.9	26.9
Field Dry Density (FDD) t/m ³	1.48	1.53	1.51	1.41	1.46	1.40
Peak Converted Wet Density t/m ³	1.82	1.88	1.89	1.83	1.86	1.87
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.5	3.5	0.5	1.0	1.0	1.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	101.5	100.0	97.5	97.0	97.0	95.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-9
Issue Number: 1
Date Issued: 17/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 346
Date Sampled: 13/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-346G	D18-346I	D18-346J	D18-346K	D18-346L	D18-346M
Test Number	78	80	81	82	83	84
Date Tested	13/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018
Time Tested	10:35	13:06	13:09	13:16	13:19	13:24
Test Request #/Location	Stage 10-15	**	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484072	484027	484013	484018	484031	484028
Northing	6939882	6939893	6939928	6939955	6939969	6940017
Elevation (m)	75.431	75.347	74.715	73.385	72.770	70.426
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.81	1.80	1.79	1.85	1.86	1.85
Field Moisture Content %	29.1	15.0	18.0	20.2	18.6	20.6
Field Dry Density (FDD) t/m ³	1.40	1.56	1.52	1.54	1.57	1.54
Peak Converted Wet Density t/m ³	1.82	1.89	1.88	1.88	1.87	1.89
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	2.5	4.5	3.0	2.0	2.0	3.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	100.0	95.5	95.5	98.0	99.5	98.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-9
Issue Number: 1
Date Issued: 17/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 346
Date Sampled: 13/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-346N	D18-346O	D18-346P
Test Number	85	86	87
Date Tested	13/11/2018	13/11/2018	13/11/2018
Time Tested	13:29	13:36	13:40
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484017	484022	484052
Northing	6940023	6940038	6939947
Elevation (m)	70.878	70.567	72.219
Layer / Reduced Level	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.90	1.88	1.89
Field Moisture Content %	16.9	21.6	20.8
Field Dry Density (FDD) t/m ³	1.63	1.54	1.57
Peak Converted Wet Density t/m ³	1.91	1.90	1.85
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	3.0	3.0	3.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	99.5	99.0	102.5
Compaction Method	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 ABN: 51 009 878 899
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-6
Issue Number: 1
Date Issued: 15/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 277
Date Sampled: 08/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-277A	D18-277B	D18-277C	D18-277D	D18-277E	D18-277F
Test Number	31	32	33	34	35	36
Date Tested	08/11/2018	08/11/2018	08/11/2018	08/11/2018	08/11/2018	08/11/2018
Time Tested	09:55	10:01	10:07	10:13	10:17	10:25
Test Request #/Location	Stage 15	Stage 15	Stage 15	Stage 15	Stage 15	Stage 15
Easting	484058	484068	484071	484060	484070	484056
Northing	6939996	6939988	6939960	6939955	6939906	6939919
Elevation (m)	71.120	71.942	72.773	72.715	73.913	73.262
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.77	1.83	1.86	1.98	1.82	1.88
Field Moisture Content %	18.2	25.3	21.6	19.4	23.0	14.6
Field Dry Density (FDD) t/m ³	1.50	1.46	1.53	1.66	1.48	1.64
Peak Converted Wet Density t/m ³	1.86	1.91	1.89	1.99	1.90	1.97
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	3.5	0.5	1.0	1.0	-0.5	3.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	95.0	95.5	98.5	99.5	95.5	95.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-6
Issue Number: 1
Date Issued: 15/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 277
Date Sampled: 08/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-277G	D18-277H	D18-277I	D18-277J	D18-277K	D18-277L
Test Number	37	38	39	40	41	42
Date Tested	08/11/2018	08/11/2018	08/11/2018	08/11/2018	08/11/2018	08/11/2018
Time Tested	13:05	13:11	13:16	13:20	13:27	13:36
Test Request #/Location	Stage 15	Stage 15	Stage 15	Stage 15	Stage 15	Stage 15
Easting	484028	484021	484034	484028	484040	484036
Northing	6939910	6939933	6939949	6939969	6940004	6940033
Elevation (m)	73.878	73.411	72.435	71.866	70.003	68.290
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	2.02	1.95	2.03	1.96	1.88	1.95
Field Moisture Content %	21.1	16.2	18.5	14.4	19.3	23.2
Field Dry Density (FDD) t/m ³	1.66	1.68	1.71	1.71	1.57	1.58
Peak Converted Wet Density t/m ³	2.00	2.01	2.02	1.95	1.97	1.99
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	-1.0	1.0	0.5	1.0	2.0	-1.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	100.5	97.0	100.5	100.5	95.0	98.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-7
Issue Number: 1
Date Issued: 15/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 300
Date Sampled: 09/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-300A	D18-300B	D18-300C	D18-300D	D18-300E	D18-300F
Test Number	43	44	45	46	47	48
Date Tested	09/11/2018	09/11/2018	09/11/2018	09/11/2018	09/11/2018	09/11/2018
Time Tested	10:06	10:11	10:14	10:21	10:25	10:29
Test Request #/Location	Stage 15	Stage 15	Stage 15	Stage 15	Stage 15	Stage 15
Easting	484040	484032	484047	484026	484046	484038
Northing	6939913	6939932	6939932	6939961	6939971	6939999
Elevation (m)	73.874	73.460	73.437	72.311	72.258	70.532
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.76	1.88	1.75	1.94	1.90	1.80
Field Moisture Content %	31.2	31.9	31.6	20.7	29.9	36.6
Field Dry Density (FDD) t/m ³	1.34	1.43	1.33	1.60	1.46	1.32
Peak Converted Wet Density t/m ³	1.78	1.86	1.79	1.96	1.86	1.77
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.5	0.0	0.0	0.0	0.0	-0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	99.0	101.0	98.0	99.0	102.5	102.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-7
Issue Number: 1
Date Issued: 15/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 300
Date Sampled: 09/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-300G	D18-300H	D18-300I	D18-300J	D18-300K	D18-300L
Test Number	49	50	51	52	53	54
Date Tested	09/11/2018	09/11/2018	09/11/2018	09/11/2018	09/11/2018	09/11/2018
Time Tested	10:34	10:39	13:10	13:14	13:18	13:26
Test Request #/Location	Stage 15	Stage 15 Retest of D18-188A	Stage 15	Stage 15	Stage 15	Stage 15
Easting	484056	484044	484077	484082	484080	484062
Northing	6940008	6939946	6940045	6939961	6940013	6939960
Elevation (m)	70.733	71.3	69.289	71.22	71.341	73.107
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.78	1.76	1.78	1.77	1.84	1.85
Field Moisture Content %	36.9	29.0	28.8	33.0	27.2	24.5
Field Dry Density (FDD) t/m ³	1.30	1.36	1.38	1.33	1.45	1.49
Peak Converted Wet Density t/m ³	1.74	1.73	1.85	1.84	1.86	1.87
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.5	2.5	0.0	0.0	0.5	1.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	102.5	101.5	96.0	96.0	99.0	99.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-7
Issue Number: 1
Date Issued: 15/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 300
Date Sampled: 09/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-300M	D18-300N	D18-300O
Test Number	55	56	57
Date Tested	09/11/2018	09/11/2018	09/11/2018
Time Tested	13:29	13:38	13:44
Test Request #/Location	Stage 15	Stage 15	Stage 15
Easting	484061	484070	484821
Northing	6939941	6939920	6939961
Elevation (m)	73.418	74.137	72.521
Layer / Reduced Level	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.76	1.92	1.77
Field Moisture Content %	29.1	26.1	25.3
Field Dry Density (FDD) t/m ³	1.37	1.52	1.41
Peak Converted Wet Density t/m ³	1.78	1.89	1.80
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	-0.5	1.0	0.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	99.0	102.0	98.0
Compaction Method	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-8
Issue Number: 1
Date Issued: 16/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 321
Date Sampled: 12/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-321A	D18-321B	D18-321C	D18-321D	D18-321E	D18-321F
Test Number	58	59	60	61	62	63
Date Tested	12/11/2018	12/11/2018	12/11/2018	12/11/2018	12/11/2018	12/11/2018
Time Tested	10:06	10:09	10:14	10:17	10:23	10:28
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484083	484076	484065	484051	484036	484048
Northing	6940030	6940017	6940008	6939999	6939968	6939961
Elevation (m)	70.741	71.265	71.368	71.339	72.275	72.959
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.85	1.88	1.74	1.83	1.85	1.87
Field Moisture Content %	22.8	22.4	33.4	33.7	22.6	24.2
Field Dry Density (FDD) t/m ³	1.50	1.53	1.30	1.37	1.51	1.50
Peak Converted Wet Density t/m ³	1.85	1.86	1.73	1.72	1.81	1.85
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	1.0	0.5	3.0	2.5	0.5	2.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	100.0	101.0	100.5	106.0	102.0	101.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore

Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-8
Issue Number: 1
Date Issued: 16/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 321
Date Sampled: 12/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-321G	D18-321H	D18-321I	D18-321J	D18-321K	D18-321L
Test Number	64	65	66	67	68	69
Date Tested	12/11/2018	12/11/2018	12/11/2018	12/11/2018	12/11/2018	12/11/2018
Time Tested	10:33	10:37	10:41	13:04	13:07	13:13
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484062	484054	484033	484035	484029	484036
Northing	6939960	6939931	6939922	6939966	6939928	6939904
Elevation (m)	73.332	73.711	73.915	72.522	74.012	74.569
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
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 (%)	22.7	0.0	0.0	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.88	1.85	1.86	1.84	1.83	1.83
Field Moisture Content %	29.9	22.7	26.5	22.1	22.3	28.0
Field Dry Density (FDD) t/m ³	1.45	1.51	1.47	1.50	1.50	1.43
Peak Converted Wet Density t/m ³	**	1.88	1.76	1.87	1.78	1.77
Adjusted Peak Converted Wet Density t/m ³	1.96	**	**	**	**	**
Moisture Variation (Wv) %	**	2.5	3.0	0.5	1.0	3.5
Adjusted Moisture Variation %	0.5	**	**	**	**	**
Hilf Density Ratio (%)	96.5	98.5	105.5	98.0	103.0	103.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-8
Issue Number: 1
Date Issued: 16/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 321
Date Sampled: 12/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D18-321M	D18-321N
Test Number	70	71
Date Tested	12/11/2018	12/11/2018
Time Tested	13:17	13:24
Test Request #/Location	Stage 10-15	Stage 10-15
Easting	484057	484043
Northing	6939888	6939890
Elevation (m)	74.932	74.856
Layer / Reduced Level	General Fill	General Fill
Soil Description	Sandy Clay	Sandy Clay
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0
Field Wet Density (FWD) t/m ³	1.79	1.80
Field Moisture Content %	29.2	30.5
Field Dry Density (FDD) t/m ³	1.38	1.38
Peak Converted Wet Density t/m ³	1.71	1.76
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	2.0	3.0
Adjusted Moisture Variation %	**	**
Hilf Density Ratio (%)	104.0	102.5
Compaction Method	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-10
Issue Number: 1
Date Issued: 20/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 375
Date Sampled: 14/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-375A	D18-375B	D18-375C	D18-375D	D18-375E	D18-375F
Test Number	88	89	90	91	92	93
Date Tested	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018
Time Tested	10:00	10:06	10:10	10:14	10:21	10:26
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484029	484024	484011	484018	484053	484061
Northing	6939891	6939909	6939917	6939967	6939938	6939984
Elevation (m)	75.769	75.584	75.519	73.420	74.676	73.217
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.81	1.81	1.82	1.83	1.84	1.82
Field Moisture Content %	25.5	25.7	26.4	23.2	28.4	24.4
Field Dry Density (FDD) t/m ³	1.44	1.44	1.44	1.49	1.44	1.46
Peak Converted Wet Density t/m ³	1.88	1.88	1.90	1.88	1.93	1.89
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	2.0	2.0	2.0	3.0	2.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	96.0	96.5	96.0	97.5	95.5	96.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-10
Issue Number: 1
Date Issued: 20/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 375
Date Sampled: 14/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-375G	D18-375H	D18-375I	D18-375J	D18-375K	D18-375L
Test Number	94	95	96	97	98	99
Date Tested	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018
Time Tested	10:29	10:35	10:39	10:44	13:06	13:09
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484065	484073	484053	484061	484052	484043
Northing	6939963	6940008	6939938	6940008	6939869	6939898
Elevation (m)	74.064	72.461	74.678	70.619	76.357	75.898
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.83	1.96	1.96	1.93	1.86	1.82
Field Moisture Content %	24.0	21.4	22.7	28.6	26.8	26.7
Field Dry Density (FDD) t/m ³	1.48	1.62	1.60	1.50	1.47	1.44
Peak Converted Wet Density t/m ³	1.87	1.97	1.97	1.93	1.90	1.86
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	2.5	3.0	2.5	3.0	0.5	2.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	98.0	99.5	100.0	100.5	98.0	98.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-10
Issue Number: 1
Date Issued: 20/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 375
Date Sampled: 14/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-375M	D18-375N	D18-375O	D18-375P	D18-375Q	D18-375R
Test Number	100	101	102	103	104	105
Date Tested	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018	14/11/2018
Time Tested	13:14	13:20	13:27	13:33	13:38	13:43
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484018	484016	484017	484013	484023	484022
Northing	6939909	6939937	6939952	6939975	6939990	6940013
Elevation (m)	75.742	75.190	74.190	73.142	72.344	71.257
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.83	1.84	1.85	1.82	1.89	1.91
Field Moisture Content %	28.7	26.0	25.6	24.9	24.7	27.6
Field Dry Density (FDD) t/m ³	1.42	1.46	1.47	1.46	1.51	1.50
Peak Converted Wet Density t/m ³	1.87	1.86	1.89	1.89	1.95	1.96
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	1.5	3.0	2.5	2.5	2.0	2.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	98.0	99.0	97.5	96.5	97.0	97.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-10
Issue Number: 1
Date Issued: 20/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 375
Date Sampled: 14/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1	
Sample Number	D18-375S
Test Number	106
Date Tested	14/11/2018
Time Tested	13:47
Test Request #/Location	Stage 10-15
Easting	484025
Northing	6940034
Elevation (m)	70.148
Layer / Reduced Level	General Fill
Soil Description	Silty Clay
Test Depth (mm)	150
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	0.0
Field Wet Density (FWD) t/m ³	1.87
Field Moisture Content %	24.2
Field Dry Density (FDD) t/m ³	1.51
Peak Converted Wet Density t/m ³	1.95
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	2.0
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	96.0
Compaction Method	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-11
Issue Number: 1
Date Issued: 21/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 411
Date Sampled: 16/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-411A	D18-411B	D18-411C	D18-411D	D18-411E	D18-411F
Test Number	126	127	128	129	130	131
Date Tested	16/11/2018	16/11/2018	16/11/2018	16/11/2018	16/11/2018	16/11/2018
Time Tested	10:00	10:05	10:10	10:15	10:20	10:25
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484011	484014	484014	484018	484021	484036
Northing	6939943	6939969	6939996	6939992	6940010	6939931
Elevation (m)	75.5	74.22	72.5	73.737	72.058	75.545
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Thickness of Layer (mm)	-	-	-	-	-	-
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	4.4	0.0	**
Field Wet Density (FWD) t/m ³	1.80	1.81	1.84	1.98	1.82	1.83
Field Moisture Content %	25.5	23.8	24.8	15.7	29.0	29.0
Field Dry Density (FDD) t/m ³	1.43	1.46	1.47	1.71	1.41	1.42
Peak Converted Wet Density t/m ³	1.88	1.87	1.90	**	1.89	1.89
Adjusted Peak Converted Wet Density t/m ³	**	**	**	2.01	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	**	0.0	0.0
Adjusted Moisture Variation %	**	**	**	0.0	**	**
Hilf Density Ratio (%)	95.5	96.5	96.5	98.5	96.0	96.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore

Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-11
Issue Number: 1
Date Issued: 21/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 411
Date Sampled: 16/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-411G	D18-411H	D18-411I	D18-411J	D18-411K	D18-411L
Test Number	132	133	134	135	136	137
Date Tested	16/11/2018	16/11/2018	16/11/2018	16/11/2018	16/11/2018	16/11/2018
Time Tested	10:30	14:00	14:05	14:10	14:15	14:20
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484016	484039	484038	484042	484023	484045
Northing	6939960	6939986	6939958	6939883	6939900	6939920
Elevation (m)	74.521	73.371	74.535	74.654	74.235	74.890
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Thickness of Layer (mm)	-	-	-	-	-	-
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	3.0
Field Wet Density (FWD) t/m ³	1.78	1.78	1.92	1.91	1.92	1.93
Field Moisture Content %	26.7	28.1	15.4	16.9	26.9	29.0
Field Dry Density (FDD) t/m ³	1.40	1.39	1.67	1.64	1.51	1.50
Peak Converted Wet Density t/m ³	1.69	1.68	1.86	1.88	1.88	**
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	1.90
Moisture Variation (Wv) %	0.0	0.0	0.0	0.0	0.0	**
Adjusted Moisture Variation %	**	**	**	**	**	0.0
Hilf Density Ratio (%)	105.5	105.5	104.0	101.5	102.0	101.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydhore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-11
Issue Number: 1
Date Issued: 21/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 411
Date Sampled: 16/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1	
Sample Number	D18-411M
Test Number	138
Date Tested	16/11/2018
Time Tested	14:25
Test Request #/Location	Stage 10-15
Easting	484046
Northing	6939949
Elevation (m)	75.012
Layer / Reduced Level	General Fill
Thickness of Layer (mm)	-
Soil Description	Silty Clay
Test Depth (mm)	150
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	0.0
Field Wet Density (FWD) t/m ³	1.93
Field Moisture Content %	29.3
Field Dry Density (FDD) t/m ³	1.50
Peak Converted Wet Density t/m ³	1.90
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	0.0
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	101.5
Compaction Method	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

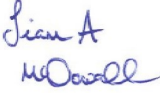
Material Test Report

Report Number: DL18/334-18B
Issue Number: 1
Date Issued: 27/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 301
Sample Number: D18-301A
Date Sampled: 09/11/2018
Sampling Method: AS1289 1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: E: 484266.847, N: 6939875.993, Depth: RL- 94.281
Material: Proposed 1.7m Capping Layer
Material Source: Onsite Cut - Stg 10


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 Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

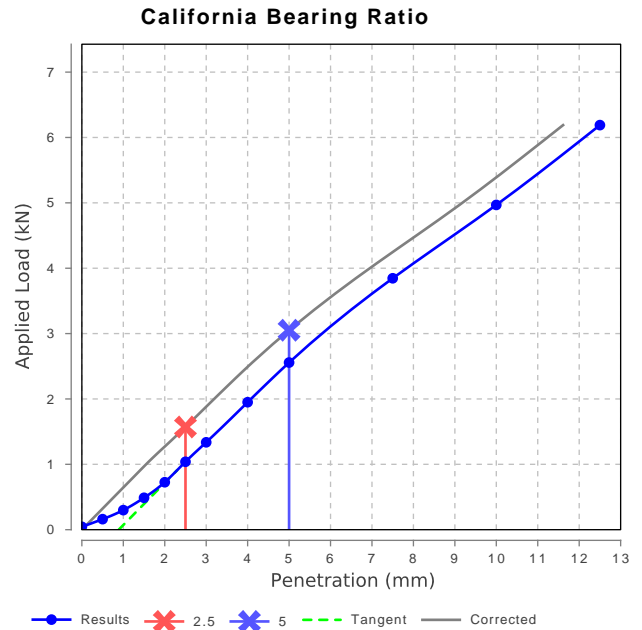


Accredited for compliance with ISO/IEC 17025 - Testing

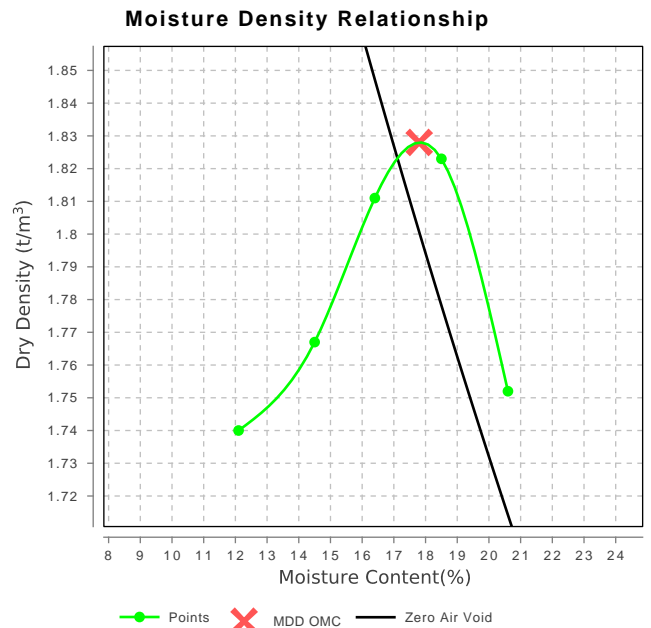

 Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	15		
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)	1.83		
Optimum Moisture Content (%)	18.0		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	100.5		
Dry Density after Soaking (t/m ³)	1.83		
Field Moisture Content (%)	9.1		
Moisture Content at Placement (%)	17.9		
Moisture Content Top 30mm (%)	17.6		
Moisture Content Rest of Sample (%)	18.5		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	6		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	18.4		



Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1)	
Mould Type	1 LITRE MOULD A
Compaction	Standard
No. Layers	3
No. Blows / Layer	25
Maximum Dry Density (t/m ³)	1.83
Optimum Moisture Content (%)	18.0
Oversize Sieve (mm)	19
Oversize Material (%)	18.4
Method used to Determine Plasticity	
Curing Hours	24:45



Material Test Report



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 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-12
Issue Number: 1
Date Issued: 22/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 392
Date Sampled: 15/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-392A	D18-392B	D18-392C	D18-392D	D18-392E	D18-392F
Test Number	116	117	118	119	120	121
Date Tested	15/11/2018	15/11/2018	15/11/2018	15/11/2018	15/11/2018	15/11/2018
Time Tested	12:00	12:10	12:20	12:30	12:40	12:50
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484046	484039	484034	484033	484064	484055
Northing	6940023	6940001	6939981	6939953	6940060	6940051
Elevation (m)	71.089	72.260	73.279	75.337	68.882	69.011
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.92	1.86	1.98	1.86	1.86	1.86
Field Moisture Content %	29.0	25.7	29.0	28.7	18.2	18.6
Field Dry Density (FDD) t/m ³	1.49	1.48	1.53	1.44	1.57	1.56
Peak Converted Wet Density t/m ³	1.83	1.76	1.91	1.84	1.87	1.90
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	3.0	3.5	3.0	3.0	3.0	3.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	105.0	105.5	103.5	101.0	99.5	97.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-12
Issue Number: 1
Date Issued: 22/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 392
Date Sampled: 15/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D18-392G	D18-392H	D18-392I	D18-392J
Test Number	122	123	124	125
Date Tested	15/11/2018	15/11/2018	15/11/2018	15/11/2018
Time Tested	13:00	13:10	13:20	13:30
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484058	484054	484043	484044
Northing	6940032	6940007	6939976	6939944
Elevation (m)	70.798	72.278	73.698	74.722
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill
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 (%)	0.0	0.0	14.8	0.0
Field Wet Density (FWD) t/m ³	1.88	1.97	1.93	1.86
Field Moisture Content %	24.8	0.0	27.3	29.2
Field Dry Density (FDD) t/m ³	1.50	1.97	1.51	1.44
Peak Converted Wet Density t/m ³	1.82	1.85	**	1.88
Adjusted Peak Converted Wet Density t/m ³	**	**	1.82	**
Moisture Variation (Wv) %	3.0	3.0	**	2.5
Adjusted Moisture Variation %	**	**	3.0	**
Hilf Density Ratio (%)	103.5	106.0	106.0	99.0
Compaction Method	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-17
Issue Number: 1
Date Issued: 24/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 496
Date Sampled: 22/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-496A	D18-496B	D18-496C	D18-496D	D18-496E	D18-496F
Test Number	180	181	182	183	184	185
Date Tested	22/11/2018	22/11/2018	22/11/2018	22/11/2018	22/11/2018	22/11/2018
Time Tested	10:12	10:16	10:21	10:27	10:34	10:40
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484028	484046	484070	484009	484088	484086
Northing	6939896	6939878	6939974	6939919	6939937	6939954
Elevation (m)	78.739	79.502	75.226	77.486	76.632	75.886
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Clay Silty Clay	Clay Silty Clay	Clay Silty Clay	Clay Silty Clay	Clay Silty Clay	Clay Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.77	1.75	1.79	1.87	1.91	1.82
Field Moisture Content %	21.1	11.8	12.0	22.3	22.4	32.0
Field Dry Density (FDD) t/m ³	1.46	1.57	1.60	1.53	1.56	1.38
Peak Converted Wet Density t/m ³	1.86	1.84	1.85	1.97	1.98	1.85
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	2.0	1.5	2.5	0.5	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	95.0	95.0	97.0	95.0	96.5	98.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-13
Issue Number: 1
Date Issued: 23/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 432
Date Sampled: 19/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-432A	D18-432B	D18-432C	D18-432D	D18-432E	D18-432F
Test Number	139	140	141	142	143	144
Date Tested	19/11/2018	19/11/2018	19/11/2018	19/11/2018	19/11/2018	19/11/2018
Time Tested	10:00	10:04	10:13	10:21	10:26	10:31
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484010	484007	484031	484020	484060	484039
Northing	6940005	6939975	6939973	6940011	6939981	6939946
Elevation (m)	72.948	74.308	74.083	72.180	74.458	75.361
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.89	1.89	1.92	1.93	1.82	1.85
Field Moisture Content %	25.9	23.8	17.4	13.7	23.2	28.0
Field Dry Density (FDD) t/m ³	1.50	1.53	1.64	1.70	1.47	1.44
Peak Converted Wet Density t/m ³	1.89	1.88	2.01	1.99	1.90	1.85
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	0.0	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	100.0	100.5	95.5	97.0	95.5	100.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore

Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-13
Issue Number: 1
Date Issued: 23/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 432
Date Sampled: 19/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-432G	D18-432H	D18-432I	D18-432J	D18-432K	D18-432L
Test Number	145	146	147	148	149	150
Date Tested	19/11/2018	19/11/2018	19/11/2018	19/11/2018	19/11/2018	19/11/2018
Time Tested	13:05	13:12	13:19	13:24	13:33	13:38
Test Request #/Location	Stage 10-15 Retest of D18-346H	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484042	484002	484014	483996	484018	484022
Northing	6939872	6939935	6939944	6939970	6939988	6940013
Elevation (m)	75.810	75.865	75.410	75.100	73.694	72.154
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	1.8	0.0	**
Field Wet Density (FWD) t/m ³	1.94	1.90	1.85	1.86	1.94	1.94
Field Moisture Content %	17.3	18.1	28.1	34.1	21.0	21.4
Field Dry Density (FDD) t/m ³	1.65	1.61	1.44	1.38	1.60	1.60
Peak Converted Wet Density t/m ³	2.03	1.99	1.91	**	2.03	1.99
Adjusted Peak Converted Wet Density t/m ³	**	**	**	1.82	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	**	0.0	0.0
Adjusted Moisture Variation %	**	**	**	0.0	**	**
Hilf Density Ratio (%)	95.5	95.5	96.5	102.0	95.5	97.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-13
Issue Number: 1
Date Issued: 23/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 432
Date Sampled: 19/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1	
Sample Number	D18-432M
Test Number	151
Date Tested	19/11/2018
Time Tested	13:40
Test Request #/Location	Stage 10-15
Easting	484016
Northing	6940031
Elevation (m)	71.420
Layer / Reduced Level	General Fill
Soil Description	Silty Clay
Test Depth (mm)	150
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	0.0
Field Wet Density (FWD) t/m ³	1.95
Field Moisture Content %	21.0
Field Dry Density (FDD) t/m ³	1.61
Peak Converted Wet Density t/m ³	1.99
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	0.0
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	98.0
Compaction Method	Standard

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

Material Test Report

Report Number: DL18/334-15
Issue Number: 1
Date Issued: 23/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 460
Date Sampled: 20/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-460A	D18-460B	D18-460C	D18-460D	D18-460E	D18-460F
Test Number	152	153	154	155	156	157
Date Tested	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018
Time Tested	09:55	10:03	10:09	10:14	10:20	10:24
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484051	484059	484067	484074	484090	484102
Northing	6939961	6939993	6940012	6939980	6939938	6939995
Elevation (m)	74.938	73.914	73.122	74.453	75.840	73.959
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.99	2.00	1.98	1.97	2.03	1.91
Field Moisture Content %	22.2	18.2	19.6	21.0	16.7	17.1
Field Dry Density (FDD) t/m ³	1.63	1.70	1.66	1.63	1.74	1.63
Peak Converted Wet Density t/m ³	2.02	2.05	2.04	2.01	2.07	2.00
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	0.0	-0.5	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	98.5	97.5	97.5	98.5	98.0	95.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-15
Issue Number: 1
Date Issued: 23/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 460
Date Sampled: 20/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-460G	D18-460H	D18-460I	D18-460J	D18-460K	D18-460L
Test Number	158	159	160	161	162	163
Date Tested	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018	20/11/2018
Time Tested	10:32	13:03	13:08	13:13	13:19	13:26
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484097	484044	484048	484048	484058	484077
Northing	6939965	6939941	6939966	6939987	6940008	6940008
Elevation (m)	74.859	76.088	74.979	73.927	73.117	73.508
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.91	1.97	1.94	1.96	1.96	1.99
Field Moisture Content %	17.3	17.5	21.4	25.2	19.2	24.7
Field Dry Density (FDD) t/m ³	1.63	1.68	1.59	1.57	1.65	1.60
Peak Converted Wet Density t/m ³	2.01	2.04	1.89	1.93	2.05	1.93
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	-0.5	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	95.0	96.5	102.0	101.5	96.0	103.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-15
Issue Number: 1
Date Issued: 23/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 460
Date Sampled: 20/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1	
Sample Number	D18-460N
Test Number	165
Date Tested	20/11/2018
Time Tested	13:37
Test Request #/Location	Stage 10-15
Easting	484063
Northing	6939948
Elevation (m)	75.703
Layer / Reduced Level	General Fill
Soil Description	Silty Sandy Clay
Test Depth (mm)	150
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	0.0
Field Wet Density (FWD) t/m ³	1.96
Field Moisture Content %	19.2
Field Dry Density (FDD) t/m ³	1.65
Peak Converted Wet Density t/m ³	1.93
Adjusted Peak Converted Wet Density t/m ³	**
Moisture Variation (Wv) %	0.0
Adjusted Moisture Variation %	**
Hilf Density Ratio (%)	102.0
Compaction Method	Standard

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

Material Test Report

Report Number: DL18/334-14
Issue Number: 1
Date Issued: 23/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 393
Date Sampled: 15/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Rhys Mitchell
Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-393A	D18-393B	D18-393C	D18-393D	D18-393E	D18-393F
Test Number	107	108	109	110	111	112
Date Tested	15/11/2018	15/11/2018	15/11/2018	15/11/2018	15/11/2018	15/11/2018
Time Tested	13:07	13:11	13:15	13:19	13:23	13:28
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484079.079	484095.380	484098.96	484103.414	484100.727	484094.451
Northing	6940071.609	6939914.622	6939948.086	6939979.542	6940011.277	6940045.929
Elevation (m)	68.542	75.897	75.107	74.009	72.715	70.752
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Clay, Silty Clay	Clay, Silty Clay	Clay, Silty Clay	Clay, Silty Clay	Clay, Silty Clay	Clay, Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.87	1.88	1.95	1.98	1.95	2.07
Field Moisture Content %	26.1	28.8	22.3	24.7	22.9	20.3
Field Dry Density (FDD) t/m ³	1.48	1.46	1.59	1.59	1.58	1.72
Peak Converted Wet Density t/m ³	1.90	1.91	1.92	1.96	1.92	1.98
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	-1.0	0.0	0.0	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	98.5	98.5	101.5	101.5	101.0	104.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydhore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-14
Issue Number: 1
Date Issued: 23/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 393
Date Sampled: 15/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D18-393G	D18-393H
Test Number	113	114
Date Tested	15/11/2018	15/11/2018
Time Tested	13:33	13:38
Test Request #/Location	Stage 10-15	Stage 10-15
Easting	484085.18	484080.649
Northing	6940003.907	6939965.295
Elevation (m)	73.187	74.524
Layer / Reduced Level	General Fill	General Fill
Soil Description	Clay, Silty Clay	Clay, Silty Clay
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0
Field Wet Density (FWD) t/m ³	2.03	1.84
Field Moisture Content %	22.0	28.2
Field Dry Density (FDD) t/m ³	1.67	1.44
Peak Converted Wet Density t/m ³	2.05	1.77
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	0.0	3.0
Adjusted Moisture Variation %	**	**
Hilf Density Ratio (%)	99.5	104.0
Compaction Method	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-16
Issue Number: 1
Date Issued: 24/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 478
Date Sampled: 21/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-478A	D18-478B	D18-478C	D18-478D	D18-478E	D18-478F
Test Number	166	167	168	169	170	171
Date Tested	21/11/2018	21/11/2018	21/11/2018	21/11/2018	21/11/2018	21/11/2018
Time Tested	10:05	10:10	10:16	10:20	10:24	10:29
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484004	484021	484049	484101	484104	484103
Northing	6939949	6939924	6939892	6939899	6939923	6939942
Elevation (m)	76.425	77.138	78.292	77.236	76.767	76.022
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.92	1.95	1.86	1.88	1.92	1.94
Field Moisture Content %	17.6	17.3	15.8	16.0	14.3	18.5
Field Dry Density (FDD) t/m ³	1.63	1.66	1.61	1.62	1.68	1.64
Peak Converted Wet Density t/m ³	1.92	1.97	1.93	1.88	1.97	1.93
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	0.0	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	100.0	98.5	96.5	100.0	97.5	100.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-16
Issue Number: 1
Date Issued: 24/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 478
Date Sampled: 21/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-478G	D18-478H	D18-478I	D18-478J	D18-478K	D18-478L
Test Number	172	173	174	175	176	177
Date Tested	21/11/2018	21/11/2018	21/11/2018	21/11/2018	21/11/2018	21/11/2018
Time Tested	10:36	13:10	13:15	13:23	13:28	13:36
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484111	484004	484025	484041	484082	484067
Northing	6939966	6939931	6939907	6939888	6939910	6939908
Elevation (m)	75.230	76.878	77.842	78.627	77.393	77.985
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.86	1.85	1.87	1.87	1.88	1.79
Field Moisture Content %	22.5	16.3	15.3	21.8	22.2	27.3
Field Dry Density (FDD) t/m ³	1.52	1.59	1.62	1.54	1.54	1.40
Peak Converted Wet Density t/m ³	1.89	1.94	1.93	1.97	1.98	1.87
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	0.0	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	98.5	95.5	96.5	95.0	95.0	95.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-16
Issue Number: 1
Date Issued: 24/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 478
Date Sampled: 21/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



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Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D18-478M	D18-478N
Test Number	178	179
Date Tested	21/11/2018	21/11/2018
Time Tested	13:39	13:44
Test Request #/Location	Stage 10-15	Stage 10-15
Easting	484036	484041
Northing	6939948	6939927
Elevation (m)	76.101	77.119
Layer / Reduced Level	General Fill	General Fill
Soil Description	Sandy Silty Clay	Sandy Silty Clay
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0
Field Wet Density (FWD) t/m ³	1.84	1.82
Field Moisture Content %	24.0	23.9
Field Dry Density (FDD) t/m ³	1.49	1.47
Peak Converted Wet Density t/m ³	1.90	1.88
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	0.0	0.0
Adjusted Moisture Variation %	**	**
Hilf Density Ratio (%)	97.0	97.0
Compaction Method	Standard	Standard

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

Material Test Report

Report Number: DL18/334-18A
Issue Number: 1
Date Issued: 27/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 301


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 Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au



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Liam A McDowall

Approved Signatory: Liam McDowall
Branch Manager

NATA Accredited Laboratory Number: 1169

Shrink Swell Index AS 1289 7.1.1 & 2.1.1		
Sample Number	D18-301C	D18-301D
Sampling Method	AS1289 1.2.1 6.5.4	AS1289 1.2.1 6.5.4
Date Sampled	09/11/2018	09/11/2018
Date Tested	23/11/2018	23/11/2018
Material Source	Capping Layer	Capping Layer
Sample Location	E: 484266.847, N: 6939875.993 (RL- 94.281)	E: 484314.962, N: 6939789.808 (RL- 98.762)
Inert Material Estimate (%)	**	**
Pocket Penetrometer before (kPa)	**	**
Pocket Penetrometer after (kPa)	>600	370
Shrinkage Moisture Content (%)	17.1	17.2
Shrinkage (%)	0.7	0.3
Swell Moisture Content Before (%)	17.3	17.8
Swell Moisture Content After (%)	**	**
Swell (%)	-0.1	-0.0
Shrink Swell Index Iss (%)	0.4	0.2
Visual Description	Clayey Sand	Clayey Sand
Cracking	Slightly Cracked	Slightly Cracked
Crumbling	Yes	Yes
Remarks	**	**

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.

NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report

Report Number: DL18/334-18C
Issue Number: 1
Date Issued: 27/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 301
Sample Number: D18-301A
Date Sampled: 09/11/2018
Sampling Method: AS1289 1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: E: 484266.847, N: 6939875.993, Depth: RL- 94.281
Material: Proposed 1.7m Capping Layer
Material Source: Onsite Cut - Stg 10



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Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au



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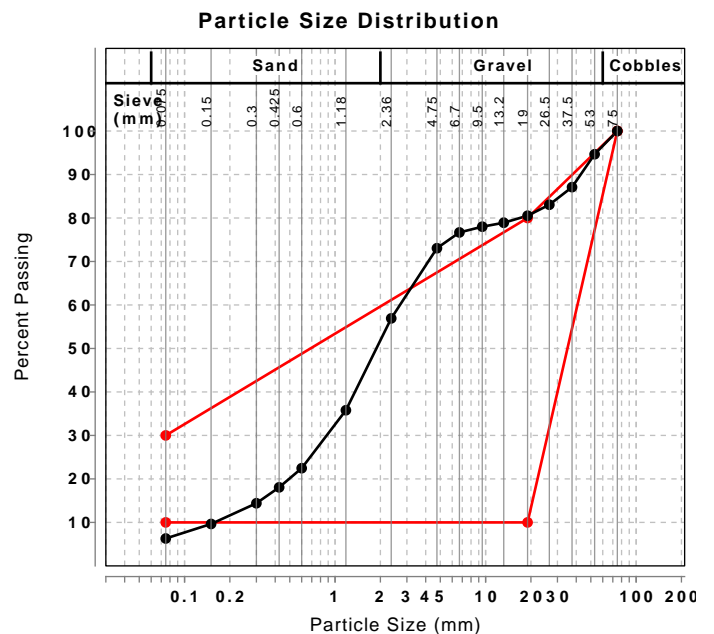
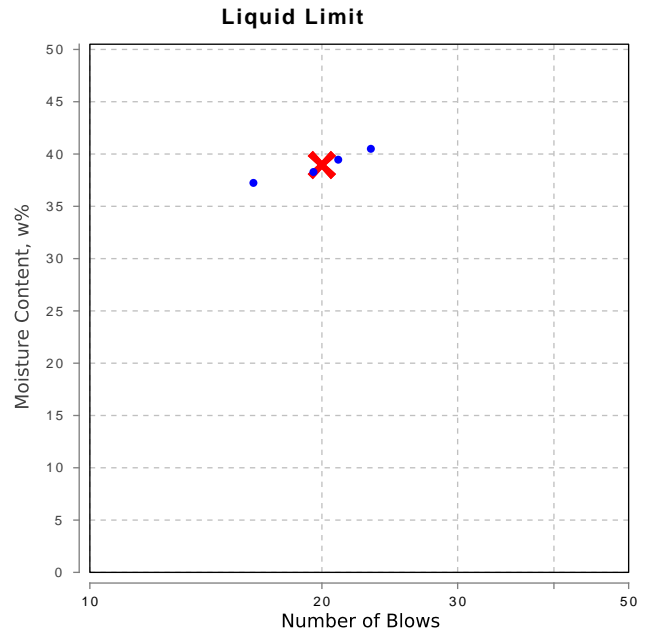
Liam A McDowall
 Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	39	0	45
Plastic Limit (%)	29		
Plasticity Index (%)	10	7	20

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	6.0		
Cracking Crumbling Curling	Cracking & Curling		

Particle Distribution (AS1289 3.6.1)					
Sieve	Passed %	Passing Limits		Retained %	Retained Limits
75 mm	100	100	100	0	
53 mm	95			5	
37.5 mm	87			8	
26.5 mm	83			4	
19 mm	81	10	80	3	
13.2 mm	79			2	
9.5 mm	78			1	
6.7 mm	77			1	
4.75 mm	73			4	
2.36 mm	57			16	
1.18 mm	36			21	
0.6 mm	22			13	
0.425 mm	18			4	
0.3 mm	14			4	
0.15 mm	10			5	
0.075 mm	6	10	30	3	



Material Test Report

Report Number: DL18/334-18D
Issue Number: 1
Date Issued: 27/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 301
Sample Number: D18-301B
Date Sampled: 09/11/2018
Sampling Method: AS1289 1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: E: 484314.962, N: 6939789.808, Depth: RL- 98.762
Material: Proposed 1.7m Capping Layer
Material Source: Onsite Cut - Stg 10



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 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

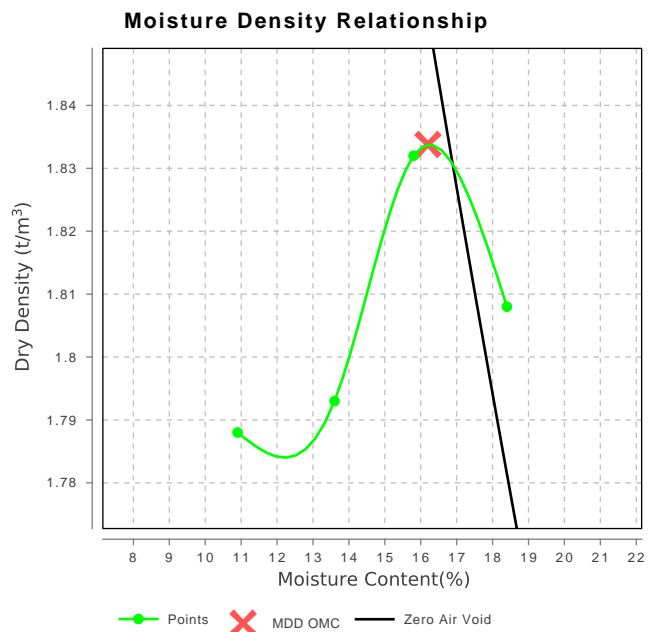
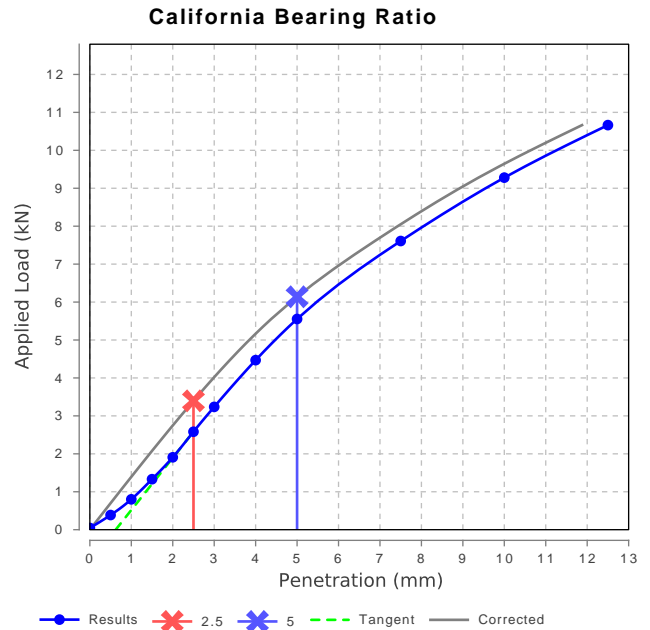


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 Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

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)	1.83		
Optimum Moisture Content (%)	16.0		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	105.5		
Dry Density after Soaking (t/m^3)	1.82		
Field Moisture Content (%)	8.0		
Moisture Content at Placement (%)	17.1		
Moisture Content Top 30mm (%)	19.8		
Moisture Content Rest of Sample (%)	18.3		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	25		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	34.6		



Material Test Report

Report Number: DL18/334-18E
Issue Number: 1
Date Issued: 27/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 301
Sample Number: D18-301B
Date Sampled: 09/11/2018
Sampling Method: AS1289 1.2.1 6.5.4 - Machine excavated pit or trench
Sample Location: E: 484314.962, N: 6939789.808, Depth: RL- 98.762
Material: Proposed 1.7m Capping Layer
Material Source: Onsite Cut - Stg 10



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Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au



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Liam A McDowall
 Approved Signatory: Liam McDowall
 Branch Manager

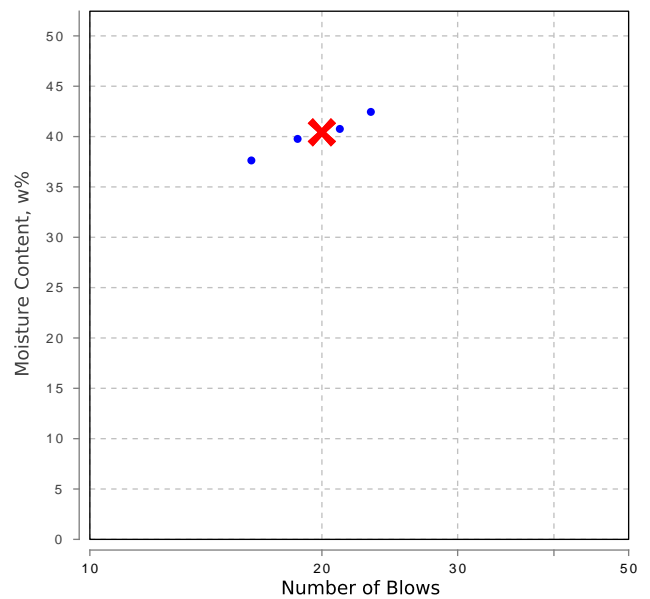
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Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Air Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	40	0	45
Plastic Limit (%)	30		
Plasticity Index (%)	10	7	20

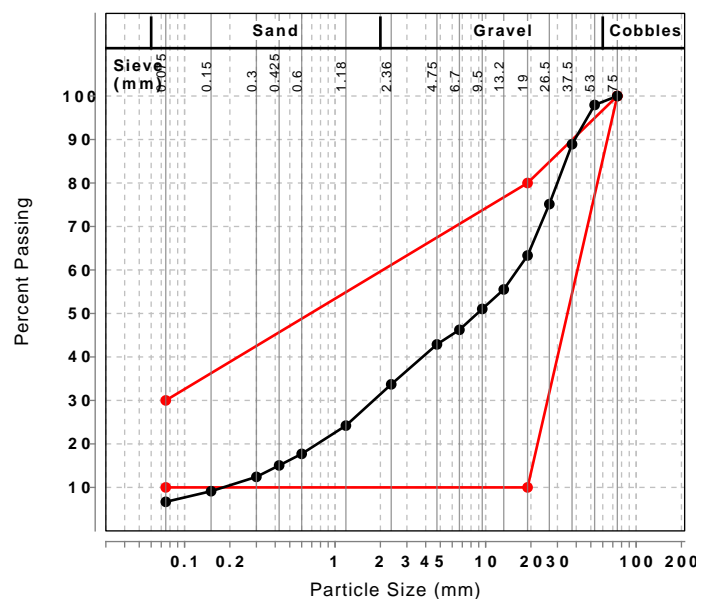
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	7.5		
Cracking Crumbling Curling	Curling		

Particle Distribution (AS1289 3.6.1)					
Sieve	Passed %	Passing Limits		Retained %	Retained Limits
75 mm	100	100	100	0	
53 mm	98			2	
37.5 mm	89			9	
26.5 mm	75			14	
19 mm	63	10	80	12	
13.2 mm	56			8	
9.5 mm	51			4	
6.7 mm	46			5	
4.75 mm	43			3	
2.36 mm	34			9	
1.18 mm	24			9	
0.6 mm	18			7	
0.425 mm	15			3	
0.3 mm	12			3	
0.15 mm	9			3	
0.075 mm	7	10	30	2	

Liquid Limit



Particle Size Distribution



Material Test Report



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 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: dpitama@morrisongeo.com.au

Report Number: DL18/334-19
Issue Number: 1
Date Issued: 29/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 541
Date Sampled: 27/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Dean Pitama
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	D18-541A	D18-541B	D18-541C	D18-541D	D18-541E
Test Number	213	214	215	216	217
Date Tested	27/11/2018	27/11/2018	27/11/2018	27/11/2018	27/11/2018
Time Tested	10:10	10:15	10:19	10:23	10:28
Test Request #/Location	Stage 10-15 (Outside Design)	Stage 10-15 (Outside Design)	Stage 10-15 (Outside Design)	Stage 10-15 (Outside Design)	Stage 10-15 (Outside Design)
Easting	484041	484026	484017	484001	483995
Northing	6939876	6939888	6939899	6939909	6939922
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Clay Sand	Clay Sand	Clay Sand	Clay Sand	Clay 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	0.0
Field Wet Density (FWD) t/m ³	1.88	1.92	1.90	1.92	1.87
Field Moisture Content %	27.3	27.6	27.3	28.3	27.1
Field Dry Density (FDD) t/m ³	1.48	1.51	1.50	1.49	1.47
Peak Converted Wet Density t/m ³	1.87	1.83	1.85	1.88	1.85
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	0.0	-0.5	0.0	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	100.5	105.5	102.5	102.0	101.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



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 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-20
Issue Number: 1
Date Issued: 29/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 507
Date Sampled: 23/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



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Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-507A	D18-507B	D18-507C	D18-507D	D18-507E	D18-507F
Test Number	186	187	188	189	190	191
Date Tested	23/11/2018	23/11/2018	23/11/2018	23/11/2018	23/11/2018	23/11/2018
Time Tested	10:03	10:08	10:13	10:18	10:23	10:29
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484031	484052	484059	484016	484028	484042
Northing	6939910	6939883	6939899	6939931	6939940	6939919
Elevation (m)	78.397	79.623	78.963	77.735	77.312	78.308
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.96	1.95	1.96	1.96	1.94	1.93
Field Moisture Content %	27.2	24.7	22.9	25.6	20.1	23.1
Field Dry Density (FDD) t/m ³	1.54	1.56	1.60	1.56	1.61	1.57
Peak Converted Wet Density t/m ³	1.93	1.97	1.96	1.96	2.02	2.02
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	0.0	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	101.5	99.0	100.0	100.0	96.0	95.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



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 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-20
Issue Number: 1
Date Issued: 29/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 507
Date Sampled: 23/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-507G	D18-507H	D18-507I	D18-507J	D18-507K	D18-507L
Test Number	192	193	194	195	196	197
Date Tested	23/11/2018	23/11/2018	23/11/2018	23/11/2018	23/11/2018	23/11/2018
Time Tested	13:03	13:08	13:14	13:17	13:22	13:30
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484044	484056	484071	484059	484034	484018
Northing	6939960	6939942	6939914	6939906	6939937	6939959
Elevation (m)	76.267	77.023	78.267	79.582	77.720	76.431
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.99	2.03	2.03	2.05	2.04	2.12
Field Moisture Content %	16.6	18.7	14.3	13.2	13.6	15.5
Field Dry Density (FDD) t/m ³	1.71	1.71	1.77	1.81	1.79	1.84
Peak Converted Wet Density t/m ³	2.08	1.98	2.13	2.15	2.12	2.12
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.0	0.0	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	95.5	102.5	95.0	95.5	96.0	100.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-23
Issue Number: 1
Date Issued: 03/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 562
Date Sampled: 28/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



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Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-562A	D18-562B	D18-562C
Test Number	224	225	226
Date Tested	28/11/2018	28/11/2018	28/11/2018
Time Tested	10:05	10:09	10:14
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484035	484018	483993
Northing	6939960	6939994	6940018
Elevation (m)	76.718	74.504	73.875
Layer / Reduced Level	General Fill	General Fill	General Fill
Soil Description	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.91	1.89	1.81
Field Moisture Content %	24.0	25.3	20.7
Field Dry Density (FDD) t/m ³	1.54	1.51	1.50
Peak Converted Wet Density t/m ³	1.92	1.90	1.86
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	0.5	2.0	2.0
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	100.0	99.5	97.5
Compaction Method	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



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 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-21
Issue Number: 1
Date Issued: 30/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 522
Date Sampled: 26/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-522A	D18-522B	D18-522C	D18-522D	D18-522E	D18-522F
Test Number	198	199	200	201	202	203
Date Tested	26/11/2018	26/11/2018	26/11/2018	26/11/2018	26/11/2018	26/11/2018
Time Tested	10:03	10:08	10:12	10:18	10:23	10:29
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484048	484035	484023	484010	484110	484086
Northing	6939905	6939923	6939939	6939954	6939930	6939938
Elevation (m)	79.437	78.737	77.961	77.266	77.900	77.298
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.94	1.93	1.89	1.91	1.84	1.84
Field Moisture Content %	17.9	17.5	15.2	14.8	19.5	19.5
Field Dry Density (FDD) t/m ³	1.64	1.65	1.64	1.66	1.54	1.54
Peak Converted Wet Density t/m ³	1.89	1.86	1.93	1.96	1.93	1.94
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	0.0	0.0	2.0	2.5	0.0	0.0
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	102.5	104.0	98.0	97.5	95.5	95.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore

Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-21
Issue Number: 1
Date Issued: 30/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 522
Date Sampled: 26/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-522G	D18-522H	D18-522I	D18-522J	D18-522K	D18-522L
Test Number	204	205	206	207	208	209
Date Tested	26/11/2018	26/11/2018	26/11/2018	26/11/2018	26/11/2018	26/11/2018
Time Tested	10:34	10:39	13:06	13:11	13:17	13:23
Test Request #/Location	Stage 10-15	Stage 10-15 Retest of D18-460M	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484084	484071	484104	484089	484082	484081
Northing	6939923	6939979	6939980	6939994	6940011	6940005
Elevation (m)	78.051	74.766	75.886	75.091	74.097	74.142
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty 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	4.4	0.0	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.83	1.89	1.75	1.78	1.79	1.83
Field Moisture Content %	25.1	23.3	29.4	30.5	29.6	33.2
Field Dry Density (FDD) t/m ³	1.46	1.54	1.35	1.36	1.38	1.37
Peak Converted Wet Density t/m ³	1.88	**	1.84	1.80	1.82	1.75
Adjusted Peak Converted Wet Density t/m ³	**	1.90	**	**	**	**
Moisture Variation (Wv) %	0.0	**	0.0	0.0	0.0	0.0
Adjusted Moisture Variation %	**	-0.5	**	**	**	**
Hilf Density Ratio (%)	97.0	99.5	95.0	98.5	98.0	104.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-21
Issue Number: 1
Date Issued: 30/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 522
Date Sampled: 26/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-522M	D18-522N	D18-522O
Test Number	210	211	212
Date Tested	26/11/2018	26/11/2018	26/11/2018
Time Tested	13:28	13:33	13:39
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484087	484099	484104
Northing	6939982	6939969	6939949
Elevation (m)	75.646	76.564	77.295
Layer / Reduced Level	General Fill	General Fill	General Fill
Soil Description	Silty Clay	Silty Clay	Silty Clay
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.78	1.83	1.82
Field Moisture Content %	34.1	33.6	33.7
Field Dry Density (FDD) t/m ³	1.33	1.37	1.36
Peak Converted Wet Density t/m ³	1.72	1.74	1.76
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	0.0	0.0	0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	103.5	105.5	103.5
Compaction Method	Standard	Standard	Standard

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

Material Test Report

Report Number: DL18/334-26B
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 394
Sample Number: D18-394B
Date Sampled: 15/11/2018
Sampling Method: AS1289 1.2.1 6.2 - Sampling from stockpiles
Sample Location: E: 484154, N: 6939750, Depth: R.L 86.2
Material: Capping Layer Stockpile - Select Fill
Material Source: Onsite



**MORRISON
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Brisbane | Gold Coast | Maroochydore
Morrison Geotechnic Pty Ltd
ABN: 51 009 878 899
Brisbane Laboratory
Unit 1, 35 Limestone Darra QLD 4076
Phone: (07) 3279 0900
Email: darralab@morrisongeo.com.au



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*Liam A
McDowall*

Approved Signatory: Liam McDowall
Branch Manager

NATA Accredited Laboratory Number: 1169

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	0.6
Visual Description	Sandy Clay (CL) - Brown Moist
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	
Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	1.0
Estimated % by volume of significant inert inclusions	
Cracking	Slightly Cracked
Crumbling	No
Moisture Content (%)	17.2
Swell Test	
Initial Pocket Penetrometer (kPa)	
Final Pocket Penetrometer (kPa)	>600
Initial Moisture Content (%)	16.8
Final Moisture Content (%)	17.7
Swell (%)	0.0
* NATA Accreditation does not cover the performance of pocket penetrometer readings.	

Material Test Report



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ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-22
Issue Number: 1
Date Issued: 30/11/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 540
Date Sampled: 27/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-540A	D18-540B	D18-540C	D18-540D	D18-540E	D18-540F
Test Number	218	219	220	221	222	223
Date Tested	27/11/2018	27/11/2018	27/11/2018	27/11/2018	27/11/2018	27/11/2018
Time Tested	12:38	12:43	12:51	12:59	13:15	13:24
Test Request #/Location	Stage 10-15 - Capping Layer	Stage 10-15 - Capping Layer	Stage 10-15 - Capping Layer	Stage 10-15 - Capping Layer	Stage 10-15 - Capping Layer	Stage 10-15 - Capping Layer
Easting	484178	484180	484216	484208	484226	484164
Northing	6940013	6940020	6940018	6940011	6940026	6940029
Elevation (m)	74.783	74.854	77.180	76.719	77.686	74.233
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly 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 (%)	10.2	14.5	11.4	0.0	11.2	9.5
Field Wet Density (FWD) t/m ³	2.08	2.13	2.11	2.09	2.13	2.14
Field Moisture Content %	12.1	12.9	14.8	14.5	3.6	13.2
Field Dry Density (FDD) t/m ³	1.86	1.88	1.84	1.83	2.06	1.90
Peak Converted Wet Density t/m ³	**	**	**	2.09	**	**
Adjusted Peak Converted Wet Density t/m ³	2.15	2.18	2.12	**	2.19	2.18
Moisture Variation (Wv) %	**	**	**	2.0	**	**
Adjusted Moisture Variation %	1.5	2.5	-0.5	**	-0.5	0.5
Hilf Density Ratio (%)	96.5	98.0	99.5	100.0	97.0	98.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC

Negative values = test is wet of OMC

Material Test Report



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 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-25
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 585
Date Sampled: 29/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



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Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-585A	D18-585B	D18-585C
Test Number	238	239	240
Date Tested	29/11/2018	29/11/2018	29/11/2018
Time Tested	10:10	10:16	10:24
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484184	484150	484191
Northing	6940056	6940072	6940061
Elevation (m)	74.084	69.698	74.424
Layer / Reduced Level	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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 (%)	8.6	12.9	8.7
Field Wet Density (FWD) t/m ³	2.26	2.26	2.29
Field Moisture Content %	13.9	14.9	16.4
Field Dry Density (FDD) t/m ³	1.98	1.96	1.96
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.19	2.14	2.13
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	0.0	2.0	2.0
Hilf Density Ratio (%)	103.0	105.5	107.0
Compaction Method	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore

Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-24
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 561
Date Sampled: 28/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-561A	D18-561B	D18-561C	D18-561D	D18-561E	D18-561F
Test Number	229	230	231	232	233	234
Date Tested	28/11/2018	28/11/2018	28/11/2018	28/11/2018	28/11/2018	28/11/2018
Time Tested	10:29	10:34	10:37	10:41	10:46	13:23
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484165	484186	484207	484161	484197	484177
Northing	6940032	6940027	6940025	6940026	6940016	6940024
Elevation (m)	75.172	76.439	77.467	75.331	76.897	75.993
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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 (%)	8.5	5.5	11.8	5.1	10.4	0.0
Field Wet Density (FWD) t/m ³	2.16	2.16	2.23	2.23	2.24	2.18
Field Moisture Content %	13.7	15.3	12.4	15.7	14.8	13.2
Field Dry Density (FDD) t/m ³	1.90	1.88	1.98	1.93	1.95	1.92
Peak Converted Wet Density t/m ³	**	**	**	**	**	2.08
Adjusted Peak Converted Wet Density t/m ³	2.24	2.23	2.22	2.22	2.26	**
Moisture Variation (Wv) %	**	**	**	**	**	0.0
Adjusted Moisture Variation %	1.5	0.0	0.5	0.0	0.0	**
Hilf Density Ratio (%)	96.5	97.0	100.5	100.5	99.5	105.0
Compaction Method	Standard	Standard	Modified	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-24
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 561
Date Sampled: 28/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-561G	D18-561H	D18-561I
Test Number	235	236	237
Date Tested	28/11/2018	28/11/2018	28/11/2018
Time Tested	13:33	13:37	13:42
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484187	484194	484218
Northing	6940020	6940015	6940020
Elevation (m)	76.604	77.512	78.403
Layer / Reduced Level	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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 (%)	6.9	8.5	4.5
Field Wet Density (FWD) t/m ³	2.19	2.21	2.18
Field Moisture Content %	13.7	11.5	13.7
Field Dry Density (FDD) t/m ³	1.92	1.98	1.92
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.23	2.16	2.18
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	0.0	2.0	0.0
Hilf Density Ratio (%)	98.5	102.5	100.5
Compaction Method	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-26A
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 394
Sample Number: D18-394A
Date Sampled: 15/11/2018
Sampling Method: AS1289 1.2.1 6.2 - Sampling from stockpiles
Sample Location: E: 484154, N: 6939750, Depth: R.L 86.2
Material: Capping Layer Stockpile - Select Fill
Material Source: Onsite

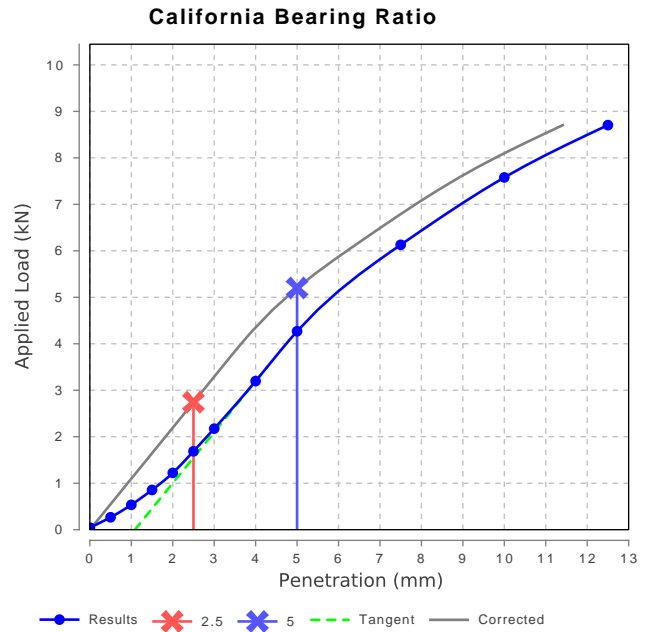


Accredited for compliance with ISO/IEC 17025 - Testing

Liam A McDowall
 Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	25		
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)	1.86		
Optimum Moisture Content (%)	15.5		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	102.0		
Dry Density after Soaking (t/m ³)	1.85		
Field Moisture Content (%)	13.5		
Moisture Content at Placement (%)	15.6		
Moisture Content Top 30mm (%)	19.8		
Moisture Content Rest of Sample (%)	19.6		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	24.5		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	38.6		



Particle Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
75 mm	97		3	
53 mm	87		10	
37.5 mm	77		10	
26.5 mm	68		10	
19 mm	59		9	
13.2 mm	54		4	
9.5 mm	52		3	
6.7 mm	49		3	
4.75 mm	47		2	
2.36 mm	40		7	
1.18 mm	34		6	
0.6 mm	28		5	
0.425 mm	26		3	
0.3 mm	23		3	
0.15 mm	18		5	
0.075 mm	13		4	

Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	41		
Plastic Limit (%)	29		
Plasticity Index (%)	12		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	5.0		
Cracking Crumbling Curling	Cracking & Curling		

Material Test Report

Report Number: DL18/334-27A
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 428
Sample Number: D18-428A
Date Sampled: 16/11/2018
Sampling Method: AS1289 1.2.1 6.2 - Sampling from stockpiles
Sample Location: E: 484153, N: 6939759, Depth: RL-87.967
Material: Proposed Capping Layer Material
Material Source: Onsite



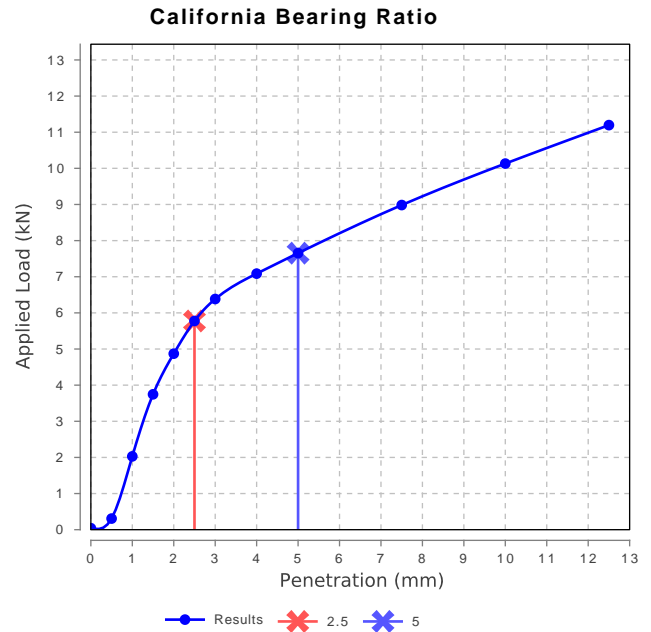
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 Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	45		
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)	1.86		
Optimum Moisture Content (%)	13.5		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	106.0		
Dry Density after Soaking (t/m ³)	1.85		
Field Moisture Content (%)	10.0		
Moisture Content at Placement (%)	14.1		
Moisture Content Top 30mm (%)	15.1		
Moisture Content Rest of Sample (%)	16.0		
Mass Surcharge (kg)	4.5		
Soaking Period (days)			
Curing Hours	6.25		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	20		



Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	29		
Plastic Limit (%)	20		
Plasticity Index (%)	9		

Particle Distribution (AS1141.11.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
75 mm	100		0	
53 mm	97		3	
37.5 mm	92		5	
26.5 mm	86		6	
19 mm	80		7	
13.2 mm	76		3	
9.5 mm	73		3	
6.7 mm	71		3	
4.75 mm	67		3	
2.36 mm	58		9	
1.18 mm	44		14	
0.6 mm	32		13	
0.425 mm	26		5	
0.3 mm	22		5	
0.15 mm	15		7	
0.075 mm	10		5	

Material Test Report



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Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-27B
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 428
Sample Number: D18-428B
Date Sampled: 16/11/2018
Sampling Method: AS1289 1.2.1 6.2 - Sampling from stockpiles
Sample Location: E: 484185, N: 6939727, Depth: RL-87.567
Material: Proposed Capping Layer Material
Material Source: Onsite



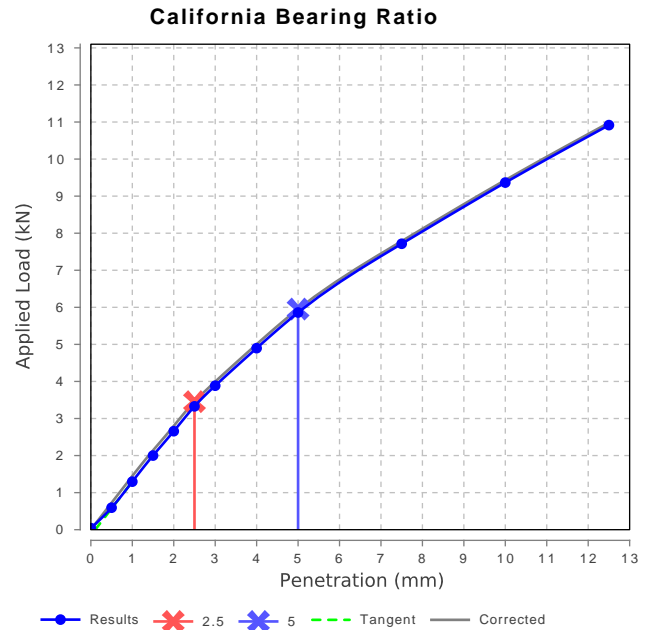
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Liam A McDowall

Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

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)	1.94		
Optimum Moisture Content (%)	14.5		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	95.0		
Dry Density after Soaking (t/m ³)	1.95		
Field Moisture Content (%)	13.2		
Moisture Content at Placement (%)	13.7		
Moisture Content Top 30mm (%)	15.0		
Moisture Content Rest of Sample (%)	15.9		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	6		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		



Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	27		
Plastic Limit (%)	19		
Plasticity Index (%)	8		

Particle Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
75 mm	99		1	
53 mm	94		5	
37.5 mm	88		5	
26.5 mm	80		8	
19 mm	74		6	
13.2 mm	71		3	
9.5 mm	69		2	
6.7 mm	69		1	
4.75 mm	68		1	
2.36 mm	57		11	
1.18 mm	41		16	
0.6 mm	30		11	
0.425 mm	26		4	
0.3 mm	22		4	
0.15 mm	17		5	
0.075 mm	13		4	

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	6.0		
Cracking Crumbling Curling	Cracking & Curling		

Material Test Report



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 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-27C
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 428



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Liam A McDowall

Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

Shrink Swell Index AS 1289 7.1.1 & 2.1.1		
Sample Number	D18-428C	D18-428D
Sampling Method	AS1289 1.2.1 6.2	AS1289 1.2.1 6.2
Date Sampled	16/11/2018	16/11/2018
Date Tested	03/12/2018	03/12/2018
Material Source	Stockpile	Stockpile
Sample Location	E: 484153, N: 6939759 (RL-87.967)	E: 484185, N: 6939727 (RL-87.567)
Inert Material Estimate (%)	**	**
Pocket Penetrometer before (kPa)	**	**
Pocket Penetrometer after (kPa)	>600	380
Shrinkage Moisture Content (%)	13.2	13.5
Shrinkage (%)	1.0	1.5
Swell Moisture Content Before (%)	13.0	13.6
Swell Moisture Content After (%)	17.4	15.8
Swell (%)	-0.2	-0.0
Shrink Swell Index Iss (%)	0.6	0.8
Visual Description	Sandy CLAY - Brown	Sandy CLAY - Brown Moist
Cracking	Slightly Cracked	Slightly Cracked
Crumbling	Yes	No
Remarks	Remoulded 95% Std Mdd	Remoulded 95% Std Mdd

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
 NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report



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Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-28A
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 463
Sample Number: D18-463A
Date Sampled: 20/11/2018
Sampling Method: AS1289 1.2.1 6.2 - Sampling from stockpiles
Sample Location: E: 484159, N: 6939794, Depth: RL-87.101
Material: Stage 14 Stockpile - Proposed Capping Layer Material
Material Source: Onsite



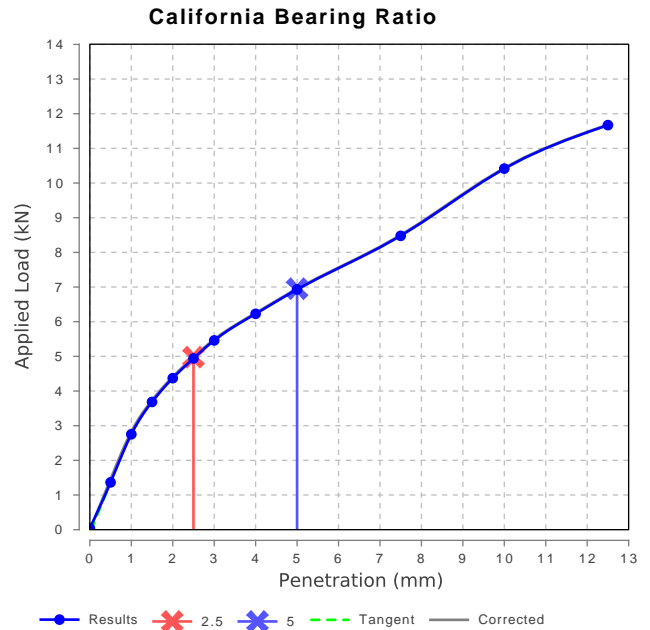
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Liam A McDowall

Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	40		
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)	1.86		
Optimum Moisture Content (%)	12.5		
Laboratory Density Ratio (%)	99.0		
Laboratory Moisture Ratio (%)	105.5		
Dry Density after Soaking (t/m ³)	1.84		
Field Moisture Content (%)	8.5		
Moisture Content at Placement (%)	13.4		
Moisture Content Top 30mm (%)	15.3		
Moisture Content Rest of Sample (%)	15.0		
Mass Surcharge (kg)	4.5		
Soaking Period (days)	4		
Curing Hours	25.5		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		



Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	41		
Plastic Limit (%)	23		
Plasticity Index (%)	18		

Particle Distribution (AS1141.11.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
75 mm	98		2	
53 mm	94		3	
37.5 mm	86		9	
26.5 mm	78		8	
19 mm	70		8	
13.2 mm	64		6	
9.5 mm	61		2	
6.7 mm	57		4	
4.75 mm	53		5	
2.36 mm	42		11	
1.18 mm	25		17	
0.6 mm	15		11	
0.425 mm	11		3	
0.3 mm	8		3	
0.15 mm	5		3	
0.075 mm	3		2	

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	7.0		
Cracking Crumbling Curling	Cracking		

Material Test Report

Report Number: DL18/334-28B
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 463


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 Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au



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Liam A McDowall

Approved Signatory: Liam McDowall
Branch Manager

NATA Accredited Laboratory Number: 1169

Shrink Swell Index AS 1289 7.1.1 & 2.1.1	
Sample Number	D18-463B
Sampling Method	AS1289 1.2.1 6.2
Date Sampled	20/11/2018
Date Tested	03/12/2018
Material Source	Stockpile
Sample Location	E: 484159, N: 6939794 (RL-87.101)
Inert Material Estimate (%)	**
Pocket Penetrometer before (kPa)	**
Pocket Penetrometer after (kPa)	>600
Shrinkage Moisture Content (%)	13.1
Shrinkage (%)	0.5
Swell Moisture Content Before (%)	13.2
Swell Moisture Content After (%)	21.2
Swell (%)	-0.1
Shrink Swell Index Iss (%)	0.3
Visual Description	Clayey SAND - Brown, moist
Cracking	Slightly Cracked
Crumbling	Yes
Remarks	Remoulded 95% Std Mdd

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report



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Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-29
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 604
Date Sampled: 30/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-604A	D18-604B	D18-604C	D18-604D	D18-604E	D18-604F
Test Number	244	245	246	247	248	249
Date Tested	30/11/2018	30/11/2018	30/11/2018	30/11/2018	30/11/2018	30/11/2018
Time Tested	10:04	10:11	10:16	10:22	10:31	13:10
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15 Retest of D18-585D	Stage 10-15 Retest of D18-585E	Stage 10-15 Retest of D18-585F	Stage 10-15
Easting	484189	484222	484221	484156	484205	484232
Northing	6940068	6940064	6940015	6940070	6940040	6940052
Elevation (m)	74.609	76.754	78.711	70.074	76.775	77.989
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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 (%)	5.9	4.0	10.4	8.2	13.3	12.0
Field Wet Density (FWD) t/m ³	2.15	2.18	2.19	2.20	2.23	2.16
Field Moisture Content %	16.6	16.1	15.2	14.8	14.6	14.4
Field Dry Density (FDD) t/m ³	1.85	1.88	1.90	1.92	1.94	1.89
Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.21	2.19	2.22	2.20	2.22	2.15
Moisture Variation (Wv) %	**	**	**	**	**	**
Adjusted Moisture Variation %	0.5	0.5	0.0	0.5	0.5	0.5
Hilf Density Ratio (%)	97.5	99.5	99.0	100.0	100.5	100.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-30
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 607
Date Sampled: 30/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 100% STD
Site Selection: Selected by GTA
Material: Select Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D18-607A	D18-607B
Test Number	250	251
Date Tested	30/11/2018	30/11/2018
Time Tested	12:30	12:40
Test Request #/Location	Stage 11 - Nectar Circuit	Stage 11 - Nectar Circuit
Easting	484230	484167
Northing	6940034	6940044
Elevation (m)	78.712	74.541
Layer / Reduced Level	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	7.1	8.2
Field Wet Density (FWD) t/m ³	2.24	2.25
Field Moisture Content %	14.9	14.9
Field Dry Density (FDD) t/m ³	1.95	1.96
Peak Converted Wet Density t/m ³	**	**
Adjusted Peak Converted Wet Density t/m ³	2.18	2.19
Moisture Variation (Wv) %	**	**
Adjusted Moisture Variation %	0.5	0.5
Hilf Density Ratio (%)	103.0	103.0
Compaction Method	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-31
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 610
Date Sampled: 30/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D18-610A	D18-610B
Test Number	252	253
Date Tested	30/11/2018	30/11/2018
Time Tested	13:45	13:52
Test Request #/Location	Stage 10-15	Stage 10-15
Easting	484063	484065
Northing	6940064	6940082
Elevation (m)	68.911	68.120
Layer / Reduced Level	General Fill	General Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	11.4	8.7
Field Wet Density (FWD) t/m ³	2.14	2.15
Field Moisture Content %	14.9	15.3
Field Dry Density (FDD) t/m ³	1.86	1.87
Peak Converted Wet Density t/m ³	**	**
Adjusted Peak Converted Wet Density t/m ³	2.18	2.21
Moisture Variation (Wv) %	**	**
Adjusted Moisture Variation %	0.0	0.0
Hilf Density Ratio (%)	98.0	97.5
Compaction Method	Standard	Standard

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

Material Test Report



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 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-33
Issue Number: 1
Date Issued: 06/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 620
Date Sampled: 03/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



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Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D18-620A	D18-620B	D18-620C
Test Number	260	261	262
Date Tested	03/12/2018	03/12/2018	03/12/2018
Time Tested	13:13	13:24	13:31
Test Request #/Location	Stage 15 - Existing Basin	Stage 15 - Existing Basin	Stage 15 - Existing Basin
Easting	484089	484083	484075
Northing	6939852	6939842	6939827
Elevation (m)	72.431	72.124	75.650
Layer / Reduced Level	-	-	-
Soil Description	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.84	1.86	1.87
Field Moisture Content %	23.8	17.7	18.9
Field Dry Density (FDD) t/m ³	1.49	1.58	1.57
Peak Converted Wet Density t/m ³	1.87	1.95	1.84
Adjusted Peak Converted Wet Density t/m ³	**	**	**
Moisture Variation (Wv) %	0.5	-0.5	0.5
Adjusted Moisture Variation %	**	**	**
Hilf Density Ratio (%)	98.0	95.5	102.0
Compaction Method	Standard	Standard	Standard

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

Material Test Report



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Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-32
Issue Number: 1
Date Issued: 05/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 617
Date Sampled: 03/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Jordan Wenting
 Senior Technician

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-617A	D18-617B	D18-617C	D18-617D	D18-617E	D18-617F
Test Number	254	255	256	257	258	259
Date Tested	03/12/2018	03/12/2018	03/12/2018	03/12/2018	03/12/2018	03/12/2018
Time Tested	10:03	10:08	10:14	10:19	10:24	10:33
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484233	484189	484148	484170	484341	484342
Northing	6940057	6940067	6940073	6940068	6939983	6939965
Elevation (m)	77.897	74.942	70.979	72.852	83.08	83.65
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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 (%)	4.4	3.1	2.7	5.7	1.1	2.2
Field Wet Density (FWD) t/m ³	2.20	2.22	2.24	2.23	2.19	2.17
Field Moisture Content %	13.7	12.4	13.0	13.4	9.4	9.5
Field Dry Density (FDD) t/m ³	1.94	1.97	1.98	1.96	2.00	1.98
Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.28	2.26	2.24	2.25	2.16	2.18
Moisture Variation (Wv) %	**	**	**	**	**	**
Adjusted Moisture Variation %	-0.5	0.5	0.5	0.5	4.5	4.5
Hilf Density Ratio (%)	96.5	98.0	100.0	99.0	101.0	99.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-39
Issue Number: 1
Date Issued: 12/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 708
Date Sampled: 06/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D18-708A	D18-708B	D18-708C	D18-708D
Test Number	277	278	279	280
Date Tested	06/12/2018	06/12/2018	06/12/2018	06/12/2018
Time Tested	10:02	10:07	13:00	13:10
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484179	484195	484194	484181
Northing	6940058	6940065	6940061	6940060
Elevation (m)	84.453	76.610 F/L	76.709 F/L	75.776 F/L
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown
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	0.0	0.0
Field Wet Density (FWD) t/m ³	2.14	2.11	2.11	2.14
Field Moisture Content %	15.8	13.4	15.4	13.4
Field Dry Density (FDD) t/m ³	1.84	1.86	1.83	1.88
Peak Converted Wet Density t/m ³	2.12	2.07	2.16	2.19
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	2.0	0.5	0.5	2.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	100.5	101.5	98.0	97.5
Compaction Method	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-37
Issue Number: 1
Date Issued: 08/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 688
Date Sampled: 05/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D18-688A	D18-688B
Test Number	275	276
Date Tested	05/12/2018	05/12/2018
Time Tested	10:21	10:28
Test Request #/Location	Stage 15 - Existing Basin	Stage 15 - Existing Basin
Easting	484108	484102
Northing	6939848	6939828
Elevation (m)	79.826	80.049
Layer / Reduced Level	General Fill	General Fill
Soil Description	Sandy Silty Clay	Sandy Silty Clay
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	4.0	0.0
Field Wet Density (FWD) t/m ³	2.11	2.06
Field Moisture Content %	17.0	16.3
Field Dry Density (FDD) t/m ³	1.80	1.77
Peak Converted Wet Density t/m ³	**	2.06
Adjusted Peak Converted Wet Density t/m ³	2.12	**
Moisture Variation (Wv) %	**	0.0
Adjusted Moisture Variation %	0.0	**
Hilf Density Ratio (%)	99.5	100.0
Compaction Method	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-34
Issue Number: 1
Date Issued: 06/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 653
Date Sampled: 04/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	D18-653A	D18-653B	D18-653C	D18-653D	D18-653E
Test Number	263	264	265	266	267
Date Tested	04/12/2018	04/12/2018	04/12/2018	04/12/2018	04/12/2018
Time Tested	09:00	09:05	09:10	09:15	09:20
Test Request #/Location	Stage 15 - Existing Basin	Stage 15 - Existing Basin	Stage 15 - Existing Basin	Stage 15 - Existing Basin	Stage 15 - Existing Basin
Easting	484078	484077	484085	484104	484097
Northing	6939842	6939856	6939872	6939853	6939816
Elevation (m)	78.134	78.798	78.995	79.354	79.647
Layer / Reduced Level	-	-	-	-	-
Thickness of Layer (mm)	-	-	-	-	-
Soil Description	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.93	1.97	1.88	1.96	1.95
Field Moisture Content %	22.7	19.0	21.5	18.9	19.0
Field Dry Density (FDD) t/m ³	1.57	1.65	1.55	1.64	1.64
Peak Converted Wet Density t/m ³	1.97	2.04	1.96	2.01	2.01
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**
Moisture Variation (Wv) %	0.5	1.0	2.0	1.0	1.0
Adjusted Moisture Variation %	**	**	**	**	**
Hilf Density Ratio (%)	98.0	96.5	96.0	97.5	97.0
Compaction Method	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-35
Issue Number: 1
Date Issued: 06/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 656
Date Sampled: 04/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D18-656A	D18-656B
Test Number	269	270
Date Tested	04/12/2018	04/12/2018
Time Tested	10:23	10:29
Test Request #/Location	Stage 10-15	Stage 10-15
Easting	484220	484198
Northing	6940066	6940070
Elevation (m)	77.215	75.757
Layer / Reduced Level	-	-
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	4.2	16.1
Field Wet Density (FWD) t/m ³	2.16	2.14
Field Moisture Content %	16.5	16.7
Field Dry Density (FDD) t/m ³	1.85	1.84
Peak Converted Wet Density t/m ³	**	**
Adjusted Peak Converted Wet Density t/m ³	2.21	2.25
Moisture Variation (Wv) %	**	**
Adjusted Moisture Variation %	0.0	-0.5
Hilf Density Ratio (%)	97.5	95.5
Compaction Method	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-36
Issue Number: 1
Date Issued: 08/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 687
Date Sampled: 05/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



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Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D18-687A	D18-687B	D18-687C	D18-687D
Test Number	271	272	273	274
Date Tested	05/12/2018	05/12/2018	05/12/2018	05/12/2018
Time Tested	10:02	10:12	13:12	13:18
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484243	484255	484243	484232
Northing	6940050	6940050	6940057	6940059
Elevation (m)	79.984	81.15	80.497 F/L	79.699 F/L
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown
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 (%)	6.8	6.0	9.9	9.5
Field Wet Density (FWD) t/m ³	2.16	2.16	2.15	2.19
Field Moisture Content %	15.5	15.7	11.7	11.9
Field Dry Density (FDD) t/m ³	1.87	1.87	1.92	1.96
Peak Converted Wet Density t/m ³	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.14	2.16	2.13	2.22
Moisture Variation (Wv) %	**	**	**	**
Adjusted Moisture Variation %	0.5	0.5	3.5	3.5
Hilf Density Ratio (%)	100.5	100.5	100.5	98.5
Compaction Method	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-38
Issue Number: 1
Date Issued: 12/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 707
Date Sampled: 06/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D18-707A	D18-707B	D18-707C	D18-707D
Test Number	281	282	283	284
Date Tested	06/12/2018	06/12/2018	06/12/2018	06/12/2018
Time Tested	10:14	10:23	13:12	13:23
Test Request #/Location	Stage 15 - Existing Basin	Stage 15 - Existing Basin	Stage 15 - Existing Basin	Stage 15 - Existing Basin
Easting	484067	484070	484076	484073
Northing	6939796	6939785	6939780	6939788
Elevation (m)	78.136	78.206	78.435	78.510
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill
Soil Description	Clayey Silty Sand	Clayey Silty Sand	Clayey Silty Sand	Clayey Silty 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	0.0	0.0
Field Wet Density (FWD) t/m ³	2.01	2.07	1.95	1.94
Field Moisture Content %	15.7	12.4	21.3	18.6
Field Dry Density (FDD) t/m ³	1.74	1.84	1.61	1.63
Peak Converted Wet Density t/m ³	2.11	2.04	1.92	2.02
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	0.0	2.0	2.0	0.5
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	95.5	101.5	101.5	95.5
Compaction Method	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-40
Issue Number: 1
Date Issued: 12/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 728
Date Sampled: 07/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-728A	D18-728B	D18-728C	D18-728D	D18-728E	D18-728F
Test Number	285	286	287	288	289	290
Date Tested	07/12/2018	07/12/2018	07/12/2018	07/12/2018	07/12/2018	07/12/2018
Time Tested	08:15	08:22	10:10	10:15	10:21	13:11
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484181	484168	484331	484335	484333	484330
Northing	6940061	6940067	6939930	6939941	6939953	6939934
Elevation (m)	75.794 F/L	74.465	85.628	85.199	84.635	85.862 F/L
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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	37.5	37.5
Percentage of Wet Oversize (%)	0.0	0.0	0.0	0.0	8.9	6.9
Field Wet Density (FWD) t/m ³	2.22	2.08	2.20	2.18	2.22	2.16
Field Moisture Content %	13.0	13.9	13.4	13.0	15.6	15.6
Field Dry Density (FDD) t/m ³	1.96	1.82	1.94	1.93	1.92	1.87
Peak Converted Wet Density t/m ³	2.12	2.16	2.14	2.09	**	**
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	2.21	2.22
Moisture Variation (Wv) %	0.0	0.0	2.5	0.0	**	**
Adjusted Moisture Variation %	**	**	**	**	2.5	0.5
Hilf Density Ratio (%)	104.5	96.0	103.0	104.5	100.5	97.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-41
Issue Number: 1
Date Issued: 13/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 744
Date Sampled: 10/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-744A	D18-744B	D18-744C	D18-744D	D18-744E	D18-744F
Test Number	291	292	293	294	295	296
Date Tested	10/12/2018	10/12/2018	10/12/2018	10/12/2018	10/12/2018	10/12/2018
Time Tested	10:03	10:11	10:17	10:24	13:03	13:12
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484054	484036	484090	484069	484050	484018
Northing	6939963	6939988	6939914	6939942	6939950	6939992
Elevation (m)	76.547	75.385	78.668	77.583	77.509	75.387
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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	26.3	0.0	13.1	14.9	13.1
Field Wet Density (FWD) t/m ³	2.10	2.17	2.20	2.14	2.20	2.23
Field Moisture Content %	15.7	12.2	12.5	13.9	14.4	16.9
Field Dry Density (FDD) t/m ³	1.82	1.93	1.96	1.88	1.92	1.91
Peak Converted Wet Density t/m ³	2.19	**	2.11	**	**	**
Adjusted Peak Converted Wet Density t/m ³	**	2.21	**	2.16	2.24	2.23
Moisture Variation (Wv) %	0.0	**	0.0	**	**	**
Adjusted Moisture Variation %	**	2.0	**	2.5	0.0	0.0
Hilf Density Ratio (%)	96.0	98.0	104.5	99.0	98.5	100.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



**MORRISON
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Brisbane | Gold Coast | Maroochydore

Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-42
Issue Number: 1
Date Issued: 13/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 548
Sample Number: D18-548A
Date Sampled: 27/11/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Sample Location: E: 4840018, N: 6940018, Depth: RL-77.180
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Liam A McDowall

Approved Signatory: Liam McDowall
 Branch Manager

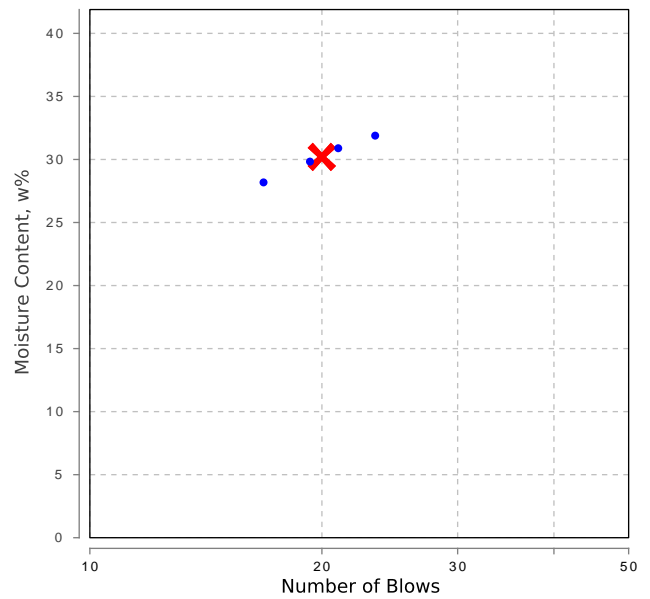
NATA Accredited Laboratory Number: 1169

Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	30		
Plastic Limit (%)	16		
Plasticity Index (%)	14		

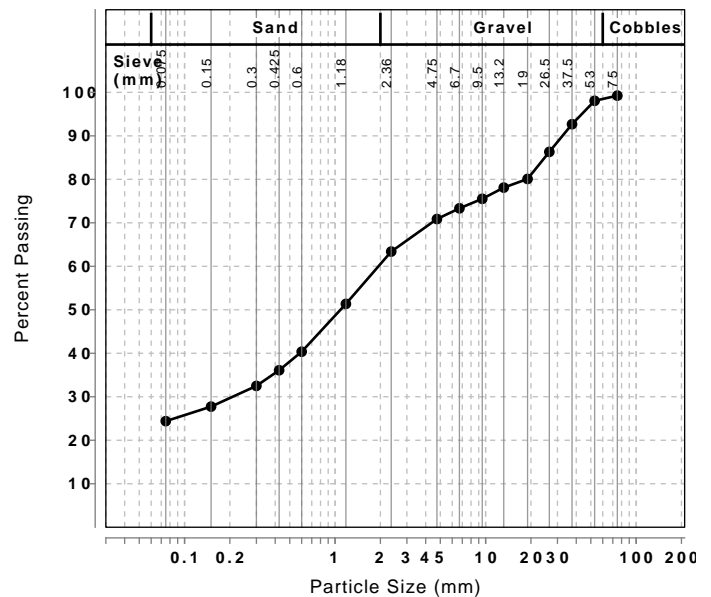
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	7.5		
Cracking Crumbling Curling	Cracking & Curling		

Particle Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
75 mm	99		1	
53 mm	98		1	
37.5 mm	93		5	
26.5 mm	86		6	
19 mm	80		6	
13.2 mm	78		2	
9.5 mm	76		3	
6.7 mm	73		2	
4.75 mm	71		2	
2.36 mm	63		7	
1.18 mm	51		12	
0.6 mm	40		11	
0.425 mm	36		4	
0.3 mm	33		4	
0.15 mm	28		5	
0.075 mm	24		3	

Liquid Limit



Particle Size Distribution



Material Test Report

Report Number: DL18/334-42B
Issue Number: 1
Date Issued: 13/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 548


**MORRISON
GEOTECHNIC**
 Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au



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Approved Signatory: Liam McDowall
Branch Manager

NATA Accredited Laboratory Number: 1169

Shrink Swell Index AS 1289 7.1.1 & 2.1.1	
Sample Number	D18-548B
Sampling Method	AS1289 1.2.1 6.4 (b)
Date Sampled	27/11/2018
Date Tested	11/12/2018
Material Source	Onsite
Sample Location	E: 4840018, N: 6940018 (RL-77.180)
Inert Material Estimate (%)	**
Pocket Penetrometer before (kPa)	**
Pocket Penetrometer after (kPa)	>600
Shrinkage Moisture Content (%)	14.6
Shrinkage (%)	1.3
Swell Moisture Content Before (%)	14.3
Swell Moisture Content After (%)	15.4
Swell (%)	-0.1
Shrink Swell Index Iss (%)	0.7
Visual Description	Sandy Clay , low plasticity ,brown , moist
Cracking	Slightly Cracked
Crumbling	Yes
Remarks	Remoulded 95% Std Mdd

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report



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ABN: 51 009 878 899

Brisbane Laboratory

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Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-46
Issue Number: 1
Date Issued: 19/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 665
Sample Number: D18-665A
Date Sampled: 04/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Sample Location: E: 484220, N: 6940066, Depth: RL-77.215
Material: Proposed Capping Layer - Select Fill
Material Source: Onsite



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Liam A McDowall

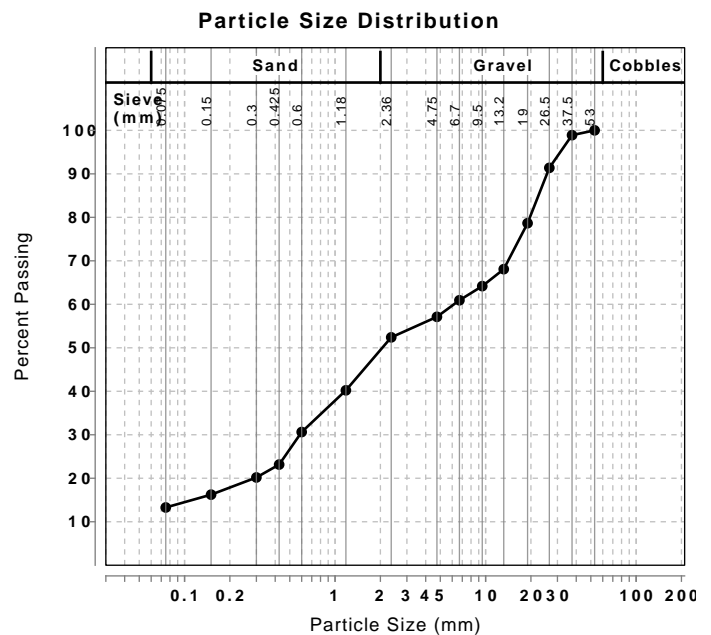
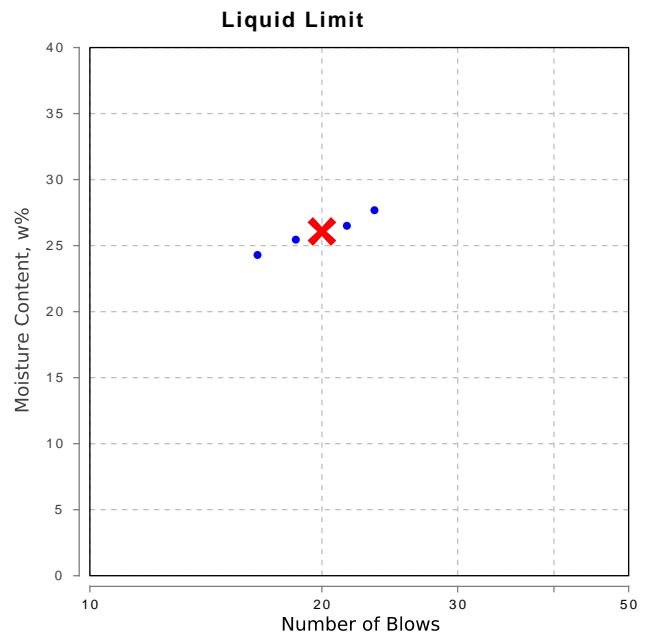
Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Air Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	26		
Plastic Limit (%)	17		
Plasticity Index (%)	9		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	6.5		
Cracking Crumbling Curling	Cracking & Curling		

Particle Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
53 mm	100		0	
37.5 mm	99		1	
26.5 mm	91		8	
19 mm	79		13	
13.2 mm	68		11	
9.5 mm	64		4	
6.7 mm	61		3	
4.75 mm	57		4	
2.36 mm	52		5	
1.18 mm	40		12	
0.6 mm	31		10	
0.425 mm	23		7	
0.3 mm	20		3	
0.15 mm	16		4	
0.075 mm	13		3	



Material Test Report

Report Number: DL18/334-46
Issue Number: 1
Date Issued: 19/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 665


**MORRISON
GEOTECHNIC**
 Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au



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Liam A McDowall

Approved Signatory: Liam McDowall
Branch Manager

NATA Accredited Laboratory Number: 1169

Shrink Swell Index AS 1289 7.1.1 & 2.1.1	
Sample Number	D18-665B
Sampling Method	AS1289 1.2.1 6.4 (b)
Date Sampled	04/12/2018
Date Tested	11/12/2018
Material Source	Onsite Stockpile
Sample Location	E: 484220, N: 6940066 (RL-77.215)
Inert Material Estimate (%)	**
Pocket Penetrometer before (kPa)	**
Pocket Penetrometer after (kPa)	500
Shrinkage Moisture Content (%)	13.5
Shrinkage (%)	0.4
Swell Moisture Content Before (%)	13.5
Swell Moisture Content After (%)	15.1
Swell (%)	-0.1
Shrink Swell Index Iss (%)	0.2
Visual Description	Sandy Clay , low plasticity, brown, moist
Cracking	Slightly Cracked
Crumbling	Yes
Remarks	Remoulded 95% Std Mdd

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-43
Issue Number: 1
Date Issued: 14/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 783
Date Sampled: 12/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



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Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-783A	D18-783B	D18-783C	D18-783D	D18-783E	D18-783F
Test Number	301	302	303	304	305	306
Date Tested	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018	12/12/2018
Time Tested	10:03	10:11	10:16	10:21	13:02	13:08
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484183	484166	484262	484247	484087	484100
Northing	6940079	6940080	6940022	6940025	6940040	6940024
Elevation (m)	75.352	74.002	80.704	80.427	71.624	72.461
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly 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 (%)	17.8	15.1	14.2	13.1	15.1	16.6
Field Wet Density (FWD) t/m ³	2.14	2.19	2.10	2.11	2.15	2.15
Field Moisture Content %	13.4	12.8	13.2	12.6	12.1	11.0
Field Dry Density (FDD) t/m ³	1.89	1.94	1.86	1.87	1.92	1.93
Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.18	2.21	2.20	2.16	2.19	2.15
Moisture Variation (Wv) %	**	**	**	**	**	**
Adjusted Moisture Variation %	0.0	0.0	2.0	2.0	2.0	2.0
Hilf Density Ratio (%)	98.5	99.0	95.5	97.5	98.0	100.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-43
Issue Number: 1
Date Issued: 14/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 783
Date Sampled: 12/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1	
Sample Number	D18-783G
Test Number	307
Date Tested	12/12/2018
Time Tested	13:12
Test Request #/Location	Stage 10-15
Easting	484118
Northing	6940000
Elevation (m)	73.723
Layer / Reduced Level	Select Fill
Soil Description	Sandy Gravelly Clay. Brown
Test Depth (mm)	150
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	13.1
Field Wet Density (FWD) t/m ³	2.13
Field Moisture Content %	9.6
Field Dry Density (FDD) t/m ³	1.94
Peak Converted Wet Density t/m ³	**
Adjusted Peak Converted Wet Density t/m ³	2.13
Moisture Variation (Wv) %	**
Adjusted Moisture Variation %	0.0
Hilf Density Ratio (%)	99.5
Compaction Method	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-45
Issue Number: 1
Date Issued: 18/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 798
Date Sampled: 13/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-798A	D18-798B	D18-798C	D18-798D	D18-798E	D18-798F
Test Number	308	309	310	311	312	313
Date Tested	13/12/2018	13/12/2018	13/12/2018	13/12/2018	13/12/2018	13/12/2018
Time Tested	10:01	10:08	10:14	10:21	10:27	10:34
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484067	484060	484076	484072	484086	484082
Northing	6939798	6939774	6939779	6939815	6939791	6939776
Elevation (m)	79.013	78.950	79.556	79.758	80.208	80.148
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty Clay	Sandy Silty 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 (%)	8.3	4.3	1.2	2.0	1.3	0.0
Field Wet Density (FWD) t/m ³	1.97	1.98	1.94	1.95	1.93	1.94
Field Moisture Content %	24.1	24.3	23.1	24.2	20.8	20.7
Field Dry Density (FDD) t/m ³	1.58	1.60	1.58	1.57	1.60	1.61
Peak Converted Wet Density t/m ³	**	**	**	**	**	1.95
Adjusted Peak Converted Wet Density t/m ³	2.04	2.01	1.85	1.95	1.92	**
Moisture Variation (Wv) %	**	**	**	**	**	0.0
Adjusted Moisture Variation %	0.0	0.0	0.0	0.0	-0.5	**
Hilf Density Ratio (%)	96.5	99.0	104.5	100.0	100.5	99.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-44
Issue Number: 1
Date Issued: 14/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 764
Date Sampled: 11/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



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Approved Signatory: Sam Woodley
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D18-764A	D18-764B	D18-764C	D18-764D
Test Number	297	298	299	300
Date Tested	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Tested	12:02	12:12	12:17	12:34
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484074	484075	484050	484043
Northing	6939922	6939945	6939977	6939969
Elevation (m)	78.744	77.975	76.335	76.861
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Sandy Clayey Gravel. Brown	Sandy Clayey Gravel. Brown	Sandy Clayey Gravel. Brown	Sandy Clayey Gravel. Brown
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 (%)	7.2	10.1	17.7	6.9
Field Wet Density (FWD) t/m ³	2.21	2.19	2.23	2.18
Field Moisture Content %	13.1	13.9	13.1	17.7
Field Dry Density (FDD) t/m ³	1.95	1.93	1.97	1.85
Peak Converted Wet Density t/m ³	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.20	2.23	2.26	2.23
Moisture Variation (Wv) %	**	**	**	**
Adjusted Moisture Variation %	0.0	0.0	-0.5	0.0
Hilf Density Ratio (%)	100.5	98.5	98.5	97.5
Compaction Method	Standard	Standard	Standard	Standard

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

Material Test Report



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 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-47
Issue Number: 1
Date Issued: 21/12/2018
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 816
Date Sampled: 14/12/2018
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D18-816A	D18-816B	D18-816C	D18-816D	D18-816E	D18-816F
Test Number	314	315	316	317	318	319
Date Tested	14/12/2018	14/12/2018	14/12/2018	14/12/2018	14/12/2018	14/12/2018
Time Tested	10:00	10:06	10:11	10:17	10:24	10:31
Test Request #/Location	Stage 10	Stage 10	Stage 10	Stage 10	Stage 10	Stage 10
Easting	484392	484387	484385	484395	484330	484389
Northing	6940002	6939975	6940023	6940029	6939942	6940017
Elevation (m)	83.234	83.557	82.982	82.976	F/L	F/L
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown
Test Depth (mm)	150	150	150	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	37.5	19.0	19.0	19.0
Percentage of Wet Oversize (%)	18.2	7.4	17.2	19.0	19.2	18.8
Field Wet Density (FWD) t/m ³	2.18	2.20	2.22	2.19	2.22	2.21
Field Moisture Content %	13.8	14.5	14.5	14.9	13.8	10.0
Field Dry Density (FDD) t/m ³	1.92	1.92	1.94	1.91	1.95	2.01
Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.27	2.18	2.23	2.22	2.34	2.25
Moisture Variation (Wv) %	**	**	**	**	**	**
Adjusted Moisture Variation %	0.0	1.5	1.5	1.5	2.5	2.5
Hilf Density Ratio (%)	96.0	101.0	100.0	99.0	95.0	98.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-48
Issue Number: 1
Date Issued: 08/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 846
Date Sampled: 04/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D19-846A	D19-846B	D19-846C	D19-846D	D19-846E	D19-846F
Test Number	321	322	323	324	325	326
Date Tested	04/01/2019	04/01/2019	04/01/2019	04/01/2019	04/01/2019	04/01/2019
Time Tested	**	**	**	**	**	**
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15 - Retest of D18-816G	Stage 10-15	Stage 10-15
Easting	484332	484333	484325	484373	484106	484085
Northing	6940045	6940040	6940043	6939986	6940008	6940034
Elevation (m)	81.65	82.231	F/L	84.337	74.481	73.514
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly 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 (%)	7.2	10.1	16.9	16.5	6.8	10.1
Field Wet Density (FWD) t/m ³	2.17	2.15	2.21	2.19	2.13	2.18
Field Moisture Content %	16.0	11.6	13.5	13.4	13.9	14.8
Field Dry Density (FDD) t/m ³	1.87	1.93	1.94	1.93	1.87	1.90
Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.19	2.21	2.27	2.24	2.23	2.25
Moisture Variation (Wv) %	**	**	**	**	**	**
Adjusted Moisture Variation %	0.5	0.5	0.5	0.5	0.5	0.5
Hilf Density Ratio (%)	99.0	97.5	97.0	98.0	95.5	97.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



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 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-49
Issue Number: 1
Date Issued: 09/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 858
Date Sampled: 07/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer Material
Material Source: Onsite



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Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D19-858A	D19-858B	D19-858C
Test Number	327	328	329
Date Tested	07/01/2019	07/01/2019	07/01/2019
Time Tested	10:35	10:40	13:12
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484138	484135	484116
Northing	6940009	6940023	6940002
Elevation (m)	74.367	73.689	74.523
Layer / Reduced Level	Select Fill	Select Fill	Select Fill
Soil Description	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown	Sandy Gravelly Clay. Brown
Test Depth (mm)	150	150	150
Sieve used to determine oversize (mm)	19.0	19.0	19.0
Percentage of Wet Oversize (%)	4.9	8.3	11.3
Field Wet Density (FWD) t/m ³	2.25	2.25	2.23
Field Moisture Content %	12.9	13.1	15.7
Field Dry Density (FDD) t/m ³	1.99	1.99	1.92
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.21	2.22	2.24
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	1.0	0.5	0.5
Hilf Density Ratio (%)	102.0	101.5	99.5
Compaction Method	Standard	Standard	Standard

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

Material Test Report



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 Morrison Geotechnic Pty Ltd
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-50
Issue Number: 1
Date Issued: 14/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 879
Date Sampled: 09/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



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Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D19-879A	D19-879B	D19-879C	D19-879D	D19-879E	D19-879F
Test Number	337	338	339	340	341	342
Date Tested	09/01/2019	09/01/2019	09/01/2019	09/01/2019	09/01/2019	09/01/2019
Time Tested	10:32	10:38	10:43	10:49	13:05	13:09
Test Request #/Location	Lot 89	Lot 89	Lot 89	Lot 89	Lot 89	Lot 89
Easting	484029	484014	484010	484023	484013	484015
Northing	6940094	6940099	6940067	6940062	6940070	6940085
Elevation (m)	65.074	65.071	68.731	68.778	68.810	68.042
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty 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	0.0	0.0	0.0
Field Wet Density (FWD) t/m ³	1.90	1.93	1.82	1.83	1.96	1.95
Field Moisture Content %	18.7	17.8	26.0	26.5	22.4	23.5
Field Dry Density (FDD) t/m ³	1.60	1.64	1.45	1.45	1.60	1.58
Peak Converted Wet Density t/m ³	1.99	1.98	1.82	1.93	1.95	1.97
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Moisture Variation (Wv) %	1.5	1.5	-0.5	0.5	0.0	0.5
Adjusted Moisture Variation %	**	**	**	**	**	**
Hilf Density Ratio (%)	95.5	97.5	100.0	95.0	100.0	99.0
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report

Report Number: DL18/334-50
Issue Number: 1
Date Issued: 14/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 879
Date Sampled: 09/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite


**MORRISON
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 Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au



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Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D19-879G	D19-879H
Test Number	343	344
Date Tested	09/01/2019	09/01/2019
Time Tested	13:20	13:26
Test Request #/Location	Lot 89	Lot 89
Easting	484028	484026
Northing	6940081	6940070
Elevation (m)	68.054	68.614
Layer / Reduced Level	General Fill	General Fill
Soil Description	Silty Sandy Clay	Silty Sandy Clay
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	0.0	0.0
Field Wet Density (FWD) t/m ³	1.90	1.90
Field Moisture Content %	22.7	**
Field Dry Density (FDD) t/m ³	1.55	**
Peak Converted Wet Density t/m ³	1.96	1.93
Adjusted Peak Converted Wet Density t/m ³	**	**
Moisture Variation (Wv) %	-1.0	-0.5
Adjusted Moisture Variation %	**	**
Hilf Density Ratio (%)	97.0	98.0
Compaction Method	Standard	Standard

Moisture Variation Note:

Positive values = test is dry of OMC
 Negative values = test is wet of OMC

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-53
Issue Number: 1
Date Issued: 15/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 898
Date Sampled: 11/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



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Liam A McDowall

Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1		
Sample Number	D19-898A	D19-898B
Test Number	350	351
Date Tested	11/01/2019	11/01/2019
Time Tested	10:34	10:40
Test Request #/Location	Stage 10-15	Stage 10-15
Easting	484137	484130
Northing	6940055	6940054
Elevation (m)	73.825	73.880 F/L
Layer / Reduced Level	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown
Test Depth (mm)	150	150
Sieve used to determine oversize (mm)	19.0	19.0
Percentage of Wet Oversize (%)	9.9	9.9
Field Wet Density (FWD) t/m ³	2.18	2.21
Field Moisture Content %	10.9	10.6
Field Dry Density (FDD) t/m ³	1.96	2.00
Peak Converted Wet Density t/m ³	**	**
Adjusted Peak Converted Wet Density t/m ³	2.20	2.21
Moisture Variation (Wv) %	**	**
Adjusted Moisture Variation %	0.0	0.0
Hilf Density Ratio (%)	99.0	100.0
Compaction Method	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-51
Issue Number: 1
Date Issued: 14/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 869
Date Sampled: 08/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer Material
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1						
Sample Number	D19-869A	D19-869B	D19-869C	D19-869D	D19-869E	D19-869F
Test Number	330	331	332	333	334	335
Date Tested	08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Time Tested	10:35	10:40	10:45	10:50	12:51	12:59
Test Request #/Location	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15	Stage 10-15
Easting	484111	484086	484125	484101	484107	484114
Northing	6940074	6940082	6940085	6940088	6940079	6940072
Elevation (m)	70.756	70.535	70.747	70.388	70.805	71.067
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Clayey Gravelly Sand Brown.	Clayey Gravelly Sand Brown.	Clayey Gravelly Sand Brown.	Clayey Gravelly Sand Brown.	Clayey Gravelly Sand Brown.	Clayey Gravelly Sand 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 (%)	9.3	8.5	8.0	9.9	9.9	9.6
Field Wet Density (FWD) t/m ³	2.17	2.20	2.22	2.27	2.25	2.27
Field Moisture Content %	14.3	15.1	14.8	15.4	13.1	12.5
Field Dry Density (FDD) t/m ³	1.90	1.92	1.93	1.97	1.99	2.02
Peak Converted Wet Density t/m ³	**	**	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.24	2.21	2.25	2.26	2.19	2.31
Moisture Variation (Wv) %	**	**	**	**	**	**
Adjusted Moisture Variation %	2.0	1.5	0.5	2.0	0.0	1.5
Hilf Density Ratio (%)	96.5	100.0	98.5	100.5	103.0	98.5
Compaction Method	Standard	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-51
Issue Number: 1
Date Issued: 14/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 869
Date Sampled: 08/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer Material
Material Source: Onsite



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Approved Signatory: Rhys Mitchell
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1	
Sample Number	D19-869G
Test Number	336
Date Tested	08/01/2019
Time Tested	13:05
Test Request #/Location	Stage 10-15
Easting	484122
Northing	6940087
Elevation (m)	70.695
Layer / Reduced Level	Select Fill
Soil Description	Clayey Gravelly Sand Brown.
Test Depth (mm)	150
Sieve used to determine oversize (mm)	19.0
Percentage of Wet Oversize (%)	11.0
Field Wet Density (FWD) t/m ³	2.29
Field Moisture Content %	12.4
Field Dry Density (FDD) t/m ³	2.04
Peak Converted Wet Density t/m ³	**
Adjusted Peak Converted Wet Density t/m ³	2.25
Moisture Variation (Wv) %	**
Adjusted Moisture Variation %	1.5
Hilf Density Ratio (%)	102.0
Compaction Method	Standard

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

Material Test Report



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 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-52
Issue Number: 1
Date Issued: 15/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 891
Date Sampled: 11/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: General Fill
Material Source: Onsite



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Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1				
Sample Number	D19-891A	D19-891B	D19-891C	D19-891D
Test Number	345	346	347	348
Date Tested	11/01/2019	11/01/2019	11/01/2019	11/01/2019
Time Tested	07:03	07:08	07:13	07:23
Test Request #/Location	Stage 15 / Lot 89	Stage 15 / Lot 89	Stage 15 / Lot 89	Stage 15 / Lot 89
Easting	484046	484062	484047	484026
Northing	6940068	6940083	6940052	6940056
Elevation (m)	70.615	69.735	70.834	71.001
Layer / Reduced Level	General Fill	General Fill	General Fill	General Fill
Soil Description	Silty Sandy Clay	Silty Sandy Clay	Silty Sandy Clay	Silty 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	0.0	0.0
Field Wet Density (FWD) t/m ³	1.85	1.77	1.86	1.90
Field Moisture Content %	22.9	19.4	22.2	19.6
Field Dry Density (FDD) t/m ³	1.51	1.48	1.52	1.59
Peak Converted Wet Density t/m ³	1.94	1.86	1.87	1.97
Adjusted Peak Converted Wet Density t/m ³	**	**	**	**
Moisture Variation (Wv) %	0.0	2.0	0.0	3.0
Adjusted Moisture Variation %	**	**	**	**
Hilf Density Ratio (%)	95.5	95.0	99.5	96.5
Compaction Method	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-58
Issue Number: 1
Date Issued: 29/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 1091
Date Sampled: 23/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



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Approved Signatory: Liam Davidson
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D19-1091A	D19-1091B	D19-1091C
Test Number	363	364	365
Date Tested	23/01/2019	23/01/2019	23/01/2019
Time Tested	13:33	13:39	13:44
Test Request #/Location	Stage 15	Stage 15	Stage 15
Easting	484093	484098	484110
Northing	6939985	6939972	6939960
Elevation (m)	77.282	77.881	78.272
Layer / Reduced Level	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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 (%)	7.7	6.7	7.4
Field Wet Density (FWD) t/m ³	2.22	2.27	2.29
Field Moisture Content %	11.1	10.9	9.6
Field Dry Density (FDD) t/m ³	2.00	2.04	2.09
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.14	2.19	2.21
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	0.0	0.0	0.0
Hilf Density Ratio (%)	103.5	103.5	103.5
Compaction Method	Standard	Standard	Standard

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

Material Test Report



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Morrison Geotechnic Pty Ltd

ABN: 51 009 878 899

Brisbane Laboratory

Unit 1, 35 Limestone Darra QLD 4076

Phone: (07) 3279 0900

Email: darralab@morrisongeo.com.au

Report Number: DL18/334-54A
Issue Number: 1
Date Issued: 16/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 847
Sample Number: D19-847A
Date Sampled: 04/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Sample Location: E: 484325, N: 6940043, Depth: F/L
Material: Select Fill - Capping Layer
Material Source: Onsite



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*Liam A
McDowall*

Approved Signatory: Liam McDowall
Branch Manager

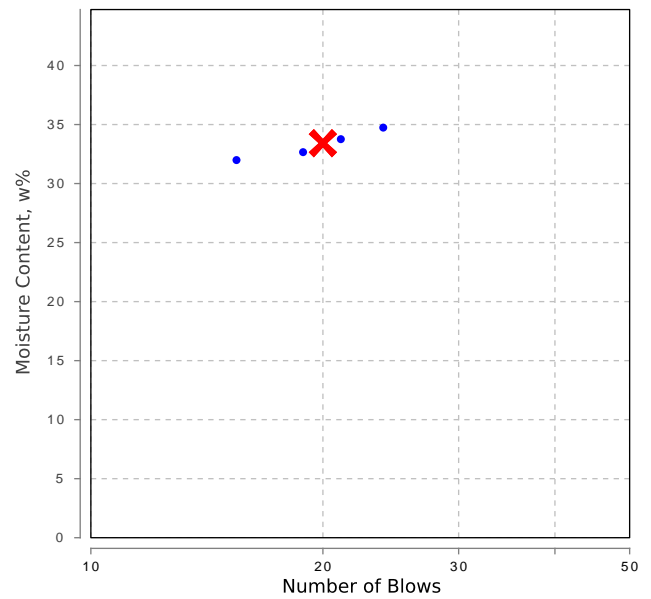
NATA Accredited Laboratory Number: 1169

Atterberg Limit (AS1289 3.9.1 & 3.2.1 & 3.3.2)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	33		45
Plastic Limit (%)	25		
Plasticity Index (%)	8	7	20

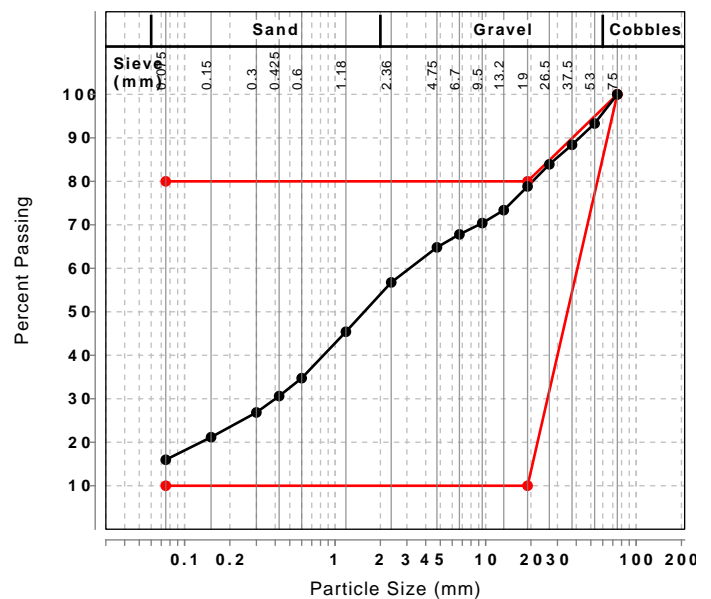
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Linear Shrinkage (%)	5.5		
Cracking Crumbling Curling	None		

Particle Distribution (AS1289 3.6.1)					
Sieve	Passed %	Passing Limits		Retained %	Retained Limits
75 mm	100	100	100	0	
53 mm	93			7	
37.5 mm	88			5	
26.5 mm	84			4	
19 mm	79	10	80	5	
13.2 mm	73			5	
9.5 mm	70			3	
6.7 mm	68			3	
4.75 mm	65			3	
2.36 mm	57			8	
1.18 mm	45			11	
0.6 mm	35			11	
0.425 mm	31			4	
0.3 mm	27			4	
0.15 mm	21			6	
0.075 mm	16	10	80	5	

Liquid Limit



Particle Size Distribution



Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-57
Issue Number: 1
Date Issued: 25/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 1071
Date Sampled: 22/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Sam Woodley
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D19-1071A	D19-1071B	D19-1071C
Test Number	360	361	362
Date Tested	22/01/2019	22/01/2019	22/01/2019
Time Tested	13:30	13:36	13:42
Test Request #/Location	Stage 15	Stage 15	Stage 15
Easting	484062	484074	484090
Northing	6940028	6940011	6939989
Elevation (m)	74.38	75.38	76.58
Layer / Reduced Level	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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 (%)	7.7	10.0	8.8
Field Wet Density (FWD) t/m ³	2.21	2.21	2.22
Field Moisture Content %	13.6	13.5	12.2
Field Dry Density (FDD) t/m ³	1.94	1.95	1.98
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.20	2.20	2.18
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	0.5	0.0	0.0
Hilf Density Ratio (%)	100.5	100.5	102.0
Compaction Method	Standard	Standard	Standard

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

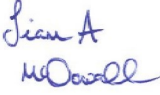
Material Test Report

Report Number: DL18/334-54B
Issue Number: 1
Date Issued: 16/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 847
Sample Number: D19-847B
Date Sampled: 04/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Sample Location: E: 484325, N: 6940043, Depth: F/L
Material: Select Fill - Capping Layer
Material Source: Onsite


**MORRISON
GEOTECHNIC**
 Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au



Accredited for compliance with ISO/IEC 17025 - Testing


 Approved Signatory: Liam McDowall
 Branch Manager

NATA Accredited Laboratory Number: 1169

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)

Iss (%)	0.2
Visual Description	sandy Clay , traces of gravel , brown , moist
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test

Shrinkage Strain - Oven Dried (%)	0.4
Estimated % by volume of significant inert inclusions	
Cracking	Slightly Cracked
Crumbling	No
Moisture Content (%)	12.2

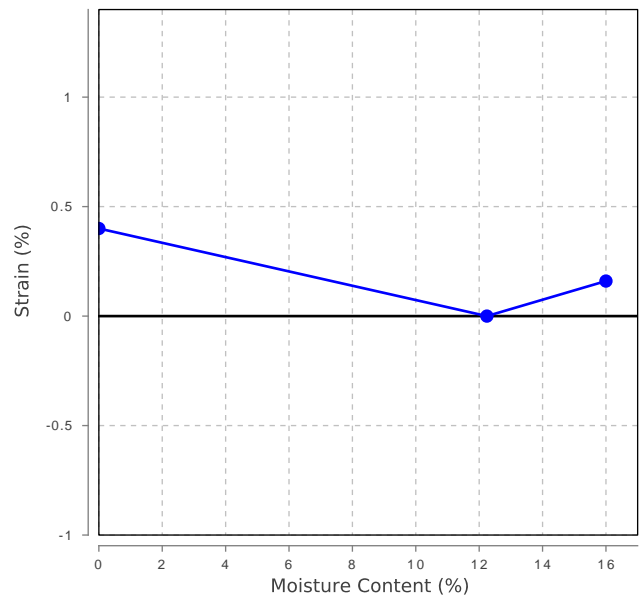
Swell Test

Initial Pocket Penetrometer (kPa)	
Final Pocket Penetrometer (kPa)	>600
Initial Moisture Content (%)	14.0
Final Moisture Content (%)	16.0
Swell (%)	-0.2
* NATA Accreditation does not cover the performance of pocket penetrometer readings.	

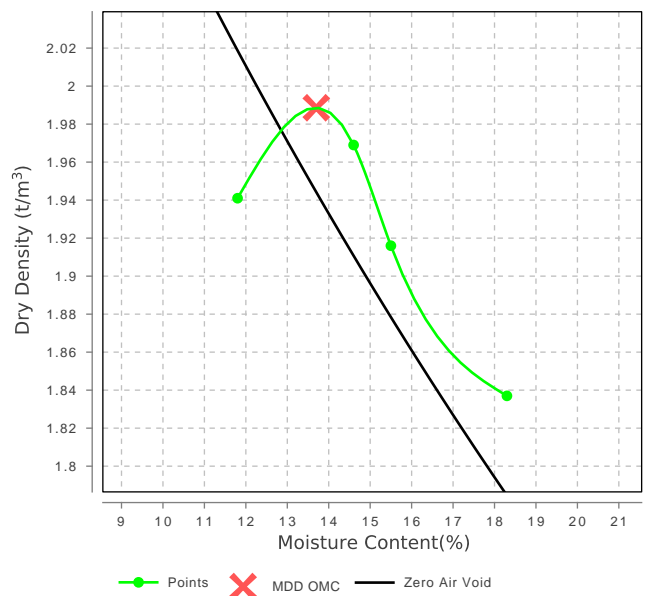
Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1)

Mould Type	1 LITRE MOULD A
Compaction	Standard
No. Layers	3
No. Blows / Layer	25
Maximum Dry Density (t/m ³)	1.99
Optimum Moisture Content (%)	13.5
Oversize Sieve (mm)	19
Oversize Material (%)	0
Method used to Determine Plasticity	VISUAL
Curing Hours	24

Shrink Swell



Moisture Density Relationship



Material Test Report



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 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-55
Issue Number: 1
Date Issued: 24/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 1014
Date Sampled: 18/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Sam Woodley
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1					
Sample Number	D19-1014A	D19-1014B	D19-1014C	D19-1014D	D19-1014E
Test Number	352	353	354	355	356
Date Tested	18/01/2019	18/01/2019	18/01/2019	18/01/2019	18/01/2019
Time Tested	13:34	13:42	13:48	13:52	13:59
Test Request #/Location	Stage 15	Stage 15	Stage 15	Stage 15	Stage 15
Easting	484075	484121	484129	484113	484102
Northing	6940010	6939984	6939987	6940011	6940040
Elevation (m)	74.69	75.010	F/L	F/L	F/L
Layer / Reduced Level	Select Fill	Select Fill	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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 (%)	9.8	10.0	9.8	9.9	8.6
Field Wet Density (FWD) t/m ³	2.17	2.16	2.18	2.18	2.21
Field Moisture Content %	16.4	17.3	16.9	16.3	17.0
Field Dry Density (FDD) t/m ³	1.86	1.84	1.86	1.88	1.89
Peak Converted Wet Density t/m ³	**	**	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.14	2.16	2.17	2.18	2.16
Moisture Variation (Wv) %	**	**	**	**	**
Adjusted Moisture Variation %	0.0	0.0	0.0	0.0	0.0
Hilf Density Ratio (%)	101.5	99.5	100.5	100.5	102.5
Compaction Method	Standard	Standard	Standard	Standard	Standard

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

Material Test Report



Brisbane | Gold Coast | Maroochydore
 Morrison Geotechnic Pty Ltd
 ABN: 51 009 878 899
 Brisbane Laboratory
 Unit 1, 35 Limestone Darra QLD 4076
 Phone: (07) 3279 0900
 Email: darralab@morrisongeo.com.au

Report Number: DL18/334-56
Issue Number: 1
Date Issued: 25/01/2019
Client: SHADFORTH'S CIVIL PTY LTD
 99 SANDALWOOD LANE, FOREST GLEN QLD 4556
Contact: -
Project Number: DL18/334
Project Name: EARTHWORKS SUPERVISION
Project Location: EDEN'S CROSSING, STAGE 10-15
Work Request: 1058
Date Sampled: 21/01/2019
Sampling Method: AS1289 1.2.1 6.4 (b) - Sampling from layers in earthworks or pavement - compacted
Specification: 95% STD
Site Selection: Selected by GTA
Material: Select Fill - Capping Layer
Material Source: Onsite



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Sam Woodley
 Senior Technician
 NATA Accredited Laboratory Number: 1169

Compaction Control AS 1289 5.7.1 & 5.8.1 & 2.1.1			
Sample Number	D19-1058A	D19-1058B	D19-1058C
Test Number	357	358	359
Date Tested	21/01/2019	21/01/2019	21/01/2019
Time Tested	13:28	13:35	13:41
Test Request #/Location	Stage 15	Stage 15	Stage 15
Easting	484071	484082	484098
Northing	6940037	6940015	6939986
Elevation (m)	73.62	75.03	76.54
Layer / Reduced Level	Select Fill	Select Fill	Select Fill
Soil Description	Gravelly Sandy Clay. Brown	Gravelly Sandy Clay. Brown	Gravelly 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 (%)	7.9	9.6	9.9
Field Wet Density (FWD) t/m ³	2.29	2.28	2.30
Field Moisture Content %	12.3	14.1	15.0
Field Dry Density (FDD) t/m ³	2.04	2.00	2.00
Peak Converted Wet Density t/m ³	**	**	**
Adjusted Peak Converted Wet Density t/m ³	2.19	2.23	2.18
Moisture Variation (Wv) %	**	**	**
Adjusted Moisture Variation %	0.5	2.0	0.0
Hilf Density Ratio (%)	104.5	102.0	105.5
Compaction Method	Standard	Standard	Standard

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

Important Information about Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/THE BEST PEOPLE ON EARTH exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

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