



## **BEACONSFIELD ROSES ESTATE**

Level One Report

G&S Fortunato Group Pty Ltd

4th February 2015



4<sup>th</sup> February 2015

Fortunato Group Pty Ltd  
38A Merri Concourse  
Campbellfield, VIC, 3061

**Attention: Nick Hondros**

Dear Nick

**RE: The Roses Estate Allotment and Dam filling**

**Level 1 Compaction Control**

This letter presents a report by Pearce Geotech Pty Ltd (PG) on Level 1 Testing Services undertaken during the construction of filling at Beaconsfield Roses estate.

One electronic copy on data stick is provided.

Please do not hesitate to contact the undersigned should there be any queries regarding this report.

For and on behalf of Pearce Geotech Pty Ltd

Regards

Daniel Pearce

PEARCEGEOTECHPTYLTD

8/19 Murradoc Road, Drysdale 3222

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## **1 INTRODUCTION**

This report presents the results of compaction control and laboratory testing services provided by Pearce Geotech Pty Ltd (PG) during the construction of the allotment and Dam filling at Beaconsfield Roses Estate.

PG was engaged by Fortunato Group Pty Ltd (Fortunato) to provide Level 1 testing services for the duration of these works in accordance with the specification supplied. The work was commissioned by Mr Nick Hondros of Fortunato.

Level 1 testing, as defined in AS3798-1996 "Guidelines on Earthworks for Commercial and Residential Development", provides for full-time inspection of the construction of controlled fill and compaction testing in accordance with AS1289 "Methods of Testing Soils for Engineering Purposes". The Level 1 testing was undertaken by technicians from PG during the period from 28th May 2014 to 30th January 2014.

## **2 SCOPE OF WORK**

### **2.1 Area of Work**

PG provided Level 1 testing and supervision of the Allotment and Dam filling placed. Material selection and condition, as well as compaction testing, were conducted during the construction of this fill.

### **2.2 Placement Specification**

In summary, the project specification Named: "Beaconsfield Roses Estate. 90 Brunt road, Beaconsfield, Cardinia shire council" Written by Dalton Consulting Engineers and supplied to PG by Fortunato, requires that earthworks comply with the following:

- Note 9: Fill areas in excess of 300 millimetres are to be stripped of topsoil, filled and topsoil replaced to obtain the final fill levels shown on the drawings. All filling must ensure Level one geotechnical supervision is maintained as per clause 8.2 of AS3798 "Guidelines on earthworks for commercial and residential developments". Structural filling material is to be approved by the superintendent and council prior to placement.

### **3 CONSTRUCTION PLANT**

The following construction plant was used on site as required:

- 1 x Grader
- 1 x pad-foot rollers
- 1 x Smooth drum roller
- 2 x excavator
- 1 x water truck
- dump trucks as required
- 1 x Compactor

### **4 INSPECTION AND TESTING**

#### **4.1 Construction Materials**

Suitable insitu silty gravelly Clay and silty Sand was used as fill for this project. Fill material was sourced from:

- Trench excavations.
- Various excavations on site.

All material was tested for compliance, spread and watered to achieve the specified density and moisture specification.

#### **4.2 Fill Placement**

Initial site inspection showed Two fill areas comprising of 12 lots and an existing dam. Lots were consecutively striped of all deleterious silty topsoil and organic matter, down to dense silty Sand. This area was then proof rolled with a loaded dump truck. During proof roll several soft spots were sited. These soft spots were subsequently excavated to a firm base and backfilled with a suitable material. The whole area was then re proof rolled and tested for density and moisture compliance.

All overly wet and unsuitable material was removed from the dam and replaced with suitable moisture conditioned material.

Compaction tests were conducted on each layer of fill to ensure compliance with the specification and samples of the fill material were tested in PG's NATA accredited laboratory (Accreditation Number 18877) to determine the Hilf density ratio and moisture ratio of the material. In total 27 field density tests, 27 Hilf rapid compaction tests and 27 moisture contents were conducted.

Control Fill material was placed by dump truck, spread by grader/compactor, simultaneously water conditioned wherever required and compacted. Where the material appeared too wet, dry soil was mixed in and processed to a homogenous state.

## 4.2.1 Test Summary

Field No.	Date	Lot	Layer	Min Ratio	Density Ratio %
S-6009	28/05/14	Dam 5m W, 6m N	1	98% Std	101
S-6010	28/05/14	Dam 12m W, 10m N	2	98% Std	97
S-6011	28/05/14	Dam 18m W, 20m N	3	98% Std	95.5
S-6708	30/05/14	Dam RT S-6010	2	98% Std	98
S-6709	30/05/14	Dam See Site Plan	2	98% Std	99.5
S-6710	30/05/14	Dam RT S-6011	3	98% Std	99
S-6711	30/05/14	Dam See Site Plan	4	98% Std	100
S-10870	28/11/14	Dam 4m N, 4m E	FL	98% Std	105.5
S-10871	28/11/14	Dam 3m N, 5m E	-300	98% Std	103
S-10872	28/11/14	Dam 2m N, 4m E	-600	98% Std	103.5
S-10880	15/12/14	Lot 9	FL	98% Std	102
S-10881	15/12/14	Lot 10	FL	98% Std	104.5
S-10882	15/12/14	Lot 11	FL	98% Std	101
S-10883	15/12/14	Lot 12	FL	98% Std	102.5

Field No.	Date	Lot	Layer	Min Ratio	Density Ratio %
S-11573	30/01/15	Lot 44	1	98% Std	99
S-11574	30/01/15	Lot 44	2	98% Std	99
S-11575	30/01/15	Lot 45	1	98% Std	98.5
S-11576	30/01/15	Lot 45	2	98% Std	99
S-11577	30/01/15	Lot 46	1	98% Std	99
S-11578	30/01/15	Lot 46	2	98% Std	98
S-11579	30/01/15	Lot 47	1	98% Std	98.5
S-11580	30/01/15	Lot 47	2	98% Std	98
S-11581	30/01/15	Lot 34	1	98% Std	99
S-11582	30/01/15	Lot 34	2	98% Std	99
S-11583	30/01/15	Dam 8m E, 5m N	FL	98% Std	98
S-11584	30/01/15	Dam 8m E, 3m N	-500	98% Std	98

## 5 STATEMENT OF COMPLIANCE

PG personnel have provided Level 1 inspection and testing services during construction of the fill at Beaconsfield Roses Estate Dam and allotment filling. A technician from PG was on site on a full time basis during fill placement and observed the construction techniques adopted.

Based on observations made by PG personnel and the results of field and laboratory tests, we consider that the fill has been placed in accordance with the intent of the specification.

For and on behalf of Pearce Geotech Pty Ltd



Regards

Daniel Pearce

PEARCE GEOTECH PTY LTD

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# Appendix A

## **Test Results**


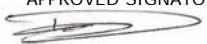


**Drysdale Laboratory**  
 Pearce Geotech Pty Ltd  
 8/19 Murradoc Road  
 Drysdale VIC 3222

## Hilf Density Ratio Report

Client : <b>Fortunato Group</b> Address : <b>38A Merri Concourse, Campbellfield, VIC, 3061</b> Project Name : <b>Roses Estate</b> Project Number : <b>CS-129</b> Location: <b>Beaconsfield</b>	Report Number: <b>CS-129 - 1/1</b> Report Date : <b>24/06/2014</b> Order Number : Test Method : <b>AS1289.5.7.1</b> <p style="text-align: right;"><b>Page 1 of 1</b></p>
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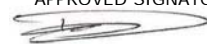
Sample Number :	S-6009	S-6010	S-6011	
Test Number :				
Sampling Method :	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	
Date Sampled :	28/05/2014	28/05/2014	28/05/2014	
Date Tested :	28/05/2014	28/05/2014	28/05/2014	
Material Type :	Sandy Clay	Sandy Clay	Sandy Clay	
Material Source :	Insitu	Insitu	Insitu	
Lot Number :				
Sample Location :	Dam Backfill 5m W 6m N L1	Dam Backfill 12m W 10m N L2	Dam Backfill 18m W 20m N L3	
Test Depth (mm) :	175	175	175	
Layer Depth (mm) :	200	200	200	
Maximum Size (mm) :	19	19	19	
Oversize Wet (%) :	0	0	0	
Oversize Dry (%) :				
Oversize Density (t/m <sup>3</sup> ) :				
Field Moisture Content (%) :	15.2	20.3	19.5	
Hilf MDR Number :	S-6009	S-6010	S-6011	
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	
Compactive Effort :	Standard	Standard	Standard	
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	
Moisture Method :	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1	
Moisture Ratio (%) :	103.5	118.5	114	
Field Wet Density (t/m <sup>3</sup> ) :	2.152	1.993	1.999	
Optimum Moisture Content (%) :	14.700	17.200	17.100	
Moisture Variation :	-0.500	-3.100	-2.400	
Peak Converted Wet Density (t/m <sup>3</sup> ) :	2.1	2.1	2.1	
Hilf Density Ratio (%) :	<b>101.0</b>	<b>97.0</b>	<b>95.5</b>	
Minimum Specification :	95% Standard	95% Standard	95% Standard	
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

 <p>The results of the tests in this report are traceable to Australian/National standards. Accredited for compliance with ISO/IEC 17025</p>	<p>APPROVED SIGNATORY</p>  Daniel Pearce - Laboratory Manager NATA Accreditation Number 18877
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## Hilf Density Ratio Report

Client : <b>Fortunato Group</b>	Report Number: <b>CS-129 - 2/1</b>
Address : <b>38A Merri Concourse, Campbellfield, VIC, 3061</b>	Report Date : <b>23/07/2014</b>
Project Name : <b>Roses Estate</b>	Order Number :
Project Number : <b>CS-129</b>	Test Method : <b>AS1289.5.7.1</b>
Location: <b>Beaconsfield</b>	<b>Page 1 of 1</b>

Sample Number :	S-6708	S-6709	S-6710	S-6711
Test Number :				
Sampling Method :	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)
Date Sampled :	30/05/2014	30/05/2014	30/05/2014	30/05/2014
Date Tested :	30/05/2014	30/05/2014	30/05/2014	30/05/2014
Material Type :	Clay	Clay	Clay	Clay
Material Source :	Insitu	Insitu	Insitu	Insitu
Lot Number :				
Sample Location :	Dam Backfill See Site Plan  L2	Dam Backfill See Site Plan  L2	Dam Backfill See Site Plan  L3	Dam Backfill See Site Plan  L4
Test Depth (mm) :	175	175	175	175
Layer Depth (mm) :	200	200	200	200
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	0	0	0	0
Oversize Dry (%) :				
Oversize Density (t/m <sup>3</sup> ) :				
Field Moisture Content (%) :	17.4	16.7	17.3	15.5
Hilf MDR Number :	S-6708	S-6709	S-6710	S-6711
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1
Moisture Ratio (%) :	104	98	99	106.5
Field Wet Density (t/m <sup>3</sup> ) :	2.037	2.053	2.075	2.112
Optimum Moisture Content (%) :	16.700	17.000	17.400	14.600
Moisture Variation :	-0.700	0.300	0.100	-0.900
Peak Converted Wet Density (t/m <sup>3</sup> ) :	2.1	2.1	2.1	2.1
Hilf Density Ratio (%) :	<b>98.0</b>	<b>99.5</b>	<b>99.0</b>	<b>100.0</b>
Minimum Specification :	98% Standard	98% Standard	98% Standard	98% Standard
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

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 Pearce Geotech Pty Ltd  
 8/19 Murradoc Road  
 Drysdale VIC 3222

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Sample Number :	S-10870	S-10871	S-10872	
Test Number :				
Sampling Method :	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	
Date Sampled :	28/11/2014	28/11/2014	28/11/2014	
Date Tested :	28/11/2014	28/11/2014	28/11/2014	
Material Type :	Clay	Clay	Clay	
Material Source :	Insitu	Insitu	Insitu	
Lot Number :				
Sample Location :	Dam Backfill 4m N 4m E FL	Dam Backfill 3m N 5m E -300	Dam Backfill 2m N 4m E -600	
Test Depth (mm) :	275	275	275	
Layer Depth (mm) :	300	300	300	
Maximum Size (mm) :	19	19	19	
Oversize Wet (%) :	0	0	0	
Oversize Dry (%) :				
Oversize Density (t/m <sup>3</sup> ) :				
Field Moisture Content (%) :	11.2	13.6	10.4	
Hilf MDR Number :	S-10870	S-10871	S-10872	
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	
Compactive Effort :	Standard	Standard	Standard	
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	
Moisture Method :	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1	
Moisture Ratio (%) :	79.5	93.5	85	
Field Wet Density (t/m <sup>3</sup> ) :	2.211	2.224	2.206	
Optimum Moisture Content (%) :	14.100	14.600	12.200	
Moisture Variation :	2.900	0.900	1.900	
Peak Converted Wet Density (t/m <sup>3</sup> ) :	2.1	2.2	2.1	
Hilf Density Ratio (%) :	<b>105.5</b>	<b>103.0</b>	<b>103.5</b>	
Minimum Specification :	98% Standard	98% Standard	98% Standard	
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

<p>The results of the tests in this report are traceable to Australian/National standards. Accredited for compliance with ISO/IEC 17025</p>	<p>APPROVED SIGNATORY</p> <p>Daniel Pearce - Laboratory Manager          NATA Accreditation Number          18877</p>
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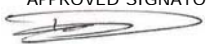


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## Hilf Density Ratio Report

Client : <b>Fortunato Group</b> Address : <b>38A Merri Concourse, Campbellfield, VIC, 3061</b> Project Name : <b>Roses Estate</b> Project Number : <b>CS-129</b> Location: <b>Beaconsfield</b>	Report Number: <b>CS-129 - 6/1</b> Report Date : <b>14/01/2015</b> Order Number : <b>13-330-22</b> Test Method : <b>AS1289.5.7.1</b> <p style="text-align: right;"><b>Page 1 of 2</b></p>
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Sample Number :	S-10880	S-10881	S-10882	S-10883
Test Number :				
Sampling Method :	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)
Date Sampled :	15/12/2014	15/12/2014	15/12/2014	15/12/2014
Date Tested :	15/12/2014	15/12/2014	15/12/2014	15/12/2014
Material Type :	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay
Material Source :	Insitu	Insitu	Insitu	Insitu
Lot Number :				
Sample Location :	Fill Area Lot 9  FL	Fill Area Lot 10  FL	Fill Area Lot 11  FL	Fill Area Lot 12  FL
Test Depth (mm) :	175	175	175	175
Layer Depth (mm) :	200	200	200	200
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	0	0	0	0
Oversize Dry (%) :				
Oversize Density (t/m <sup>3</sup> ) :				
Field Moisture Content (%) :	7.1	5.7	8.7	6.0
Hilf MDR Number :	S-10880	S-10881	S-10882	S-10883
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1
Moisture Ratio (%) :	76	72.5	99	72
Field Wet Density (t/m <sup>3</sup> ) :	2.068	2.176	1.981	1.996
Optimum Moisture Content (%) :	9.400	7.800	8.800	8.300
Moisture Variation :	2.400	2.200	0.100	2.500
Peak Converted Wet Density (t/m <sup>3</sup> ) :	2.0	2.1	2.0	2.0
Hilf Density Ratio (%) :	<b>102.0</b>	<b>104.5</b>	<b>101.0</b>	<b>102.5</b>
Minimum Specification :	98% Standard	98% Standard	98% Standard	98% Standard
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

 <p>The results of the tests in this report are traceable to Australian/National standards. Accredited for compliance with ISO/IEC 17025</p>	<p>APPROVED SIGNATORY</p>  <p>Daniel Pearce - Laboratory Manager          NATA Accreditation Number          18877</p>
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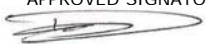


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 Drysdale VIC 3222

## Hilf Density Ratio Report

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Sample Number :	S-11573	S-11574	S-11575	S-11576
Test Number :				
Sampling Method :	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)
Date Sampled :	30/01/2015	30/01/2015	30/01/2015	30/01/2015
Date Tested :	30/01/2015	30/01/2015	30/01/2015	30/01/2015
Material Type :	Clayey Sand	Clayey Sand	Clayey Sand	Clayey Sand
Material Source :	Insitu	Insitu	Insitu	Insitu
Lot Number :				
Sample Location :	Fill Area Lot 44  L1	Fill Area Lot 44  L2	Fill Area Lot 45  L1	Fill Area Lot 45  L2
Test Depth (mm) :	175	175	175	175
Layer Depth (mm) :	200	200	200	200
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	0	0	0	0
Oversize Dry (%) :				
Oversize Density (t/m <sup>3</sup> ) :				
Field Moisture Content (%) :	8.9	15.2	10.0	10.4
Hilf MDR Number :	S-11573	S-11574	S-11575	S-11576
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1
Moisture Ratio (%) :	88.5	92.5	101	100
Field Wet Density (t/m <sup>3</sup> ) :	2.120	2.116	2.151	2.141
Optimum Moisture Content (%) :	10.100	16.400	9.900	10.400
Moisture Variation :	1.200	1.100	-0.100	0.000
Peak Converted Wet Density (t/m <sup>3</sup> ) :	2.1	2.1	2.2	2.2
Hilf Density Ratio (%) :	<b>99.0</b>	<b>99.0</b>	<b>98.5</b>	<b>99.0</b>
Minimum Specification :	98% Standard	98% Standard	98% Standard	98% Standard
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

 <p>The results of the tests in this report are traceable to Australian/National standards. Accredited for compliance with ISO/IEC 17025</p>	<p>APPROVED SIGNATORY</p>  <p>Daniel Pearce - Laboratory Manager          NATA Accreditation Number          18877</p>
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## Hilf Density Ratio Report

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Page 2 of 3

Sample Number :	S-11577	S-11578	S-11579	S-11580
Test Number :				
Sampling Method :	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)
Date Sampled :	30/01/2015	30/01/2015	30/01/2015	30/01/2015
Date Tested :	30/01/2015	30/01/2015	30/01/2015	30/01/2015
Material Type :	Clayey Sand	Clayey Sand	Clayey Sand	Clayey Sand
Material Source :	Insitu	Insitu	Insitu	Insitu
Lot Number :				
Sample Location :	Fill Area Lot 46  L1	Fill Area Lot 46  L2	Fill Area Lot 47  L1	Fill Area Lot 47  L2
Test Depth (mm) :	175	175	175	175
Layer Depth (mm) :	200	200	200	200
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	0	0	0	0
Oversize Dry (%) :				
Oversize Density (t/m <sup>3</sup> ) :				
Field Moisture Content (%) :	9.0	12.5	12.6	11.5
Hilf MDR Number :	S-11577	S-11578	S-11579	S-11580
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1
Moisture Ratio (%) :	98	97.5	107.5	104
Field Wet Density (t/m <sup>3</sup> ) :	2.160	2.120	2.151	2.128
Optimum Moisture Content (%) :	9.200	12.800	11.700	11.100
Moisture Variation :	0.200	0.300	-0.900	-0.500
Peak Converted Wet Density (t/m <sup>3</sup> ) :	2.2	2.2	2.2	2.2
Hilf Density Ratio (%) :	<b>99.0</b>	<b>98.0</b>	<b>98.5</b>	<b>98.0</b>
Minimum Specification :	98% Standard	98% Standard	98% Standard	98% Standard
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



The results of the tests in this report are traceable to Australian/National standards. Accredited for compliance with ISO/IEC 17025

APPROVED SIGNATORY


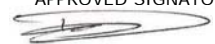


Daniel Pearce - Laboratory Manager  
NATA Accreditation Number  
18877

## Hilf Density Ratio Report

Client : <b>Fortunato Group</b> Address : <b>38A Merri Concourse, Campbellfield, VIC, 3061</b> Project Name : <b>Roses Estate</b> Project Number : <b>CS-129</b> Location: <b>Beaconsfield</b>	Report Number: <b>CS-129 - 8/1</b> Report Date : <b>4/02/2015</b> Order Number : <b>13-330-22</b> Test Method : <b>AS1289.5.7.1</b> <p style="text-align: right;"><b>Page 3 of 3</b></p>
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Sample Number :	S-11581	S-11582	S-11583	S-11584
Test Number :				
Sampling Method :	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)	AS1289.1.2.1 6.4(b)
Date Sampled :	30/01/2015	30/01/2015	30/01/2015	30/01/2015
Date Tested :	30/01/2015	30/01/2015	30/01/2015	30/01/2015
Material Type :	Clayey Sand	Clayey Sand	Clayey Sand	Clayey Sand
Material Source :	Insitu	Insitu	Insitu	Insitu
Lot Number :				
Sample Location :	Fill Area Lot 34  L1	Fill Area Lot 34  L2	Dam Backfill 8m E 5m N FL	Dam Backfill 8m E 3m N -500mm
Test Depth (mm) :	175	175	175	175
Layer Depth (mm) :	200	200	200	200
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	0	0	0	0
Oversize Dry (%) :				
Oversize Density (t/m <sup>3</sup> ) :				
Field Moisture Content (%) :	10.4	10.7	10.1	11.1
Hilf MDR Number :	S-11581	S-11582	S-11583	S-11584
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1	AS1289.5.7.1
Compactive Effort :	Standard	Standard	Standard	Standard
Field Density Method :	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1	AS1289.5.8.1
Moisture Method :	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1	AS1289.2.1.1
Moisture Ratio (%) :	90.5	91	83	87.5
Field Wet Density (t/m <sup>3</sup> ) :	2.118	2.120	2.020	2.031
Optimum Moisture Content (%) :	11.500	11.800	12.200	12.700
Moisture Variation :	1.100	1.100	2.100	1.600
Peak Converted Wet Density (t/m <sup>3</sup> ) :	2.1	2.1	2.1	2.1
Hilf Density Ratio (%) :	<b>99.0</b>	<b>99.0</b>	<b>98.0</b>	<b>98.0</b>
Minimum Specification :	98% Standard	98% Standard	98% Standard	98% Standard
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

 <p><b>NATA</b> WORLD RECOGNISED ACCREDITATION</p> <p>The results of the tests in this report are traceable to Australian/National standards. Accredited for compliance with ISO/IEC 17025</p>	<p style="text-align: center;">APPROVED SIGNATORY</p>  <p style="text-align: center;">Daniel Pearce - Laboratory Manager NATA Accreditation Number 18877</p>
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**Drysdale Laboratory**  
 Pearce Geotech Pty Ltd  
 8/19 Murradoc Road  
 Drysdale VIC 3222

## Hilf Density Ratio Report

Client : <b>Fortunato Group</b> Address : <b>38A Merri Concourse, Campbellfield, VIC, 3061</b> Project Name : <b>Roses Estate</b> Project Number : <b>CS-129</b> Location: <b>Beaconsfield</b>	Report Number: <b>CS-129 - 6/1</b> Report Date : <b>14/01/2015</b> Order Number : <b>13-330-22</b> Test Method : <b>AS1289.5.7.1</b>
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Page 2 of 2

Sample Number :	S-10884			
Test Number :				
Sampling Method :	AS1289.1.2.1 6.4(b)			
Date Sampled :	15/12/2014			
Date Tested :	15/12/2014			
Material Type :	Sandy Clay			
Material Source :	Insitu			
Lot Number :				
Sample Location :	Fill Area Lot 13  FL			
Test Depth (mm) :	175			
Layer Depth (mm) :	200			
Maximum Size (mm) :	19			
Oversize Wet (%) :	0			
Oversize Dry (%) :				
Oversize Density (t/m <sup>3</sup> ) :				
Field Moisture Content (%) :	7.4			
Hilf MDR Number :	S-10884			
Hilf MDR Method :	AS1289.5.7.1			
Compactive Effort :	Standard			
Field Density Method :	AS1289.5.8.1			
Moisture Method :	AS1289.2.1.1			
Moisture Ratio (%) :	74.5			
Field Wet Density (t/m <sup>3</sup> ) :	2.009			
Optimum Moisture Content (%) :	9.900			
Moisture Variation :	2.600			
Peak Converted Wet Density (t/m <sup>3</sup> ) :	2.0			
Hilf Density Ratio (%) :	<b>102.5</b>			
Minimum Specification :	98% Standard			
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

 <p style="text-align: center;">The results of the tests in this report are traceable to Australian/National standards. Accredited for compliance with ISO/IEC 17025</p>	<p>APPROVED SIGNATORY</p>  <p>Daniel Pearce - Laboratory Manager          NATA Accreditation Number          18877</p>
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