

Gold Coast Office
Job: GL16/129
Ref: 14956
Author: Ian Masman

8th December, 2016

Golding Contractors Pty Ltd
Po Box 1643
Milton Qld, 4064

ATTENTION: MR CAMERON MCCLURE
Email: Cameron.mcclure@golding.com.au

Dear Sir

**RE: LEVEL ONE EARTHWORKS COMPLIANCE REPORT
EARTHWORKS FILLING OPERATIONS
GAINSBOROUGH GREENS – PRECINCT 5.5
YAWALPAH ROAD, PIMPAMA**

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1.0 INTRODUCTION

1.1 General

This report presents results of Level One earthworks inspections, field testing and associated Compaction Compliance testing carried out on earthworks fill placed and compacted to form residential allotments and embankments below subgrade at Gainsborough Greens, Precinct 5.5, Yawalpah Road, Pimpama (The Site).

The work was commissioned by Mr. Cameron M^cClure representing Golding Contractors (The Client) using Purchase Order 4500205586.

The earthworks were carried out by The Client.

Earthworks operations were carried out intermittently between 18th August 2016 and 25th October 2016.

1.2 Previous Earthworks

As far as can be determined, there were no previous earthworks at The Site.

1.3 The Project

The proposed development at The Site includes residential allotments, new pavements and associated underground service networks.

Earthworks filling was required to form building platforms supporting proposed residences, and embankments below subgrade to support future pavements. Earthworks construction at The Site included stripping vegetation, organics and topsoil; proof roll testing of the natural ground surface, and then filling The Site to the project design level.

The Site is bounded by undeveloped land to the North, new developments to the South, an existing development to the West, and wetlands to the East.

Picture 1: Aerial View of the Site (Image Source: Nearmap.com, showing 17th May, 2016).



2.0 THE BRIEF

The Brief from the Client was limited to:

- Level One Inspections of the placement and compaction of fill materials between the existing ground level and the design earthworks level 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.
- City of Gold Coast Council Requirements.
- Notes on KN Group project drawings.

All other design requirements such as CBR and Quality of Materials, site classifications, material assessments, foundation assessments and slope / global stability appraisals were not included in the Brief and are therefore excluded from this Report.

KN Group Earthworks Contour Plans 15-184-07C & 15-184-08B, indicate the extents of fill to be constructed at The Site. The plans are considered to be a reasonable indication of the actual fill constructed during our involvement.

For confirmation of the actual thickness of fill on an individual lot, a Lot Disclosure Plan can be requested from the Developer.

2.1 Additional Requirements

Morrison Geotechnic was not engaged to carry out additional works other than what was outlined in the Brief.

3.0 METHODOLOGY

Earthworks Inspections and Testing was carried out on the stripped and exposed ground surface and during the placement and compaction of fill materials forming residential allotments and road embankments.

Field and laboratory testing included walk over assessments of the existing ground conditions, proof roll testing of the stripped surfaces, including the natural surfaces, observations of filling and compaction activities, field density testing using a soil moisture density gauge and Hilf Density compactions.

3.1 Stripped Surface Assessment

The Site had been cleared of all debris, trees and topsoil. Visible organic matter, uncompacted or loose soil, unsuitable materials and any over wet areas were removed to expose a natural foundation.

The materials exposed after stripping and clearing the site which formed the fill foundation can be broadly summarized as:

- Natural – Sandy Clay (CI - CH), very Stiff, medium to high plasticity, fine to medium grained sand, yellow / brown, moist.
- Natural – Rock (XW) Extremely weathered and very low strength, grey / yellow/ brown.

The stripped surface was proof rolled by The Client in the presence of our Geotechnicians using a loaded articulated sump truck carrying out multiple passes. Areas where movements were observed beneath the wheels of the plant were removed to a suitable base or tyned, air dried to approximate optimum moisture content and re-compacted. After the above treatments were carried out, the proof rolling process was repeated.

When no visible movement or vertical deflection was observed during proof roll testing, the stripped surface was assessed to be suitable as a foundation for the placement of fill.

Any ponds or dams were dewatered and all wet silts clays and other deleterious materials were removed to a suitable base.

Picture 2: View of the Stripping Operations Prior to the Placement of Fill



3.2 Filling Operations

Fill materials were sourced from cut areas at The Site.

Materials used as fill at The Site can be summarized as: -

- Onsite – (CI – CH) Sandy Clay, medium to high plasticity, fine to medium sand, yellow/brown, moist.

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

- Dozer
- Water Truck
- Excavator
- 815 Compactor
- Pad Foot Roller
- Articulated Dump Trucks

The fill was placed in layers appropriate for the above plant, moisture conditioned at the fill source and during placement and thoroughly mixed to achieve moisture contents suitable for compaction.

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

Field density tests and laboratory compactions were carried out on the fill materials at frequencies 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 under this Job Number for the recent works achieved the required compaction specification of 95% standard Hilf compaction.

Picture 3: Site Earthworks Filling Operations



The location of the field density tests are shown on the Site Plan contained in Appendix A.

The results of the field density and laboratory compaction tests are contained in Appendix B.

These test locations and levels were not obtained by survey and are therefore should only be considered as approximate.

4.0 STATEMENT OF COMPLIANCE

Our representatives observed the relevant earthworks operations during our engagement including the stripped surface, fill placement and compaction operations and carried out field density tests and laboratory compaction tests in accordance with The Brief.

The fill at The Site has been observed to be placed and compacted in a controlled manner and can be termed "Controlled" as defined in AS2870 (Residential Slabs and Footings).

5.0 EXCLUSIONS

The compliance statement excludes any top soil, which may be placed for use as Lot dressing or any other subsequent earthworks after 25th October 2016. All trench backfill, landscaping fill and other fill placed without our knowledge is also excluded.

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

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

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.

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

In some cases, fill materials with high silt content can deteriorate in wet weather conditions resulting in allowable bearing pressures less than 100 kPa

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 Golding Contractors Pty Ltd (Client), its designers, clients and relevant statutory authorities for the sole purpose of providing geotechnical advice and recommendations in respect of Gainsborough Greens, Precinct 5.5 Yawalpah Road, Pimpama Development (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 relied upon for assessing fill extents and thicknesses.

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 the 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.

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- (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 Mr. Ian Masman at our Gold Coast office.



Ian Masman

For and on behalf of

MORRISON GEOTECHNIC PTY LIMITED



M. D. RILEY (RPEQ 5641)

ATTACHMENTS:

Appendix A – Site Plan Showing Test Locations

Appendix B – Test Reports

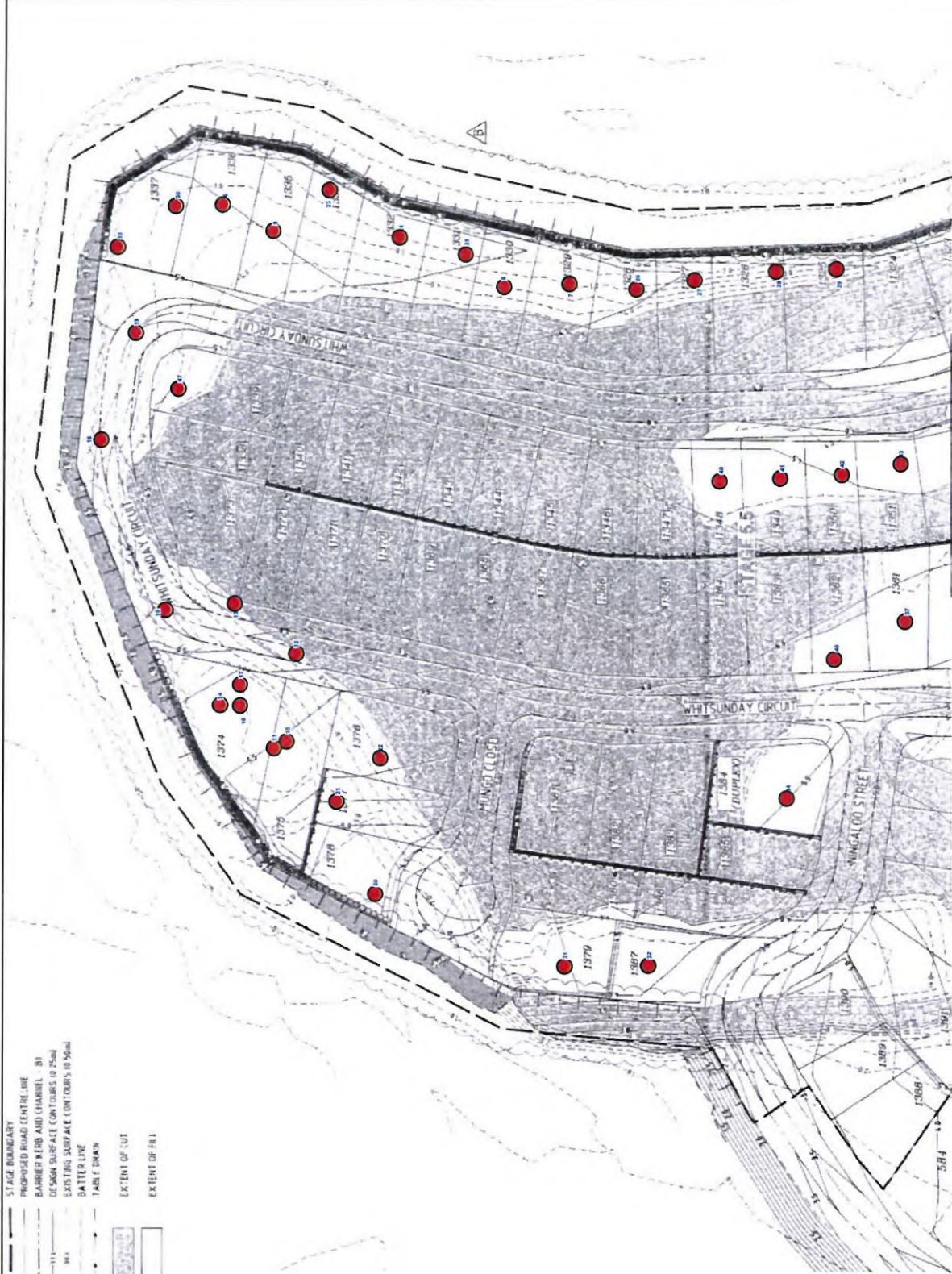
Appendix C – Photo Gallery

APPENDIX 'A'

(Site Plan showing Test Locations)



- STAGE BOUNDARY
- PROPOSED ROAD CENTRE LINE
- BARRIER KERB AND CHANNEL - B1
- DESIGN SURFACE CONTOURS (0.25m)
- EXISTING SURFACE CONTOURS (0.5m)
- BATTER LINE
- TABLE DIMAS
- EXTENT OF CUT
- EXTENT OF FILL



CONTOUR PLAN REFER KN DWG 15-184-07

ABN: 51 009 878 899
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 Email: goldcoastlab@morrisongeo.com.au Fax: 5527 2027
 Engineers: D.Riley, J.Daly, S.Wynne, D.Dragun, B.Taylor
 D.Vanderhor & B.Elsmore
 Geologists: L.Bexley & R.Howchin

MORRISON
GEOTECHNIC



Map Description : **Field Density Test Locations (Sheet 1 of 2)**

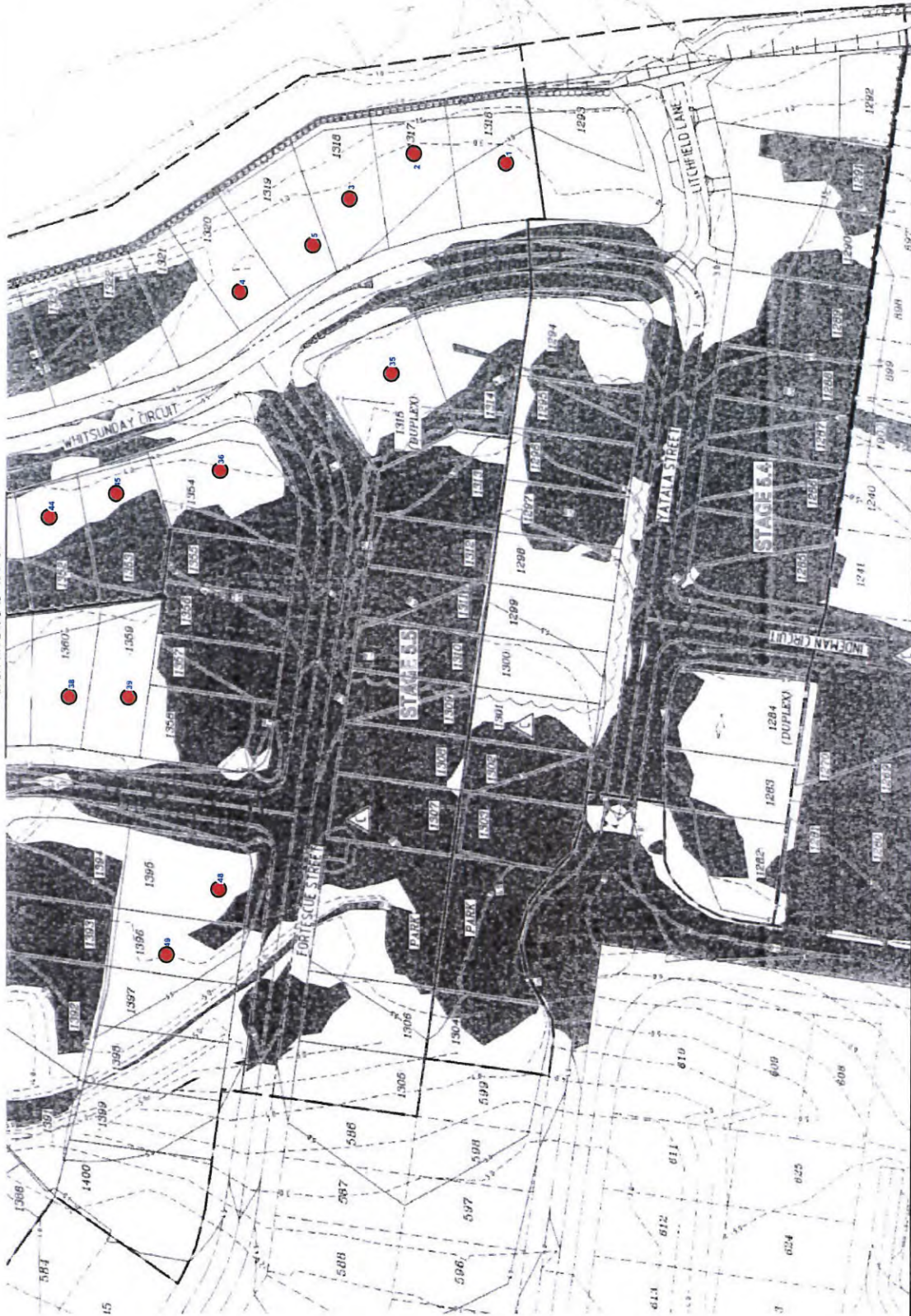
Client : **Golding Contractors Pty Ltd**

Project : **Gainsborough Greens Precinct 5, Stage 5.5,
 Yawalpah Road, Pimpama**

Project No : **GL16/129** Date: **8/12/16** Scale : Not to Scale



REFER KN DWG 15-184-08



Map Description :	Field Density Test Locations (Sheet 2 of 2)
Client :	Golding Contractors Pty Ltd
Project :	Gainsborough Greens Precinct 5, Stage 5.5, Yawalpah Road, Pimpama
Project No. :	GL16/129
Date :	8/12/16
Scale :	Not to Scale

ABN: 51 009 878 899
 Unit 1/5 Brendan Drive Nerang 4211 Ph: 5596 1599
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 Engineers: D.Riley, J.Daly, S.Wynne, D.Dragun, B.Taylor
 D.Vanderhor & B.Elsmore
 Geologists: L.Bexley & R.Howchin



APPENDIX 'B'

(Laboratory Test Results)

Hilf Density Ratio Report

Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.1/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	29/08/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	221929	221930	221931	
Test Number :	1	2	3	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	22/08/2016	22/08/2016	22/08/2016	
Date Tested :	22/08/2016	22/08/2016	22/08/2016	
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	ONSITE	
Lot Number :	1316	1317	1318	
Sample Location :	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL	
Test Depth (mm) :	150	150	150	
Layer Depth (mm) :	-	-	-	
Maximum Size (mm) :	19	19	19	
Oversize Wet (%) :	-	-	-	
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	17.4	17.9	18.3	
Hilf MDR Number :	221929	221930	221931	
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 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	99.5	100.5	101.5	
Field Wet Density (t/m ³) :	2.000	2.020	2.020	
Optimum Moisture Content (%) :	17.5	17.8	18.0	
Moisture Variation :	0.1	-0.1	-0.2	
Peak Converted Wet Density (t/m ³) :	1.970	2.000	1.980	
Hilf Density Ratio (%) :	101.0	101.0	102.0	
Minimum Specification :	95	95	95	
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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NATA Accreditation Number
1169

Hilf Density Ratio Report

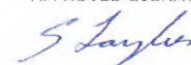
Client : GOLDING CONTRACTORS	Report Number: GL16-129.2/1
Address : Po Box 65, Arundel BC, QLD, 4214	Report Date : 30/08/2016
Project Name : GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :
Project Number : GL16/129	Test Method : AS1289.5.8.1 & 5.7.1
Location: SWAN ROAD , PIMPAMA	Page 1 of 1

Sample Number :	221987	221988	221989	222028
Test Number :	4	5	6	9
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	23/08/2016	23/08/2016	23/08/2016	23/08/2016
Date Tested :	23/08/2016	23/08/2016	23/08/2016	23/08/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	ON SITE
Material Source :	ONSITE	ONSITE	ONSITE	GENERAL FILL
Lot Number :	1320	1319	1336	1335
Sample Location :	REFER TO SITE PLAN 0.5m BELOW FL	REFER TO SITE PLAN 0.5m BELOW FL	REFER TO SITE PLAN 1.9m BELOW FL	REFER TO SITE PLAN 1.8m BELOW FL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	20.2	20.5	21.5	21.5
Hilf MDR Number :	221987	221988	221989	222028
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 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	97.5	103.5	104	103.5
Field Wet Density (t/m ³) :	1.940	1.960	1.960	1.930
Optimum Moisture Content (%) :	20.7	19.8	20.7	20.7
Moisture Variation :	0.5	-0.7	-0.8	-0.7
Peak Converted Wet Density (t/m ³) :	1.950	1.960	1.980	1.980
Hilf Density Ratio (%) :	100.0	100.0	98.5	97.5
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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Hilf Density Ratio Report

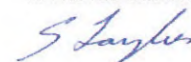
Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.3/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	30/08/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	221990	221991	
Test Number :	7	8	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	23/08/2016	23/08/2016	
Date Tested :	23/08/2016	23/08/2016	
Material Type :	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	
Lot Number :	1329	1330	
Sample Location :	REFER TO SITE PLAN 1.5m BELOW FL	REFER TO SITE PLAN 1.5m BELOW FL	
Test Depth (mm) :	150	150	
Layer Depth (mm) :	-	-	
Maximum Size (mm) :	19	19	
Oversize Wet (%) :	-	-	
Oversize Dry (%) :			
Oversize Density (t/m ³) :			
Field Moisture Content (%) :	22.5	21.5	
Hilf MDR Number :	221990	221991	
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	
Compactive Effort :	Standard	Standard	
Field Density Method :	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	102.5	103.5	
Field Wet Density (t/m ³) :	1.990	1.970	
Optimum Moisture Content (%) :	21.9	20.7	
Moisture Variation :	-0.6	-0.7	
Peak Converted Wet Density (t/m ³) :	1.950	1.980	
Hilf Density Ratio (%) :	102.0	99.5	
Minimum Specification :	95	95	
Moisture Specification :			
Site Selection :			
Soil Description :			
Remarks :	-		



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Hilf Density Ratio Report

Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.4/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	12/09/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	222349	222350	222351	222352
Test Number :	10	11	12	13
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	6/09/2016	6/09/2016	6/09/2016	6/09/2016
Date Tested :	6/09/2016	6/09/2016	6/09/2016	6/09/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1374	1375		
Sample Location :	REFER TO SITE PLAN 3m BELOW FL	REFER TO SITE PLAN 4m BELOW FL	REFER TO SITE PLAN 0.5m BELOW FL	REFER TO SITE PLAN FINISHED LEVEL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	150	150	150	150
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	17.3	15.2	16.0	17.1
Hilf MDR Number :	222349	222350	222351	222352
Hilf MDR Method :	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 5.7.1	AS1289.5.1.1 & 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 :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	87	86	98.5	88.5
Field Wet Density (t/m ³) :	2.010	2.030	2.020	1.990
Optimum Moisture Content (%) :	19.9	17.7	16.2	19.3
Moisture Variation :	2.5	2.4	0.2	2.2
Peak Converted Wet Density (t/m ³) :	1.990	2.030	2.060	1.990
Hilf Density Ratio (%) :	101.0	100.0	98.0	100.0
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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Hilf Density Ratio Report

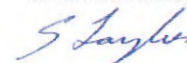
Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.5/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	13/09/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	222448	222449	
Test Number :	14	15	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	7/09/2016	7/09/2016	
Date Tested :	7/09/2016	7/09/2016	
Material Type :	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	
Lot Number :	1374	1375	
Sample Location :	REFER TO SITE PLAN 2m BELOW FL	REFER TO SITE PLAN 2m BELOW FL	
Test Depth (mm) :	150	150	
Layer Depth (mm) :	-	-	
Maximum Size (mm) :	19	19	
Oversize Wet (%) :	-	-	
Oversize Dry (%) :			
Oversize Density (t/m ³) :			
Field Moisture Content (%) :	16.3	17.7	
Hilf MDR Number :	222448	222449	
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	
Compactive Effort :	Standard	Standard	
Field Density Method :	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	
Moisture Method :			
Moisture Ratio (%) :	100	100.5	
Field Wet Density (t/m ³) :	2.030	2.040	
Optimum Moisture Content (%) :	16.3	17.6	
Moisture Variation :	0.0	-0.1	
Peak Converted Wet Density (t/m ³) :	2.040	2.040	
Hilf Density Ratio (%) :	99.5	100.5	
Minimum Specification :	95	95	
Moisture Specification :			
Site Selection :			
Soil Description :			
Remarks :	-		



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Hilf Density Ratio Report

Client : GOLDING CONTRACTORS Address : Po Box 65, Arundel BC, QLD, 4214 Project Name : GAINSBOROUGH GREENS - PRECINCT 5.5 Project Number : GL16/129 Location : SWAN ROAD , PIMPAMA	Report Number: GL16-129.6/1 Report Date : 13/09/2016 Order Number : Test Method : AS1289.5.8.1 & 5.7.1 <p style="text-align: right;">Page 1 of 1</p>
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Sample Number :	222481	222482		
Test Number :	16	17		
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4		
Date Sampled :	8/09/2016	8/09/2016		
Date Tested :	8/09/2016	8/09/2016		
Material Type :	GENERAL FILL	GENERAL FILL		
Material Source :	ONSITE	ONSITE		
Lot Number :		1374		
Sample Location :	REFER TO SITE PLAN 1m BELOW FL	REFER TO SITE PLAN 1.5m BELOW FL		
Test Depth (mm) :	150	150		
Layer Depth (mm) :	-	-		
Maximum Size (mm) :	19	19		
Oversize Wet (%) :	-	-		
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	13.3	12.6		
Hilf MDR Number :	222481	222482		
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1		
Compactive Effort :	Standard	Standard		
Field Density Method :	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1		
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1		
Moisture Ratio (%) :	96	88.5		
Field Wet Density (t/m ³) :	2.060	2.020		
Optimum Moisture Content (%) :	13.8	14.3		
Moisture Variation :	0.6	1.7		
Peak Converted Wet Density (t/m ³) :	1.980	1.990		
Hilf Density Ratio (%) :	104.5	101.5		
Minimum Specification :	95	95		
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			

 <p style="text-align: center;">Accredited for compliance with ISO/IEC 17025 - Testing.</p>	<p style="text-align: center;">APPROVED SIGNATORY</p> <p style="text-align: center;"><i>G Taylor</i></p> <p style="text-align: center;">GARY TAYLOR (Gold Coast) - WORKS SUPERVISOR NATA Accreditation Number 1169</p>
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Hilf Density Ratio Report

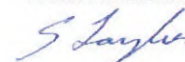
Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.7/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	15/09/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	222597	222598	
Test Number :	18	19	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	9/09/2016	9/09/2016	
Date Tested :	9/09/2016	9/09/2016	
Material Type :	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	
Lot Number :			
Sample Location :	REFER TO SITE PLAN 1.5m BELOW SG	REFER TO SITE PLAN 1m BELOW SG	
Test Depth (mm) :	150	150	
Layer Depth (mm) :	-	-	
Maximum Size (mm) :	19	19	
Oversize Wet (%) :	-	-	
Oversize Dry (%) :			
Oversize Density (t/m ³) :			
Field Moisture Content (%) :	15.2	15.3	
Hilf MDR Number :	222597	222598	
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	
Compactive Effort :	Standard	Standard	
Field Density Method :	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	88.5	87.5	
Field Wet Density (t/m ³) :	2.010	2.000	
Optimum Moisture Content (%) :	17.2	17.5	
Moisture Variation :	1.9	2.2	
Peak Converted Wet Density (t/m ³) :	1.990	1.990	
Hilf Density Ratio (%) :	100.5	100.5	
Minimum Specification :	95	95	
Moisture Specification :			
Site Selection :			
Soil Description :			
Remarks :			



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Hilf Density Ratio Report

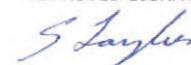
Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.8/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	20/09/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	222882	222883	223042
Test Number :	20	21	22
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	15/09/2016	15/09/2016	15/09/2016
Date Tested :	15/09/2016	15/09/2016	15/09/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE
Lot Number :	1378	1377	1376
Sample Location :	REFER TO SITE PLAN 1.7m BELOW FL	REFER TO SITE PLAN 1.2m BELOW FL	REFER TO SITE PLAN 0.7m BELOW FL
Test Depth (mm) :	150	150	150
Layer Depth (mm) :	-	-	-
Maximum Size (mm) :	19	19	19
Oversize Wet (%) :	-	-	-
Oversize Dry (%) :			
Oversize Density (t/m ³) :			
Field Moisture Content (%) :	14.5	13.9	15.1
Hilf MDR Number :	222882	222883	223042
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 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	101.5	103.5	86.5
Field Wet Density (t/m ³) :	2.020	2.020	2.040
Optimum Moisture Content (%) :	14.3	13.4	17.4
Moisture Variation :	-0.2	-0.5	2.2
Peak Converted Wet Density (t/m ³) :	2.040	2.060	2.040
Hilf Density Ratio (%) :	99.0	98.0	100.0
Minimum Specification :	95	95	95
Moisture Specification :			
Site Selection :			
Soil Description :			
Remarks :	-		



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Hilf Density Ratio Report

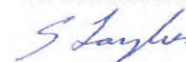
Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.9/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	6/10/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	223660	223661	223662	223663
Test Number :	23	24	25	26
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	30/09/2016	30/09/2016	30/09/2016	30/09/2016
Date Tested :	30/09/2016	30/09/2016	30/09/2016	30/09/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1333	1332	1331	1328
Sample Location :	REFER TO SITE PLAN 1.7m BELOW FL	REFER TO SITE PLAN 1m BELOW FL	REFER TO SITE PLAN 1.5m BELOW FL	REFER TO SITE PLAN 0.5m BELOW FL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	10.2	8.9	9.9	9.7
Hilf MDR Number :	223660	223661	223662	223663
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 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	88	82	86	85
Field Wet Density (t/m ³) :	2.120	2.160	2.130	2.150
Optimum Moisture Content (%) :	11.6	10.8	11.5	11.4
Moisture Variation :	1.4	2.0	1.7	1.8
Peak Converted Wet Density (t/m ³) :	2.130	2.120	2.130	2.100
Hilf Density Ratio (%) :	99.5	102.0	100.0	102.0
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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Hilf Density Ratio Report

Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.10/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	6/10/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

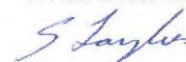
Sample Number :	223664	223665	223746
Test Number :	27	28	29
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	30/09/2016	30/09/2016	30/09/2016
Date Tested :	30/09/2016	30/09/2016	30/09/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE
Lot Number :	1327	1326	1325
Sample Location :	REFER TO SITE PLAN 1m BELOW FL	REFER TO SITE PLAN 0.5m BELOW FL	REFER TO SITE PLAN FINISHED LEVEL
Test Depth (mm) :	150	150	150
Layer Depth (mm) :	-	-	-
Maximum Size (mm) :	19	19	19
Oversize Wet (%) :	-	-	4
Oversize Dry (%) :			
Oversize Density (t/m ³) :			2.488
Field Moisture Content (%) :	9.3	10.2	11.2
Hilf MDR Number :	223664	223665	223746
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 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	79.5	81.5	84
Field Wet Density (t/m ³) :	2.160	2.140	2.140
Optimum Moisture Content (%) :	11.7	12.5	13.3
Moisture Variation :	2.4	2.3	2.1
Peak Converted Wet Density (t/m ³) :	2.070	2.080	2.14*
Hilf Density Ratio (%) :	104.5	103.0	100.0
Minimum Specification :	95	95	95
Moisture Specification :			
Site Selection :			
Soil Description :			
Remarks :	-		

* - denotes adjusted for oversize



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Hilf Density Ratio Report

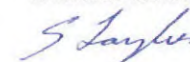
Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.11/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	19/10/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	224022	224023	224024	224025
Test Number :	30	31	32	33
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	11/10/2016	11/10/2016	11/10/2016	11/10/2016
Date Tested :	11/10/2016	11/10/2016	11/10/2016	11/10/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1337	1379	1387	1337
Sample Location :	REFER TO SITE PLAN 1m BELOW FL	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN 0.5m BELOW FL	REFER TO SITE PLAN FINISHED LEVEL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	16.5	14.2	15.4	16.4
Hilf MDR Number :	224022	224023	224024	224025
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 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	99.5	100	99	99
Field Wet Density (t/m ³) :	2.180	2.200	2.180	2.200
Optimum Moisture Content (%) :	16.6	14.2	15.6	16.6
Moisture Variation :	0.1	0.0	0.1	0.2
Peak Converted Wet Density (t/m ³) :	2.090	2.150	2.140	2.070
Hilf Density Ratio (%) :	104.0	102.5	101.5	106.0
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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Hilf Density Ratio Report

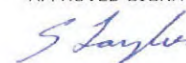
Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.12/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	19/10/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	224026	224027	224028	224029
Test Number :	34	35	36	37
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	11/10/2016	11/10/2016	11/10/2016	11/10/2016
Date Tested :	11/10/2016	11/10/2016	11/10/2016	11/10/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1384	1315	1354	1361
Sample Location :	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	13.0	14.0	15.6	17.1
Hilf MDR Number :	224026	224027	224028	224029
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 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	85	97	95.5	95.5
Field Wet Density (t/m ³) :	2.170	2.190	2.170	2.190
Optimum Moisture Content (%) :	15.3	14.4	16.3	17.9
Moisture Variation :	2.2	0.5	0.7	0.8
Peak Converted Wet Density (t/m ³) :	2.100	2.090	2.090	2.090
Hilf Density Ratio (%) :	103.0	104.5	103.5	105.0
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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Hilf Density Ratio Report

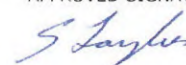
Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.13/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	19/10/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	224030	224031	
Test Number :	38	39	
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	
Date Sampled :	11/10/2016	11/10/2016	
Date Tested :	11/10/2016	11/10/2016	
Material Type :	GENERAL FILL	GENERAL FILL	
Material Source :	ONSITE	ONSITE	
Lot Number :	1360	1359	
Sample Location :	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL	
Test Depth (mm) :	150	150	
Layer Depth (mm) :	-	-	
Maximum Size (mm) :	19	19	
Oversize Wet (%) :	-	-	
Oversize Dry (%) :			
Oversize Density (t/m ³) :			
Field Moisture Content (%) :	12.4	17.2	
Hilf MDR Number :	224030	224031	
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1	
Compactive Effort :	Standard	Standard	
Field Density Method :	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	
Moisture Ratio (%) :	84	101	
Field Wet Density (t/m ³) :	2.180	2.180	
Optimum Moisture Content (%) :	14.7	17.0	
Moisture Variation :	2.3	-0.1	
Peak Converted Wet Density (t/m ³) :	2.130	2.130	
Hilf Density Ratio (%) :	102.0	102.5	
Minimum Specification :	95	95	
Moisture Specification :			
Site Selection :			
Soil Description :			
Remarks :	-		



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NATA Accreditation Number
1169

Hilf Density Ratio Report


Client :	GOLDING CONTRACTORS	Report Number:	GL16-129.14/1
Address :	Po Box 65, Arundel BC, QLD, 4214	Report Date :	3/11/2016
Project Name :	GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :	
Project Number :	GL16/129	Test Method :	AS1289.5.8.1 & 5.7.1
Location:	SWAN ROAD , PIMPAMA	Page 1 of 1	

Sample Number :	224703	224704	224705	224706
Test Number :	40	41	42	43
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	25/10/2016	25/10/2016	25/10/2016	25/10/2016
Date Tested :	25/10/2016	25/10/2016	25/10/2016	25/10/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1348	1349	1350	1351
Sample Location :	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	18.2	19.1	19.1	19.7
Hilf MDR Number :	224703	224704	224705	224706
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 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	100	99.5	99.5	99.5
Field Wet Density (t/m ³) :	1.940	1.920	1.910	1.930
Optimum Moisture Content (%) :	18.2	19.2	19.2	19.8
Moisture Variation :	0.0	0.1	0.1	0.1
Peak Converted Wet Density (t/m ³) :	1.960	1.960	1.970	1.980
Hilf Density Ratio (%) :	99.0	98.0	97.0	97.5
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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Hilf Density Ratio Report

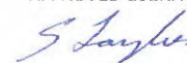
Client : GOLDING CONTRACTORS	Report Number: GL16-129.15/1
Address : Po Box 65, Arundel BC, QLD, 4214	Report Date : 3/11/2016
Project Name : GAINSBOROUGH GREENS - PRECINCT 5.5	Order Number :
Project Number : GL16/129	Test Method : AS1289.5.8.1 & 5.7.1
Location: SWAN ROAD , PIMPAMA	Page 1 of 1

Sample Number :	224707	224708	224709	224710
Test Number :	44	45	46	47
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4
Date Sampled :	25/10/2016	25/10/2016	25/10/2016	25/10/2016
Date Tested :	25/10/2016	25/10/2016	25/10/2016	25/10/2016
Material Type :	GENERAL FILL	GENERAL FILL	GENERAL FILL	GENERAL FILL
Material Source :	ONSITE	ONSITE	ONSITE	ONSITE
Lot Number :	1352	1353	1362	1339
Sample Location :	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL
Test Depth (mm) :	150	150	150	150
Layer Depth (mm) :	-	-	-	-
Maximum Size (mm) :	19	19	19	19
Oversize Wet (%) :	-	-	-	-
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	16.8	18.5	18.6	18.6
Hilf MDR Number :	224707	224708	224709	224710
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 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1	AS 1289.2.1.1
Moisture Ratio (%) :	100	99	99	99.5
Field Wet Density (t/m ³) :	1.920	1.930	1.910	1.910
Optimum Moisture Content (%) :	16.8	18.7	18.8	18.7
Moisture Variation :	0.0	0.2	0.2	0.1
Peak Converted Wet Density (t/m ³) :	1.960	1.960	1.980	1.970
Hilf Density Ratio (%) :	97.5	98.5	96.5	97.0
Minimum Specification :	95	95	95	95
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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Hilf Density Ratio Report

Client : GOLDING CONTRACTORS Address : Po Box 65, Arundel BC, QLD, 4214 Project Name : GAINSBOROUGH GREENS - PRECINCT 5.5 Project Number : GL16/129 Location : SWAN ROAD , PIMPAMA	Report Number: GL16-129.16/1 Report Date : 3/11/2016 Order Number : Test Method : AS1289.5.8.1 & 5.7.1 <p style="text-align: right;">Page 1 of 1</p>
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Sample Number :	224711	224712		
Test Number :	48	49		
Sampling Method :	AS1289.1.2.1 CL. 6.4	AS1289.1.2.1 CL. 6.4		
Date Sampled :	25/10/2016	25/10/2016		
Date Tested :	25/10/2016	25/10/2016		
Material Type :	GENERAL FILL	GENERAL FILL		
Material Source :	ONSITE	ONSITE		
Lot Number :	1395	1396		
Sample Location :	REFER TO SITE PLAN FINISHED LEVEL	REFER TO SITE PLAN FINISHED LEVEL		
Test Depth (mm) :	150	150		
Layer Depth (mm) :	-	-		
Maximum Size (mm) :	19	19		
Oversize Wet (%) :	-	-		
Oversize Dry (%) :				
Oversize Density (t/m ³) :				
Field Moisture Content (%) :	17.8	19.4		
Hilf MDR Number :	224711	224712		
Hilf MDR Method :	AS1289.5.7.1	AS1289.5.7.1		
Compactive Effort :	Standard	Standard		
Field Density Method :	AS1289.5.8.1 & 5.7.1	AS1289.5.8.1 & 5.7.1		
Moisture Method :	AS 1289.2.1.1	AS 1289.2.1.1		
Moisture Ratio (%) :	100	99		
Field Wet Density (t/m ³) :	1.900	1.920		
Optimum Moisture Content (%) :	17.8	19.6		
Moisture Variation :	0.0	0.1		
Peak Converted Wet Density (t/m ³) :	1.980	1.970		
Hilf Density Ratio (%) :	96.0	97.5		
Minimum Specification :	95	95		
Moisture Specification :				
Site Selection :				
Soil Description :				
Remarks :	-			



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APPENDIX 'C'

(Photo Gallery)



