

WORKS INSPECTION & TESTING Bulk Earthworks

**PROPOSED
RESIDENTIAL
DEVELOPMENT**

**(STAGE 1) 409-429
PARK RIDGE ROAD**

PARK RIDGE

JOB NO: P743 comp01



Prepared for CCA Winslow

18th September 2017

Document Information

Prepared for CCA Winslow
Project Name Proposed Residential Development – (Stage 1) 409-429
Park Ridge Road, Park Ridge
Job Number P743
Date 18th September 2017

Document Control

Document Control - This Document Is:- ORIGINAL ☐ COPY ☐

Report ID	Date	Author	Reviewer			
P743 comp 01	18/9/2017	Wayne Gorman	Ben Gibson			
Distributed to:			No.	Original	Copy	Electronic
CCA Winslow			3	✓	✓	✓
Construction Sciences - Archives			2		✓	✓

Contact : Wayne Gorman
wayne.gorman@constructionsciences.net
PO Box 2789
NERANG QLD 4211
Ph: 07 5597 2720

© Construction Sciences 2017. Copyright in the whole and every part of this document belongs to CS and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person other than by agreement with CS.

This document is produced by CS solely for the benefit and use by the client in accordance with the terms of the engagement. CS does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document.

Table of Contents

INTRODUCTION	4
SCOPE OF WORKS	4
Level 1	
SPECIFICATION REQUIREMENTS	4
SITE WORKS - BULK EARTHWORKS	5
General	
Compaction Control Testing	
Engineer Inspection	
CONCLUSION	6
 SITE PHOTOGRAPHS	

Appendices

- Appendix A Bulk Earthworks - Compaction**
- Appendix B Engineer Inspection**

INTRODUCTION

Cardno Construction Sciences was commissioned by **CCA Winslow** to carry out the geotechnical inspection and testing required for the proposed residential development at 409-429 Park Ridge Road, Park Ridge which was carried out from the 31st July to 12th September 2017.

SCOPE OF WORKS

Works on this development were monitored in accordance with the scope of our commission as follows:-

Level 1 : Bulk earthworks stripping and filling was inspected and tested on a Level 1 basis, in accordance with AS 3798.

Scope of Level 1 responsibility: ***“The primary objective of Level 1 Inspection and Testing is for the geotechnical inspection and testing authority (GITA) to be able to express an opinion on the compliance of the work. The GITA is responsible for ensuring that the inspection and testing is sufficient for this purpose.***

The GITA needs to have competent personnel on site at all times while earthwork operations are undertaken. Such operations include the following:

- (a) ***Completion of removal of topsoil.***
- (b) ***Placing of imported or cut material.***
- (c) ***Compaction and adding/removal of moisture.***
- (d) ***Trenching and backfilling, where applicable.***
- (e) ***Test rolling.***
- (f) ***Testing.***

The superintendent should agree on a suitable inspection and testing plan prior to the commencement of the works”.

reference AS3798 – Section 8.2

SPECIFICATION REQUIREMENTS

Earthworks on this development was inspected and tested in accordance with the specification of the design engineer, **Bradlees** and / or to the specifications of the local authority, **Logan City Council**.

The following table is a summary of the basic compaction and quality requirements for the project.

Testing procedures used to confirm that these requirements were met were all in accordance with Australian Standard test methods.

SPECIFICATIONS	
<i>Item</i>	<i>Minimum Compaction Requirement</i>
<i>Bulk Earthworks Fill</i>	<i>95% Dry Density Ratio - Standard</i>

SITE WORKS - BULK EARTHWORKS

General : Full time site inspection was maintained in accordance with Level 1 requirements whilst earthworks were carried out on this development. Fill areas included residential allotments, a bio retention basin, roads and embankments.

The areas to be filled were stripped and proof rolled in accordance with the specification requirements. Areas displaying instability were generally excavated until competent conditions were encountered. Benching was provided on slopes where filling was to be placed.

The natural ground in the areas of filling generally comprised medium to high plasticity residual clays, silty or sandy clays and weathered rock.

The material used in the bulk earthworks filling was sourced from site cutting to design levels.

Construction equipment on site during the stripping and placement of fills included the following:

1 x 815F Cat Compactor	2 x Cat 637G Scrapers	1 x Cat D6 Dozer
1 x Komatsu Dozer	1 x Cat Excavator	1 x Cat Padfoot Roller
2 x Moxy Trucks	1 x water cart	

The above list includes equipment employed on the project but not necessarily all at any one time.

Compaction Control Testing : Compaction control testing via the nuclear densometer method was carried out at regular intervals throughout the placement of fill, in accordance with the minimum test frequency recommendations included in AS3798 "Guidelines on Earthworks for Commercial and Residential Developments".

All test results are included in Appendix A. A summary of the test results is included as Table 1. A total of 41 field density tests were carried out throughout the earthworks. The average dry density ratio was recorded to be 100.3%.

Engineer Inspection : An engineer inspection was carried out on the 31st July 2017 after concerns were raised over existing groundwater encountered at the north-western section of the development. For detailed geotechnical recommendations and advice refer to inspection report included in attached Appendix B.

CONCLUSION

We confirm that:

- (a) Our representative was in full time site attendance whilst bulk earthworks filling was in progress between 31st July to 12th September 2017 at :- 409-429 Park Ridge Road, Park Ridge.
- (b) Pre – fill ground preparation was carried out in accordance with the specifications and site instruction given.
- (c) The structural filling placed to design levels (per supplied construction drawing numbers 116460-01-D to 11640-54-B) during the term of our engagement on a “Level 1” basis can be termed “controlled filling”.
- (d) The results of the compaction control testing indicate that the fill placed during the term of our site attendance, was compacted to at least the minimum specified dry density ratio.
- (f) All test results pertaining to the development are included within appendix A and B of this report.

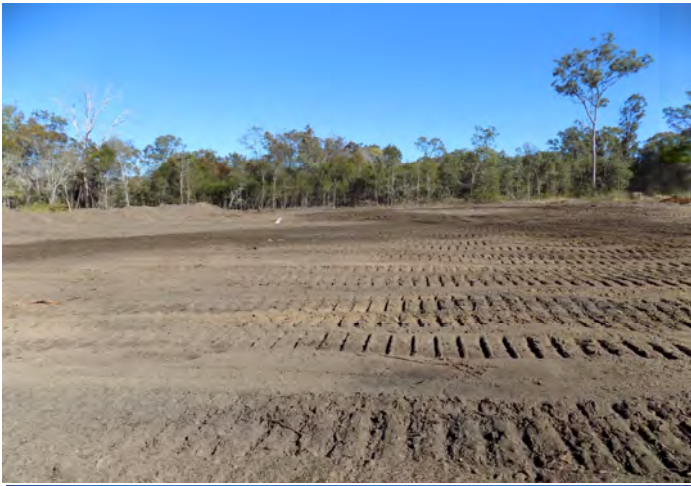


WAYNE GORMAN
LABORATORY MANAGER
Construction Sciences















APPENDIX

A

BULK EARTHWORKS FILL



**Construction
Sciences**



Construction Sciences

Geotechnical Engineering Consultants
Construction Testing Services
Environmental Consultants

A.B.N. 74 128 806 735

Gold Coast Laboratory
Postal Address: P.O. Box 2789
NERANG QLD 4211
Delivery Address: 21 Activity Crescent
MOLENDINAR QLD 4214
Ph.: (07) 5597 2720
Email: goldcoast@constructionsciences.net

TABLE 1 : SUMMARY OF BULK EARTHWORKS FILL FIELD DENSITY TESTING

CLIENT : CCA WINSLOW

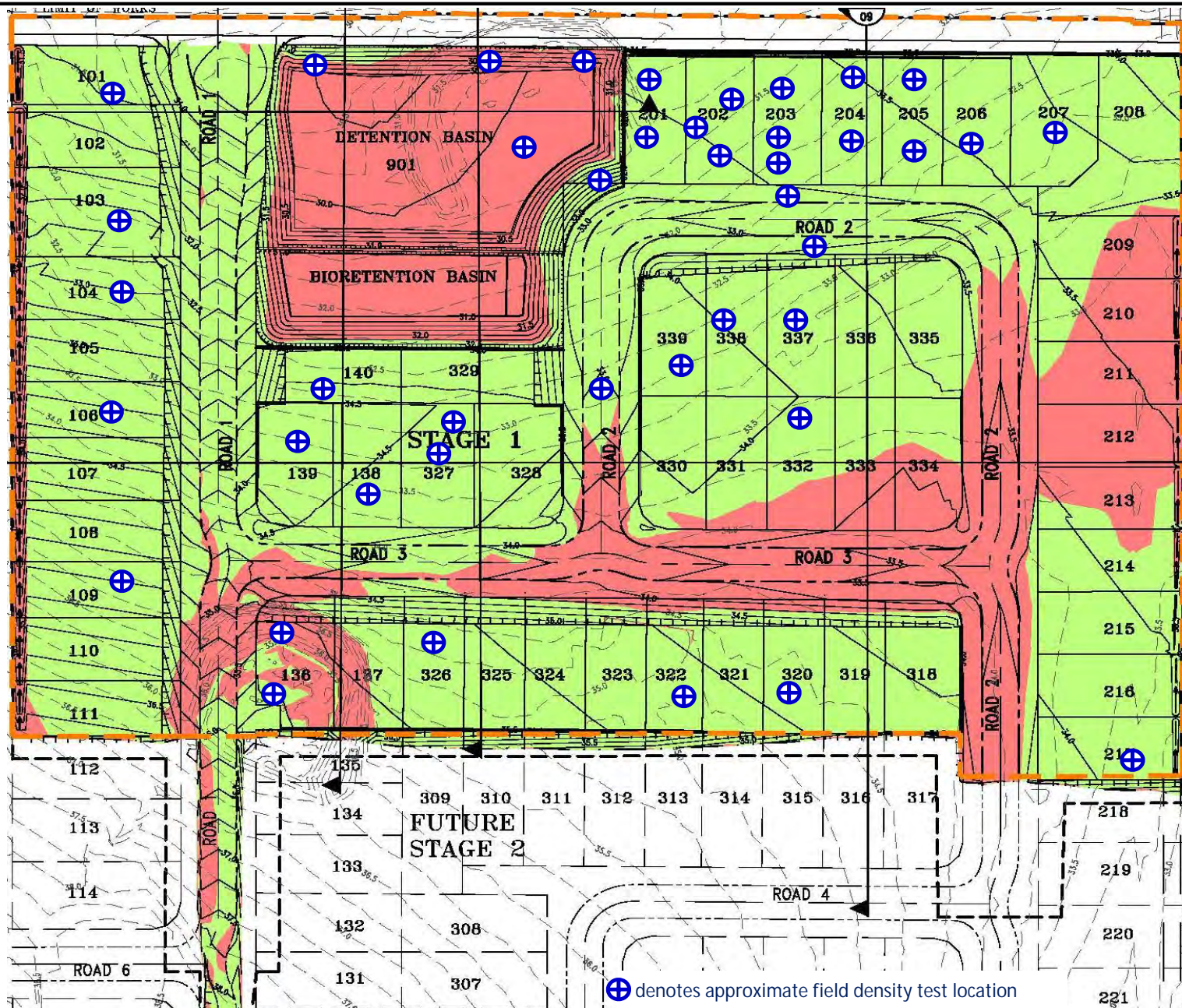
JOB NO: P743

PROJECT : PROPOSED RESIDENTIAL DEVELOPMENT
STAGE 1 - 409-429 PARK RIDGE ROAD - PARK RIDGE

Mean %: 100.3

SITE TEST No.	GENERAL LOCATION	EASTING	NORTHING	ELEVATION LEVEL / RL	DRY DENSITY RATIO (%)	
						FAILED TESTS RETESTED
13385/S/ 38796	Bio Basin	507884.3	6935240.9	RL 29.7	96.0	94.0
13385/S/ 39242	Bio Basin	507892.8	6935227.1	RL 31.1	97.5	
13385/S/ 39400	Lot 206	507977.6	6935233.2	RL 32.6	104.0	
13385/S/ 39401	Lot 204	507949.5	6935230.1	RL 32.4	95.5	
13385/S/ 39402	Lot 205	507960.9	6935222.1	RL 32.8	97.5	
13385/S/ 39536	Lot 203	507940.4	6935235.7	RL 33.2	102.5	
13385/S/ 39537	Lot 204	507950.1	6935232.9	RL 33.2	103.5	
13385/S/ 39538	Lot 217	507971.8	6935085.5	RL 33.7	99.5	
13385/S/ 39587	Lot 339	507902.6	6935180.0	R. 33.2		
13385/S/ 39588	Lot 205	507962.1	6935246.7	RL 32.7	100.0	
13385/S/ 39589	Lot 332	507931.9	6935170.2	RL 33.7	101.0	
13385/S/ 39590	Lot 204	507950.9	6935246.4	RL 33.3	104.0	
13385/S/ 39628	Lot 201	507911.5	6936243.3	RL 31.3	104.0	
13385/S/ 39629	Lot 338	507920.2	6935189.0	RL 33.6	97.5	
13385/S/ 39877	Lot 337	507928.2	6935184.3	RL 33.8	102.0	
13385/S/ 39878	Lot 203	507928.2	6935237.7	RL 32.2	99.5	
13385/S/ 39879	Lot 202	507923.6	6935244.5	RL 32.2	97.5	
13385/S/ 40066	Lot 138	507826.2	6935179.0	RL 33.7	105.5	
13385/S/ 40067	Lot 104	507789.9	6935227.6	RL 32.5	96.0	
13385/S/ 40068	Lot 109	507784.9	6935144.9	RL 34.8	97.5	
13385/S/ 40069	Lot 136	507817.9	6935127.1	RL 34.6	99.0	
13385/S/ 39965	Lot 339	507902.6	6935180.0	RL 33.2	103.0	
13385/S/ 39966	Lot 202	507920.5	6935246.9	RL 33.2	103.5	
13385/S/ 39967	Lot 327	507851.4	6935174.7	RL 33.5	95.0	
13385/S/ 39968	Lot 140	507833.7	6935193.4	RL 33.0	96.0	
13385/S/ 39936	Lot 201	507907.5	6935244.4	RL 32.4	101.0	
13385/S/ 39937	Lot 203	507933.4	6935244.2	RL 32.7	98.5	
13385/S/ 40116	Lot 103	507799.8	6935243.5	RL 32.1	97.5	
13385/S/ 40117	Lot 106	507786.8	6935194.8	RL 33.9	99.5	
13385/S/ 40118	Lot 139	507824.0	6935173.4	RL 33.9	100.0	
13385/S/ 40400	Verge	507943.3	6935209.3	RL 32.9	98.5	
13385/S/ 40401	Verge	507942.8	6935216.9	RL 32.7	109.5	
13385/S/ 40594	Lot 322	507891.3	6935115.6	RL 34.8	96.5	
13385/S/ 40585	Lot 320	507915.9	6935112.8	RL 34.7	96.5	
13385/S/ 40586	Lot 101	507805.8	6935272.7	RL 31.3	98.0	
13385/S/ 40505	Lot 327	507850.5	6935171.0	RL 34.2	98.5	
13385/S/ 40504	Road 2	507889.5	6935778.1	RL 32.5	103.0	
13385/S/ 40796	Lot 136	507818.0	6935120.4	RL 35.5	109.0	
13385/S/ 40797	Lot 326	507846.0	6935120.9	RL 35.2	103.5	
13385/S/ 40798	Detention Basin	507840.0	6935246.5	RL 30.2	97.5	
13385/S/ 41098	Detention Basin	507878.0	6935270.6	RL 30.6	102.0	
13385/S/ 41099	Detention Basin	507897.1	6935262.3	RL 31.3	104.5	

retest of sample 39587





DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/17951-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	-
Location:	Park Ridge	Internal Test Request:	13385/T/10592
Component:	Bulk Earthworks Fill	Client Reference/s:	1/08/2017
Area Description:	Bio Basin	Report Date / Page:	4/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/38796			
ID / Client ID	-			
Lot Number	-			
Date / Time Tested	1/08/2017 10:00			
Material Source	Site Won - Cut to Fill			
Material Type	Bulk Earthworks Fill			
Sampling Method	AS1289.1.2.1 Cl 6.4b			
Depths: Test / Nom / Actual (mm)	150 / 200 / 200			
Standard or Modified	Standard			
Stabilised Material Curing Time	-			
Location	Basin			
Easting	507884.3			
Northing	6935240.9			
Level	29.7			
Test Fraction (mm)	< 19.0 mm			
Sample Oversize Wet (%)	0			
Sample Oversize Dry (%)	0			
MDR Sample Number	13385/S/38796			
MDR Sample Date / Update	1/08/2017			
Assigned MDR (Yes / No)	No			
Moisture Test Results:				
Field Moisture Content (%)	14.5			
Optimum Moisture Content (%)	16.5			
Variation from OMC (%)	2.0% Drier than OMC			
Moisture Ratio (%)	88.0			
Density Test Results:				
Field Dry Density (t/m³)	1.72			
Maximum Dry Density (t/m³)	1.79			
Dry Density Ratio Required (%)	95			
Dry Density Ratio (%)	96.0			

Remarks

	The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing		
	Accreditation Number:	1986	
	Corporate Site Number:	13385	
	Approved Signatory: Wayne Gorman		
	Form ID: W27ASRep Rev 1		



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18126-2
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	-
Location:	Park Ridge	Internal Test Request:	13385/T/10659
Component:	Bulk Earthworks Fill	Client Reference/s:	4/08/2017
Area Description:	Stage 1	Report Date / Page:	14/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1, AS1289.1.4.2
------------------	----------------------------------------------------------------------

Sample Number	13385/S/39242			
ID / Client ID	-			
Lot Number	-			
Date / Time Tested	4/08/2017 10:30			
Material Source	Site Won - Cut to Fill			
Material Type	Bulk Earthworks Fill			
Sampling Method	AS1289.1.2.1 Cl 6.4b			
Depths: Test / Nom / Actual (mm)	150 / 200 / 200			
Standard or Modified	Standard			
Stabilised Material Curing Time	-			
Location	Basin			
Easting	507892.8			
Northing	6935227.1			
Level	31.1			
Test Fraction (mm)	< 19.0 mm			
Sample Oversize Wet (%)	0			
Sample Oversize Dry (%)	0			
MDR Sample Number	13385/S/39242			
MDR Sample Date / Update	4/08/2017			
Assigned MDR (Yes / No)	No			
Moisture Test Results:				
Field Moisture Content (%)	11.5			
Optimum Moisture Content (%)	14.5			
Variation from OMC (%)	3.0% Drier than OMC			
Moisture Ratio (%)	80.5			
Density Test Results:				
Field Dry Density (t/m³)	1.72			
Maximum Dry Density (t/m³)	1.76			
Dry Density Ratio Required (%)	95			
Dry Density Ratio (%)	97.5			

Remarks	Re-Issued Report Replaces Report No 13385/R/18126-1.
---------	------------------------------------------------------

	The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing		
	Accreditation Number:	1986	
	Corporate Site Number:	13385	
	Approved Signatory: Wayne Gorman		Form ID: W27ASRep Rev 1



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18128-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10690
Component:	Bulk Earthworks fill	Client Reference/s:	8/08/2017
Area Description:	Stage 1	Report Date / Page:	14/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/39400	13385/S/39401	13385/S/39402	
ID / Client ID	-	-	-	
Lot Number	206	204	205	
Date / Time Tested	8/08/2017 10:00	8/08/2017 10:30	8/08/2017 11:00	
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill	
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill	
Sampling Method	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b	
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200	
Standard or Modified	Standard	Standard	Standard	
Stabilised Material Curing Time	-	-	-	
Location	Lot 206	Lot 204	Lot 205	
Easting	507977.614	507949.503	507960.911	
Northing	6935233.205	6935230.084	6935222.078	
Level	32.62	32.44	32.85	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	
Sample Oversize Wet (%)	0	0	0	
Sample Oversize Dry (%)	0	0	0	
MDR Sample Number	13385/S/39400	13385/S/39401	13385/S/39402	
MDR Sample Date / Update	8/08/2017	8/08/2017	8/08/2017	
Assigned MDR (Yes / No)	No	No	No	
Moisture Test Results:				
Field Moisture Content (%)	15.2	17.5	11.2	
Optimum Moisture Content (%)	18.5	18.5	13.0	
Variation from OMC (%)	3.5% Drier than OMC	1.0% Drier than OMC	2.0% Drier than OMC	
Moisture Ratio (%)	81.5	94.5	85.0	
Density Test Results:				
Field Dry Density (t/m ³)	1.74	1.65	1.81	
Maximum Dry Density (t/m ³)	1.67	1.73	1.86	
Dry Density Ratio Required (%)	95	95	95	
Dry Density Ratio (%)	104.0	95.5	97.5	

Remarks

 <p>The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing</p> <p>Accreditation Number: 1986 Corporate Site Number: 13385</p>	 <p>Approved Signatory: Wayne Gorman Form ID: W27ASRep Rev 1</p>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18130-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10717
Component:	Bulk Earthworks fill	Client Reference/s:	9/09/2017
Area Description:	Stage 1	Report Date / Page:	14/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/39536	13385/S/39537	13385/S/39538	
ID / Client ID	-	-	-	
Lot Number	203	204	217	
Date / Time Tested	9/08/2017 11:00	9/08/2017 11:30	9/08/2017 12:00	
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill	
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill	
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200	
Standard or Modified	Standard	Standard	Standard	
Stabilised Material Curing Time	-	-	-	
Location	Lot 203	Lot 204	Lot 217	
Easting	507940.370	507950.154	507971.812	
Northing	6935235.682	6935232.924	6935085.558	
Level	33.21	33.22	33.69	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	
Sample Oversize Wet (%)	0	0	0	
Sample Oversize Dry (%)	0	0	0	
MDR Sample Number	13385/S/39536	13385/S/39537	13385/S/39538	
MDR Sample Date / Update	9/08/2017	9/08/2017	9/08/2017	
Assigned MDR (Yes / No)	No	No	No	
Moisture Test Results:				
Field Moisture Content (%)	20.6	12.7	18.3	
Optimum Moisture Content (%)	21.0	17.0	19.0	
Variation from OMC (%)	0.5% Drier than OMC	4.5% Drier than OMC	0.5% Drier than OMC	
Moisture Ratio (%)	98.0	74.5	97.5	
Density Test Results:				
Field Dry Density (t/m³)	1.65	1.82	1.71	
Maximum Dry Density (t/m³)	1.61	1.76	1.72	
Dry Density Ratio Required (%)	95	95	95	
Dry Density Ratio (%)	102.5	103.5	99.5	

Remarks



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation Number: 1986

Corporate Site Number: 13385



Approved Signatory: Wayne Gorman

Form ID: W27ASRep Rev 1



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18198-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10730
Component:	Bulk Earthworks Fill	Client Reference/s:	
Area Description:	Stage 1	Report Date / Page:	16/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/39587	13385/S/39588	13385/S/39589	13385/S/39590
ID / Client ID	-	-	-	-
Lot Number	339	205	332	204
Date / Time Tested	10/08/2017 10:00	10/08/2017 10:15	10/08/2017 10:30	10/08/2017 10:45
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200
Standard or Modified	Standard	Standard	Standard	Standard
Stabilised Material Curing Time	-	-	-	-
Location	Lot 339	Lot 205	Lot 332	Lot 204
Easting	507902.590	507962.096	507931.928	507950.874
Northing	6935180.021	6935246.728	6935170.213	6935246.419
Level	33.18	32.68	33.69	33.34
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize Wet (%)	0	0	0	0
Sample Oversize Dry (%)	0	0	0	0
MDR Sample Number	13385/S/39587	13385/S/39588	13385/S/39589	13385/S/39590
MDR Sample Date / Update	10/08/2017	10/08/2017	10/08/2017	10/08/2017
Assigned MDR (Yes / No)	No	No	No	No
Moisture Test Results:				
Field Moisture Content (%)	19.7	16.5	17.9	16.1
Optimum Moisture Content (%)	16.5	18.0	17.0	19.5
Variation from OMC (%)	3.5% Wetter than OMC	1.5% Drier than OMC	1.0% Wetter than OMC	3.0% Drier than OMC
Moisture Ratio (%)	120.0	92.0	104.5	83.5
Density Test Results:				
Field Dry Density (t/m ³)	1.67	1.72	1.70	1.78
Maximum Dry Density (t/m ³)	1.78	1.72	1.68	1.72
Dry Density Ratio Required (%)	95	95	95	95
Dry Density Ratio (%)	94.0	100.0	101.0	104.0

Remarks

	The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing	
	Accreditation Number: 1986 Corporate Site Number: 13385	 Approved Signatory: Wayne Gorman Form ID: W27ASRep Rev 1



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18200-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10741
Component:	Bulk Earthworks Fill	Client Reference/s:	11/08/2017
Area Description:	Stage 1	Report Date / Page:	17/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/39628	13385/S/39629		
ID / Client ID	-	-		
Lot Number	201	338		
Date / Time Tested	11/08/2017 10:00	11/08/2017 10:30		
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill		
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill		
Sampling Method	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b		
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200		
Standard or Modified	Standard	Standard		
Stabilised Material Curing Time	-	-		
Location	Lot 201	Lot 338		
Easting	507911.490	507920.205		
Northing	6935243.289	6935189.055		
Level	31.35	33.59		
Test Fraction (mm)	< 19.0 mm	< 19.0 mm		
Sample Oversize Wet (%)	0	0		
Sample Oversize Dry (%)	0	0		
MDR Sample Number	13385/S/39628	13385/S/39629		
MDR Sample Date / Update	11/08/2017	11/08/2017		
Assigned MDR (Yes / No)	No	No		
Moisture Test Results:				
Field Moisture Content (%)	13.8	10.1		
Optimum Moisture Content (%)	17.5	10.0		
Variation from OMC (%)	4.0% Drier than OMC	0.0% Wetter than OMC		
Moisture Ratio (%)	78.0	101.0		
Density Test Results:				
Field Dry Density (t/m³)	1.80	1.76		
Maximum Dry Density (t/m³)	1.73	1.81		
Dry Density Ratio Required (%)	95	95		
Dry Density Ratio (%)	104.0	97.5		

Remarks

	The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing		
	Accreditation Number:	1986	
	Corporate Site Number:	13385	
	Approved Signatory: Wayne Gorman		
	Form ID: W27ASRep Rev 1		



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18201-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10777
Component:	Bulk Earthworks Fill	Client Reference/s:	15/08/2017
Area Description:	Stage 1	Report Date / Page:	17/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/39877	13385/S/39878	13385/S/39879	
ID / Client ID	-	-	-	
Lot Number	337	203	202	
Date / Time Tested	15/08/2017 10:00	15/08/2017 10:30	15/08/2017 11:00	
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill	
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill	
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200	
Standard or Modified	Standard	Standard	Standard	
Stabilised Material Curing Time	-	-	-	
Location	Lot 337	Lot 203	Lot 202	
Easting	507928.182	507928.182	507923.572	
Northing	6935184.338	6935237.714	6935244.505	
Level	33.811	32.24	32.24	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	
Sample Oversize Wet (%)	0	0	0	
Sample Oversize Dry (%)	0	0	0	
MDR Sample Number	13385/S/39877	13385/S/39878	13385/S/39879	
MDR Sample Date / Update	15/08/2017	15/08/2017	15/08/2017	
Assigned MDR (Yes / No)	No	No	No	
Moisture Test Results:				
Field Moisture Content (%)	9.3	9.5	9.5	
Optimum Moisture Content (%)	14.5	11.5	12.0	
Variation from OMC (%)	5.0% Drier than OMC	2.0% Drier than OMC	2.5% Drier than OMC	
Moisture Ratio (%)	64.0	84.0	78.5	
Density Test Results:				
Field Dry Density (t/m³)	1.82	1.84	1.83	
Maximum Dry Density (t/m³)	1.79	1.85	1.88	
Dry Density Ratio Required (%)	95	95	95	
Dry Density Ratio (%)	102.0	99.5	97.5	

Remarks

	The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing		
	Accreditation Number:	1986	
	Corporate Site Number:	13385	
	Approved Signatory: Wayne Gorman		Form ID: W27ASRev Rev 1

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18319-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10810
Component:	Bulk Earthworks Fill	Client Reference/s:	19/08/2017
Area Description:	Stage 1	Report Date / Page:	23/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/40066	13385/S/40067	13385/S/40068	13385/S/40069
ID / Client ID	-	-	-	-
Lot Number	138	104	109	136
Date / Time Tested	18/08/2017 10:00	18/08/2017 10:15	18/08/2017 10:30	19/08/2017 10:45
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200
Standard or Modified	Standard	Standard	Standard	Standard
Stabilised Material Curing Time	-	-	-	-
Location	Lot 138	Lot 104	Lot 109	Lot 136
Easting	507836.232	507789.949	507784.936	507817.911
Northing	6935179.030	6935227.588	6935154.912	6935127.099
Level	33.70	32.46	34.76	34.59
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize Wet (%)	0	0	0	0
Sample Oversize Dry (%)	0	0	0	0
MDR Sample Number	13385/S/40066	13385/S/40067	13385/S/40068	13385/S/40069
MDR Sample Date / Update	18/08/2017	18/08/2017	18/08/2017	19/08/2017
Assigned MDR (Yes / No)	No	No	No	No
Moisture Test Results:				
Field Moisture Content (%)	11.0	8.5	8.5	9.0
Optimum Moisture Content (%)	17.5	13.0	11.5	15.0
Variation from OMC (%)	6.5% Drier than OMC	4.5% Drier than OMC	3.0% Drier than OMC	6.0% Drier than OMC
Moisture Ratio (%)	63.0	66.0	73.5	61.0
Density Test Results:				
Field Dry Density (t/m ³)	1.82	1.79	1.90	1.79
Maximum Dry Density (t/m ³)	1.73	1.86	1.94	1.81
Dry Density Ratio Required (%)	95	95	95	95
Dry Density Ratio (%)	105.5	96.0	97.5	99.0

Remarks



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation Number: 1986
Corporate Site Number: 13385



Approved Signatory: Wayne Gorman
Form ID: W27ASRep Rev 1

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18320-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10795
Component:	Bulk Earthworks Fill	Client Reference/s:	
Area Description:	Stage 1	Report Date / Page:	23/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/39965	13385/S/39966	13385/S/39967	13385/S/39968
ID / Client ID	-	-	-	-
Lot Number	339	202	327	140
Date / Time Tested	17/08/2017 10:00	17/08/2017 10:15	17/08/2017 10:30	17/08/2017 10:45
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b
Depths: Test / Nom / Actual (mm)	150 / 200 / -	150 / 200 / -	150 / 200 / -	150 / 200 / -
Standard or Modified	Standard	Standard	Standard	Standard
Stabilised Material Curing Time	-	-	-	-
Location	Lot 339	Lot 202	Lot 327	Lot 140
Easting	507902.590	507920.511	507851.373	507833.681
Northing	6935180.021	6935246.942	6935174.737	6935193.408
Level	33.18	33.16	33.55	33.04
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	< 19.0 mm
Sample Oversize Wet (%)	0	0	0	0
Sample Oversize Dry (%)	0	0	0	0
MDR Sample Number	13385/S/39965	13385/S/39966	13385/S/39967	13385/S/39968
MDR Sample Date / Update	17/08/2017	17/08/2017	17/08/2017	17/08/2017
Assigned MDR (Yes / No)	No	No	No	No
Moisture Test Results:				
Field Moisture Content (%)	11.0	7.7	8.4	6.6
Optimum Moisture Content (%)	15.0	15.0	10.5	10.5
Variation from OMC (%)	4.0% Drier than OMC	7.5% Drier than OMC	2.0% Drier than OMC	4.0% Drier than OMC
Moisture Ratio (%)	73.5	51.5	81.0	63.5
Density Test Results:				
Field Dry Density (t/m³)	1.84	1.86	1.80	1.81
Maximum Dry Density (t/m³)	1.79	1.79	1.89	1.88
Dry Density Ratio Required (%)	95	95	95	95
Dry Density Ratio (%)	103.0	103.5	95.0	96.0

Remarks



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation Number: 1986
Corporate Site Number: 13385



Approved Signatory: Wayne Gorman
Form ID: W27ASRep Rev 1



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18322-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10789
Component:	Bulk Earthworks Fill	Client Reference/s:	16/08/2017
Area Description:	Stage 1	Report Date / Page:	23/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/39936	13385/S/39937		
ID / Client ID	-	-		
Lot Number	201	203		
Date / Time Tested	16/08/2017 11:00	16/08/2017 11:15		
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill		
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill		
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b		
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200		
Standard or Modified	Standard	Standard		
Stabilised Material Curing Time	-	-		
Location	Lot 201	Lot 203		
Easting	507907.516	507933.440		
Northing	6935244.372	6935244.232		
Level	32.40	32.67		
Test Fraction (mm)	< 19.0 mm	< 19.0 mm		
Sample Oversize Wet (%)	0	0		
Sample Oversize Dry (%)	0	0		
MDR Sample Number	13385/S/39936	13385/S/39937		
MDR Sample Date / Update	16/08/2017	16/08/2017		
Assigned MDR (Yes / No)	No	No		
Moisture Test Results:				
Field Moisture Content (%)	7.5	9.3		
Optimum Moisture Content (%)	12.5	11.5		
Variation from OMC (%)	5.0% Drier than OMC	2.0% Drier than OMC		
Moisture Ratio (%)	59.5	81.5		
Density Test Results:				
Field Dry Density (t/m³)	1.83	1.81		
Maximum Dry Density (t/m³)	1.81	1.83		
Dry Density Ratio Required (%)	95	95		
Dry Density Ratio (%)	101.0	98.5		

Remarks

	The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing		
	Accreditation Number:	1986	
	Corporate Site Number:	13385	
	Approved Signatory: Wayne Gorman		
	Form ID: W27ASRep Rev 1		



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18323-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10820
Component:	Bulk Earthworks Fill	Client Reference/s:	
Area Description:	Stage 1	Report Date / Page:	23/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/40116	13385/S/40117	13385/S/40118	
ID / Client ID	-	-	-	
Lot Number	103	106	139	
Date / Time Tested	21/08/2017 11:00	21/08/2017 11:15	21/08/2017 11:30	
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill	
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill	
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200	
Standard or Modified	Standard	Standard	Standard	
Stabilised Material Curing Time	-	-	-	
Location	Lot 103	Lot 106	Lot 139	
Easting	507799.822	507786.776	507824.007	
Northing	6935243.515	6935194.793	6935173.430	
Level	32.09	33.86	33.91	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	
Sample Oversize Wet (%)	0	0	0	
Sample Oversize Dry (%)	0	0	0	
MDR Sample Number	13385/S/40116	13385/S/40117	13385/S/40118	
MDR Sample Date / Update	21/08/2017	21/08/2017	21/08/2017	
Assigned MDR (Yes / No)	No	No	No	
Moisture Test Results:				
Field Moisture Content (%)	15.6	12.3	8.8	
Optimum Moisture Content (%)	17.0	17.0	12.0	
Variation from OMC (%)	1.5% Drier than OMC	5.0% Drier than OMC	3.0% Drier than OMC	
Moisture Ratio (%)	92.5	72.0	73.5	
Density Test Results:				
Field Dry Density (t/m³)	1.72	1.75	1.92	
Maximum Dry Density (t/m³)	1.76	1.76	1.91	
Dry Density Ratio Required (%)	95	95	95	
Dry Density Ratio (%)	97.5	99.5	100.0	

Remarks

	The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing		
	Accreditation Number:	1986	
	Corporate Site Number:	13385	
	Approved Signatory: Wayne Gorman		
	Form ID: W27ASRep Rev 1		

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18525-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Verge
Location:	Park Ridge	Internal Test Request:	13385/T/10875
Component:	Bulk Earthworks Fill	Client Reference/s:	25/08/2017
Area Description:	Stage 1	Report Date / Page:	31/08/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/40400	13385/S/40401		
ID / Client ID	-	-		
Lot Number	Verge	Verge		
Date / Time Tested	26/08/2017 10:00	26/08/2017 10:30		
Material Source	Site Won Backfill	Site Won Backfill		
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill		
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b		
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200		
Standard or Modified	Standard	Standard		
Stabilised Material Curing Time	-	-		
Location	Verge	Verge		
Easting	507943.31	507942.76		
Northing	6935209.30	6935216.90		
Level	32.87	32.75		
Test Fraction (mm)	< 19.0 mm	< 19.0 mm		
Sample Oversize Wet (%)	0	0		
Sample Oversize Dry (%)	0	0		
MDR Sample Number	13385/S/40400	13385/S/40401		
MDR Sample Date / Update	26/08/2017	26/08/2017		
Assigned MDR (Yes / No)	No	No		
Moisture Test Results:				
Field Moisture Content (%)	8.9	7.7		
Optimum Moisture Content (%)	10.5	13.5		
Variation from OMC (%)	1.5% Drier than OMC	6.0% Drier than OMC		
Moisture Ratio (%)	86.5	56.5		
Density Test Results:				
Field Dry Density (t/m³)	1.96	2.06		
Maximum Dry Density (t/m³)	1.99	1.88		
Dry Density Ratio Required (%)	95	95		
Dry Density Ratio (%)	98.5	109.5		

Remarks



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation Number: 1986
Corporate Site Number: 13385



Approved Signatory: Wayne Gorman
Form ID: W27ASRep Rev 1

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18677-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10926
Component:	Bulk Earthworks Fill	Client Reference/s:	30/08/2017
Area Description:	Stage 1	Report Date / Page:	8/09/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/40584	13385/S/40585	13385/S/40586	
ID / Client ID	-	-	-	
Lot Number	322	320	101	
Date / Time Tested	30/08/2017 10:00	30/08/2017 10:30	30/08/2017 11:00	
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill	
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill	
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200	
Standard or Modified	Standard	Standard	Standard	
Stabilised Material Curing Time	-	-	-	
Location	Lot 322	Lot 320	Lot 101	
Easting	507891.33	507915.90	507805.81	
Northing	6935115.57	6935112.77	6935272.73	
Level	34.8	34.71	31.31	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	
Sample Oversize Wet (%)	0	0	0	
Sample Oversize Dry (%)	0	0	0	
MDR Sample Number	13385/S/40584	13385/S/40585	13385/S/40586	
MDR Sample Date / Update	30/08/2017	30/08/2017	30/08/2017	
Assigned MDR (Yes / No)	No	No	No	
Moisture Test Results:				
Field Moisture Content (%)	9.0	5.4	11.8	
Optimum Moisture Content (%)	12.5	13.0	12.5	
Variation from OMC (%)	3.5% Drier than OMC	7.5% Drier than OMC	0.5% Drier than OMC	
Moisture Ratio (%)	72.0	42.0	95.0	
Density Test Results:				
Field Dry Density (t/m ³)	1.85	1.83	1.86	
Maximum Dry Density (t/m ³)	1.92	1.89	1.90	
Dry Density Ratio Required (%)	95	95	95	
Dry Density Ratio (%)	96.5	96.5	98.0	

Remarks



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation Number: 1986
Corporate Site Number: 13385



Approved Signatory: Wayne Gorman
Form ID: W27ASRep Rev 1



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18679-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	327
Location:	Park Ridge	Internal Test Request:	13385/T/10907
Component:	Bulk Earthworks Fill	Client Reference/s:	29/08/2017
Area Description:	Stage 1	Report Date / Page:	8/09/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/40505			
ID / Client ID	-			
Lot Number	327			
Date / Time Tested	29/08/2017 14:30			
Material Source	Site Won - Cut to Fill			
Material Type	Bulk Earthworks Fill			
Sampling Method	AS1289.1.2.1 Cl 6.4b			
Depths: Test / Nom / Actual (mm)	150 / 200 / 200			
Standard or Modified	Standard			
Stabilised Material Curing Time	-			
Location	Lot 327			
Easting	507850.510			
Northing	6935171.018			
Level	34.16			
Test Fraction (mm)	< 19.0 mm			
Sample Oversize Wet (%)	0			
Sample Oversize Dry (%)	0			
MDR Sample Number	13385/S/40505			
MDR Sample Date / Update	29/08/2017			
Assigned MDR (Yes / No)	No			
Moisture Test Results:				
Field Moisture Content (%)	6.7			
Optimum Moisture Content (%)	12.0			
Variation from OMC (%)	5.0% Drier than OMC			
Moisture Ratio (%)	56.5			
Density Test Results:				
Field Dry Density (t/m³)	1.89			
Maximum Dry Density (t/m³)	1.92			
Dry Density Ratio Required (%)	95			
Dry Density Ratio (%)	98.5			

Remarks

 <p>The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing</p> <p>Accreditation Number: 1986 Corporate Site Number: 13385</p>	 <p>Approved Signatory: Wayne Gorman Form ID: W27ASRep Rev 1</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18683-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Road 2
Location:	Park Ridge	Internal Test Request:	13385/T/10907
Component:	Bulk Earthworks Fill	Client Reference/s:	29/08/2017
Area Description:	Stage 1	Report Date / Page:	8/09/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/40504			
ID / Client ID	-			
Lot Number	Road 2			
Date / Time Tested	29/08/2017 14:00			
Material Source	Site Won - Cut to Fill			
Material Type	Bulk Earthworks Fill			
Sampling Method	AS1289.1.2.1 CI 6.4b			
Depths: Test / Nom / Actual (mm)	150 / 200 / 200			
Standard or Modified	Standard			
Stabilised Material Curing Time	-			
Location	Road 2			
Easting	507889.495			
Northing	6935778.111			
Level	32.55			
Test Fraction (mm)	< 19.0 mm			
Sample Oversize Wet (%)	0			
Sample Oversize Dry (%)	0			
MDR Sample Number	13385/S/40504			
MDR Sample Date / Update	29/08/2017			
Assigned MDR (Yes / No)	No			
Moisture Test Results:				
Field Moisture Content (%)	7.0			
Optimum Moisture Content (%)	13.0			
Variation from OMC (%)	6.0% Drier than OMC			
Moisture Ratio (%)	54.5			
Density Test Results:				
Field Dry Density (t/m³)	1.84			
Maximum Dry Density (t/m³)	1.78			
Dry Density Ratio Required (%)	95			
Dry Density Ratio (%)	103.0			

Remarks

	The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing		
	Accreditation Number:	1986	
	Corporate Site Number:	13385	
	Approved Signatory: Wayne Gorman		
	Form ID: W27ASRep Rev 1		



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18698-2
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/10973
Component:	Bulk Earthworks Fill	Client Reference/s:	6/09/2017
Area Description:	Stage 1	Report Date / Page:	11/09/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/40796	13385/S/40797	13385/S/40798	
ID / Client ID	-	-	-	
Lot Number	136	326	-	
Date / Time Tested	6/09/2017 10:00	6/09/2017 10:30	6/09/2017 11:00	
Material Source	Insitu	Insitu	Insitu	
Material Type	Fill	Fill	Fill	
Sampling Method	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	AS1289.1.2.1 Cl 6.4b	
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200	
Standard or Modified	Standard	Standard	Standard	
Stabilised Material Curing Time	-	-	-	
Location	Lot 136	Lot 326	Detention Basin	
Easting	507818.01	507846.02	507840.01	
Northing	6935120.43	6935120.92	6935269.46	
Level	35.53	35.26	30.24	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	
Sample Oversize Wet (%)	0	0	0	
Sample Oversize Dry (%)	0	0	0	
MDR Sample Number	13385/S/40796	13385/S/40797	13385/S/40798	
MDR Sample Date / Update	6/09/2017	6/09/2017	6/09/2017	
Assigned MDR (Yes / No)	No	No	No	
Moisture Test Results:				
Field Moisture Content (%)	14.3	5.9	9.6	
Optimum Moisture Content (%)	14.5	13.5	15.0	
Variation from OMC (%)	0.5% Drier than OMC	7.5% Drier than OMC	5.5% Drier than OMC	
Moisture Ratio (%)	98.0	43.5	64.5	
Density Test Results:				
Field Dry Density (t/m ³)	1.74	1.94	1.82	
Maximum Dry Density (t/m ³)	1.60	1.88	1.86	
Dry Density Ratio Required (%)	95	95	95	
Dry Density Ratio (%)	109.0	103.5	97.5	

Remarks	Re-Issued Report Replaces Report No 13385/R/18698-1.
---------	------------------------------------------------------



The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation Number: 1986
Corporate Site Number: 13385

Approved Signatory: Wayne Gorman
Form ID: W27ASRep Rev 1



DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client:	CCA Winslow	Report Number:	13385/R/18867-1
Client Address:	1587 Ipswich Road, ROCKLEA	Project Number:	13385/P/743
Project:	409-429 Park Ridge Road (Stage 1)	Lot Number:	Various
Location:	Park Ridge	Internal Test Request:	13385/T/11022
Component:	Bulk Earthworks Fill	Client Reference/s:	12/09/17
Area Description:	Stage 1	Report Date / Page:	18/09/2017 Page 1 of 1

Test Procedures:	AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1
------------------	--------------------------------------------------------

Sample Number	13385/S/41097	13385/S/41098	13385/S/41099	
ID / Client ID	Retest S39587	-	-	
Lot Number	339	-	-	
Date / Time Tested	12/09/2017	12/09/2017	12/09/2017	
Material Source	Site Won - Cut to Fill	Site Won - Cut to Fill	Site Won - Cut to Fill	
Material Type	Bulk Earthworks Fill	Bulk Earthworks Fill	Bulk Earthworks Fill	
Sampling Method	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b	AS1289.1.2.1 CI 6.4b	
Depths: Test / Nom / Actual (mm)	150 / 200 / 200	150 / 200 / 200	150 / 200 / 200	
Standard or Modified	Standard	Standard	Standard	
Stabilised Material Curing Time	-	-	-	
Location	Lot 339	Detention basin	Detention basin	
Easting	507902.590	507878.003	507897.109	
Northing	6935180.021	6935270.624	6935262.285	
Level	31.1	30.6	31.3	
Test Fraction (mm)	< 19.0 mm	< 19.0 mm	< 19.0 mm	
Sample Oversize Wet (%)	0	0	0	
Sample Oversize Dry (%)	0	0	0	
MDR Sample Number	13385/S/41097	13385/S/41098	13385/S/41099	
MDR Sample Date / Update	12/09/2017	12/09/2017	12/09/2017	
Assigned MDR (Yes / No)	No	No	No	
Moisture Test Results:				
Field Moisture Content (%)	9.3	11.6	10.0	
Optimum Moisture Content (%)	14.0	14.5	13.5	
Variation from OMC (%)	4.5% Drier than OMC	3.0% Drier than OMC	3.5% Drier than OMC	
Moisture Ratio (%)	67.5	80.0	73.0	
Density Test Results:				
Field Dry Density (t/m ³)	1.89	1.86	1.89	
Maximum Dry Density (t/m ³)	1.83	1.82	1.81	
Dry Density Ratio Required (%)	95	95	95	
Dry Density Ratio (%)	103.5	102.0	104.5	

Remarks

	<p>The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025 - Testing</p> <p>Accreditation Number: 1986 Corporate Site Number: 13385</p>	 <p>Approved Signatory: Benjamin Gibson Form ID: W27ASRep Rev 1</p>
------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------

APPENDIX

B

ENGINEER
INSPECTION



**Construction
Sciences**

Our Ref P743_01.gw.31.7.17
Contact Gus Wescher

31/07/2017

CCA Winslow
1587 Ipswich Road
ROCKLEA QLD 4106

Attention : Michael Pritchard

Email: michaelp@ccawinslow.com.au

Dear Michael,

SITE INSPECTION REPORT 409-429 PARK RIDGE ROAD (STAGE 1)

Introduction

On 31 July 2017, Laboratory Manager, Wayne Gorman and Geotechnical Engineer, Gus Wescher of Construction Sciences attended the site in the presence of Michael Pritchard of CCA Winslow.

Concerns were raised by CCA Winslow of the impact of the existing groundwater that was encountered on the north-western portion of the site at the interface between the natural sand strata and the underlying clay strata. The subject area of the inspection work focused on the proposed internal road alignment only and not the residential allotments.

Site Features

The site is traversed by proposed road alignments and site slopes down gently towards the north. Groundwater was observed on exposed excavations on the end of the north-western portion of the site.

It is understood that a dam was located upstream of the affected area. Furthermore, it is believed that the ground water has originated from the water storage structure and rainfall events.

Based on the excavation work on site two soil units were observed. The upper soil unit consisted typically of a brown silty sand natural material over sandy clay material forming the second soil unit. The upper portion of the sandy clay was noted to be coloured grey with mottles of orange, which suggests oxidation due to rise and fall of groundwater.

Site Observations and Recommendations

The groundwater observed is believed to be a perched water table. The groundwater is within a highly permeable sand layer, underlain by sandy clay materials of much lower permeability. This combination of materials is allowing water to perch on top of the lower sandy clay layer resulting in the surrounding area being not trafficable by site machinery.

During the site visit, verbal recommendation was given to CCA Winslow to remove the saturated sand layer, exposing the underlying sandy clay as the proposed road subgrade.

Construction Sciences Pty Ltd
ABN 74 128 806 735

21 Activity Crescent
Molendinar, QLD
4214 Australia

PO Box 2789
Nerang East
QLD 4211 Australia

Phone: +61 7 5597 2720

www.constructionsciences.net

Furthermore, prior to successive placement of fill over the subgrade, the water softened exposed subgrade (Sandy CLAY) will need to be removed and be re-compacted (subject to appropriate moisture conditioning) to 95 % of SMDD +/- 2% of OMC.

A temporary fenced off dam was observed to the south of the area under discussion. The embankments were noted to be made of the highly permeable sand unit. Seepage and embankment instability were observed along the western side of the dam. It is understood that the water will be pumped out to the sedimentation dam to the north in the next two days. If the activity does not take place as planned, it is recommended that a cut off trench be excavated to minimise the effect of the seepage into the area under discussion.

I trust this meets your requirements, please do not hesitate to contact the undersigned if you have any questions.

Yours faithfully,



Gus Wescher
Geotechnical Engineer
For
Construction Sciences