Cardno Bowler Level one Report

Vantage Stage 7 (Lot 409)



Prepared for BMD 25/7/2013

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Document Information

Prepared for BMD

Project Name Vantage Stage 7 (Lot 409)

File Reference

Job Reference 5529/P/83 Date 25/7/2013

Document Control

| Version | Date | Description of Revision | Prepared By | Prepared (Signature) | Reviewed By | Reviewed (Signature) |
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| Version | Reason for Issue | Approved for Release By | (Signature) | Release Date |
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1. INTRODUCTION

Cardno Bowler Pty Ltd was commissioned by BMD to carry out Level 1 supervision of the placement of fill for Vantage stage 7.

2. INSPECTIONS / COMPACTION CONTROL TESTING

Prior to filling operations on Lot 409, inspections and compaction tests were carried out on areas of subgrade soils. The inspections confirmed that vegetation had been stripped from the fill area prior to filling.

Compaction control tests, meeting the project specification where taken. These tests were carried out at regular intervals throughout the placement of fill in accordance with AS3798-2007 'Guidelines on Earthworks for commercial and residential developments'. Equipment used over the period of filling included scrapers, excavators, backhoes, graders, water trucks, sheepsfoot rollers tip trucks etc. The fill was placed at the front of the block and varied in depth. The test results attached are relevant to lot 409 with compaction.

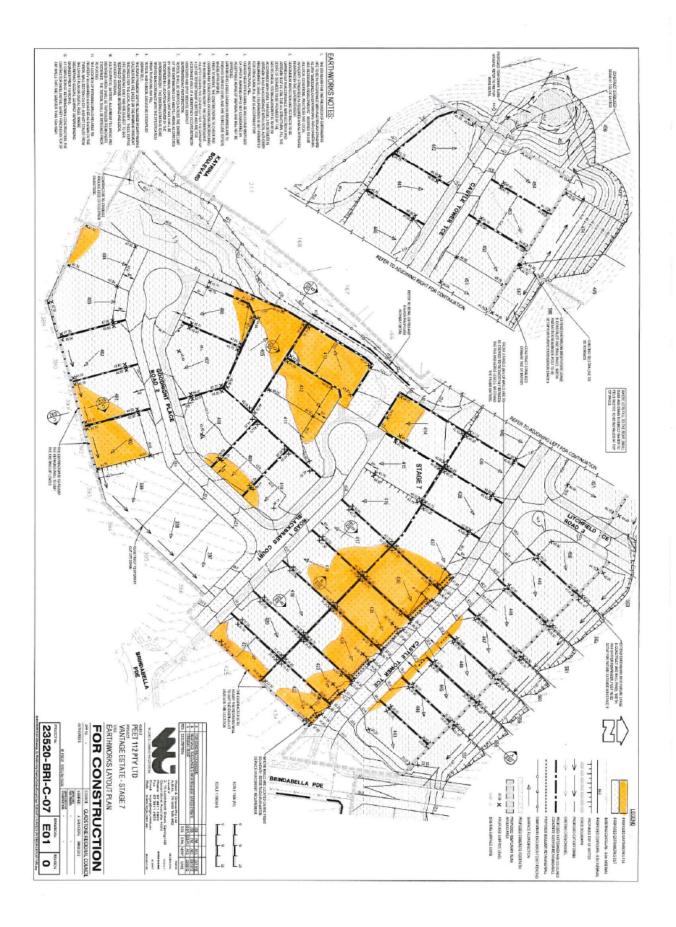
The placement of fill for the proposed subdivision was carried out under level 1 arrangements, in a controlled manner and compacted to a density ratio of not less than the specified requirements. Given this, the fill may be deemed to be 'Controlled Fill' in accordance with AS2870-2007 'Residential Slabs & Footings'.

For and on behalf of Cardno Bowler,

Michael Preston

Laboratory Manager

Gladstone.





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29/11/2012

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client: BMD Urban Report Number: 5529/R/2116-1

Client Address: 25 Cambridge Prade, Manly Project Number: 5529/P/83

Project: Vantage Estate Stage 7 Lot Number:

Location: Brindabella way gladstone Report Date:

Component: Client Reference/s:

Area Description: Page Number: Page 1 of 2

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

| Sample Number | 5529/S/6939 | 5529/S/6940 | 5529/S/6941 | 5529/S/6942 |
|--------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| ID / Client ID | #15 | #16 | #17 | #18 |
| Lot Number | - | - | - | - |
| Date / Time Tested | 21/11/2012 | 21/11/2012 | 21/11/2012 | 21/11/2012 |
| Material Source | Insitu | Insitu | Insitu | Insitu |
| Material Type | Fill | Fill | Fill | Fill |
| Sampling Method | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 |
| Test / Layer Depth (mm) | 150 / - | 150 / - | 150 / - | 150 / - |
| Standard or Modified | Standard | Standard | Standard | Standard |
| | Location as per Site Plan |
| | RL:45.75 | RL:45.52 | RL:45.64 | RL44.08 |
| | | | 111 12 | |
| | | | | |
| 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 | 5529/S/6939 | 5529/S/6940 | 5529/S/6941 | 5529/S/6942 |
| MDR Sample Date / Update | 21/11/2012 | 21/11/2012 | 21/11/2012 | 21/11/2012 |
| Assigned MDR (Yes / No) | No | No | No | No |
| Moisture Test Results: | | | | |
| Field Moisture Content (%) | 8.2 | 8.0 | 7.6 | 8.5 |
| Optimum Moisture Content (%) | 11.5 | 11.5 | 14.5 | 12.0 |
| Variation from OMC (%) | 3.0% Dryer than OMC | 3.5% Dryer than OMC | 7.0% Dryer than OMC | 3.5% Dryer than OMC |
| Moisture Ratio (%) | 72.0 | 68.5 | 51.5 | 72.0 |
| Density Test Results: | | | | |
| Field Dry Density (t/m³) | 2.06 | 2.04 | 1.97 | 1.86 |
| Maximum Dry Density (t/m³) | 2.01 | 1.97 | 2.02 | 1.91 |
| Dry Density Ratio Required (%) | | | - | - |
| Dry Density Ratio (%) | 102.5 | 103.5 | 97.5 | 97.0 |

Remarks

Prepared for BMD



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

Laboratory Accreditation Number: 5529



Page 5

Approved Signatory: Michael Preston
Form ID: W27ASRep Rev 1



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DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client: BMD Urban Report Number: 5529/R/2116-1

Client Address: 25 Cambridge Prade, Manly Project Number: 5529/P/83
Project: Vantage Estate Stage 7 Lot Number:

Location: Brindabella way gladstone Report Date: 29/11/2012

Component: Client Reference/s:
Area Description: Page Number: Page 2 of 2

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

| Sample Number | 5529/S/6943 | 5529/S/6944 | 5529/S/6945 | 5529/S/6946 |
|--------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| ID / Client ID | #19 | #20 | #21 | #22 |
| Lot Number | | - | - | - |
| Date / Time Tested | 21/11/2012 | 21/11/2012 | 21/11/2012 | 21/11/2012 |
| Material Source | Insitu | Insitu | Insitu | Insitu |
| Material Type | Fill | Fill | Fill | Fill |
| Sampling Method | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 |
| Test / Layer Depth (mm) | 150 / - | 150 / - | 150 / - | 150 / - |
| Standard or Modified | Standard | Standard | Standard | Standard |
| | Location as per Site Plan |
| | RL:43.75 | RL:42.8 | RL:34.00 | RL:34.04 |
| | | | | |
| | | | | |
| 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 | 5529/S/6943 | 5529/S/6944 | 5529/S/6945 | 5529/S/6946 |
| MDR Sample Date / Update | 21/11/2012 | 21/11/2012 | 21/11/2012 | 21/11/2012 |
| Assigned MDR (Yes / No) | No | No | No | No |
| Moisture Test Results: | | | | |
| Field Moisture Content (%) | 7.3 | 8.1 | 9.7 | 9.0 |
| Optimum Moisture Content (%) | 11.0 | 13.0 | 12.0 | 12.5 |
| Variation from OMC (%) | 4.0% Dryer than OMC | 5.0% Dryer than OMC | 2.5% Dryer than OMC | 3.5% Dryer than OMC |
| Moisture Ratio (%) | 65.0 | 62.5 | 81.0 | 72.0 |
| Density Test Results: | | - | | |
| Field Dry Density (t/m³) | 1.98 | 1.97 | 2.00 | 2.06 |
| Maximum Dry Density (t/m³) | 1.93 | 1.86 | 1.91 | 1.91 |
| Dry Density Ratio Required (%) | - | - | in . | - |
| Dry Density Ratio (%) | 102.5 | 106.0 | 105.0 | 107.5 |

Remarks



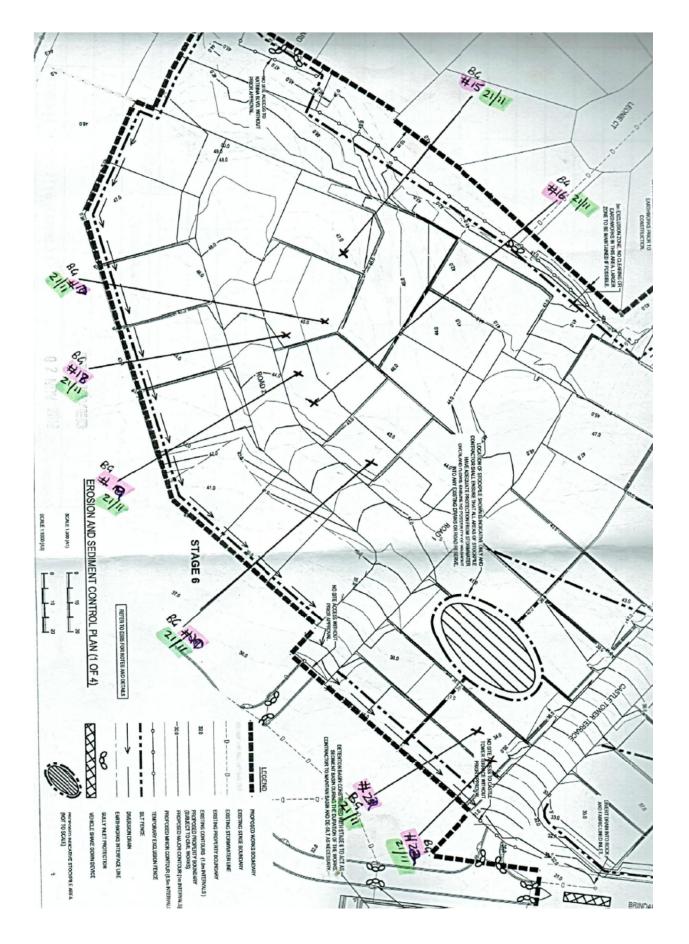
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Laboratory Accreditation Number: 5529



Approved Signatory: Michael Preston
Form ID: W27ASRep Rev 1



Prepared for BMD



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5529/R/2115-1

5529/P/83

29/11/2012

Facsimile:

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client Address: 25 Cambridge Prade, Manly

BMD Urban

Vantage Estate Stage 7 Project:

Location: Brindabella way gladstone

Component:

Test Procedures:

Client:

Client Reference/s: Page Number: Page 1 of 1

Report Number:

Project Number:

Lot Number:

Report Date:

Area Description:

AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1

| Sample Number | 5529/S/6936 | 5529/S/6937 | 5529/S/6938 | |
|--------------------------------|---------------------------|---------------------------|---------------------------|--|
| ID / Client ID | #12 | #13 | #14 | |
| Lot Number | - | - | - | |
| Date / Time Tested | 19/11/2012 | 19/11/2012 | 19/11/2012 | |
| Material Source | Insitu | Insitu | Insitu | |
| Material Type | Fill | Fill | Fill | |
| Sampling Method | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 | |
| Test / Layer Depth (mm) | 150 / - | 150 / - | 150 / - | |
| Standard or Modified | Standard | Standard | Standard | |
| | Location as per Site Plan | Location as per Site Plan | Location as per Site Plan | |
| | RL:45.58 | RL:43.89 | RL42.78 | |
| | | | | |
| | | | | |
| 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 | 5529/S/6936 | 5529/S/6937 | 5529/S/6938 | |
| MDR Sample Date / Update | 19/11/2012 | 19/11/2012 | 19/11/2012 | |
| Assigned MDR (Yes / No) | No | No | No | |
| Moisture Test Results: | | | | |
| Field Moisture Content (%) | 11.5 | 14.4 | 11.2 | |
| Optimum Moisture Content (%) | 12.0 | 14.5 | 14.0 | |
| Variation from OMC (%) | 0.5% Dryer than OMC | 0.0% Dryer than OMC | 3.0% Dryer than OMC | |
| Moisture Ratio (%) | 96.5 | 99.5 | 80.0 | |
| Density Test Results: | | | | |
| Field Dry Density (t/m³) | 1.93 | 1.82 | 1.85 | |
| Maximum Dry Density (t/m³) | 1.93 | 1.90 | 1.86 | |
| Dry Density Ratio Required (%) | - | -1 | - | |
| Dry Density Ratio (%) | 100.0 | 95.5 | 99.5 | |

Remarks

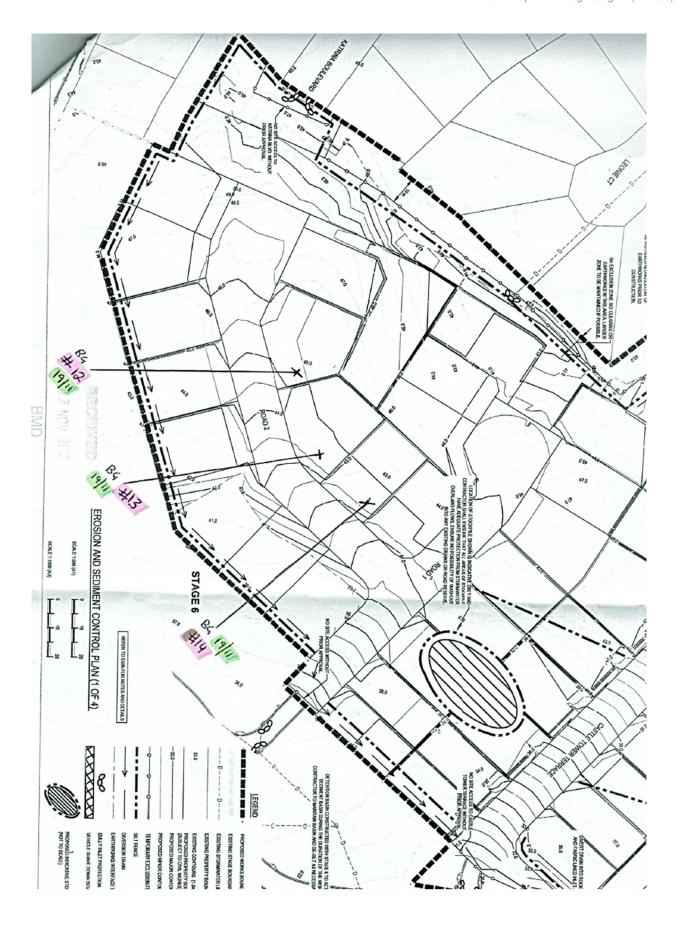


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Accredited for compliance with ISO/IEC 17025

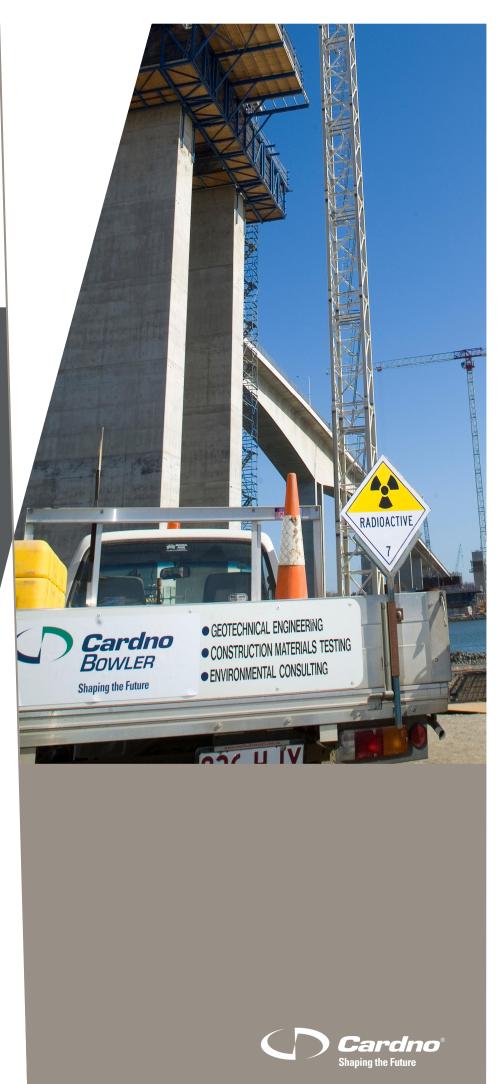
Laboratory Accreditation Number: 5529

Approved Signatory: Michael Preston Form ID: W27ASRep Rev 1



Cardno Bowler Level one Report

Vantage Stage 7 (Lot 410)



Prepared for BMD 25/7/2013

Contact Information

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Document Information

Prepared for BMD

Project Name Vantage Stage 7 (Lot 410)

File Reference

Job Reference 5529/P/83 Date 25/7/2013

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| Version | Reason for Issue | Approved for Release By | (Signature) | Release Date |
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1. INTRODUCTION

Cardno Bowler Pty Ltd was commissioned by BMD to carry out Level 1 supervision of the placement of fill for Vantage stage 7.

2. INSPECTIONS / COMPACTION CONTROL TESTING

Prior to filling operations on Lot 410, inspections and compaction tests were carried out on areas of subgrade soils. The inspections confirmed that vegetation had been stripped from the fill area prior to filling.

Compaction control tests, meeting the project specification where taken. These tests were carried out at regular intervals throughout the placement of fill in accordance with AS3798-2007 'Guidelines on Earthworks for commercial and residential developments'. Equipment used over the period of filling included scrapers, excavators, backhoes, graders, water trucks, sheepsfoot rollers tip trucks etc. The fill was placed at the front of the block and varied in depth. The test results attached are relevant to lot 410 with compaction.

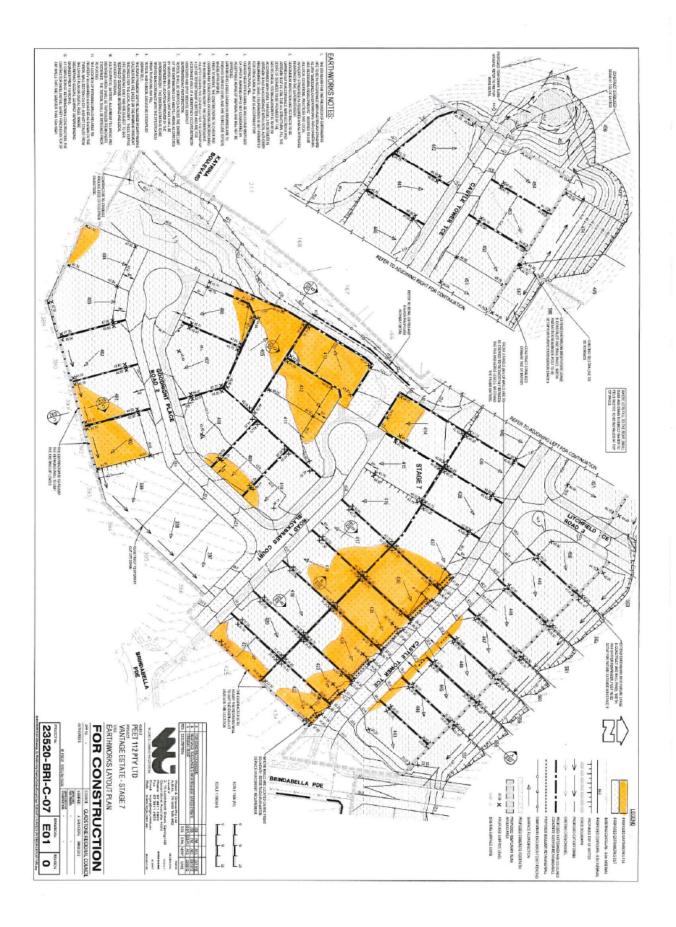
The placement of fill for the proposed subdivision was carried out under level 1 arrangements, in a controlled manner and compacted to a density ratio of not less than the specified requirements. Given this, the fill may be deemed to be 'Controlled Fill' in accordance with AS2870-2007 'Residential Slabs & Footings'.

For and on behalf of Cardno Bowler,

Michael Preston

Laboratory Manager

Gladstone.





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DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client: BMD Urban

Client Address: 25 Cambridge Prade, Manly Vantage Estate Stage 7 Project:

Location: Brindabella way gladstone

Component: Area Description:

Report Number: 5529/R/2116-1 Project Number: 5529/P/83

Lot Number:

Report Date: 29/11/2012

Client Reference/s:

Page Number: Page 1 of 2

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

| Sample Number | 5529/S/6939 | 5529/S/6940 | 5529/S/6941 | 5529/S/6942 |
|--------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| ID / Client ID | #15 | #16 | #17 | #18 |
| Lot Number | * | H | Ė | - |
| Date / Time Tested | 21/11/2012 | 21/11/2012 | 21/11/2012 | 21/11/2012 |
| Material Source | Insitu | Insitu | Insitu | Insitu |
| Material Type | Fill | Fill | Fill | Fill |
| Sampling Method | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 |
| Test / Layer Depth (mm) | 150 / - | 150 / - | 150 / - | 150 / - |
| Standard or Modified | Standard | Standard | Standard | Standard |
| | Location as per Site Plan |
| | RL:45.75 | RL:45.52 | RL:45.64 | RL44.08 |
| | | | | |
| | | | | |
| 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 | 5529/S/6939 | 5529/S/6940 | 5529/S/6941 | 5529/S/6942 |
| MDR Sample Date / Update | 21/11/2012 | 21/11/2012 | 21/11/2012 | 21/11/2012 |
| Assigned MDR (Yes / No) | No | No | No | No |
| Moisture Test Results: | | | | |
| Field Moisture Content (%) | 8.2 | 8.0 | 7.6 | 8.5 |
| Optimum Moisture Content (%) | 11.5 | 11.5 | 14.5 | 12.0 |
| Variation from OMC (%) | 3.0% Dryer than OMC | 3.5% Dryer than OMC | 7.0% Dryer than OMC | 3.5% Dryer than OMC |
| Moisture Ratio (%) | 72.0 | 68.5 | 51.5 | 72.0 |
| Density Test Results: | | | | |
| Field Dry Density (t/m³) | 2.06 | 2.04 | 1.97 | 1.86 |
| Maximum Dry Density (t/m³) | 2.01 | 1.97 | 2.02 | 1.91 |
| Dry Density Ratio Required (%) | | - | -1 | - |
| Dry Density Ratio (%) | 102.5 | 103.5 | 97.5 | 97.0 |

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

Laboratory Accreditation Number: 5529



Approved Signatory: Michael Preston Form ID: W27ASRep Rev 1



Component:

Test Procedures:

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 07 49726495

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 scott.meredith@cardno.com.au

 Website:
 www.cardno.com.au

Client Reference/s:

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client: BMD Urban Report Number: 5529/R/2116-1

Client Address: 25 Cambridge Prade, Manly Project Number: 5529/P/83
Project: Vantage Estate Stage 7 Lot Number:

Location: Brindabella way gladstone Report Date: 29/11/2012

Area Description: Page Number: Page 2 of 2

AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1

5529/S/6943 5529/S/6944 5529/S/6945 5529/S/6946 Sample Number ID / Client ID #19 #20 #21 #22 Lot Number Date / Time Tested 21/11/2012 21/11/2012 21/11/2012 21/11/2012 Material Source Insitu Insitu Insitu Insitu Material Type Fill Fill Fill Fill Sampling Method AS1289.1.2.1 AS1289.1.2.1 AS1289.1.2.1 AS1289.1.2.1 Test / Layer Depth (mm) 150 / -150 / -150 / -150 / -Standard or Modified Standard Standard Standard Standard Location as per Site Plan RL:34.00 RL:43.75 RL:42.8 RL:34.04 < 19.0 mm Test Fraction (mm) < 19.0 mm < 19.0 mm < 19.0 mm Sample Oversize Wet (%) 0 0 0 0 0 Sample Oversize Dry (%) 0 0 0 5529/S/6945 5529/S/6946 MDR Sample Number 5529/S/6943 5529/S/6944 MDR Sample Date / Update 21/11/2012 21/11/2012 21/11/2012 21/11/2012 Assigned MDR (Yes / No) No No No No Moisture Test Results: Field Moisture Content (%) 8.1 9.7 9.0 7.3 Optimum Moisture Content (%) 12.5 11.0 13.0 12.0 Variation from OMC (%) 4.0% Dryer than OMC 5.0% Dryer than OMC 2.5% Dryer than OMC 3.5% Dryer than OMC Moisture Ratio (%) 65.0 62.5 81.0 72.0 Density Test Results: Field Dry Density (t/m³) 1.98 1.97 2.00 2.06 Maximum Dry Density (t/m³) 1.93 1.86 1.91 1.91

Remarks



Dry Density Ratio Required (%) **Dry Density Ratio (%)**

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

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Laboratory Accreditation Number: 5529



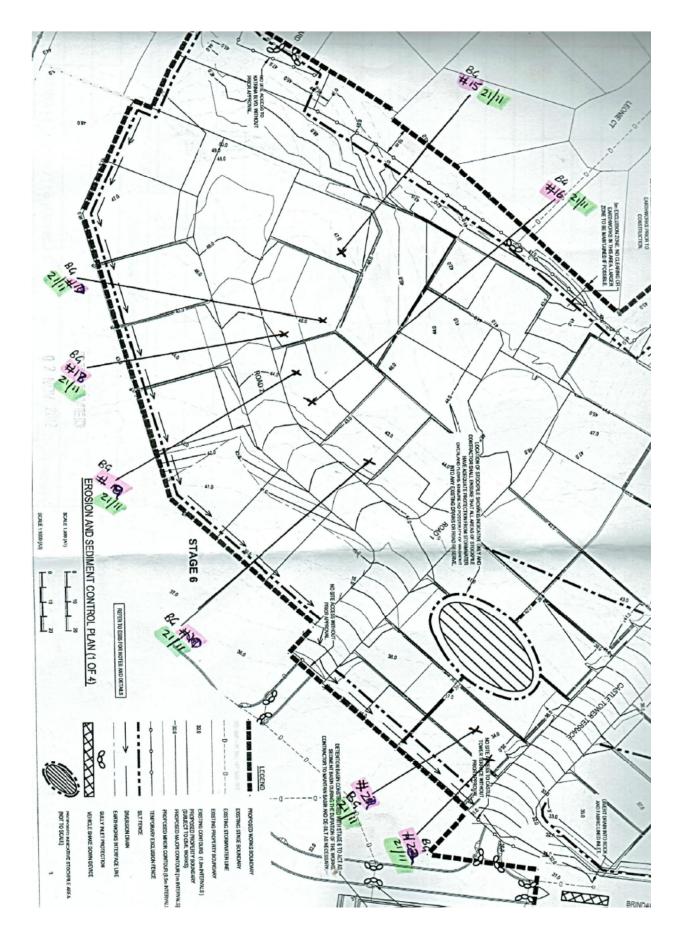
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Approved Signatory: Michael Preston
Form ID: W27ASRep Rev 1

105.0

Prepared for BMD Page 6

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Area Description:

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5529/R/2115-1

Page 1 of 1

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client: BMD Urban Report Number: Client Address: 25 Cambridge Prade, Manly Project Number:

5529/P/83 Vantage Estate Stage 7 Lot Number: Project:

29/11/2012 Location: Brindabella way gladstone Report Date:

Client Reference/s: Component: Page Number:

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

| Sample Number | 5529/S/6936 | 5529/S/6937 | 5529/S/6938 | |
|--------------------------------|---------------------------|---------------------------|---------------------------|--|
| ID / Client ID | #12 | #13 | #14 | |
| Lot Number | | -1 | - | |
| Date / Time Tested | 19/11/2012 | 19/11/2012 | 19/11/2012 | |
| Material Source | Insitu | Insitu | Insitu | |
| Material Type | Fill | Fill | Fill | |
| Sampling Method | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 | |
| Test / Layer Depth (mm) | 150 / - | 150 / - | 150 / - | |
| Standard or Modified | Standard | Standard | Standard | |
| | Location as per Site Plan | Location as per Site Plan | Location as per Site Plan | |
| | RL:45.58 | RL:43.89 | RL42.78 | |
| | | | | |
| | | | | |
| 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 | 5529/S/6936 | 5529/S/6937 | 5529/S/6938 | |
| MDR Sample Date / Update | 19/11/2012 | 19/11/2012 | 19/11/2012 | |
| Assigned MDR (Yes / No) | No | No | No | |
| Moisture Test Results: | | | | |
| Field Moisture Content (%) | 11.5 | 14.4 | 11.2 | |
| Optimum Moisture Content (%) | 12.0 | 14.5 | 14.0 | |
| Variation from OMC (%) | 0.5% Dryer than OMC | 0.0% Dryer than OMC | 3.0% Dryer than OMC | |
| Moisture Ratio (%) | 96.5 | 99.5 | 80.0 | |
| Density Test Results: | | | | |
| Field Dry Density (t/m³) | 1.93 | 1.82 | 1.85 | |
| Maximum Dry Density (t/m³) | 1.93 | 1.90 | 1.86 | |
| Dry Density Ratio Required (%) | J. | 4) | - | |
| Dry Density Ratio (%) | 100.0 | 95.5 | 99.5 | |

Remarks

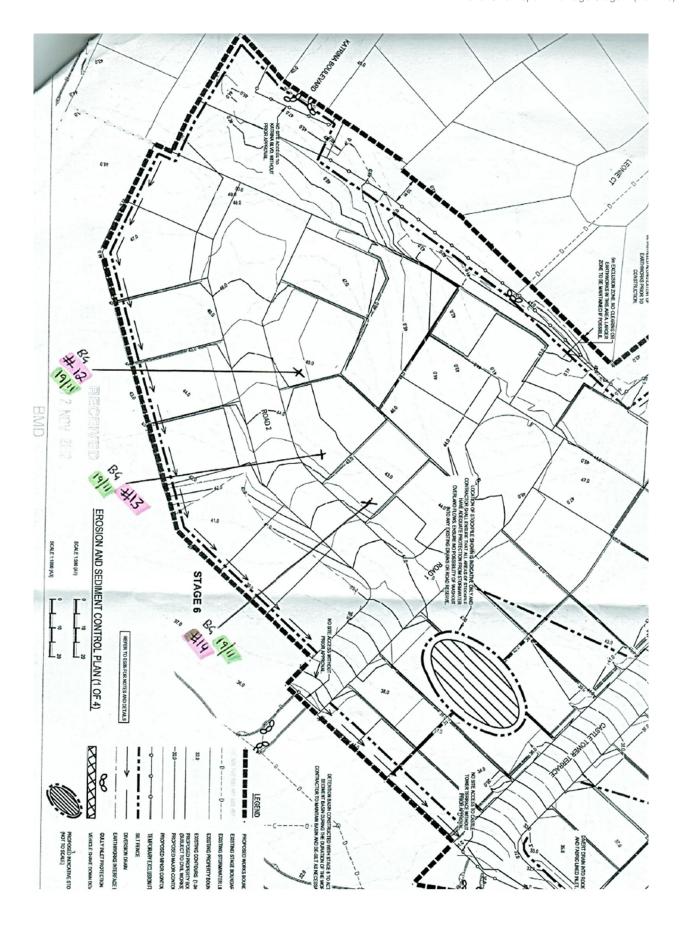


The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Accredited for compliance with ISO/IEC 17025

Laboratory Accreditation Number: 5529

Approved Signatory: Michael Preston Form ID: W27ASRep Rev 1



Cardno Bowler Level one Report

Vantage Stage 7 (Lot 411)



Prepared for BMD 25/7/2013

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Document Information

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Project Name Vantage Stage 7 (Lot 411)

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Job Reference 5529/P/83 Date 25/7/2013

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| Version | Reason for Issue | Approved for Release By | (Signature) | Approved Release Date |
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1. INTRODUCTION

Cardno Bowler Pty Ltd was commissioned by BMD to carry out Level 1 supervision of the placement of fill for Vantage stage 7.

2. INSPECTIONS / COMPACTION CONTROL TESTING

Prior to filling operations on Lot 411, inspections and compaction tests were carried out on areas of subgrade soils. The inspections confirmed that vegetation had been stripped from the fill area prior to filling.

Compaction control tests, meeting the project specification where taken. These tests were carried out at regular intervals throughout the placement of fill in accordance with AS3798-2007 'Guidelines on Earthworks for commercial and residential developments'. Equipment used over the period of filling included scrapers, excavators, backhoes, graders, water trucks, sheepsfoot rollers tip trucks etc. The fill was placed over a section at the front of the block and varied in depth. The test results attached are relevant to lot 411 with compaction.

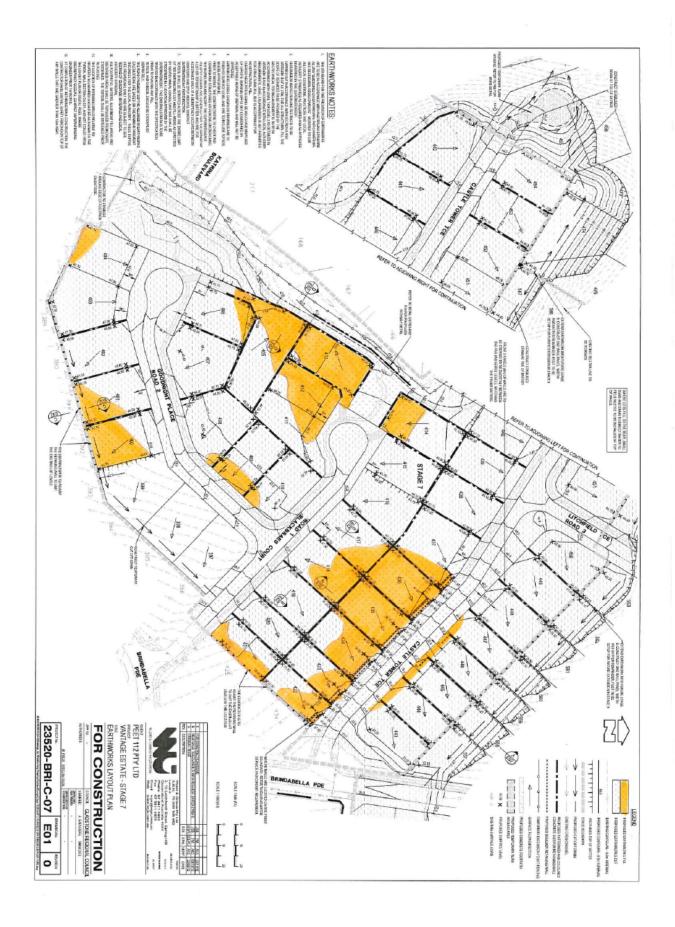
The placement of fill for the proposed subdivision was carried out under level 1 arrangements, in a controlled manner and compacted to a density ratio of not less than the specified requirements. Given this, the fill may be deemed to be 'Controlled Fill' in accordance with AS2870-2007 'Residential Slabs & Footings'.

For and on behalf of Cardno Bowler,

Michael Preston

Laboratory Manager

Gladstone.





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Gladstone QLD 4680

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5529/R/2142-1

5529/P/83

05/12/2012

Page 1 of 3

N/A

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Report Number:

Project Number:

Lot Number:

Report Date:

Page Number:

Client Reference/s:

BMD Urban Client Address: 25 Cambridge Prade, Manly Project: Vantage Estate Stage 7

Location:

Component: Area Description:

Test Procedures:

Client:

Brindabella way gladstone

AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1

| Sample Number | | 5529/S/7150 | 5529/S/7151 | 5529/S/7152 | 5529/S/7153 |
|--------------------------|---------|---------------------|---------------------|---------------------|----------------------|
| ID / Client ID | | #23 | #24 | #25 | #26 |
| Lot Number | | N/A | N/A | N/A | N/A |
| Date / Time Tested | | 26/11/2012 | 26/11/2012 | 26/11/2012 | 26/11/2012 |
| Material Source | | Onsite | Onsite | Onsite | Onsite |
| Material Type | | Fill | Fill | Fill | Fill |
| Sampling Method | | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 |
| Test / Layer Depth (mm |) | 150 / 300 | 150 / 300 | 150 / 300 | 150 / 300 |
| Standard or Modified | | Standard | Standard | Standard | Standard |
| Grid | | | | | |
| Easting | (m) | | | | |
| Northing | (m) | | | | |
| RL | (m) | 37.4 | 39.33 | 38.8 | 44.7 |
| Test Fraction (mm) | | < 19.0 mm | < 19.0 mm | < 19.0 mm | < 19.0 mm |
| Sample Oversize Wet (9 | %) | 0 | 0 | 0 | 0 |
| Sample Oversize Dry (% | (ó) | 0 | 0 | 0 | 0 |
| MDR Sample Number | | 5529/S/7150 | 5529/S/7151 | 5529/S/7152 | 5529/S/7153 |
| MDR Sample Date / Upo | date | 26/11/2012 | 26/11/2012 | 26/11/2012 | 26/11/2012 |
| Assigned MDR (Yes / N | 0) | No | No | No | No |
| Moisture Test Results: | | | | | |
| Field Moisture Content (| %) | 6.8 | 6.0 | 10.4 | 10.6 |
| Optimum Moisture Cont | ent (%) | 8.0 | 7.5 | 11.0 | 10.5 |
| Variation from OMC (%) | | 1.0% Dryer than OMC | 1.5% Dryer than OMC | 0.5% Dryer than OMC | 0.0% Wetter than OMC |
| Moisture Ratio (%) | | 86.0 | 79.0 | 94.5 | 102.0 |
| Density Test Results: | | | | | |
| Field Dry Density (t/m³) | | 2.05 | 2.03 | 1.88 | 1.83 |
| Maximum Dry Density (t | /m³) | 2.16 | 2.13 | 1.94 | 1.89 |
| Dry Density Ratio Requi | red (%) | -1 | -1 | - | 21 |
| Dry Density Ratio (%) | | 95.0 | 95.5 | 97.0 | 97.0 |

Remarks



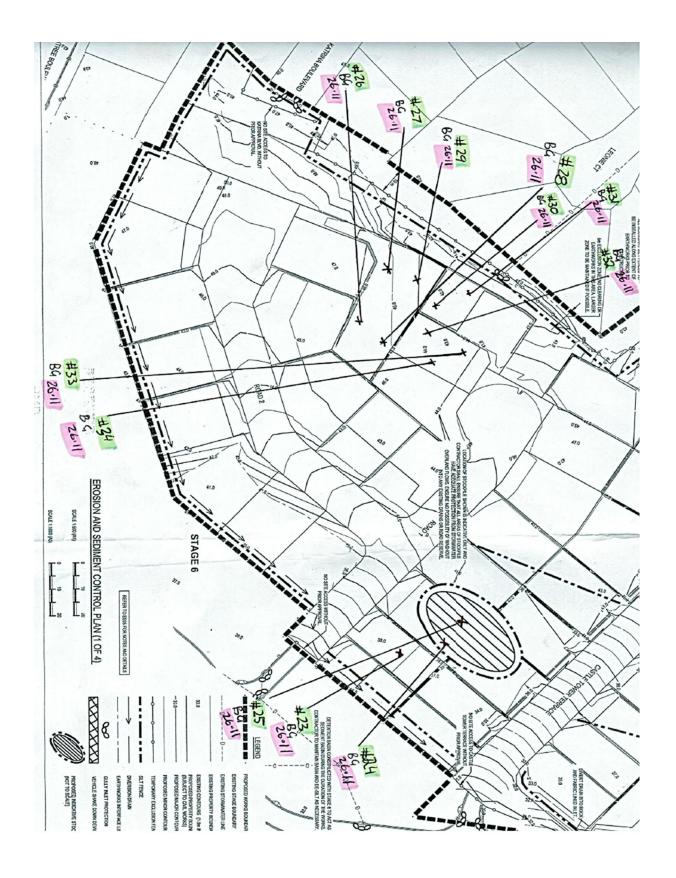
The results of the tests, calibrations and/or measurements included in this

document are traceable to Australian/national standards

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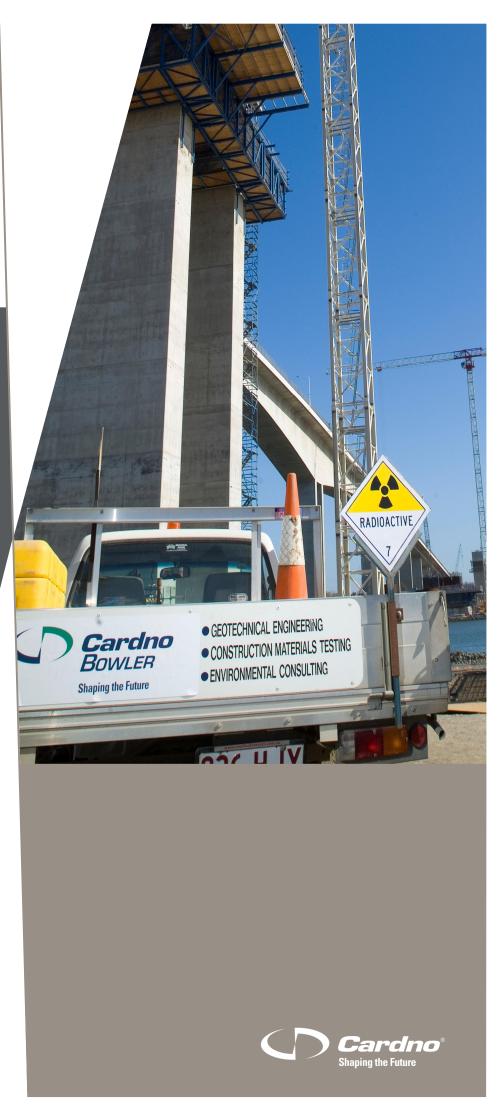
Laboratory Accreditation Number: 5529

Approved Signatory: Michael Preston Form ID: W27ASRep Rev 1



Cardno Bowler Level one Report

Vantage Stage 7 (Lot 412)



Prepared for BMD 25/7/2013

Contact Information

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Document Information

Prepared for BMD

Project Name Vantage Stage 7 (Lot 412)

File Reference

Job Reference 5529/P/83 Date 25/7/2013

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| Version | Reason for Issue | Approved for Release By | Approved (Signature) | Approved Release Date |
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1. INTRODUCTION

Cardno Bowler Pty Ltd was commissioned by BMD to carry out Level 1 supervision of the placement of fill for Vantage stage 7.

2. INSPECTIONS / COMPACTION CONTROL TESTING

Prior to filling operations on Lot 412, inspections and compaction tests were carried out on areas of subgrade soils. The inspections confirmed that vegetation had been stripped from the fill area prior to filling.

Compaction control tests, meeting the project specification where taken. These tests were carried out at regular intervals throughout the placement of fill in accordance with AS3798-2007 'Guidelines on Earthworks for commercial and residential developments'. Equipment used over the period of filling included scrapers, excavators, backhoes, graders, water trucks, sheepsfoot rollers tip trucks etc. The fill was placed over most of the block and varied in depth. The test results attached are relevant to lot 412 with compaction.

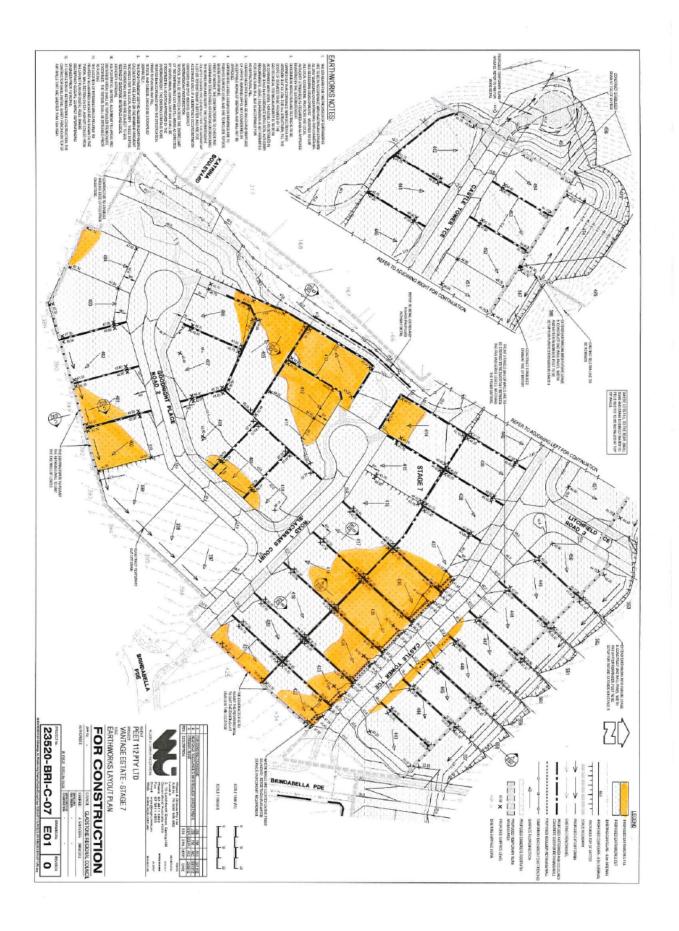
The placement of fill for the proposed subdivision was carried out under level 1 arrangements, in a controlled manner and compacted to a density ratio of not less than the specified requirements. Given this, the fill may be deemed to be 'Controlled Fill' in accordance with AS2870-2007 'Residential Slabs & Footings'.

For and on behalf of Cardno Bowler,

Michael Preston

Laboratory Manager

Gladstone.





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5529/R/2142-1

5529/P/83

05/12/2012

Page 1 of 3

N/A

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Report Number:

Project Number:

Lot Number:

Report Date:

Page Number:

Client Reference/s:

BMD Urban Client: Client Address: 25 Cambridge Prade, Manly Project: Vantage Estate Stage 7

Location: Component:

Area Description:

Test Procedures:

Brindabella way gladstone

AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1

| Sample Number | | 5529/S/7150 | 5529/S/7151 | 5529/S/7152 | 5529/S/7153 |
|------------------------------|-----------------------|---------------------|---------------------|---------------------|----------------------|
| ID / Client ID | ID / Client ID | | #24 | #25 | #26 |
| Lot Number | | N/A | N/A | N/A | N/A |
| Date / Time Tested | | 26/11/2012 | 26/11/2012 | 26/11/2012 | 26/11/2012 |
| Material Source | | Onsite | Onsite | Onsite | Onsite |
| Material Type | | Fill | Fill | Fill | Fill |
| Sampling Method | | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 |
| Test / Layer Depth (mm) | | 150 / 300 | 150 / 300 | 150 / 300 | 150 / 300 |
| Standard or Modified | | Standard | Standard | Standard | Standard |
| Grid | | | | | |
| Easting | (m) | | | | |
| Northing | (m) | | | | |
| RL | (m) | 37.4 | 39.33 | 38.8 | 44.7 |
| 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 | | 5529/S/7150 | 5529/S/7151 | 5529/S/7152 | 5529/S/7153 |
| MDR Sample Date / Update | 9 | 26/11/2012 | 26/11/2012 | 26/11/2012 | 26/11/2012 |
| Assigned MDR (Yes / No) | | No | No | No | No |
| Moisture Test Results: | | | | | |
| Field Moisture Content (%) | | 6.8 | 6.0 | 10.4 | 10.6 |
| Optimum Moisture Content (%) | | 8.0 | 7.5 | 11.0 | 10.5 |
| Variation from OMC (%) | | 1.0% Dryer than OMC | 1.5% Dryer than OMC | 0.5% Dryer than OMC | 0.0% Wetter than OMC |
| Moisture Ratio (%) | | 86.0 | 79.0 | 94.5 | 102.0 |
| Density Test Results: | | | | | |
| Field Dry Density (t/m³) | | 2.05 | 2.03 | 1.88 | 1.83 |
| Maximum Dry Density (t/m³) | | 2.16 | 2.13 | 1.94 | 1.89 |
| Dry Density Ratio Required | (%) | -1 | -1 | - | 2.1 |
| Dry Density Ratio (%) | Dry Density Ratio (%) | | 95.5 | 97.0 | 97.0 |

Remarks

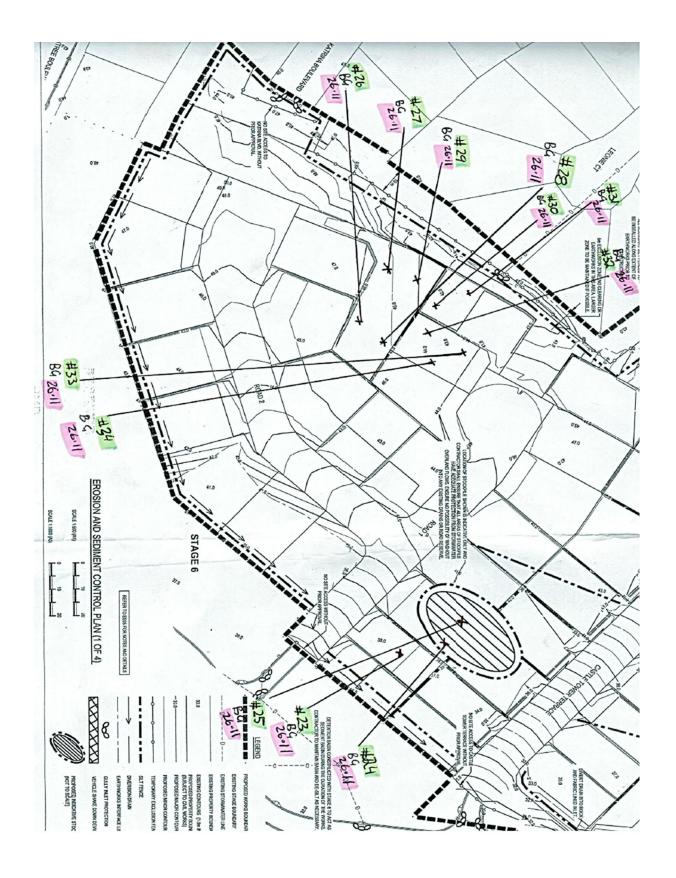


The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Accredited for compliance with ISO/IEC 17025

Laboratory Accreditation Number: 5529

Approved Signatory: Michael Preston Form ID: W27ASRep Rev 1





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 07 49726620
 07 49726495

 Email:
 scott.meredith@cardno.com.au

www.cardno.com.au

Website:

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client: BMD Urban Report Number: 5529/R/2225-1

 Client Address:
 25 Cambridge Prade, Manly
 Project Number:
 5529/P/83

 Project:
 Vantage Estate Stage 7
 Lot Number:
 N/A

 Location:
 Brindabella way gladstone
 Report Date:
 11/12/2012

Component: Client Reference/s:

 Area Description:
 Page Number:
 Page 1 of 1

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

| o. | | | |
|--------------------------|----------|---------------------|---------------------|
| Sample Number | | 5529/S/7185 | 5529/S/7186 |
| ID / Client ID | | #35 | #34 |
| Lot Number | | N/A | N/A |
| Date / Time Tested | | 29/11/2012 | 29/11/2012 |
| Material Source | | Onsite | Onsite |
| Material Type | | Fill | Fill |
| Sampling Method | | AS1289.1.2.1 | AS1289.1.2.1 |
| Test / Layer Depth (mm | 1) | 150 / 300 | 150 / 300 |
| Standard or Modified | | Standard | Standard |
| Grid | | | |
| Easting | (m) | As Per site Plan | As Per site Plan |
| Northing | (m) | | |
| RL | (m) | 43.2 | 44.0 |
| Test Fraction (mm) | | < 19.0 mm | < 19.0 mm |
| Sample Oversize Wet (| %) | 14 | 6 |
| Sample Oversize Dry (% | %) | 15 | 6 |
| MDR Sample Number | | 5529/S/7185 | 5529/S/7186 |
| MDR Sample Date / Up | date | 29/11/2012 | 29/11/2012 |
| Assigned MDR (Yes / N | lo) | No | No |
| Moisture Test Results: | | | |
| Field Moisture Content | (%) | 11.6 | 10.7 |
| Optimum Moisture Conf | tent (%) | 14.5 | 16.0 |
| Variation from OMC (% |) | 2.5% Dryer than OMC | 5.5% Dryer than OMC |
| Moisture Ratio (%) | | 81.0 | 66.5 |
| Density Test Results: | | | |
| Field Dry Density (t/m³) | | 1.89 | 1.92 |
| Maximum Dry Density (| t/m³) | 1.86 | 1.78 |
| Dry Density Ratio Requ | ired (%) | - | |
| Dry Density Ratio (%) | | 101.5 | 108.0 |

Remarks



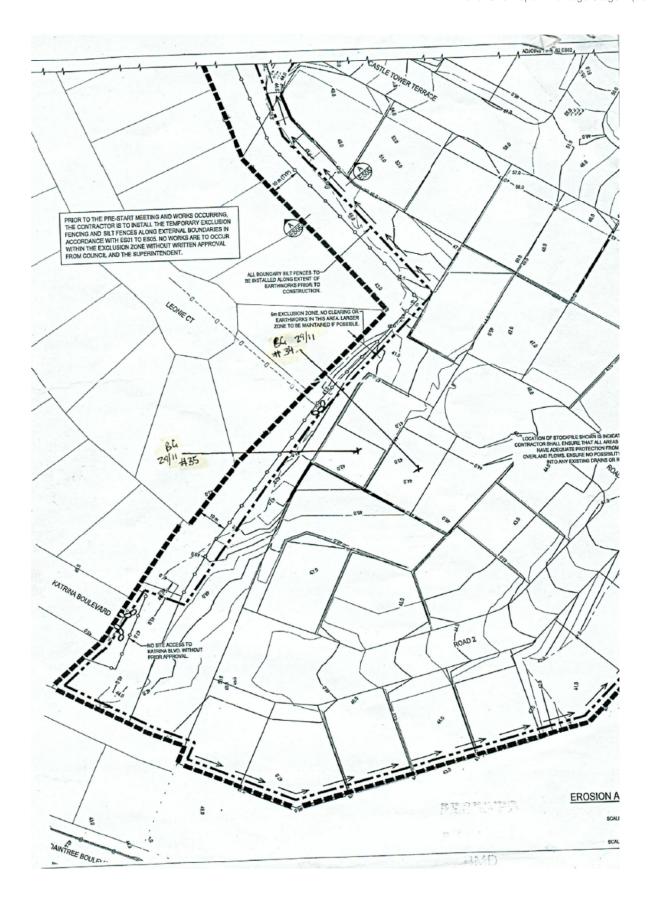
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Laboratory Accreditation Number: 5529

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Approved Signatory: Michael Preston
Form ID: W27ASRep Rev 1



Cardno Bowler Level one Report

Vantage Stage 7 (Lot 413)



Prepared for BMD 25/7/2013

Contact Information

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Document Information

Prepared for BMD

Project Name Vantage Stage 7 (Lot 413)

File Reference

Job Reference 5529/P/83 Date 25/7/2013

Document Control

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| 1 | 12/7/2013 | | MP | Meeston | DC | |
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| Version | By | (Signature) | Date |
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1. INTRODUCTION

Cardno Bowler Pty Ltd was commissioned by BMD to carry out Level 1 supervision of the placement of fill for Vantage stage 7.

2. INSPECTIONS / COMPACTION CONTROL TESTING

Prior to filling operations on Lot 413, inspections and compaction tests were carried out on areas of subgrade soils. The inspections confirmed that vegetation had been stripped from the fill area prior to filling.

Compaction control tests, meeting the project specification where taken. These tests were carried out at regular intervals throughout the placement of fill in accordance with AS3798-2007 'Guidelines on Earthworks for commercial and residential developments'. Equipment used over the period of filling included scrapers, excavators, backhoes, graders, water trucks, sheepsfoot rollers tip trucks etc. The fill was placed over a section at the front of the block and varied in depth. The test results attached are relevant to lot 413 with compaction.

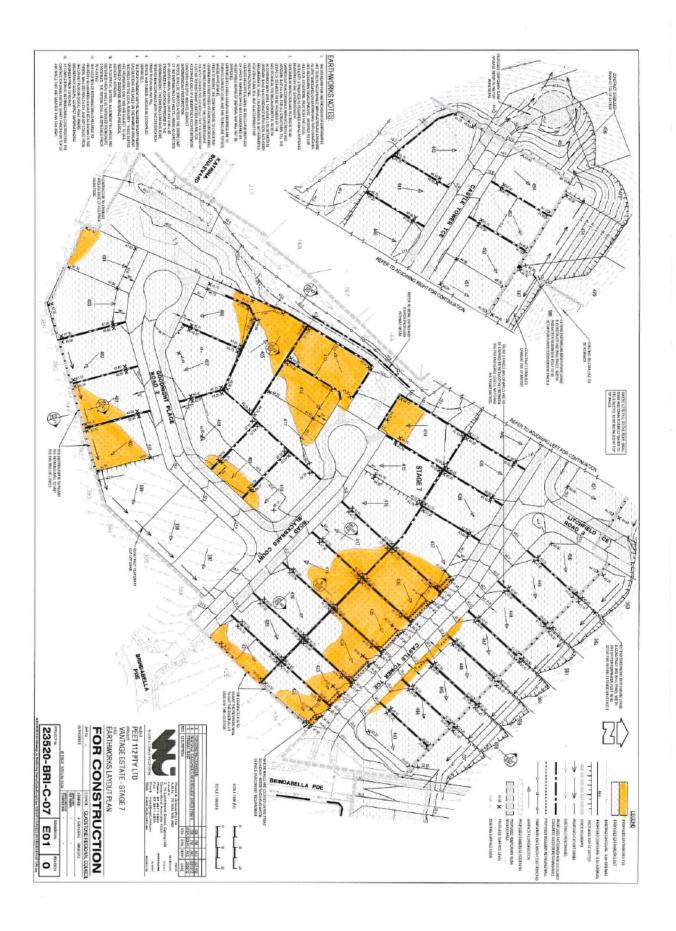
The placement of fill for the proposed subdivision was carried out under level 1 arrangements, in a controlled manner and compacted to a density ratio of not less than the specified requirements. Given this, the fill may be deemed to be 'Controlled Fill' in accordance with AS2870-2007 'Residential Slabs & Footings'.

For and on behalf of Cardno Bowler,

Michael Preston

Laboratory Manager

Gladstone.





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5529/R/2142-1

5529/P/83

05/12/2012

Page 1 of 3

N/A

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Report Number:

Project Number:

Lot Number:

Report Date:

Page Number:

Client Reference/s:

BMD Urban Client: Client Address: 25 Cambridge Prade, Manly Project: Vantage Estate Stage 7

Brindabella way gladstone Location:

Area Description:

Test Procedures:

Component:

AS1289.5.4.1, AS1289.5.1.1, AS1289.5.8.1, AS1289.2.1.1

| Sample Number | | 5529/S/7150 | 5529/S/7151 | 5529/S/7152 | 5529/S/7153 |
|------------------------------|-----------------------|---------------------|---------------------|---------------------|----------------------|
| ID / Client ID | ID / Client ID | | #24 | #25 | #26 |
| Lot Number | | N/A | N/A | N/A | N/A |
| Date / Time Tested | | 26/11/2012 | 26/11/2012 | 26/11/2012 | 26/11/2012 |
| Material Source | | Onsite | Onsite | Onsite | Onsite |
| Material Type | | Fill | Fill | Fill | Fill |
| Sampling Method | | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 |
| Test / Layer Depth (mm) | | 150 / 300 | 150 / 300 | 150 / 300 | 150 / 300 |
| Standard or Modified | | Standard | Standard | Standard | Standard |
| Grid | | | | | |
| Easting | (m) | | | | |
| Northing | (m) | | | | |
| RL | (m) | 37.4 | 39.33 | 38.8 | 44.7 |
| 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 | | 5529/S/7150 | 5529/S/7151 | 5529/S/7152 | 5529/S/7153 |
| MDR Sample Date / Update | 9 | 26/11/2012 | 26/11/2012 | 26/11/2012 | 26/11/2012 |
| Assigned MDR (Yes / No) | | No | No | No | No |
| Moisture Test Results: | | | | | |
| Field Moisture Content (%) | | 6.8 | 6.0 | 10.4 | 10.6 |
| Optimum Moisture Content (%) | | 8.0 | 7.5 | 11.0 | 10.5 |
| Variation from OMC (%) | | 1.0% Dryer than OMC | 1.5% Dryer than OMC | 0.5% Dryer than OMC | 0.0% Wetter than OMC |
| Moisture Ratio (%) | | 86.0 | 79.0 | 94.5 | 102.0 |
| Density Test Results: | | | | | |
| Field Dry Density (t/m³) | | 2.05 | 2.03 | 1.88 | 1.83 |
| Maximum Dry Density (t/m³) | | 2.16 | 2.13 | 1.94 | 1.89 |
| Dry Density Ratio Required | (%) | -1 | -1 | - | 2.1 |
| Dry Density Ratio (%) | Dry Density Ratio (%) | | 95.5 | 97.0 | 97.0 |

Remarks

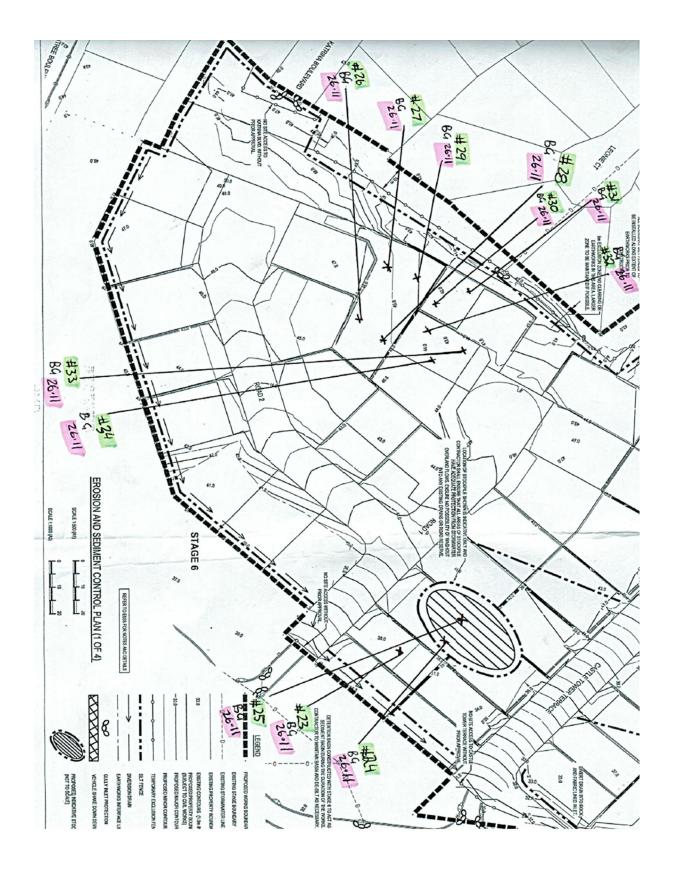


The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Accredited for compliance with ISO/IEC 17025

Laboratory Accreditation Number: 5529

Approved Signatory: Michael Preston Form ID: W27ASRep Rev 1





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 07 49726495

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 Website:
 www.cardno.com.au

DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client: BMD Urban Report Number: 5529/R/2225-1

 Client Address:
 25 Cambridge Prade, Manly
 Project Number:
 5529/P/83

 Project:
 Vantage Estate Stage 7
 Lot Number:
 N/A

 Location:
 Brindabella way gladstone
 Report Date:
 11/12/2012

Component: Client Reference/s:

 Area Description:
 Page Number:
 Page 1 of 1

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

| Sample Number | | 5529/S/7185 | 5529/S/7186 |
|--------------------------|---------|---------------------|---------------------|
| ID / Client ID | | #35 | #34 |
| Lot Number | | N/A | N/A |
| Date / Time Tested | | 29/11/2012 | 29/11/2012 |
| Material Source | | Onsite | Onsite |
| Material Type | | Fill | Fill |
| Sampling Method | | AS1289.1.2.1 | AS1289.1.2.1 |
| Test / Layer Depth (mm) | | 150 / 300 | 150 / 300 |
| Standard or Modified | | Standard | Standard |
| Grid | | | |
| Easting | (m) | As Per site Plan | As Per site Plan |
| Northing | (m) | | |
| RL | (m) | 43.2 | 44.0 |
| Test Fraction (mm) | | < 19.0 mm | < 19.0 mm |
| Sample Oversize Wet (% | 6) | 14 | 6 |
| Sample Oversize Dry (% |) | 15 | 6 |
| MDR Sample Number | | 5529/S/7185 | 5529/S/7186 |
| MDR Sample Date / Upo | date | 29/11/2012 | 29/11/2012 |
| Assigned MDR (Yes / No | o) | No | No |
| Moisture Test Results: | | | |
| Field Moisture Content (| %) | 11.6 | 10.7 |
| Optimum Moisture Conte | ent (%) | 14.5 | 16.0 |
| Variation from OMC (%) | | 2.5% Dryer than OMC | 5.5% Dryer than OMC |
| Moisture Ratio (%) | | 81.0 | 66.5 |
| Density Test Results: | | | |
| Field Dry Density (t/m³) | | 1.89 | 1.92 |
| Maximum Dry Density (t | /m³) | 1.86 | 1.78 |
| Dry Density Ratio Requi | red (%) | - | - |
| Dry Density Ratio (%) | | 101.5 | 108.0 |

Remarks



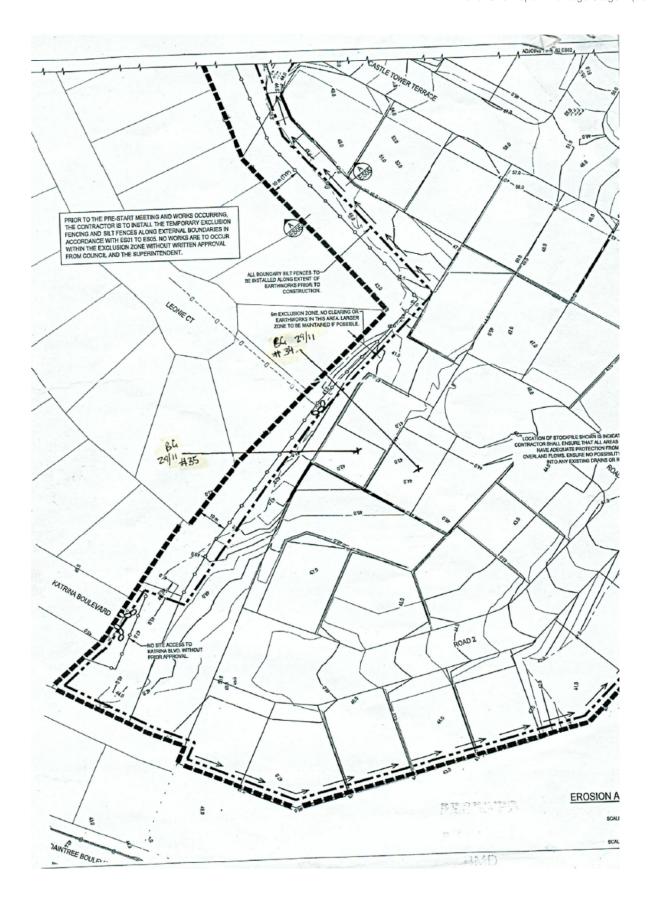
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards

Accredited for compliance with ISO/IEC 17025

Laboratory Accreditation Number: 5529

MAGN.

Approved Signatory: Michael Preston
Form ID: W27ASRep Rev 1



Cardno Bowler Level one Report

Vantage Stage 7 (Lot 414)



Prepared for BMD 25/7/2013

Contact Information

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Document Information

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Project Name Vantage Stage 7 (Lot 414)

File Reference

Job Reference 5529/P/83 Date 25/7/2013

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1. INTRODUCTION

Cardno Bowler Pty Ltd was commissioned by BMD to carry out Level 1 supervision of the placement of fill for Vantage stage 7.

2. INSPECTIONS / COMPACTION CONTROL TESTING

Prior to filling operations on Lot 414, inspections and compaction tests were carried out on areas of subgrade soils. The inspections confirmed that vegetation had been stripped from the fill area prior to filling.

Compaction control tests, meeting the project specification where taken. These tests were carried out at regular intervals throughout the placement of fill in accordance with AS3798-2007 'Guidelines on Earthworks for commercial and residential developments'. Equipment used over the period of filling included scrapers, excavators, backhoes, graders, water trucks, sheepsfoot rollers tip trucks etc. The fill was placed over a section at the front of the block and varied in depth. The test results attached are relevant to lot 414 with compaction.

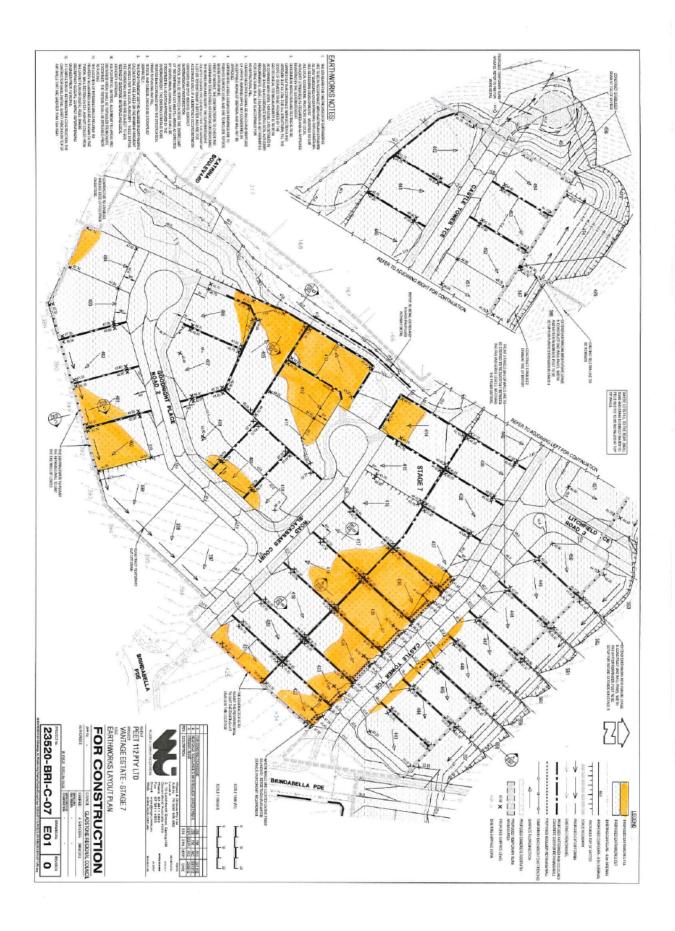
The placement of fill for the proposed subdivision was carried out under level 1 arrangements, in a controlled manner and compacted to a density ratio of not less than the specified requirements. Given this, the fill may be deemed to be 'Controlled Fill' in accordance with AS2870-2007 'Residential Slabs & Footings'.

For and on behalf of Cardno Bowler,

Michael Preston

Laboratory Manager

Gladstone.





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DRY DENSITY RATIO / MOISTURE RATIO REPORT

Client: BMD Urban

Client Address: 25 Cambridge Prade, Manly

Project: Vantage Estate Stage 7

Project: Vantage Estate Stage /

Location: Brindabella way gladstone

Component:
Area Description:

Report Number: 5529/R/2142-1

Project Number: 5529/P/83 Lot Number: N/A

Report Date: 05/12/2012

Client Reference/s:

Page Number: Page 1 of 3

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

| Sample Number | | 5529/S/7150 | 5529/S/7151 | 5529/S/7152 | 5529/S/7153 |
|--------------------------------|-----|---------------------|---------------------|---------------------|----------------------|
| ID / Client ID | | #23 | #24 | #25 | #26 |
| Lot Number | | N/A | N/A | N/A | N/A |
| Date / Time Tested | | 26/11/2012 | 26/11/2012 | 26/11/2012 | 26/11/2012 |
| Material Source | | Onsite | Onsite | Onsite | Onsite |
| Material Type | | Fill | Fill | Fill | Fill |
| Sampling Method | | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 | AS1289.1.2.1 |
| Test / Layer Depth (mm) | | 150 / 300 | 150 / 300 | 150 / 300 | 150 / 300 |
| Standard or Modified | | Standard | Standard | Standard | Standard |
| Grid | | | | | |
| Easting | (m) | | | | |
| Northing | (m) | | | | |
| RL | (m) | 37.4 | 39.33 | 38.8 | 44.7 |
| 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 | | 5529/S/7150 | 5529/S/7151 | 5529/S/7152 | 5529/S/7153 |
| MDR Sample Date / Update | | 26/11/2012 | 26/11/2012 | 26/11/2012 | 26/11/2012 |
| Assigned MDR (Yes / No) | | No | No | No | No |
| Moisture Test Results: | | | | | |
| Field Moisture Content (%) | | 6.8 | 6.0 | 10.4 | 10.6 |
| Optimum Moisture Content (%) | | 8.0 | 7.5 | 11.0 | 10.5 |
| Variation from OMC (%) | | 1.0% Dryer than OMC | 1.5% Dryer than OMC | 0.5% Dryer than OMC | 0.0% Wetter than OMC |
| Moisture Ratio (%) | | 86.0 | 79.0 | 94.5 | 102.0 |
| Density Test Results: | | | | | |
| Field Dry Density (t/m³) | | 2.05 | 2.03 | 1.88 | 1.83 |
| Maximum Dry Density (t/m³) | | 2.16 | 2.13 | 1.94 | 1.89 |
| Dry Density Ratio Required (%) | | ÷) | -1 | | ±1 |
| Dry Density Ratio (%) | | 95.0 | 95.5 | 97.0 | 97.0 |

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

Laboratory Accreditation Number: 5529

Alton.

Approved Signatory: Michael Preston
Form ID: W27ASRep Rev 1

