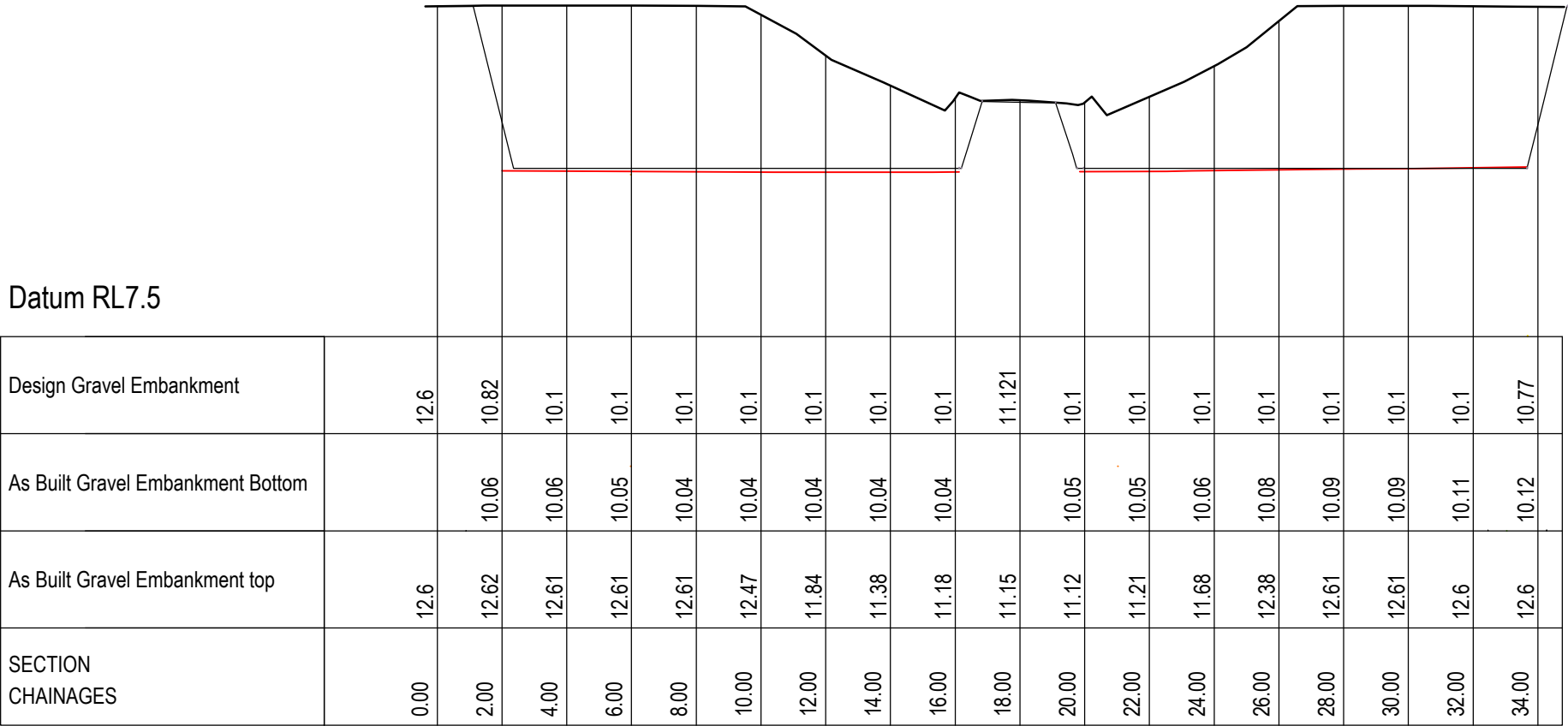


Appendix F

Gravel Embankment

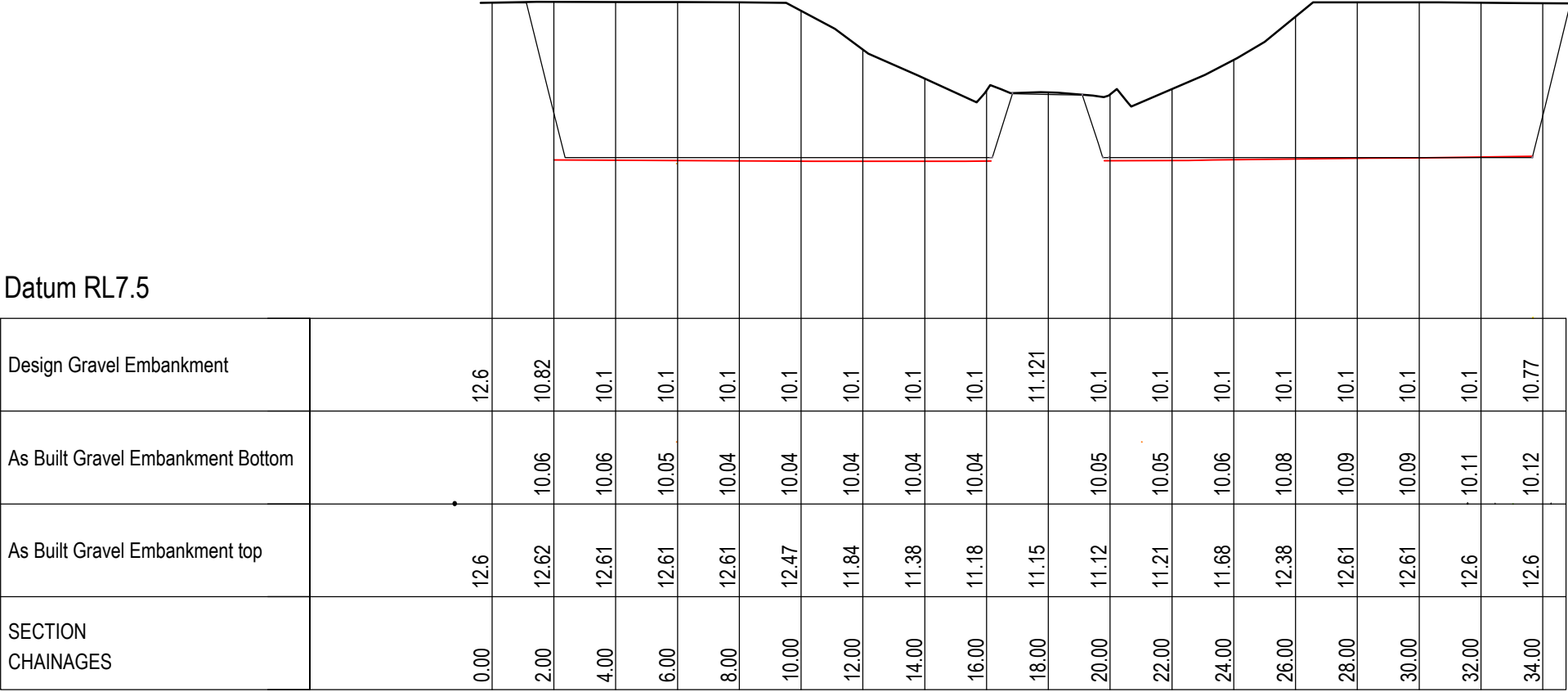
Asbuilts



As Built Gravel Embankment Section X7

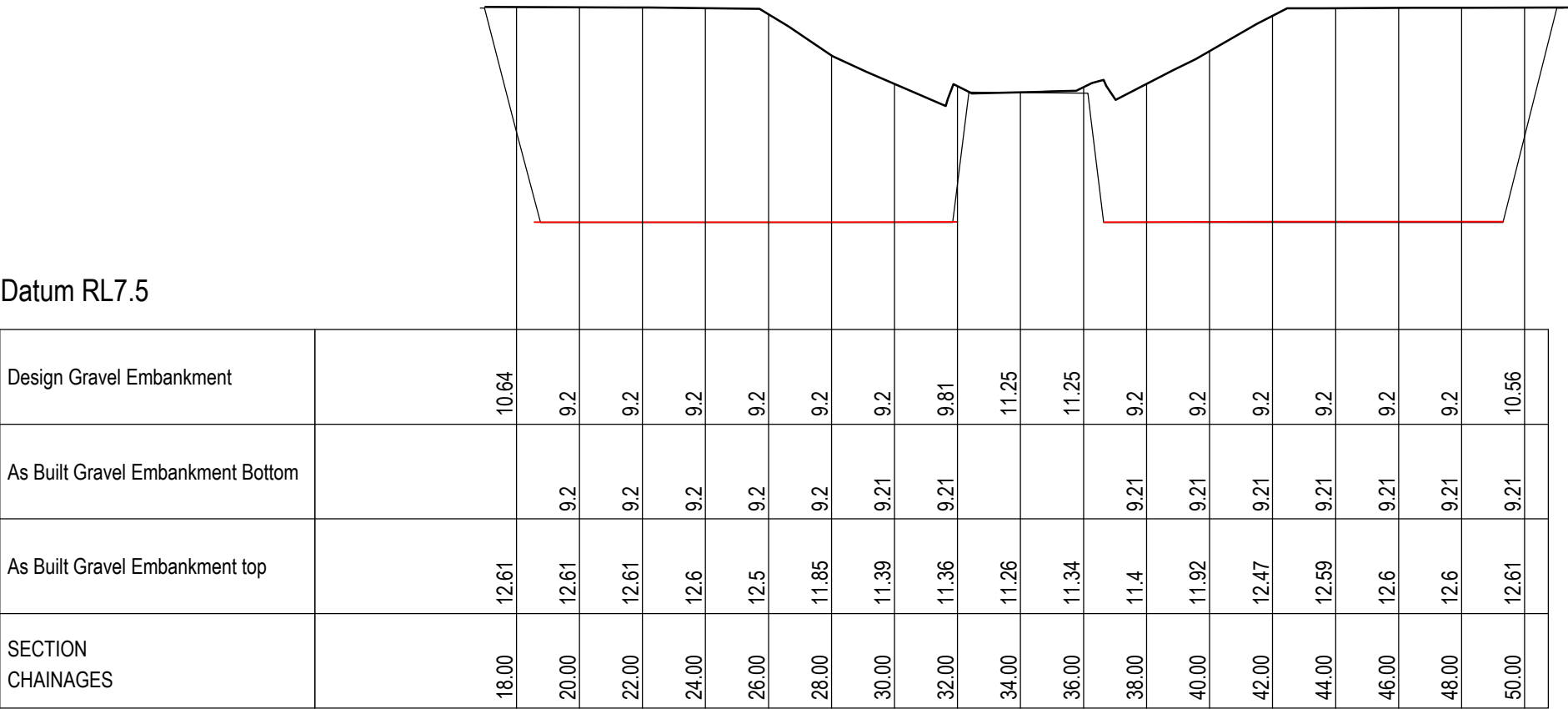
HORIZONTAL 1:200

VERTICAL 1:100



As Built Gravel Embankment Section X8

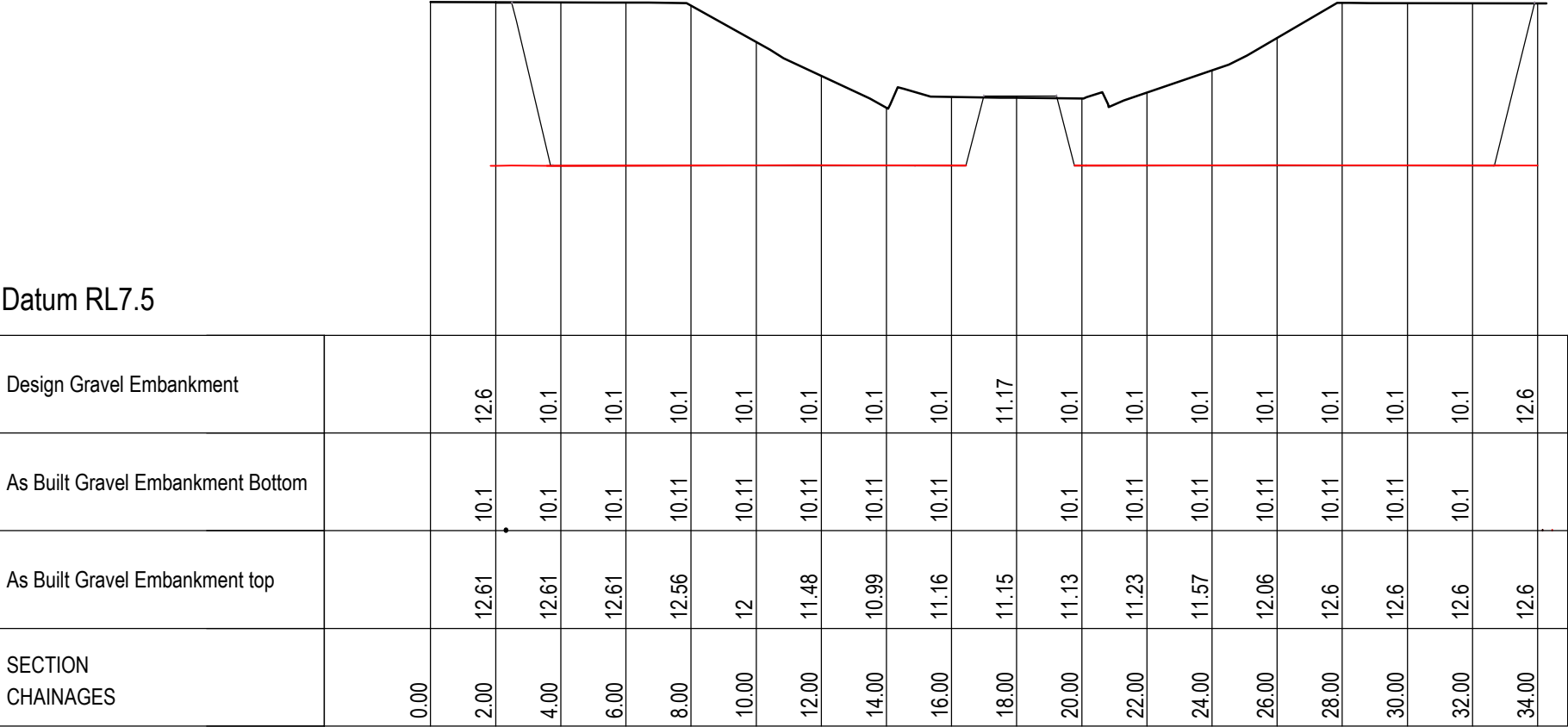
HORIZONTAL 1:200
VERTICAL 1:100



As Built Gravel Embankment Section X10

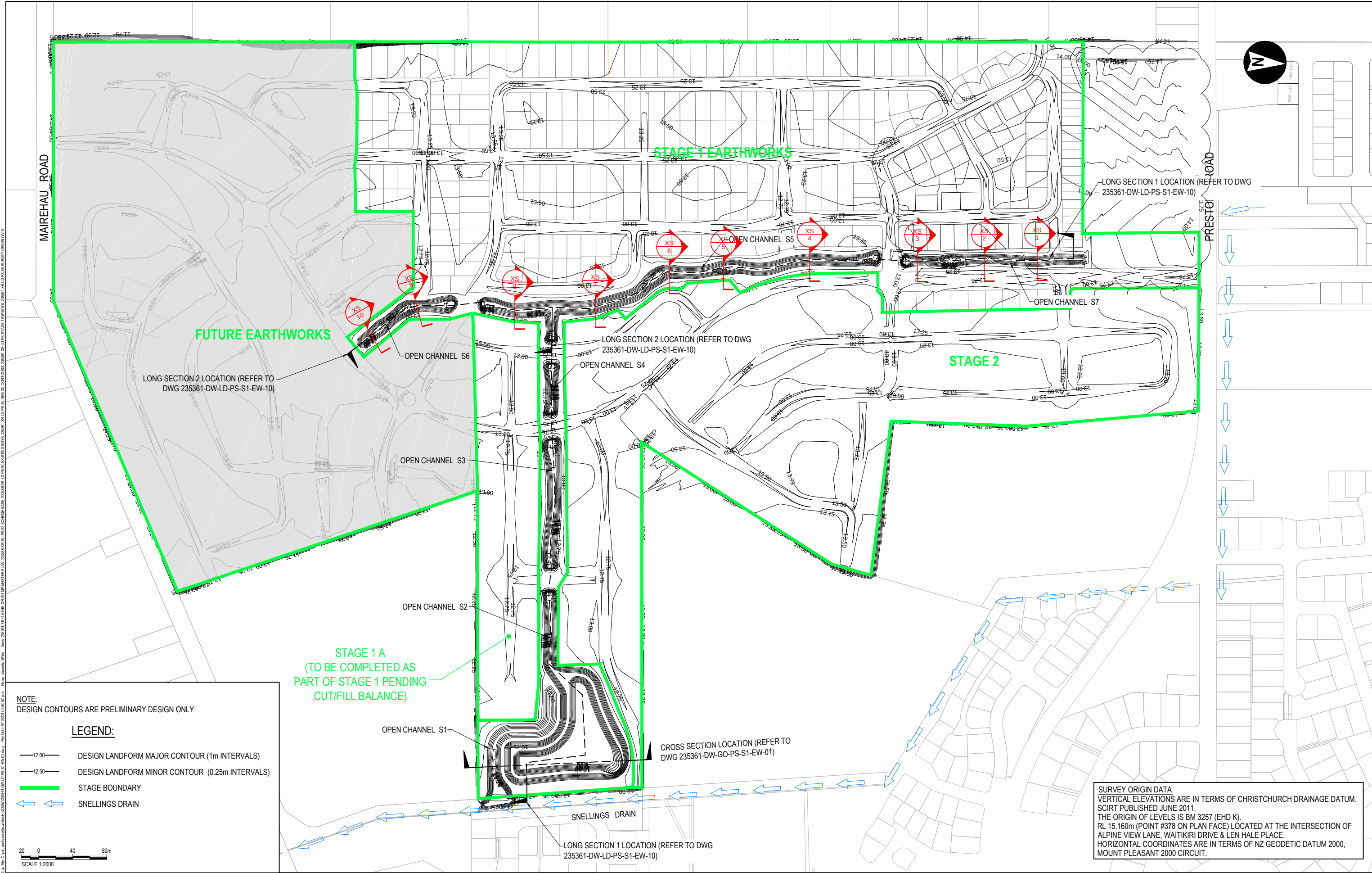
HORIZONTAL 1:200

VERTICAL 1:100



As Built Gravel Embankment Section X9

HORIZONTAL 1:200
VERTICAL 1:100



NOTE:
DESIGN CONTOURS ARE PRELIMINARY DESIGN ONLY

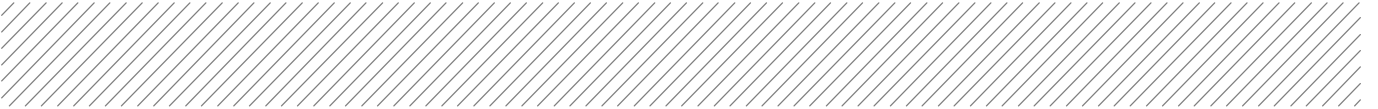
LEGEND:

- 12.00— DESIGN LANDFORM MAJOR CONTOUR (1m INTERVALS)
- 12.50— DESIGN LANDFORM MINOR CONTOUR (0.25m INTERVALS)
- STAGE BOUNDARY
- ← SNELLINGS DRAIN

20 0 40 80m
SCALE 1:2000

SURVEY ORIGIN DATA
VERTICAL ELEVATIONS ARE IN TERMS OF CHRISTCHURCH DRAINAGE DATUM.
SCIRT PUBLISHED JUNE 2011.
THE ORIGIN OF LEVELS IS BM 3257 (EHD K).
RL 15.160m (POINT #378 ON PLAN FACE) LOCATED AT THE INTERSECTION OF
ALPINE VIEW LANE, WAITIKIRI DRIVE & LEN HALE PLACE.
HORIZONTAL COORDINATES ARE IN TERMS OF NZ GEODETIC DATUM 2000,
MOUNT PLEASANT 2000 CIRCUIT.

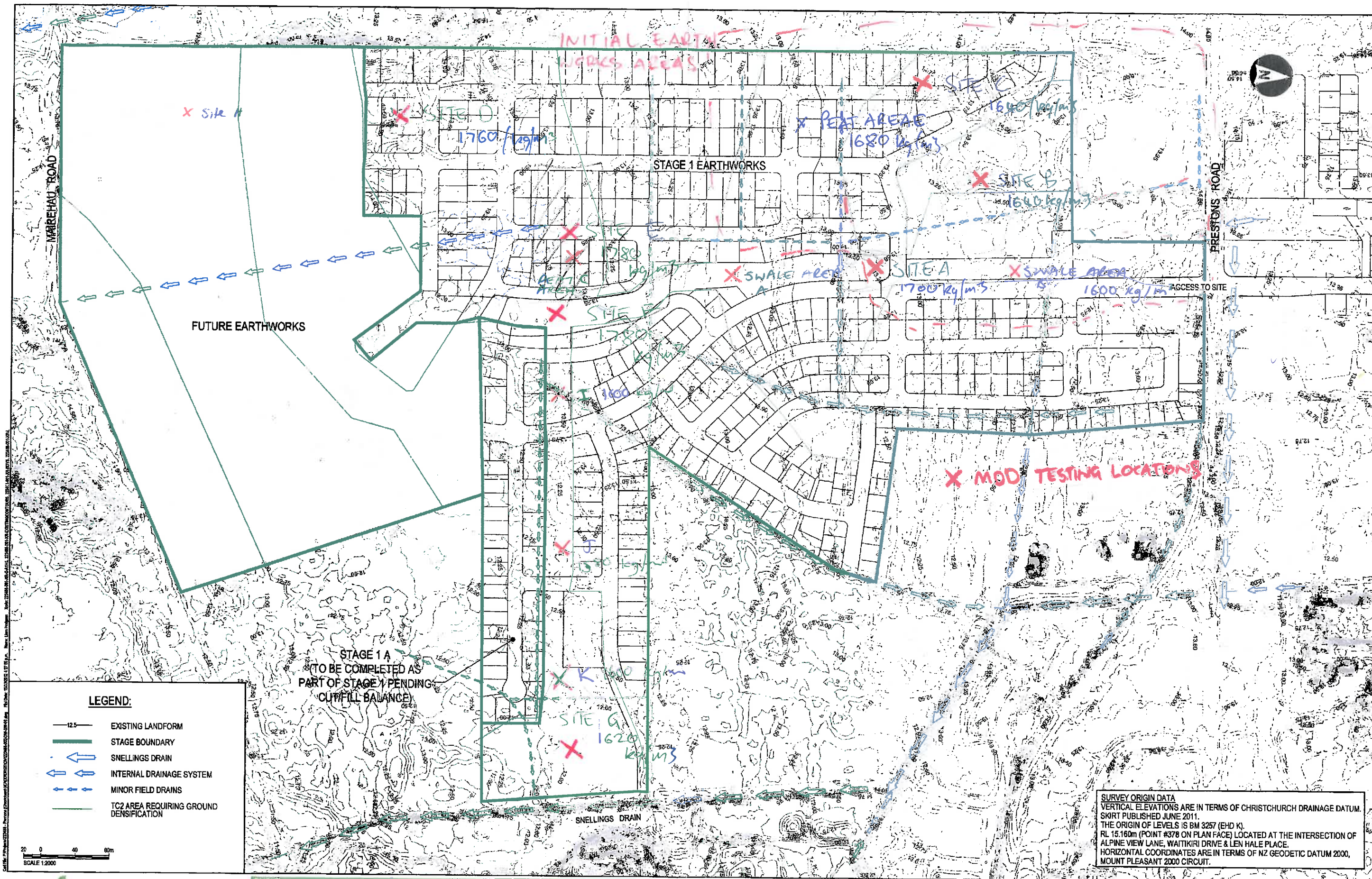
CLIENT		REV	DATE	REVISION DETAILS	APPROVED	DRAWN	DESIGNED	PROJECT		CONSTRUCTION	
						L.O'SULLIVAN	S.HUSBAND	PRESTONS SOUTH		PROJECT No.	
						W.NEL				235361	
								TITLE		SCALE	
						K.ASHBY	DATE 09/10/13	EARTHWORKS STAGE 1		1:2000 @ A1	
						K.ASHBY		DESIGN LANDFORM		DRAWING No.	
		2	05/12/14	ISSUE FOR INFORMATION	K.ASHBY					LD-PS-S1-EW-02	
		1	09/10/13	FOR CONSTRUCTION	K.ASHBY					REV	
										2	



Appendix G

Compaction Curves

Master copy



aurecon
www.aurecongroup.com



1 09/10/19 FOR CONSTRUCTION

KASHBY

APPROVED	CHECKED	DATE
L'O'SULLIVAN	S HUSBAND	09/10/19
W NEL		
APPROVED		
KASHBY		
KASHBY		

PRESTONS SOUTH
EARTHWORKS STAGE 1
EXISTING LANDFORM

CONSTRUCTION	PROJECT No	235361
SCALE	1:2000 @ A1	A1
DRAWING No	LD-PS-S1-EW-01	1

Test Report

Client: K.B. Contracting & Quarries Limited
Address: PO Box 19746, Woolston, Christchurch 8241
Client Ref: Not Advised
Job Location: New Quarry
Material: Pit run
Material Source: KB's Quarries McLeans Island

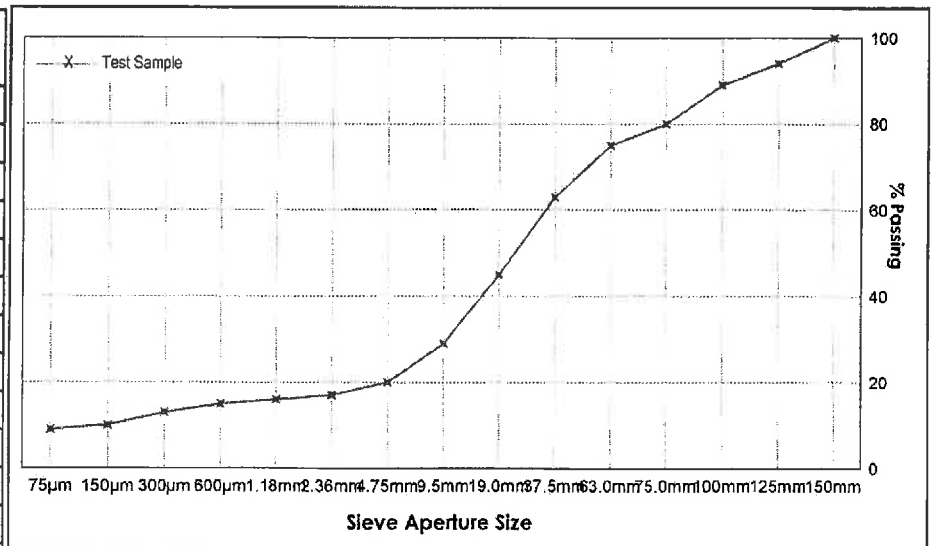
Sample Date: 11-Oct-2013 11:00
Sampled By: Declan McGowan
Laboratory No: C13/2221
Report No: 158619
Report Date: 18-Oct-2013
Replacement
Page 1 of 1

This report supersedes and replaces Report No: 158610

Test Methods: 1 The Particle-Size Distribution - Preferred Method by Wet Sieving

NZS 4407:1991 Test 3.8.1

Sieve Size (BSS)	Percent passing	Specification
125mm	94	
100mm	89	
75.0mm	80	
63.0mm	75	
37.5mm	63	
19.0mm	45	
9.5mm	29	
4.75mm	20	
2.36mm	17	
1.18mm	16	
600µm	15	
300µm	13	
150µm	10	
75µm	9	



Test Date:

14/10/2013

Notes

Test results apply to sample as received.
Percent passing finest sieve obtained by difference.
Sample received in a damp condition.
Date of sample receipt: 11-Oct-13

Craig Kelly
Approved Signatory
Laboratory Technician
IANZ Accreditation No: 439
Date of Issue: 10/04/92

C. Kelly

IANZ
ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full.

Report No: MDD:CAN14S-12828
Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test (s) reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. This report may only be reproduced in full.



Max Burford

Approved Signatory: Max Burford
(Supervisor)

IANZ Accreditation No:200

Date of Issue: 25/06/14

Sample Details

Sample ID: CAN14S-12828

Material: Pit Run

Site/Sampled From: KB's McLeans Island Quarry

Specification: No Specification (Coarse)

Sampling Method: Stated to be NZS 4407:1991 2.4.6.2.1

Technician: Greg Orr

Client Sample ID: Lab Ref 1381/14

Sample Source: Field Sample [Taken From Site]

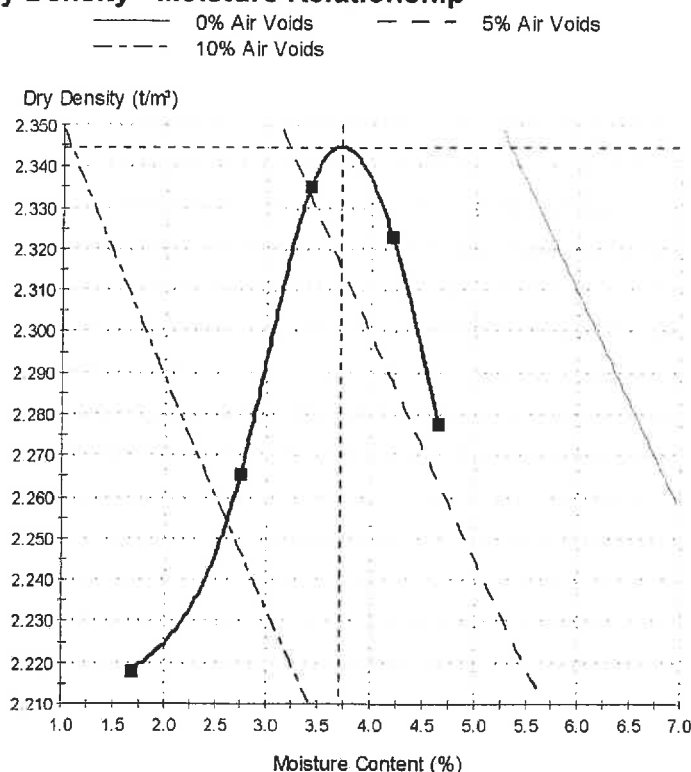
Date Sampled: 20/06/2014

Sampled By: Advised - See Comments

Date Tested: 25/06/2014

Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

____ NZS 4402:1986 Test 4.1.3 - 1986 ____

Maximum Dry Density (t/m³): 2.34

Optimum Moisture Content (%): 3.8

Solid Density (t/m³): 2.68 assumed

Fraction Tested Passes (mm): 37.5

Material Removed (%): 12

Sample History: Natural

Comments

Sampled by C Gould

Test Report

Client: K.B. Contracting & Quarries Limited
Address: PO Box 19746, Woolston, Christchurch 8241
Client Ref: Not Advised
Job Location: New Quarry
Material: Pit run
Material Source: KB's Quarries McLeans Island

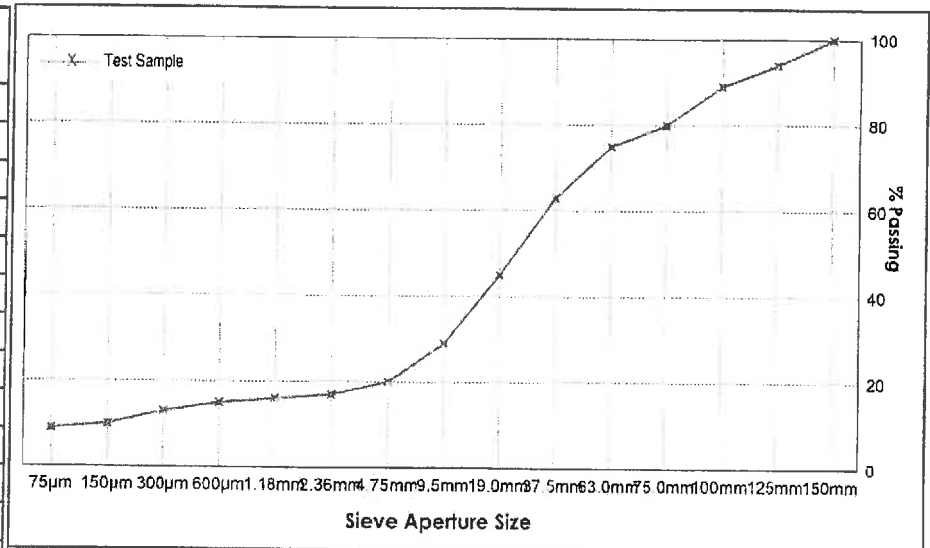
Sample Date: 11-Oct-2013 11:00
Sampled By: Declan McGowan
Laboratory No: C13/2221
Report No: 158619
Report Date: 18-Oct-2013
Replacement Page 1 of 1

This report supersedes and replaces Report No: 158610

Test Methods: 1 The Particle-Size Distribution - Preferred Method by Wet Sieving

NZS 4407:1991 Test 3.8.1

Sieve Size (BSS)	Percent passing	Specification
125mm	94	
100mm	89	
75.0mm	80	
63.0mm	75	
37.5mm	63	
19.0mm	45	
9.5mm	29	
4.75mm	20	
2.36mm	17	
1.18mm	16	
600µm	15	
300µm	13	
150µm	10	
75µm	9	



Test Date:

14/10/2013

Notes

Test results apply to sample as received.
Percent passing finest sieve obtained by difference.
Sample received in a damp condition.
Date of sample receipt: 11-Oct-13

Craig Kelly
Approved Signatory
Laboratory Technician
IANZ Accreditation No: 439
Date of Issue: 10/04/92

C. Kelly

IANZ
ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full.

Report No: MDD:CAN14S-12828
Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test(s) reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. This report may only be reproduced in full.


Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 25/06/14

Sample Details

Sample ID: CAN14S-12828

Material: Pit Run

Site/Sampled From: KB's McLeans Island Quarry

Specification: No Specification (Coarse)

Sampling Method: Stated to be NZS 4407:1991 2.4.6.2.1

Technician: Greg Orr

Client Sample ID: Lab Ref 1381/14

Sample Source: Field Sample [Taken From Site]

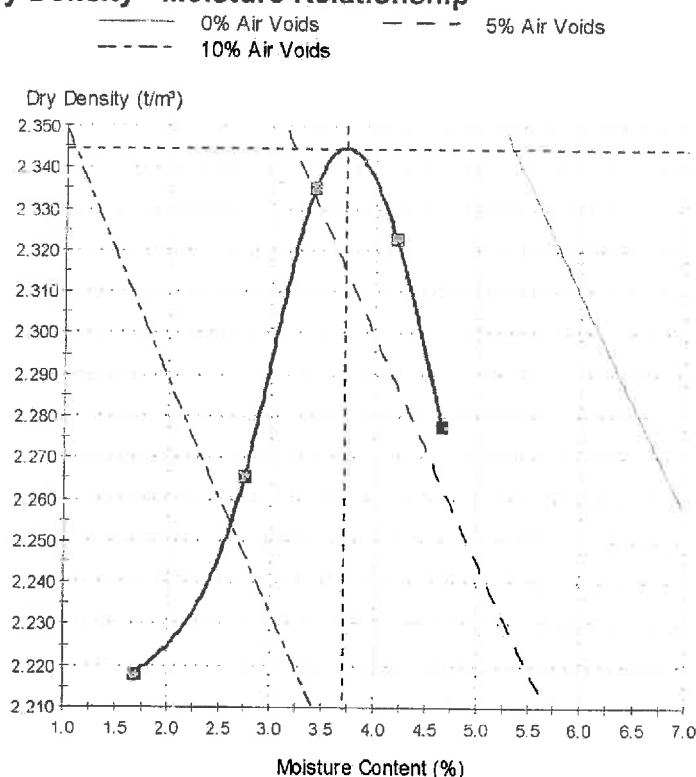
Date Sampled: 20/06/2014

Sampled By: Advised - See Comments

Date Tested: 25/06/2014

Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986

Maximum Dry Density (t/m³): 2.34

Optimum Moisture Content (%): 3.8

Solid Density (t/m³): 2.68 assumed

Fraction Tested Passes (mm): 37.5

Material Removed (%): 12

Sample History: Natural

Comments

Sampled by C Gould

Report No: MDD:CAN14S-11472
Issue No: 1

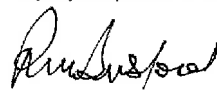
Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test (s) reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. This report may only be reproduced in full.

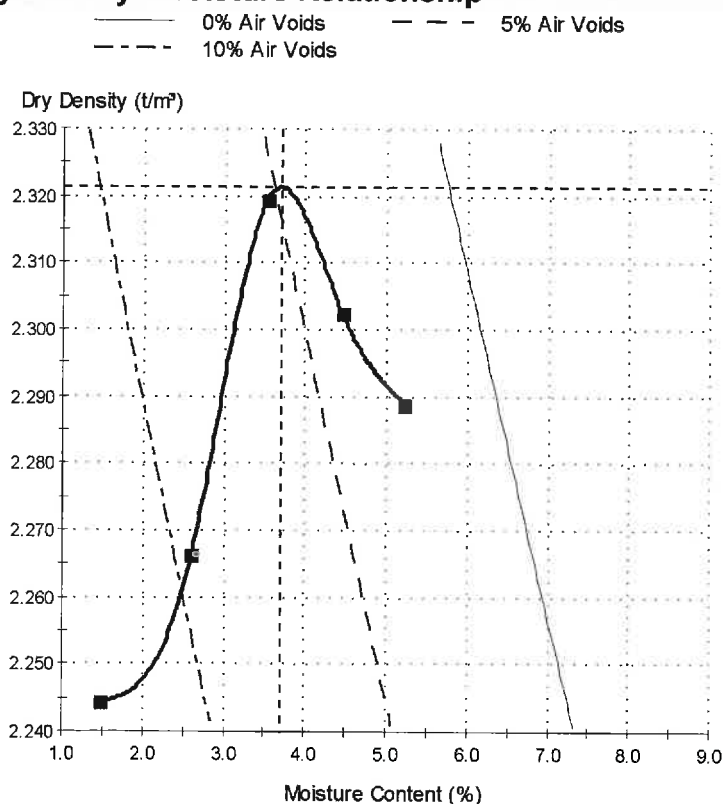
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 03/06/14

Sample Details

Sample ID: CAN14S-11472
Material: Pit Run
Site/Sampled From: KB Quarry Scalped over 53mm
Specification: No Specification
Sampling Method: Stated to be NZS 4407:1991 2.4.6.2.2
Technician: Greg Orr

Client Sample ID: 953081
Sample Source: Miscellaneous Material Source
Date Sampled: 29/05/2014
Sampled By: Advised - See Comments
Date Tested: 03/06/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986

Maximum Dry Density (t/m³): 2.32
Optimum Moisture Content (%): 3.6
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 14
Sample History: Natural

Comments

Sampled by Toni O'Regan

PIT RUN - MCLEANS ISLAND



Canterbury Laboratory

325 Pound Rd, Yaldhurst, Christchurch
PO Box 16-064, Christchurch 8441
Telephone: +64 3 349 9142
Facsimile: +64 3 349 9143
www.fultonhogan.com
0800 LABORATORY

Report No: MDD:CAN14S-12828

Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test (s) reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. This report may only be reproduced in full.



Max Burford

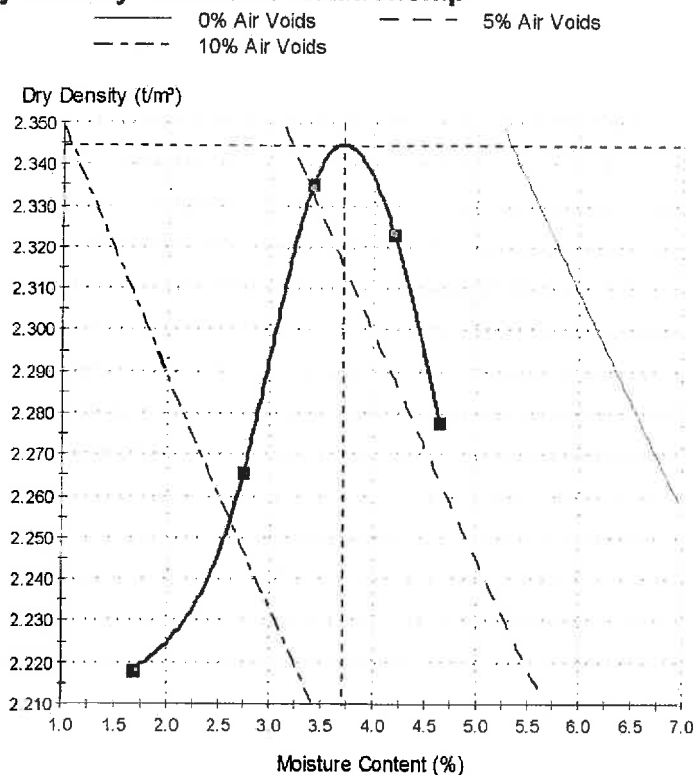
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 25/06/14

Sample Details

Sample ID: CAN14S-12828
Material: Pit Run
Site/Sampled From: KB's McLeans Island Quarry
Specification: No Specification (Coarse)
Sampling Method: Stated to be NZS 4407:1991 2.4.6.2.1
Technician: Greg Orr

Client Sample ID: Lab Ref 1381/14
Sample Source: Field Sample [Taken From Site]
Date Sampled: 20/06/2014
Sampled By: Advised - See Comments
Date Tested: 25/06/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

____ NZS 4402:1986 Test 4.1.3 - 1986 ____
Maximum Dry Density (t/m³): 2.34
Optimum Moisture Content (%): 3.8
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 12
Sample History: Natural

Comments

Sampled by C Gould

Test Report

Client: K.B. Contracting & Quarries Limited
Address: PO Box 19746, Woolston, Christchurch 8241
Client Ref: Not Advised
Job Location: New Quarry
Material: Pit run
Material Source: KB's Quarries McLeans Island

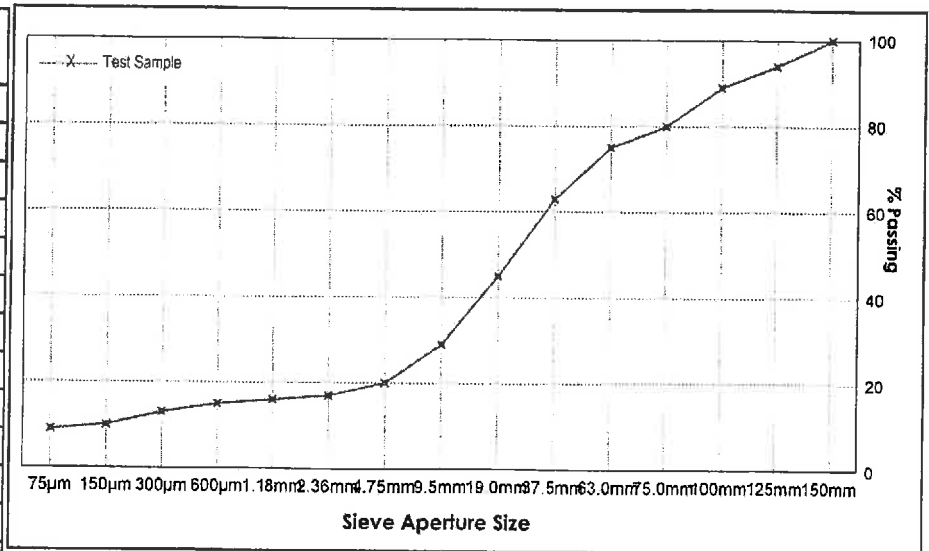
Sample Date: 11-Oct-2013 11:00
Sampled By: Declan McGowan
Laboratory No: C13/2221
Report No: 158619
Report Date: 18-Oct-2013
Replacement
Page 1 of 1

This report supersedes and replaces Report No: 158610

Test Methods: 1 The Particle-Size Distribution - Preferred Method by Wet Sieving

NZS 4407:1991 Test 3.8.1

Sieve Size (BSS)	Percent passing	Specification
125mm	94	
100mm	89	
75.0mm	80	
63.0mm	75	
37.5mm	63	
19.0mm	45	
9.5mm	29	
4.75mm	20	
2.36mm	17	
1.18mm	16	
600µm	15	
300µm	13	
150µm	10	
75µm	9	



Test Date:

14/10/2013

Notes

Test results apply to sample as received.
Percent passing finest sieve obtained by difference.
Sample received in a damp condition.
Date of sample receipt: 11-Oct-13

Craig Kelly
Approved Signatory
Laboratory Technician
IANZ Accreditation No: 439
Date of Issue: 10/04/92

C. Kelly

IANZ
ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. This report may not be reproduced except in full.

[illegible]



Fulton Hogan

PITRUN FOR GRAVEL
EMBANKMENTS

Canterbury Laboratory

325 Pound Rd, Yaldhurst, Christchurch
PO Box 16-064, Christchurch 8441
Telephone: +64 3 349 9142
Facsimile: +64 3 349 9143
www.fultonhogan.com
0800 LABORATORY

Report No: MDD:CAN14S-11472

Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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Max Burford

Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 03/06/14

Sample Details

Sample ID: CAN14S-11472

Material: Pit Run

Site/Sampled From: KB Quarry Scalped over 53mm

Specification: No Specification

Sampling Method: Stated to be NZS 4407:1991 2.4.6.2.2

Technician: Greg Orr

Client Sample ID: 953081

Sample Source: Miscellaneous Material Source

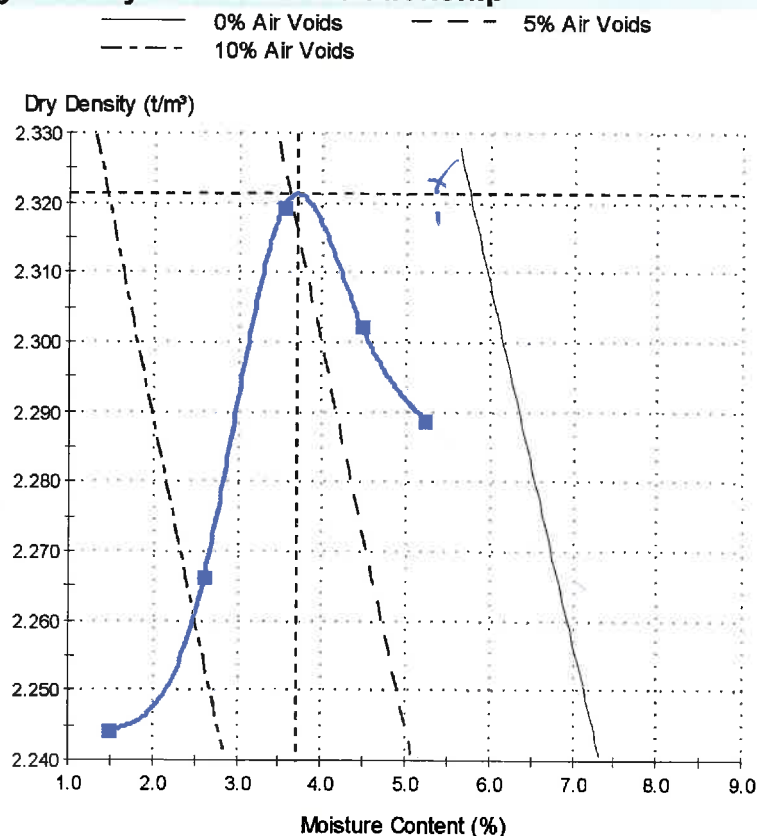
Date Sampled: 29/05/2014

Sampled By: Advised - See Comments

Date Tested: 03/06/2014

Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986

Maximum Dry Density (t/m³): 2.32

Optimum Moisture Content (%): 3.6

Solid Density (t/m³): 2.68 assumed

Fraction Tested Passes (mm): 37.5

Material Removed (%): 14

Sample History: Natural

Comments

Sampled by Toni O'Regan

REF ID: A66000

Lab Reference: (1601, 114)
(Test Number / Year)

(Test Number / Year)

Material: PIT RUN MCLUANS ISLAND Gauge Used: 65636
Location: CDL PRESTONS WEST SIDE LIFT II 4
Client: KBS Contact Name: A HODGSON
Tested By: L.S Date of Test: 11-7-14 Count Time: ~~Fast~~ ☒ (Normal) ~~Slow~~

Familiar with City Care Health and Safety Plan: ☒

(Eliminate / Isolate / Minimise) Any Site Specific Hazards and controls taken? (Sign into site, working plant, traffic etc.)

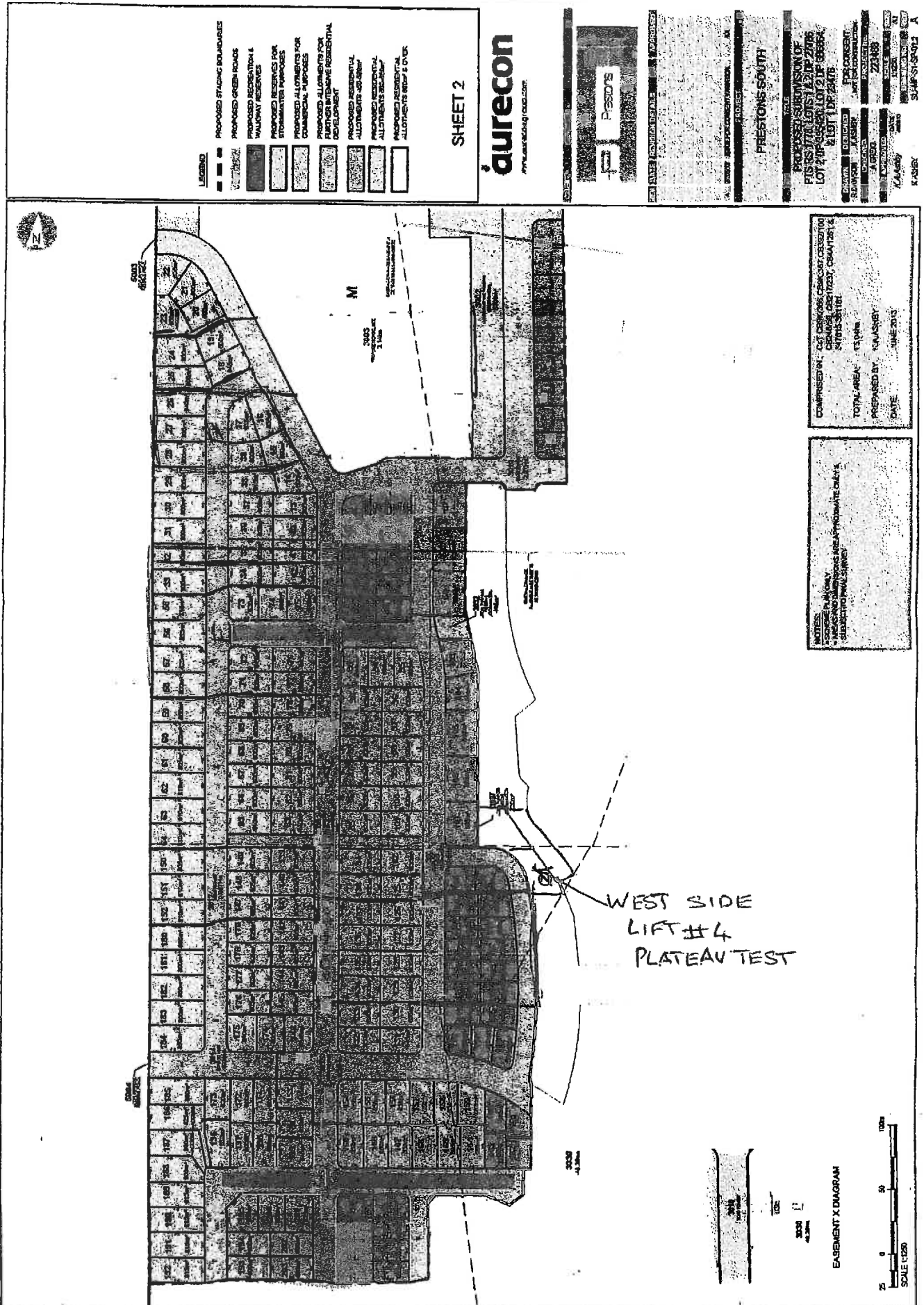
Target Density: 2340 Lab Ref: _____ Date of Issue: _____

Moisture Standard: 693 Density Standard: 2313

[illegible]

Notes:

1601/14



PIT RUN - MINORS
QUARRY

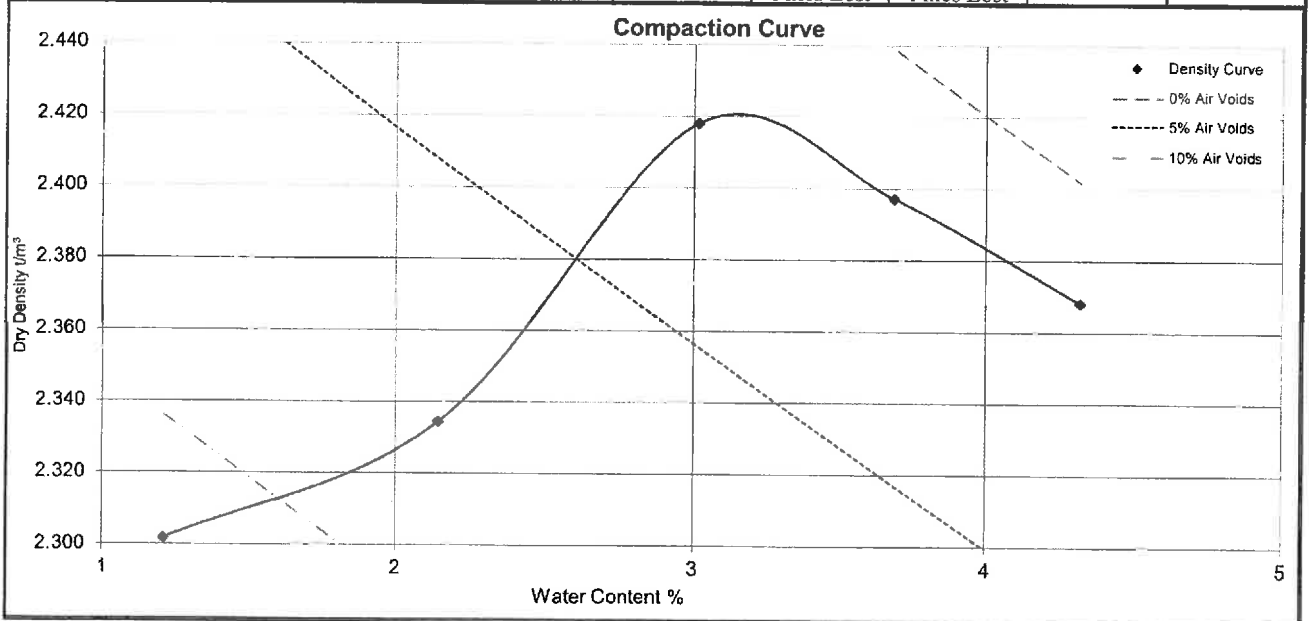
**DRY DENSITY / WATER CONTENT RELATIONSHIP
VIBRATING COMPACTION**



Project : Quality Assurance
Location : Prestons Road Subdivision
Client : Coffey Geotechnical
Contractor : Not Advised
Sampled by : S Gardner
Date sampled : 11 June 2014
Sampling method : Not Advised
Sample description : Pit Run
Sample condition : Damp as Received
Solid density : 2.68 t/m³ (Assumed)
Source : Prestons Road-KB's Quarries

Project No : 6-JCOFF.14/6LC
Lab Ref No : 13379
Client Ref No : A Wills

Test Results							
Maximum dry density	2.42	t/m ³	Natural water content		-	%	
Optimum water content	3.2	%	Fraction tested		Passing 37.5mm Test Sieve		
Sample ID	1%	2%	3%	4%	5%		
Bulk density t/m ³	2.330	2.385	2.491	2.486	2.470		
Water content %	1.2	2.1	3.0	3.7	4.3		
Dry density t/m ³	2.302	2.334	2.418	2.397	2.368		
Sample condition	Dry Firm	Moist Firm	Moist Hard	Wet Fines Lost	Saturated Fines Lost		



Test Methods	Notes
Compaction NZS 4402 : 1986 : Test 4.1.3	

Date tested : 13 June 2014
Date reported : 19 June 2014

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.
This report may only be reproduced in full

IANZ Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 19 June 2014



Tests Indicated as not accredited are outside the scope of the laboratory's accreditation

Report No: MDD:CAN14S-22802
Issue No: 1

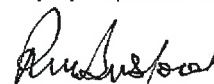
Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test(s) reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. This report may only be reproduced in full.

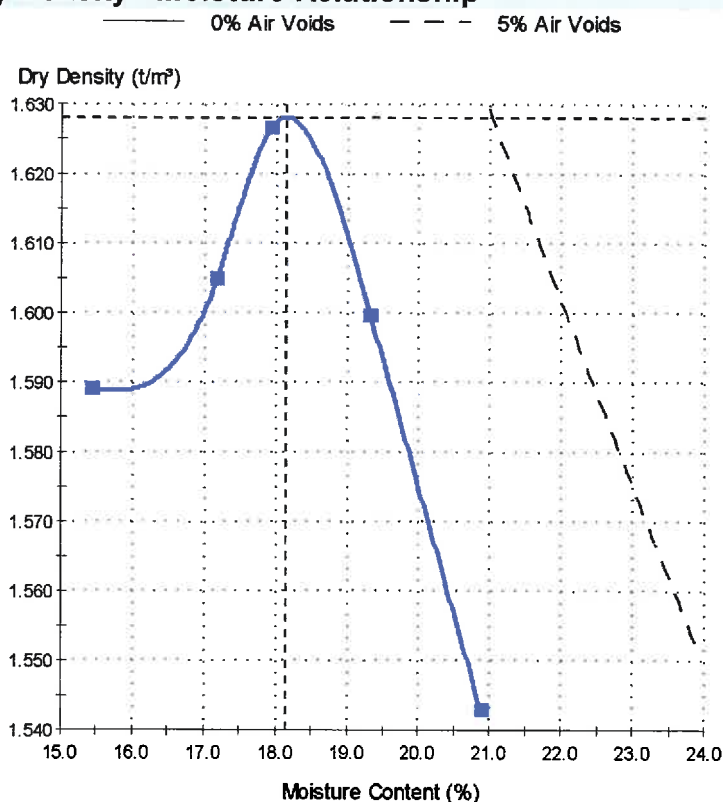
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 07/11/14

Sample Details

Sample ID: CAN14S-22802
Material: BEACH SAND
Site/Sampled From: Ex CDL Prestons Road Lot 3096
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Max Burford

Client Sample ID: Lab Ref 2685/14
Sample Source: Field Sample [Taken From Site]
Date Sampled: 30/10/2014
Sampled By: Advised - See Comments
Date Tested: 07/11/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

———— NZS 4402:1986 Test 4.1.3 - 1986 ————

Maximum Dry Density (t/m³): 1.62
Optimum Moisture Content (%): 18
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Sampled by Toni O'Regan

PEAT AREA C



Canterbury Laboratory

325 Pound Rd, Yaldhurst, Christchurch
PO Box 16-064, Christchurch 8441
Telephone: +64 3 349 9142
Facsimile: +64 3 349 9143
www.fultonhogan.com
0800 LABORATORY

Report No: MDD:CAN14S-12043

Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test(s) reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. This report may only be reproduced in full.



Max Burford

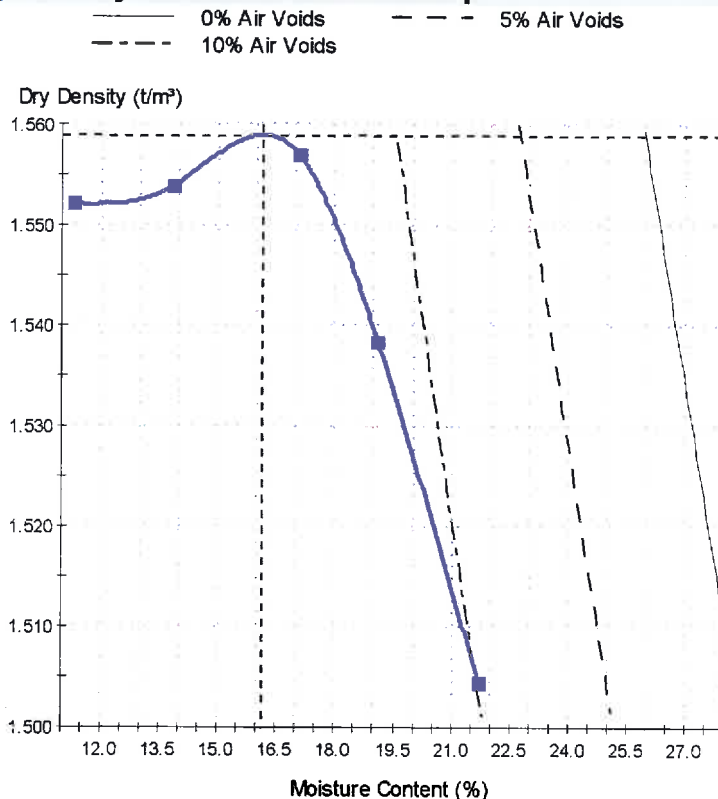
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No: 200
Date of Issue: 11/06/14

Sample Details

Sample ID: CAN14S-12043
Material: BEACH SAND
Site/Sampled From: CDL Prestons Rd Peat Area C
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Daniel Daly

Client Sample ID: Lab Ref 1322/14
Sample Source: Field Sample [Taken From Site]
Date Sampled: 06/06/2014
Sampled By: Not Advised
Date Tested: 11/06/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

____NZS 4402:1986 Test 4.1.3 - 1986____
Maximum Dry Density (t/m³): 1.56
Optimum Moisture Content (%): 16
Solid Density (t/m³): 2.62 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Material is beach sand with a trace of organic

Report No: MDD:CAN14S-08017
Issue No: 1

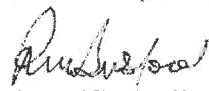
Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test (s) reported herein (unless indicated) have been performed in accordance with the laboratory's scope of accreditation. Results only apply to samples as received. This report must be reproduced in full.

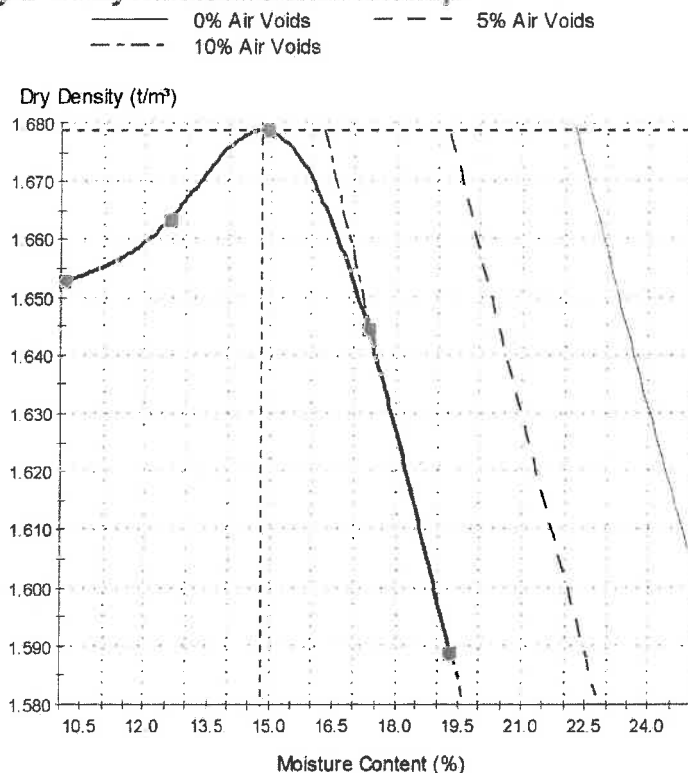
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No.200
Date of Issue: 11/04/14

Sample Details

Sample ID: CAN14S-08017
Material: BEACH SAND
Site/Sampled From: CDL Prestons Road, Peat Area E
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Greg Orr

Client Sample ID: 0830/14 - MF, LS
Sample Source: Field Sample [Taken From Site]
Date Sampled: 02/04/2014
Sampled By: Mark Foster
Date Tested: 11/04/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

N.Z.S 4402:1986 Test 4.1.3 - 1986
Maximum Dry Density (t/m³): 1.68
Optimum Moisture Content (%): 15
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Material is best described as FINE SAND with some medium sand and rare silt
23% medium sand with 72% FINE SAND and 5% silt

Report No: MDD:CAN14S-05060
Issue No: 1

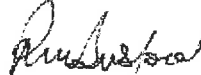
Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test(s) reported herein (unless indicated) have been performed in accordance with the laboratory's scope of accreditation. Results only apply to samples as received. This report must be reproduced in full.

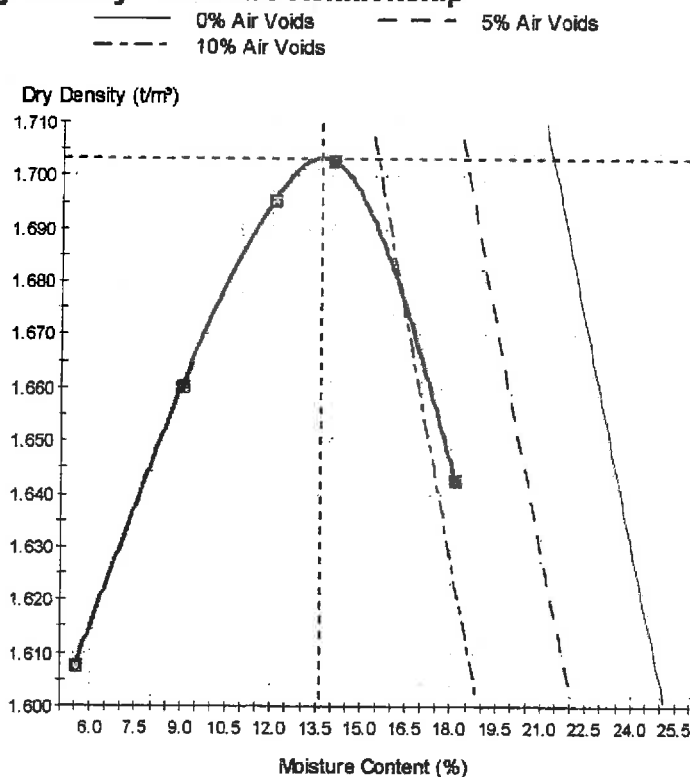
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No: 200
Date of Issue: 06/03/14

Sample Details

Sample ID: CAN14S-05060
Material: BEACH SAND
Site/Sampled From: Prestons Road Alpine V Site A
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Daniel Daly

Client Sample ID: 0428/14 Site A
Sample Source: Field Sample [Taken From Site]
Date Sampled: 25/02/2014
Sampled By: Advised - See Comments
Date Tested: 06/03/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986
Maximum Dry Density (t/m³): 1.70
Optimum Moisture Content (%): 14
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

80% MEDIUM SAND 18% fine sand & 2% silt

Maximum Dry Density Report

Report No: MDD:CAN14S-05061

Issue No: 1

Client: Toni O'Regan
 City Care Limited
 PO Box 7669
 Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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Max Burford

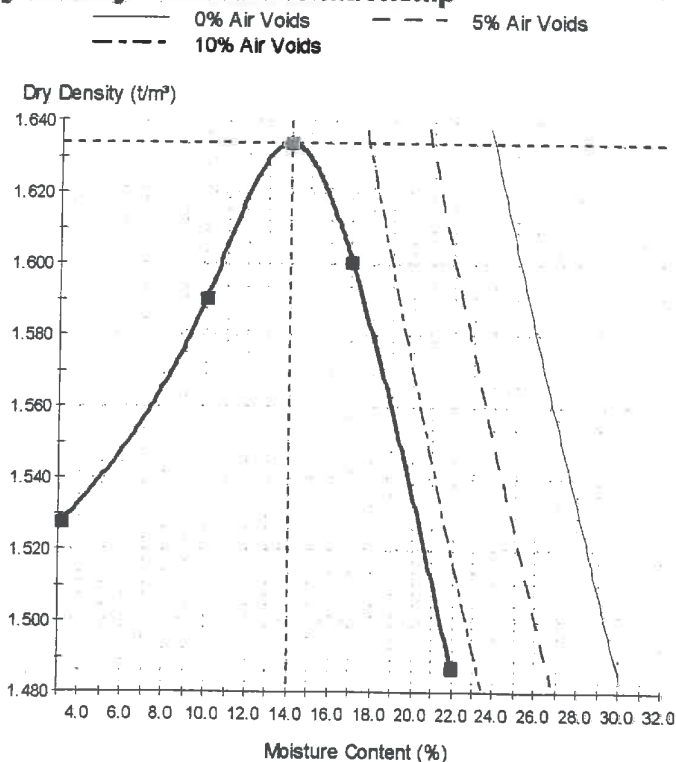
Approved Signatory: Max Burford
 (Supervisor)
 IANZ Accreditation No:200
 Date of issue: 06/03/14

Sample Details

Sample ID: CAN14S-05061
Material: BEACH SAND
Site/Sampled From: Prestons Road Alpine V Site B
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Daniel Daly

Client Sample ID: 0429/14 Site B
Sample Source: Field Sample [Taken From Site]
Date Sampled: 25/02/2014
Sampled By: Advised - See Comments
Date Tested: 06/03/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986
Maximum Dry Density (t/m³): 1.64
Optimum Moisture Content (%): 14
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

50% MEDIUM SAND 46% fine sand & 4% silt

Report No: MDD:CAN14S-05062
Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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Max Burford

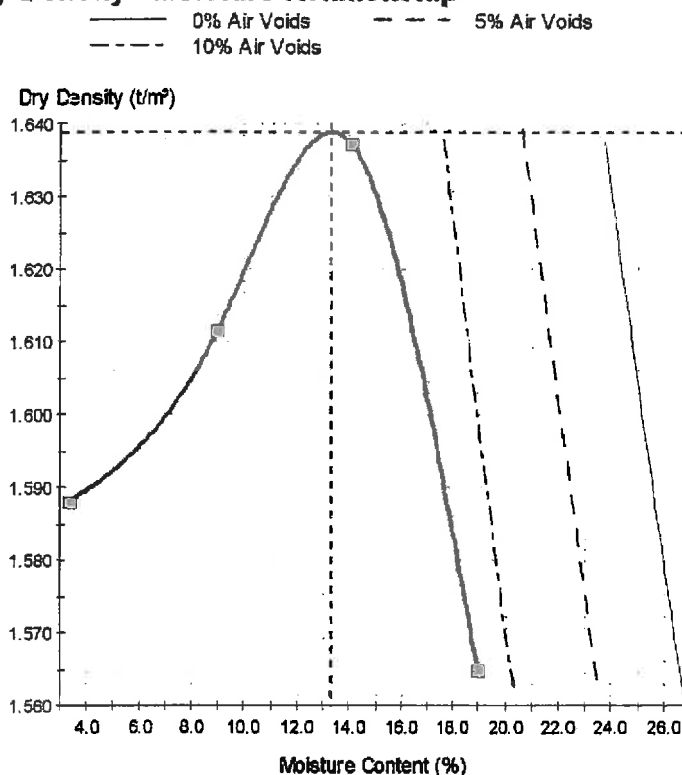
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 06/03/14

Sample Details

Sample ID: CAN14S-05062
Material: BEACH SAND
Site/Sampled From: Prestons Road Alpine V Site C
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Daniel Daly

Client Sample ID: 0430/14 Site C
Sample Source: Field Sample [Taken From Site]
Date Sampled: 25/02/2014
Sampled By: Advised - See Comments
Date Tested: 06/03/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986
Maximum Dry Density (t/m^3): 1.64
Optimum Moisture Content (%): 13
Solid Density (t/m^3): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

35% MEDIUM SAND 50% fine sand & 15% silt

Report No: MDD:CAN14S-08055
Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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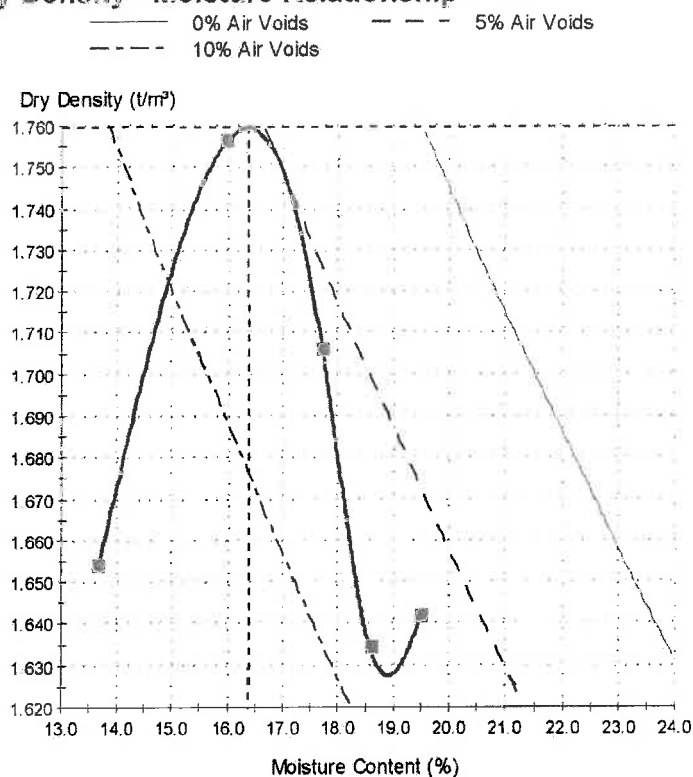

Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No 200
Date of Issue: 11/04/14

Sample Details

Sample ID: CAN14S-08055
Material: Silty Sand
Site/Sampled From: CDL Prestons Road Site D
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Greg Orr

Client Sample ID: 0826/14 - MF, LS
Sample Source: Miscellaneous Material Source
Date Sampled: 02/04/2014
Sampled By: Mark Foster
Date Tested: 11/04/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986
Maximum Dry Density (t/m³): 1.76
Optimum Moisture Content (%): 16
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Material is best described as medium FINE SAND with some silt
1% coarse sand 29% medium sand with 50% FINE SAND and 20% silt

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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Max Burford

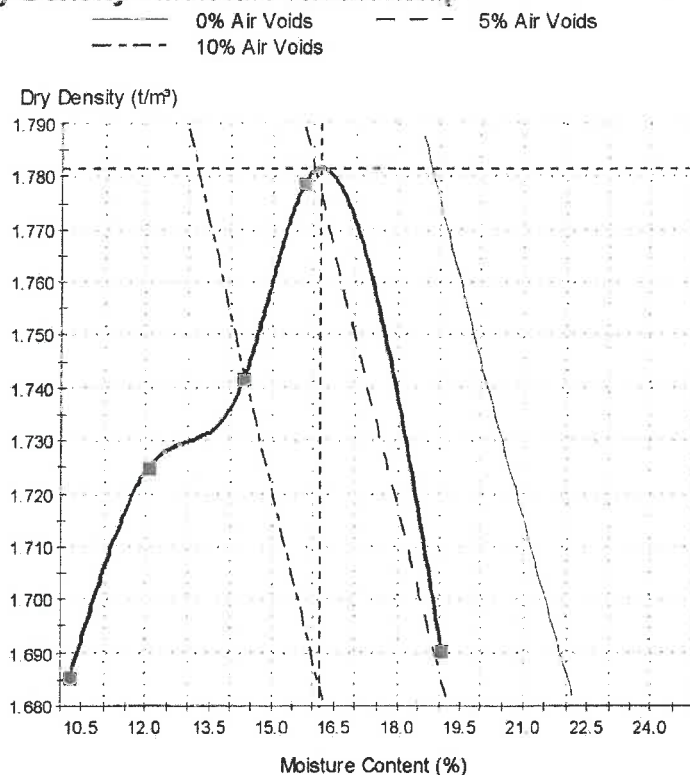
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 11/04/14

Sample Details

Sample ID: CAN14S-07948
Material: Silty Sand
Site/Sampled From: CDL Prestons Road, Site E
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Greg Orr

Client Sample ID: 0827/14 - MF, LS
Sample Source: Miscellaneous Material Source
Date Sampled: 02/04/2014
Sampled By: Mark Foster
Date Tested: 09/04/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986
Maximum Dry Density (t/m³): 1.78
Optimum Moisture Content (%): 16
Solid Density (t/m³): 2.68
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Material is best described as silty FINE SAND
30% silt and 70% fine sand

Report No: MDD:CAN14S-08057
Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test (s) reported herein (unless indicated) have been performed in accordance with the laboratory's scope of accreditation. Results only apply to samples as received. This report must be reproduced in full.



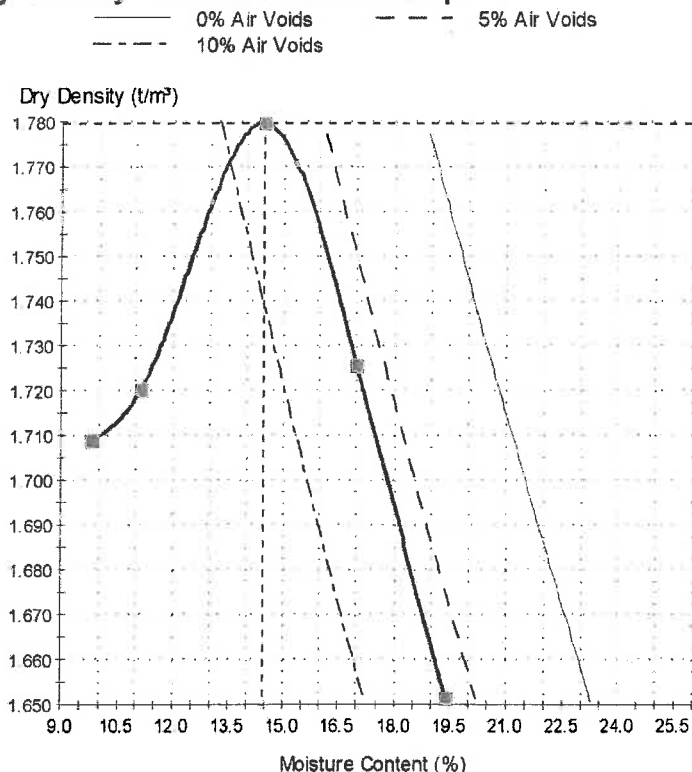
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 11/04/14

Sample Details

Sample ID: CAN14S-08057
Material: Silty SAND
Site/Sampled From: CDL Prestons Road Site F
Specification: No Specification (Fine)
Sampling Method: As Received - Not Accredited
Technician: Greg Orr

Client Sample ID: 0828/14 - MF, LS
Sample Source: Field Sample [Taken From Site]
Date Sampled: 02/04/2014
Sampled By: Mark Foster
Date Tested: 11/04/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

____NZS 4402:1986 Test 4.1.3 - 1986____
Maximum Dry Density (t/m³): 1.78
Optimum Moisture Content (%): 14
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Material is best described as silty FINE SAND
28% silt 70% fine sand and 2% medium sand

Report No: MDD:CAN14S-08006
Issue No: 1

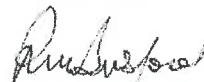
Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

The test (s) reported herein (unless indicated) have been performed in accordance with the laboratory's scope of accreditation. Results only apply to samples as received. This report must be reproduced in full.

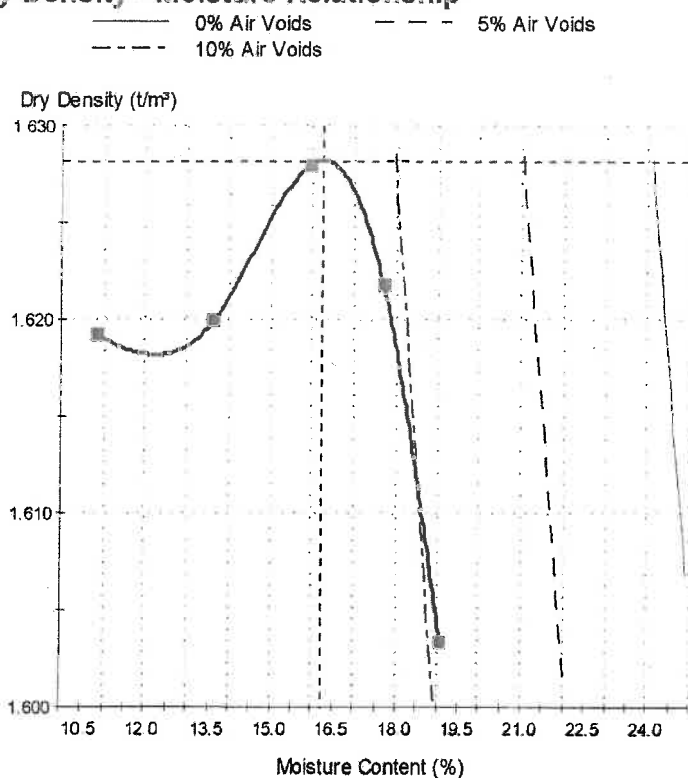
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 11/04/14

Sample Details

Sample ID: CAN14S-08006
Material: BEACH SAND
Site/Sampled From: CDL Prestons Road, Site G
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Greg Orr

Client Sample ID: 0829/14 - MF, LS
Sample Source: Field Sample [Taken From Site]
Date Sampled: 02/04/2014
Sampled By: Mark Foster
Date Tested: 11/04/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986

Maximum Dry Density (t/m³): 1.62
Optimum Moisture Content (%): 16
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Material is best described as BEACH SAND
55% medium sand with 43% fine sand with 2% silt

Report No: MDD:CAN14S-25525
Issue No: 1

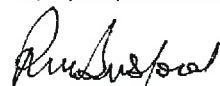
Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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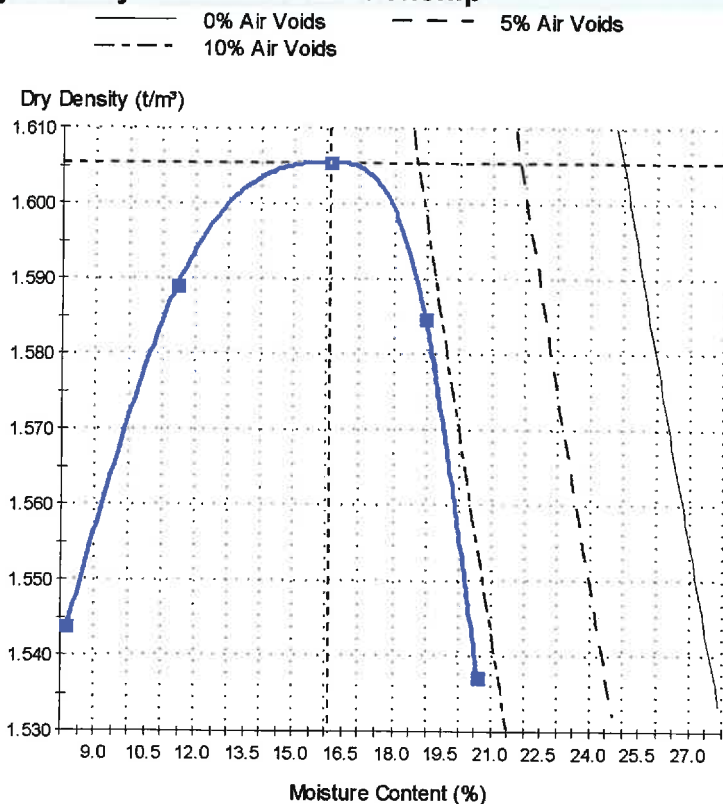
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 15/12/14

Sample Details

Sample ID: CAN14S-25525
Material: Sand
Site/Sampled From: Test Site # 1
Specification: No Specification (Fine)
Sampling Method: Not Advised - Not Accredited
Technician: Marc Bos

Client Sample ID: 3092/14
Sample Source: Field Sample [Taken From Site]
Date Sampled: 08/12/2014
Sampled By: Advised - See Comments
Date Tested: 15/12/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986
Maximum Dry Density (t/m³): 1.60
Optimum Moisture Content (%): 16
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Sampled by LS

Report No: MDD:CAN14S-25526
Issue No: 1

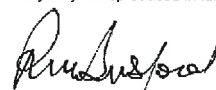
Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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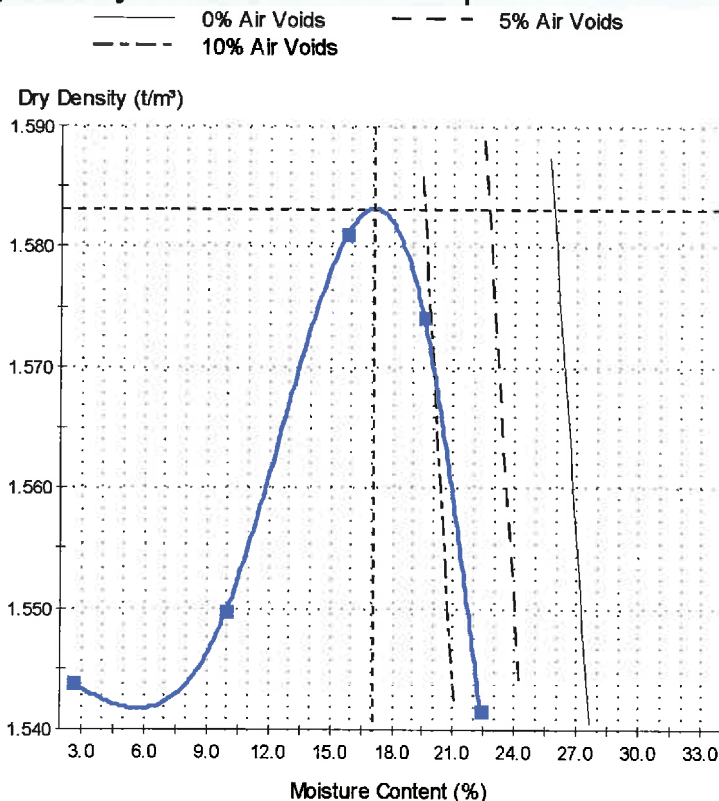
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 15/12/14

Sample Details

Sample ID: CAN14S-25526
Material: Sand
Site/Sampled From: Site # J
Specification: No Specification (Fine)
Sampling Method: As Received - Not Accredited
Technician: Marc Bos

Client Sample ID: 3093/14
Sample Source: Field Sample [Taken From Site]
Date Sampled: 08/12/2014
Sampled By: Advised - See Comments
Date Tested: 15/12/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

——— NZS 4402:1986 Test 4.1.3 - 1986 ———
Maximum Dry Density (t/m³): 1.58
Optimum Moisture Content (%): 17
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Sampled by LS

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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Max Burford

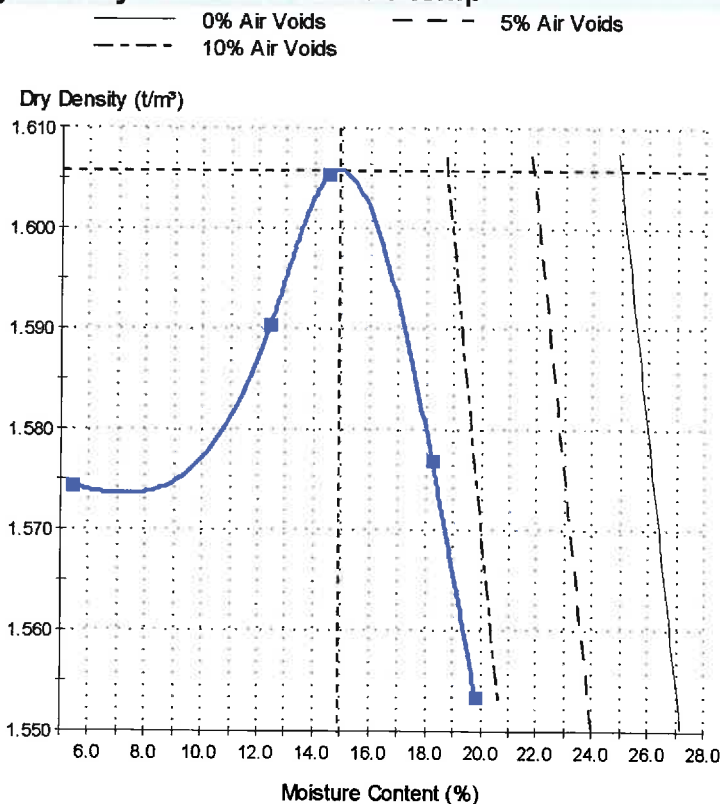
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 15/12/14

Sample Details

Sample ID: CAN14S-25527
Material: Sand
Site/Sampled From: CDC Prestons Sample K
Specification: No Specification (Fine)
Sampling Method: As Received - Not Accredited
Technician: Marc Bos

Client Sample ID: 3094/14
Sample Source: Field Sample [Taken From Site]
Date Sampled: 08/12/2014
Sampled By: Advised - See Comments
Date Tested: 15/12/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

— NZS 4402:1986 Test 4.1.3 - 1986 —
Maximum Dry Density (t/m³): 1.60
Optimum Moisture Content (%): 15
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Sampled by LS

SWALE AREA A



Canterbury Laboratory

325 Pound Rd, Yaldhurst, Christchurch
PO Box 16-064, Christchurch 8441
Telephone: +64 3 349 9142
Facsimile: +64 3 349 9143
www.fultonhogan.com
0800 LABORATORY

Report No: MDD:CAN14S-11317

Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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Max Burford

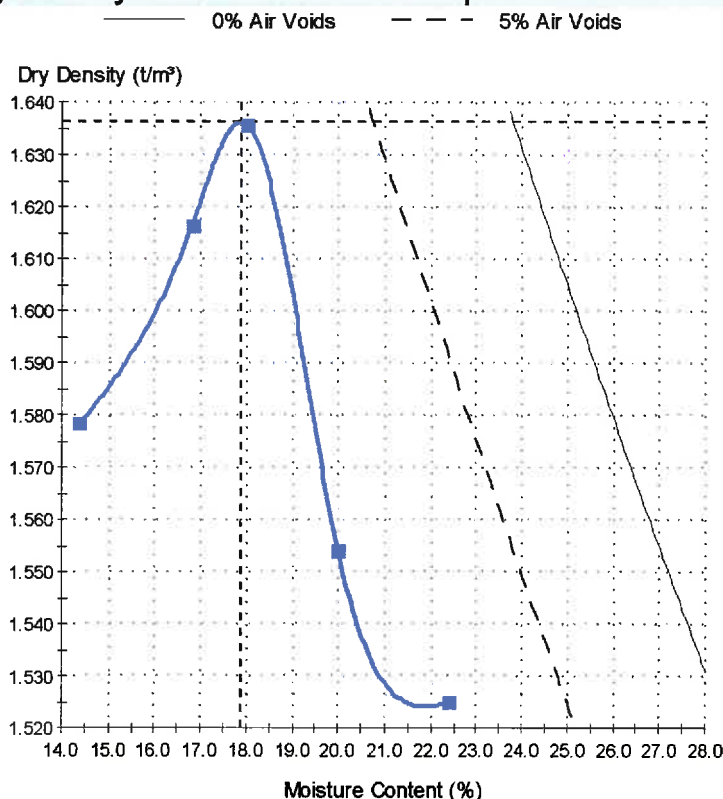
Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 30/05/14

Sample Details

Sample ID: CAN14S-11317
Material: BEACH SAND
Site/Sampled From: CDL Prestons Rd, Swale Area A
Specification: No Specification
Sampling Method: As Received - Not Accredited
Technician: Atu Rova

Client Sample ID: Lab Ref 1181/14
Sample Source: Field Sample [Taken From Site]
Date Sampled: 27/05/2014
Sampled By: Mark Foster
Date Tested: 30/05/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986
Maximum Dry Density (t/m³): 1.64
Optimum Moisture Content (%): 18
Solid Density (t/m³): 2.68 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

The material is best described as FINE SAND with less 5% of medium sand and silt

Report No: MDD:CAN14S-15900
Issue No: 1

Maximum Dry Density Report

Client: Toni O'Regan
City Care Limited
PO Box 7669
Sydenham

Christchurch 8240

Project: QA Testing - City Care Ltd

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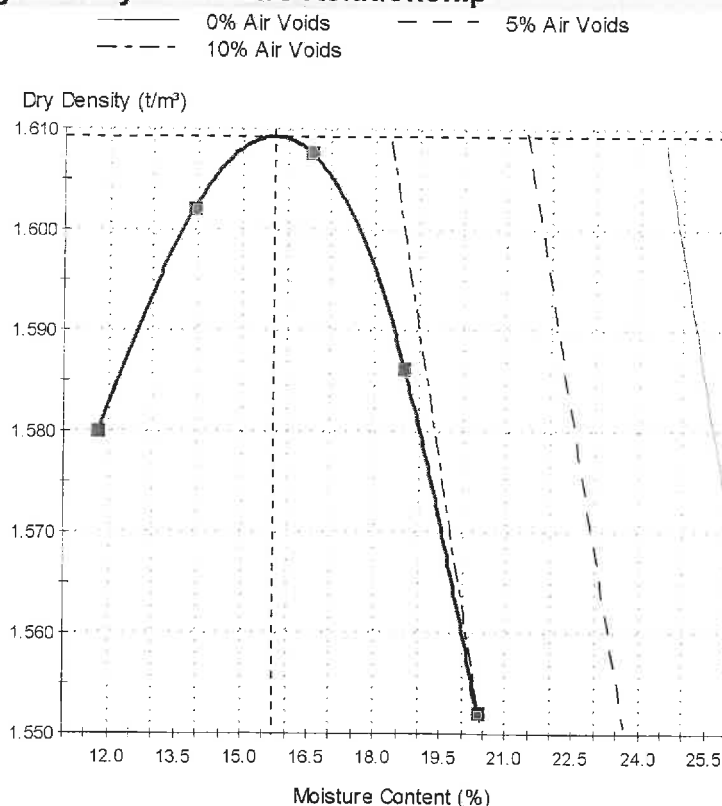

Approved Signatory: Max Burford
(Supervisor)
IANZ Accreditation No:200
Date of Issue: 13/08/14

Sample Details

Sample ID: CAN14S-15900
Material: BEACH SAND
Site/Sampled From: CDL Prestons Road Swale Area B
Specification: No Specification
Sampling Method: Stated to be NZS 4407:1991 2.4.6.2.2
Technician: Max Burford

Client Sample ID: Lab ref:1833/14
Sample Source: Field Sample [Taken From Site]
Date Sampled: 07/08/2014
Sampled By: Advised - See Comments
Date Tested: 13/08/2014
Sampling Endorsed?: No

Dry Density - Moisture Relationship



Test Results

NZS 4402:1986 Test 4.1.3 - 1986

Maximum Dry Density (t/m³): 1.60
Optimum Moisture Content (%): 16
Solid Density (t/m³): 2.66 assumed
Fraction Tested Passes (mm): 37.5
Material Removed (%): 0
Sample History: Natural

Comments

Sampled by RR
Material is best described as FINE SAND with minor medium sand