

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 14/10/2025
Date received : 24/10/2025
Sampling method : SPT
Sample condition : As received
Sample depth (m): 3.50.-3.95

Project No : 1-C2466.16
Lab Ref No : WL4708/150 -PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/150 -PI
Sample Location ID : BH2B_1101
Sample Depth (m) : 3.50.-3.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 53.8
Liquid Limit : 66
Plastic Limit : 36
Plasticity Index : 30

Sample Description : WL4708/150 -PI Clayey SILTwith some sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 25/11/25
Date reported : 01/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 17/12/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 14/10/2025
Date received : 24/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m) : 6.50-6.95

Project No : 1-C2466.16
Lab Ref No : WL4708/152-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/152-PI
Sample Location ID :	BH2B_1101
Sample Depth (m) :	6.50-6.95
Soil Fraction Tested :	Whole
Natural Water Content (%) :	36.3
Liquid Limit :	70
Plastic Limit :	34
Plasticity Index :	36
Sample Description : WL4708/152-PI Refer to BH2B_1101 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 19/11/25
Date reported : 21/11/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 21/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 20/08/2025
Date received : 4/09/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/1-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/1-PI
Sample Location ID : BH2B_1104
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 34.6
Liquid Limit : 57
Plastic Limit : 25
Plasticity Index : 32

Sample Description : WL4708/1-PI Clayey SILT with some sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 12/09/25
Date reported : 01/10/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 03/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 20/08/25
Date received : 7/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth : 7.5-7.95m

Project No : 1-C2466.16
Lab Ref No : WL4708/100_PI
Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/100_PI
Sample Location ID :	BH2B_1104
Sample Depth (m) :	7.5-7.95m
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	30
Plastic Limit :	20
Plasticity Index :	10
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 08/10/25
Date reported : 10/10/25

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

Approved Signatory
Rowan Carlyle
Designation : Laboratory Manager
Date : 10/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC_Site Team
Date sampled : 3/09/2025
Date received : 11/09/2025
Sampling method : SPT
Sample condition : As Received
Sample depth (m): 4.50-4.95

Project No : 1-C2466.16
Lab Ref No : WL4708/27-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/27-PI
Sample Location ID : BH2B_1105
Sample Depth (m) : 4.50-4.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 56.6
Liquid Limit : 53
Plastic Limit : 29
Plasticity Index : 24

Sample Description : WL4708/27-PI Clayey SILT with traces of sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 08/10/25
Date reported : 16/10/25

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

Approved Signatory

Thirushe Pillay

Designation : Senior Civil Engineering Technician

Date : 22/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 3 September 2025
 Sampling method : SPT
 Sample description : Refer to BH2B_1105 log report
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/29-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/29
Test pit no :	BH2B_1105
Depth :	7.50 - 7.95m
Liquid limit :	36
Plastic limit :	22
Plasticity index :	14
Fraction tested :	<0.425mm
Date tested :	14/10/2025
Natural water content :	33.5%
Fraction tested :	Whole Soil
Date tested :	1/10/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 14 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 19/08/2025
Date received : 4/09/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/5-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/5-PI
Sample Location ID : BH2B_1106
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 66.3
Liquid Limit : 86
Plastic Limit : 36
Plasticity Index : 50

Sample Description : WL4708/5-PI Silty CLAY with traces of sand

Test Methods

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Notes

Soil fraction tested as shown.

Date tested : 18/09/25
Date reported : 01/10/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 03/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 19/08/25
Date received : 7/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth: 5.0-5.45m

Project No : 1-C2466.16
Lab Ref No : WL4708/7_PI
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/7_PI
Sample Location ID : BH2B_1106
Sample Depth (m) : 5.0-5.45m
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 99
Plastic Limit : 62
Plasticity Index : 37

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 09/10/25
Date reported : 10/10/25

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

Approved Signatory
Rowan Carlyle
Designation : Laboratory Manager
Date : 10/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 8/10/2025
Date received : 24/10/25
Sampling method : SPT
Sample condition : As received
Sample depth (m): 3.50-3.95

Project No : 1-C2466.16
Lab Ref No : WL4708/154 -PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/154 -PI
Sample Location ID : BH2B_1107
Sample Depth (m) : 3.50-3.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 49.5
Liquid Limit : 56
Plastic Limit : 32
Plasticity Index : 24

Sample Description : WL4708/154 -PI Sandy clayey SILT

Test Methods

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Notes

Soil fraction tested as shown.

Date tested : 28/11/25 - 04/12/25
Date reported : 04/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 17/12/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 8/10/2025
Date received : 24/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m): 7.50-7.95

Project No : 1-C2466.16
Lab Ref No : WL4708/156-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/156-PI
Sample Location ID :	BH2B_1107
Sample Depth (m) :	7.50-7.95
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	35.8
Liquid Limit :	40
Plastic Limit :	25
Plasticity Index :	15
Sample Description : WL4708/156-PI Refer to BH2B_1107 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 25/11/25
Date reported : 27/11/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 27/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 17/10/2025
Date received : 31/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m) : 1.50-1.95

Project No : 1-C2466.16
Lab Ref No : WL4708/159-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/159-PI
Sample Location ID :	BH2B_1108
Sample Depth (m) :	1.50-1.95
Soil Fraction Tested :	Whole
Natural Water Content (%) :	51.7
Liquid Limit :	65
Plastic Limit :	44
Plasticity Index :	21
Sample Description : WL4708/159-PI Refer to BH2B_1108 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 19/11/25
Date reported : 21/11/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 21/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 17/10/2025
Date received : 31/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m): 3.50-3.95

Project No : 1-C2466.16
Lab Ref No : WL4708/161-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/161-PI
Sample Location ID :	BH2B_1108
Sample Depth (m) :	3.50-3.95
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	45.3
Liquid Limit :	91
Plastic Limit :	33
Plasticity Index :	58
Sample Description : WL4708/161-PI Refer to BH2B_1108 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 17/11/25
Date reported : 21/11/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 21/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 15/09/25
 Date received : 7/10/25
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth: 9.0-9.45m

Project No : 1-C2466.16
 Lab Ref No : WL4708/103.PI
 Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/103.PI
Sample Location ID :	BH2B_1109
Sample Depth (m) :	9.0-9.45m
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	35
Plastic Limit :	29
Plasticity Index :	6
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 08/10/25
 Date reported : 09/10/25

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

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 09/10/25



Test results indicated as not
 accredited are outside the
 scope of the laboratory's
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 29/10/25
Date received : 25/11/25
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 4.5-4.95m

Project No : 1-C21466.16
Lab Ref No : WL4708/112_PI
Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/112_PI
Sample Location ID :	BH2B_1110
Sample Depth (m) :	4.5-4.95
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	46.7
Liquid Limit :	47
Plastic Limit :	42
Plasticity Index :	5
Sample Description :	Clayey SILT with some sand
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 26/11/25
Date reported : 27/11/25

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

Approved Signatory 
Designation : Laboratory Manager
Date : 27/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 29/10/2025
Date received : 25/11/2025
Sampling method : SPT
Sample condition : Natural: as excavated
Specific Depth: 9.00-9.45m

Project No : 1-C21466.16
Lab Ref No : WL4708/113_PI
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/113_PI
Sample Location ID : BH2B_1110
Sample Depth (m) : 9.00-9.45m
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 45
Plastic Limit : 40
Plasticity Index : 5

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 26/11/25
Date reported : 27/11/25

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

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 27/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 29/10/25
Date received : 25/11/25
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 13.50-13.95m

Project No : 1-C21466.16
Lab Ref No : WL4708/147_P1
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/147_P1
Sample Location ID : BH2B_1110
Sample Depth (m) : 13.50-13.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 41.3
Liquid Limit : 42
Plastic Limit : 37
Plasticity Index : 5
Sample Description : Sandy SILT with some clay and traces of gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 26/11/25
Date reported : 27/11/25

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

Approved Signatory 
Rowan Carlyle
Designation : Laboratory Manager
Date : 27/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 23/09/25
 Date received : 14/10/25
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth: 6.0-6.45m

Project No : 1-C2466.16
 Lab Ref No : WL4708/117_P1
 Client Ref No :

Test Results

Sample Lab Ref No : WL4708/117_P1
 Sample Location ID : BH2B_1111
 Sample Depth (m) : 6.0-6.45m
 Soil Fraction Tested : -425µm
 Natural Water Content (%) :
 Liquid Limit : 43
 Plastic Limit : 36
 Plasticity Index : 7

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 15/10/25
 Date reported : 16/10/25

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

Approved Signatory 
 Rowan Carlyle
 Designation : Laboratory Manager
 Date : 17/10/25



Test results indicated as not
 accredited are outside the
 scope of the laboratory's
 accreditation

PLASTICITY INDEX FOR AGGREGATES
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2B - Bryderwyn to Marsden Point
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : WSP
Date sampled : 23/09/25
Sampling method : SPT
Sample description : Refer to BH2B_1111 log report
Sample condition : Natural; as excavated
Source : BH2B_1111
Sample depth : 9.00-9.45m

Project No : 1-C2466.16
Lab Ref No : WL4708/118-PI
Client Ref No : -

Test Results	
Client Ref No :	-
Cone penetration limit :	49
Plastic limit :	Unable to Roll Threads
Plasticity index :	NP
Sample fraction :	Fraction passing 425µm test sieve
As received water content :	39.7%

Test Methods	Notes
Water Content	NZS 4407 : 2015 Test 3.1
Cone Penetration	NZS 4407 : 2015 : Test 3.2
Plastic Limit	NZS 4407 : 2015 : Test 3.3
Plasticity Index	NZS 4407 : 2015 : Test 3.4

Date tested : 16/10/25
Date reported : 17/10/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 17/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 30/10/25
 Date received : 5/11/2025
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth (m): 3.50-3.95

Project No : 1-C2466.16
 Lab Ref No : WL4708/168-PI
 Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/168-PI
 Sample Location ID : BH2B_1113
 Sample Depth (m) : 3.50-3.95
 Soil Fraction Tested : -425µm
 Natural Water Content (%) : 54.1
 Liquid Limit : 79
 Plastic Limit : 35
 Plasticity Index : 44

Sample Description : WL4708/168-PI Silty CLAY with traces of sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 19/11/25
 Date reported : 24/11/2025

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

Approved Signatory

Thirushen Pillay
 Designation : Senior Civil Engineering Technician
 Date : 24/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : WSP(Whangarei)
 Sampled by : WSP(Whangarei)
 Date sampled : 30/10/25
 Sampling method : Unknown
 Sample description : Clayey SILT; grey
 Sample condition : As Received
 Sample reference : BH2B_1113
 Sample depth : 6.0-6.5m

Project No : 1-C21466.16
 Lab Ref No : WL4708/169-PI
 Client Ref No : BH2B_1113, 6.0m

Test Results	
Liquid Limit :	67
Plastic Limit :	38
Plasticity Index :	29

Test Methods	Notes
Liquid Limit NZS 4402 : 1986, Test 2.2	Materials used: Whole soil
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	All information supplied by Client
Water Content NZS 4402 : 1986, Test 2.1	

Date tested : 26/11/25
 Date reported : 02/12/25

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

Approved Signatory

D Crawford

Designation : Senior Civil Engineering Technician

Date : 02/12/25

D Crawford



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2B - Bryderwyn to Marsden Point
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : WSP
Date sampled : 29/09/2025
Date received : 10/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m): 4.68-5.13

Project No : 1-C2466.16
Lab Ref No : WL4708/128-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/128-PI
Sample Location ID :	BH2B_1114
Sample Depth (m) :	4.68-5.13
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	24.8
Liquid Limit :	51
Plastic Limit :	24
Plasticity Index :	27
Sample Description : WL4708/128-PI Refer to BH2B_1114 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 20/10/25
Date reported : 22/10/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 22/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 29/09/25
Date received : 14/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth: 7.5-7.95m

Project No : 1-C2466.16
Lab Ref No : WL4708/129_PI
Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/129_PI
Sample Location ID :	BH2B_1114
Sample Depth (m) :	7.5-7.95m
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	54
Plastic Limit :	32
Plasticity Index :	22
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 16/10/25
Date reported : 17/10/25

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

Approved Signatory

Rowan Carlyle
Designation : Laboratory Manager
Date : 17/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 29/09/25
 Date received : 10/10/2025
 Sampling method : Core
 Sample condition : As Received
 Specific Depth (m): 8.05-13.50

Project No : 1-C2466.16
 Lab Ref No : WL4708/135-PI
 Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/135-PI

Sample Location ID : BH2B_1114

Sample Depth (m) : 8.05-13.50

Soil Fraction Tested : -425µm

Natural Water Content (%) : 19.2

Liquid Limit : 65

Plastic Limit : 24

Plasticity Index : 41

Sample Description : WL4708/135-PI EW MUDSTONE (SILT with some clay, very stiff, low plasticity)

Test Methods

Water Content NZS 4402 : 1986, Test 2.1
 Liquid Limit NZS 4402 : 1986, Test 2.2
 Plastic Limit NZS 4402 : 1986, Test 2.3
 Plasticity Index NZS 4402 : 1986, Test 2.4

Notes

Soil fraction tested as shown.

Date tested : 01-03/12/25

Date reported : 08/12/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

All information supplied by Client

Approved Signatory

Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 14/01/26



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 19/08/25
Date received : 7/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth: 1-5-1.95m

Project No : 1-C2466.16
Lab Ref No : WL4708/11_PI
Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/11_PI
Sample Location ID :	BH2B_1115
Sample Depth (m) :	1-5-1.95m
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	75
Plastic Limit :	31
Plasticity Index :	44
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 08/10/25
Date reported : 14/05/25

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

Approved Signatory
Rowan Carlyle
Designation : Laboratory Manager
Date : 14/05/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC_Site Team
Date sampled : 19/08/2025
Date received : 4/09/2025
Sampling method : SPT
Sample condition : As Received
Sample depth (m): 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/12-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/12-PI
Sample Location ID : BH2B_1115
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 44.5
Liquid Limit : 63
Plastic Limit : 30
Plasticity Index : 33

Sample Description : WL4708/12-PI Clayey SILT with minor sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 01-02/10/25
Date reported : 16/10/25

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

Approved Signatory

Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 21/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 19/08/2025
Date received : 11/09/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 1.50-1.95

Project No : 1-C2466.16
Lab Ref No : WL4708/41-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/41-PI
Sample Location ID : BH2B_1116
Sample Depth (m) : 1.50-1.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 51.5
Liquid Limit : 54
Plastic Limit : 36
Plasticity Index : 18

Sample Description : WL4708/41-PI Clayey SILT with minor sand and traces of gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 22/10/25
Date reported : 29/10/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 04/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 19 August 2025
 Sampling method : SPT
 Sample description : Refer to BH2B_1116 log report
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/42-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/42
Test pit no :	BH2B_1116
Depth :	6.00 - 6.45m
Liquid limit :	55
Plastic limit :	35
Plasticity index :	20
Fraction tested :	<0.425mm
Date tested :	14/10/2025
Natural water content :	46.0%
Fraction tested :	Whole Soil
Date tested :	7/10/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 14 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 21 August 2025
 Sampling method : SPT
 Sample description : Clayey, sandy SILT
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/43-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/43
Test pit no :	BH2B_1116
Depth :	12.00 - 12.45m
Liquid limit :	50
Plastic limit :	30
Plasticity index :	20
Fraction tested :	<0.425mm
Date tested :	14/10/2025
Natural water content :	48.1%
Fraction tested :	Whole Soil
Date tested :	25/09/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 14 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 28 August 2025
 Sampling method : SPT
 Sample description : Silty CLAY with minor sand & a trace of gravel
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/44-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/44
Test pit no :	BH2B_1117
Depth :	1.50 - 1.95m
Liquid limit :	90
Plastic limit :	32
Plasticity index :	58
Fraction tested :	<0.425mm
Date tested :	16/10/2025
Natural water content :	61.5%
Fraction tested :	Whole Soil
Date tested :	11/10/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 16 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC_Site Team
Date sampled : 28/08/2025
Date received : 11/09/2025
Sampling method : Pushtube
Sample condition : As Received
Sample depth (m) : 3.00-3.50

Project No : 1-C2466.16
Lab Ref No : WL4708/45-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/45-PI

Sample Location ID : BH2B_1117

Sample Depth (m) : 3.00-3.50

Soil Fraction Tested : -425µm

Natural Water Content (%) : 66.8

Liquid Limit : 69

Plastic Limit : 44

Plasticity Index : 25

Sample Description : WL4708/45-PI Weathered SILT with clasts and traces of sand;
orange mottled grey

Test Methods

Notes

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Soil fraction tested as shown.

Date tested : 12/11/25

Date reported : 19/11/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

All information supplied by Client

Approved Signatory

Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 20/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2B - Bryderwyn to Marsden Point
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : WSP
Date sampled : 22/09/2025
Date received : 3/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m): 3.50-3.95

Project No : 1-C2466.16
Lab Ref No : WL4708/120-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/120-PI
Sample Location ID :	BH2B_1122
Sample Depth (m) :	3.50-3.95
Soil Fraction Tested :	Whole
Natural Water Content (%) :	30.5
Liquid Limit :	35
Plastic Limit :	20
Plasticity Index :	15
Sample Description : WL4708/120-PI Refer to BH2B_1122 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 15/10/25
Date reported : 21/10/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 21/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 22/09/25
Date received : 7/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth: 9.5-9.95m

Project No : 1-C2466.16
Lab Ref No : WL4708/122_PI
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/122_PI
Sample Location ID : BH2B_1122
Sample Depth (m) : 9.5-9.95m
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 61
Plastic Limit : 34
Plasticity Index : 27

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 09/10/25
Date reported : 10/10/25

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

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 10/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 26/09/2025
Date received : 10/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m) : 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/125-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/125-PI
Sample Location ID :	BH2B_1124
Sample Depth (m) :	3.00-3.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	35.5
Liquid Limit :	45
Plastic Limit :	28
Plasticity Index :	17
Sample Description : WL4708/125-PI Refer to BH2B_1124 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 20/10/25
Date reported : 23/10/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 23/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 26/09/25
Date received : 14/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth: 6.0-6.45m

Project No : 1-C2466.16
Lab Ref No : WL4708/126_P1
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/126_P1
Sample Location ID : BH2B_1124
Sample Depth (m) : 6.0-6.45m
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 46
Plastic Limit : 30
Plasticity Index : 16

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 15/10/25
Date reported : 16/10/25

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

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 17/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

**PLASTICITY INDEX FOR AGGREGATES
TEST REPORT**



Project : Ground Investigation for Northland Corridor
 Location : Section 2B - Bryderwyn to Marsden Point
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : WSP
 Date sampled : 18/09/25
 Sampling method : SPT
 Sample description : Refer to BH2B_1125 log report
 Sample condition : Natural; as excavated
 Source : BH2B_1125
 Sample depth : 6.00-6.45m

Project No :	1-C2466.16
Lab Ref No :	WL4708/123-PI
Client Ref No :	-

Test Results	
Client Ref No :	-
Cone penetration limit :	43
Plastic limit :	Unable to Roll Threads
Plasticity index :	NP
Sample fraction :	Fraction passing 425µm test sieve
As received water content :	41.5%

Test Methods	Notes
Water Content	NZS 4407 : 2015 Test 3.1
Cone Penetration	NZS 4407 : 2015 : Test 3.2
Plastic Limit	NZS 4407 : 2015 : Test 3.3
Plasticity Index	NZS 4407 : 2015 : Test 3.4

Date tested : 15/10/25
 Date reported : 21/10/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
 Date : 21/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 18/09/25
Date received : 14/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth: 9.00-9.45m

Project No : 1-C2466.16
Lab Ref No : WL4708/124_P1
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/124_P1
Sample Location ID : BH2B_1125
Sample Depth (m) : 9.00-9.45m
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 45
Plastic Limit : 32
Plasticity Index : 13

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 16/10/25
Date reported : 17/10/25

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

Approved Signatory 
Designation : Laboratory Manager
Date : 17/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 2/10/25
Date received : 14/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth : 9.0-9.45m

Project No : 1-C2466.16
Lab Ref No : WL4708/131_PI
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/131_PI
Sample Location ID : BH2B_1126
Sample Depth (m) : 9.0-9.45m
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 49
Plastic Limit : 33
Plasticity Index : 16

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 16/10/25
Date reported : 17/10/25

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

Approved Signatory 
Designation : Laboratory Manager
Date : 17/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 6/10/2025
Date received : 17/10/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/138-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/138-PI
Sample Location ID : BH2B_1127
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 38.0
Liquid Limit : 46
Plastic Limit : 31
Plasticity Index : 15

Sample Description : WL4708/138-PI Clayey SILT with some sand and traces of gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 31/10/25
Date reported : 29/10/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 05/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 7/10/2025
Date received : 17/10/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 7.50-7.95

Project No : 1-C2466.16
Lab Ref No : WL4708/139-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/139-PI
Sample Location ID : BH2B_1127
Sample Depth (m) : 7.50-7.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 34.7
Liquid Limit : 44
Plastic Limit : 31
Plasticity Index : 13

Sample Description : WL4708/139-PI Clayey SILT with traces of sand and gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 03/11/25
Date reported : 04/11/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 10/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 30/10/25
Date received : 21/11/25
Sampling method : SPT
Sample condition : As received
Sample depth (m): 3.50-3.95

Project No : 1-C2466.16
Lab Ref No : WL4708/192 -PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/192 -PI

Sample Location ID : BH2B_1128

Sample Depth (m) : 3.50-3.95

Soil Fraction Tested : -425µm

Natural Water Content (%) : 39.5

Liquid Limit : 53

Plastic Limit : 30

Plasticity Index : 23

Sample Description : WL4708/192 -PI Clayey SILT with some sand and traces of gravel

Test Methods

Notes

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Soil fraction tested as shown.

Date tested : 03/12/25
Date reported : 01/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 18/12/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 30/10/25
Date received : 25/11/25
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 6.50-6.95m

Project No : 1-C21466.16
Lab Ref No : WL4708/194_P1
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/194_P1
Sample Location ID : BH2B_1128
Sample Depth (m) : 6.50-6.95
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 46
Plastic Limit : 35
Plasticity Index : 11

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 27/11/25
Date reported : 28/11/25

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

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 28/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 30/10/25
Date received : 25/11/25
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 12.00-12.45m

Project No : 1-C21466.16
Lab Ref No : WL4708/195_PI
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/195_PI
Sample Location ID : BH2B_1128
Sample Depth (m) : 12.00-12.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 41.1
Liquid Limit : 43
Plastic Limit : 37
Plasticity Index : 6
Sample Description : Sandy SILT with some clay and traces of gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 26/11/25

Date reported : 27/11/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

All information supplied by Client

IANZ Approved Signatory 
Designation : Laboratory Manager
Date : 27/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 2/10/2025
Date received : 17/10/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/140-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/140-PI
Sample Location ID : BH2B_1129
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 50.3
Liquid Limit : 56
Plastic Limit : 30
Plasticity Index : 26

Sample Description : WL4708/140-PI Clayey SILT with minor sand and traces of gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 29/10/25
Date reported : 30/10/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 04/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 2/10/2025
Date received : 17/10/2025
Sampling method : Core
Sample condition : As Received
Specific Depth (m): 3.75-3.94

Project No : 1-C2466.16
Lab Ref No : WL4708/141-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/141-PI

Sample Location ID : BH2B_1129

Sample Depth (m) : 3.75-3.94

Soil Fraction Tested : -425µm

Natural Water Content (%) : 31.8

Liquid Limit : 44

Plastic Limit : 26

Plasticity Index : 18

Sample Description : WL4708/141-PI Silty CLAY; orange mottled white; moist; plastic

Test Methods

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Notes

Soil fraction tested as shown.

Date tested : 09-19/12/2025

Date reported : 23/12/2025

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

All information supplied by Client

Approved Signatory

Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 07/01/26



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 2/10/2025
Date received : 17/10/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 6.00-6.45

Project No : 1-C2466.16
Lab Ref No : WL4708/142-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/142-PI

Sample Location ID : BH2B_1129

Sample Depth (m) : 6.00-6.45

Soil Fraction Tested : -425µm

Natural Water Content (%) : 28.8

Liquid Limit : 44

Plastic Limit : 27

Plasticity Index : 17

Sample Description : WL4708/142-PI Weathered clayey SILT; grey mottled orange; moist

Test Methods

Notes

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Soil fraction tested as shown.

Date tested : 17/11/25
Date reported : 19/11/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 19/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 16/09/25
Date received : 7/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth : 3.0-3.45m

Project No : 1-C2466.16
Lab Ref No : WL4708/106_PI
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/106_PI
Sample Location ID : BH2B_1130
Sample Depth (m) : 3.0-3.45m
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 55
Plastic Limit : 40
Plasticity Index : 15
Sample Description : Refer to borehole

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 08/10/25
Date reported : 09/10/25

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

Approved Signatory
Rowan Carlyle
Designation : Laboratory Manager
Date : 09/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR AGGREGATES
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2B - Bryderwyn to Marsden Point
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : WSP
Date sampled : 16/09/25
Sampling method : SPT
Sample description : Refer to BH2B_1130 log report
Sample condition : Natural; as excavated
Source : BH2B_1130
Sample depth : 9.00-9.45

Project No : 1-C2466.16
Lab Ref No : WL4708/108-PI
Client Ref No : -

Test Results	
Client Ref No :	-
Cone penetration limit :	40
Plastic limit :	Unable to Roll Threads
Plasticity index :	NP
Sample fraction :	Fraction passing 425µm test sieve
As received water content :	31.5%

Test Methods	Notes
Water Content	NZS 4407 : 2015 Test 3.1
Cone Penetration	NZS 4407 : 2015 : Test 3.2
Plastic Limit	NZS 4407 : 2015 : Test 3.3
Plasticity Index	NZS 4407 : 2015 : Test 3.4

Date tested : 17/10/25
Date reported : 22/10/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 22/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR AGGREGATES
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : N/A
Sampled by : NC_Site Team
Date sampled : 16/09/25
Sampling method : Core
Sample description : Refer to BH2B_1130 log report
Sample condition : As Received
Source : BH2B_1130
Sample depth : 15.08-25.18m

Project No : 1-C2466.16
Lab Ref No : WL4708/136-PI
Client Ref No : 1-C2466.16

Test Results	
Client Ref No :	1-C2466.16
Cone penetration limit :	31
Plastic limit :	Unable to Roll Threads
Plasticity index :	Non-Plastic
Sample fraction :	Fraction passing 425µm test sieve

Test Methods	Notes
Cone Penetration	NZS 4407 : 2015 : Test 3.2
Plastic Limit	NZS 4407 : 2015 : Test 3.3
Plasticity Index	NZS 4407 : 2015 : Test 3.4

Date tested : 18/12/25
Date reported : 19/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 14/01/26



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 28 August 2025
 Sampling method : SPT
 Sample description : Clayey SILT with minor sand & a trace of gravel
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/47-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/47
Test pit no :	BH2B_1131
Depth :	2.00 - 2.45m
Liquid limit :	93
Plastic limit :	33
Plasticity index :	60
Fraction tested :	<0.425mm
Date tested :	16/10/2025
Natural water content :	54.0%
Fraction tested :	Whole Soil
Date tested :	7/10/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1
	Sample description in accordance with NZ Geotechnical Society Inc, notes. All information supplied by client. This report may only be reproduced in full.

Date tested : 16 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 28 August 2025
 Sampling method : SPT
 Sample description : Refer to BH2B_1131 log report
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/46-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/46
Test pit no :	BH2B_1131
Depth :	3.00 - 3.45m
Liquid limit :	60
Plastic limit :	24
Plasticity index :	36
Fraction tested :	<0.425mm
Date tested :	16/10/2025
Natural water content :	39.9%
Fraction tested :	Whole Soil
Date tested :	25/09/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 16 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 26 August 2025
 Sampling method : SPT
 Sample description : Refer to BH2B_1132 log report
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/48-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/48
Test pit no :	BH2B_1132
Depth :	2.00 - 2.45m
Liquid limit :	68
Plastic limit :	31
Plasticity index :	37
Fraction tested :	<0.425mm
Date tested :	16/10/2025
Natural water content :	36.6%
Fraction tested :	Whole Soil
Date tested :	11/10/2025

Test Methods	Notes
Liquid Limit NZS 4402 : 1986, Test 2.2	Sample description is not IANZ endorsed.
Plastic Limit NZS 4402 : 1986, Test 2.3	All information supplied by client.
Plasticity Index NZS 4402 : 1986, Test 2.4	This report may only be reproduced in full.
Water Content NZS 4402 : 1986, Test 2.1	

Date tested : 16 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 26/08/25
Date received : 14/10/25
Sampling method : SPT
Sample condition : As Received
Specific Depth: 7.5-7.95m

Project No : 1-C2466.16
Lab Ref No : WL4708/50_PI
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/50_PI
Sample Location ID : BH2B_1132
Sample Depth (m) : 7.5-7.95m
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 39
Plastic Limit : 21
Plasticity Index : 18

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 15/10/25
Date reported : 16/10/25

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

Approved Signatory
Rowan Carlyle
Designation : Laboratory Manager
Date : 17/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 25/09/2025
Date received : 10/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m) : 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/64-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/64-PI
Sample Location ID :	BH2B_1133
Sample Depth (m) :	3.00-3.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	17.9
Liquid Limit :	40
Plastic Limit :	19
Plasticity Index :	21
Sample Description : WL4708/64-PI Refer to BH2B_1133 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 21/10/25
Date reported : 23/10/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 23/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 25/09/2025
Date received : 10/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m): 6.00-6.45

Project No : 1-C2466.16
Lab Ref No : WL4708/65-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/65-PI
Sample Location ID :	BH2B_1133
Sample Depth (m) :	6.00-6.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	19.9
Liquid Limit :	45
Plastic Limit :	23
Plasticity Index :	22
Sample Description : WL4708/65-PI Refer to BH2B_1133 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 22/10/25
Date reported : 23/10/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 23/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 7/10/2025
Date received : 17/10/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 1.50-1.95

Project No : 1-C2466.16
Lab Ref No : WL4708/144-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/144-PI
Sample Location ID : BH2B_1134
Sample Depth (m) : 1.50-1.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 26.2
Liquid Limit : 61
Plastic Limit : 30
Plasticity Index : 31

Sample Description : WL4708/144-PI Clayey SILT with minor sand and traces of gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 17/11/2025
Date reported : 19/11/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 23/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 3 September 2025
 Sampling method : SPT
 Sample description : Clayey SILT with a trace of sand
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/73-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/73
Test pit no :	BH2B_1135
Depth :	2.00 - 2.45m
Liquid limit :	65
Plastic limit :	28
Plasticity index :	37
Fraction tested :	<0.425mm
Date tested :	18/10/2025
Natural water content :	24.6%
Fraction tested :	Whole Soil
Date tested :	14/10/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 18 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 3 September 2025
 Sampling method : SPT
 Sample description : Refer to BH2B_1135 log report
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/74-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/74
Test pit no :	BH2B_1135
Depth :	4.50 - 4.95m
Liquid limit :	59
Plastic limit :	22
Plasticity index :	37
Fraction tested :	<0.425mm
Date tested :	18/10/2025
Natural water content :	16.0%
Fraction tested :	Whole Soil
Date tested :	15/10/2025

Test Methods	Notes
Liquid Limit NZS 4402 : 1986, Test 2.2	Sample description is not IANZ endorsed.
Plastic Limit NZS 4402 : 1986, Test 2.3	All information supplied by client.
Plasticity Index NZS 4402 : 1986, Test 2.4	This report may only be reproduced in full.
Water Content NZS 4402 : 1986, Test 2.1	

Date tested : 18 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 12/11/25
Date received : 21/11/25
Sampling method : SPT
Sample condition : As received
Sample depth (m) : 4.50-4.95

Project No : 1-C2466.16
Lab Ref No : WL4708/196-PI
Client Ref No : 1-C2466.16

Test Results	
Sample Lab Ref No :	WL4708/196-PI
Sample Location ID :	BH2B_1136
Sample Depth (m) :	4.50-4.95
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	56.1
Liquid Limit :	53
Plastic Limit :	33
Plasticity Index :	20
Sample Description : WL4708/196-PI Clayey SILT with some sand	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 17/12/25
Date reported : 19/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 23/12/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 13/11/25
Date received : 25/11/25
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 9.00-9.45m

Project No : 1-C21466.16
Lab Ref No : WL4708/197_P1
Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/197_P1
Sample Location ID :	BH2B_1136
Sample Depth (m) :	9.00-9.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	45
Plastic Limit :	35
Plasticity Index :	10
Sample Description :	Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 26/11/25

Date reported : 27/11/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

All information supplied by Client

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 27/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 30/09/2025
Date received : 10/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m) : 5.00-5.45

Project No : 1-C2466.16
Lab Ref No : WL4708/133-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/133-PI
Sample Location ID :	BH2B_1137
Sample Depth (m) :	5.00-5.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	52.3
Liquid Limit :	70
Plastic Limit :	40
Plasticity Index :	30
Sample Description : WL4708/133-PI Refer to BH2B_1137 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 22/10/25
Date reported : 23/10/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 23/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 30/09/25
 Date received : 14/10/25
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth: 7.5-7.95m

Project No : 1-C2466.16
 Lab Ref No : WL4708/134-PI
 Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/134-PI
Sample Location ID :	BH2B_1137
Sample Depth (m) :	7.5-7.95m
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	66
Plastic Limit :	40
Plasticity Index :	26
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 16/10/25
 Date reported : 17/10/25

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

Approved Signatory
 Rowan Carlyle
 Designation : Laboratory Manager
 Date : 17/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 11/09/2025
Date received : 24/09/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/110-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/110-PI
Sample Location ID : BH2B_1139
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 63.7
Liquid Limit : 83
Plastic Limit : 49
Plasticity Index : 34

Sample Description : WL4708/110-PI Clayey SILT with some sand and minor gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 15/10/25
Date reported : 17/10/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 21/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 11/09/25
 Date received : 7/10/25
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth: 10.5-10.95m

Project No : 1-C2466.16
 Lab Ref No : WL4708/111.PI
 Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/111.PI
Sample Location ID :	BH2B_1139
Sample Depth (m) :	10.5-10.95m
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	52
Plastic Limit :	38
Plasticity Index :	14
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 08/10/25
 Date reported : 09/10/25

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

Approved Signatory 
 Designation : Laboratory Manager
 Date : 09/10/25



Test results indicated as not
 accredited are outside the
 scope of the laboratory's
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 10 September 2025
 Sampling method : SPT
 Sample description : Clayey SILT with minor sand
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/76-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/76
Test pit no :	BH2B_1140
Depth :	3.50 - 3.95m
Liquid limit :	57
Plastic limit :	27
Plasticity index :	30
Fraction tested :	<0.425mm
Date tested :	22/10/2025
Natural water content :	36.4%
Fraction tested :	Whole Soil
Date tested :	14/10/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 22 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 10 September 2025
 Sampling method : SPT
 Sample description : Refer to BH2B_1140 log report
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/78-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/78
Test pit no :	BH2B_1140
Depth :	9.00 - 9.45m
Liquid limit :	37
Plastic limit :	20
Plasticity index :	17
Fraction tested :	<0.425mm
Date tested :	28/10/2025
Natural water content :	30.6%
Fraction tested :	Whole Soil
Date tested :	25/09/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 28 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 3/10/2025
Date received : 17/10/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.50-3.95

Project No : 1-C2466.16
Lab Ref No : WL4708/148-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/148-PI
Sample Location ID : BH2B_1142
Sample Depth (m) : 3.50-3.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 146.1
Liquid Limit : 126
Plastic Limit : 56
Plasticity Index : 70

Sample Description : WL4708/148-PI Clayey SILT; dark brown mottled grey;
saturated;plastic

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 11-12/11/2025
Date reported : 19/11/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 20/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 23/10/25
Date received : 5/11/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.50-3.95

Project No : 1-C2466.16
Lab Ref No : WL4708/171-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/171-PI
Sample Location ID : BH2B_1143
Sample Depth (m) : 3.50-3.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 61.9
Liquid Limit : 86
Plastic Limit : 32
Plasticity Index : 54

Sample Description : WL4708/171-PI Silt CLAY

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 20/11/25
Date reported : 24/11/2025

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 24/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : WSP(Whangarei)
 Sampled by : WSP(Whangarei)
 Date sampled : 23/10/25
 Sampling method : Unknown
 Sample description : clayey SILT; grey
 Sample condition : As Received
 Sample reference: BH2B_1143
 Sample depth: 7.5-7.95m

Project No : 1-C21466.16
 Lab Ref No : WL4708/173-PI
 Client Ref No : BH2B_1143, 7.5m

Test Results	
Liquid Limit :	71
Plastic Limit :	27
Plasticity Index :	44

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1
	All information supplied by Client

Date tested : 26/11/25
 Date reported : 02/12/25

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

Approved Signatory

D Crawford

Designation : Senior Civil Engineering Technician

Date : 02/12/25

D Crawford



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 19/08/2025
Date received : 4/09/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 10.50-10.95

Project No : 1-C2466.16
Lab Ref No : WL4708/14-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/14-PI
Sample Location ID : BH2B_1144
Sample Depth (m) : 10.50-10.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 27.3
Liquid Limit : 37
Plastic Limit : 26
Plasticity Index : 11

Sample Description : WL4708/14-PI SILT with some clay and sand, minor gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 15/10/25
Date reported : 20/10/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 21/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 2/09/2025
Date received : 24/09/2025
Sampling method : Pushtube
Sample condition : As Received
Specific Depth (m): 1.50-1.90

Project No : 1-C2466.16
Lab Ref No : WL4708/114-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/114-PI
Sample Location ID : BH2B_1145
Sample Depth (m) : 1.50-1.90
Soil Fraction Tested : -425µm
Natural Water Content (%) : 46.7
Liquid Limit : 81
Plastic Limit : 28
Plasticity Index : 53

Sample Description : WL4708/114-PI Silty CLAY with traces of sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 27/11/25
Date reported : 01/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 17/12/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR AGGREGATES
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : N/A
Sampled by : NC_Site Team
Date sampled : 4/09/25
Sampling method : Core
Sample description : Refer to BH2B_1145 log report
Sample condition : As Received
Source : BH2B_1145
Sample depth : 33.00-37.50m

Project No : 1-C2466.16
Lab Ref No : WL4708/137-PI
Client Ref No : 1-C2466.16

Test Results	
Client Ref No :	1-C2466.16
Cone penetration limit :	32
Plastic limit :	Unable to Roll Threads
Plasticity index :	Non-Plastic
Sample fraction :	Fraction passing 425µm test sieve

Test Methods	Notes
Cone Penetration	NZS 4407 : 2015 : Test 3.2
Plastic Limit	NZS 4407 : 2015 : Test 3.3
Plasticity Index	NZS 4407 : 2015 : Test 3.4

Date tested : 18/12/25
Date reported : 19/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 13/01/26



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 24/11/25
Date received : 05/12/25
Sampling method : SPT
Sample condition : As received
Sample depth (m) : 3.50-3.95

Project No : 1-C2466.16
Lab Ref No : WL4708/207 -PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/207 -PI
Sample Location ID : BH2B_1146
Sample Depth (m) : 3.50-3.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 50.7
Liquid Limit : 75
Plastic Limit : 27
Plasticity Index : 48

Sample Description : WL4708/207 -PI Clayey SILT with some sand and minor gravel

Test Methods

Notes

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Soil fraction tested as shown.

Date tested : 12/01/26
Date reported : 13/01/26

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 14/01/26



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 24/11/2025
Date received : 11/11/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 12.00-12.45m

Project No : 1-C21466.16
Lab Ref No : WL4708/209_PI
Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/209_PI
Sample Location ID :	BH2B_1146
Sample Depth (m) :	12.00-12.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	53
Plastic Limit :	25
Plasticity Index :	28
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 16/12/25
Date reported : 22/12/25

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

Approved Signatory 
Rowan Carlyle
Designation : Laboratory Manager
Date : 22/12/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 25/11/25
Date received : 11/11/25
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 26.00-26.45m

Project No : 1-C21466.16
Lab Ref No : WL4708/211.PI
Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/211.PI
Sample Location ID :	BH2B_1146
Sample Depth (m) :	26.00-26.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	66.3
Liquid Limit :	90
Plastic Limit :	38
Plasticity Index :	52
Sample Description :	Clayey SILT with trace of sand
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 27/11/25
Date reported : 22/12/25

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

Approved Signatory 
Rowan Carlyle
Designation : Laboratory Manager
Date : 22/12/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 17/09/25
 Date received : 7/10/25
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth: 1.5-1.95m

Project No : 1-C2466.16
 Lab Ref No : WL4708/115_P1
 Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/115_P1
Sample Location ID :	BH2B_1147
Sample Depth (m) :	1.5-1.95m
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	94
Plastic Limit :	39
Plasticity Index :	55
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 08/10/25
 Date reported : 09/10/25

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

Approved Signatory
 Rowan Carlyle
 Designation : Laboratory Manager
 Date : 09/10/25



Test results indicated as not
 accredited are outside the
 scope of the laboratory's
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 17/09/2025
Date received : 24/09/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 4.50-4.95

Project No : 1-C2466.16
Lab Ref No : WL4708/116-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/116-PI
Sample Location ID : BH2B_1147
Sample Depth (m) : 4.50-4.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 31.8
Liquid Limit : 46
Plastic Limit : 31
Plasticity Index : 15

Sample Description : WL4708/116-PI Clayey SILT with some sand and minor gravel

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 20/10/25
Date reported : 29/10/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 04/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 10 September 2025
 Sampling method : SPT
 Sample description : Silty CLAY with some sand & a trace of gravel
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/90-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/90
Test pit no :	BH2B_1148
Depth :	4.50 - 4.95m
Liquid limit :	52
Plastic limit :	33
Plasticity index :	19
Fraction tested :	<0.425mm
Date tested :	28/10/2025
Natural water content :	44.6%
Fraction tested :	Whole Soil
Date tested :	13/10/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 28 October 2025

Date reported :

Approved Signatory

Designation : Intermediate Laboratory Technician

Date : 28 October 2025



All tests reported herein
have been performed in
accordance with the
laboratory's scope of
accreditation

PLASTICITY INDEX FOR SOILS TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 10/09/2025
 Date received : 29/10/2025
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth (m): 9.00-9.45

Project No : 1-C2466.16
 Lab Ref No : WL4708/91-PI
 Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/91-PI
 Sample Location ID : BH2B_1148
 Sample Depth (m) : 9.00-9.45
 Soil Fraction Tested : -425µm
 Natural Water Content (%) : 43.3
 Liquid Limit : 58
 Plastic Limit : 37
 Plasticity Index : 21

Sample Description : WL4708/91-PI Sandy SILT/CLAY with minor gravel

Test Methods

Water Content NZS 4402 : 1986, Test 2.1
 Liquid Limit NZS 4402 : 1986, Test 2.2
 Plastic Limit NZS 4402 : 1986, Test 2.3
 Plasticity Index NZS 4402 : 1986, Test 2.4

Notes

Soil fraction tested as shown.

Date tested : 31/10/25
 Date reported : 04/11/25

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

Approved Signatory

Thirushen Pillay
 Designation : Senior Civil Engineering Technician
 Date : 05/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 25/08/2025
 Date received : 4/09/2025
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth (m): 3.00-3.45

Project No : 1-C2466.16
 Lab Ref No : WL4708/16-PI
 Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/16-PI
 Sample Location ID : BH2B_1149
 Sample Depth (m) : 3.00-3.45
 Soil Fraction Tested : -425µm
 Natural Water Content (%) : 21.4
 Liquid Limit : 51
 Plastic Limit : 26
 Plasticity Index : 25

Sample Description : WL4708/16-PI Clayey SILT with traces of sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 24/09/25
 Date reported : 01/10/25

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

Approved Signatory

Thirushen Pillay
 Designation : Senior Civil Engineering Technician
 Date : 03/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 18/08/2025
 Date received : 4/09/2025
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth (m): 2.50-2.95

Project No : 1-C2466.16
 Lab Ref No : WL4708/18-PI
 Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/18-PI
 Sample Location ID : BH2B_1150
 Sample Depth (m) : 2.50-2.95
 Soil Fraction Tested : -425µm
 Natural Water Content (%) : 72.0
 Liquid Limit : 86
 Plastic Limit : 33
 Plasticity Index : 53

Sample Description : WL4708/18-PI Clayey SILT with some sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 18/09/25
 Date reported : 01/10/25

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

Approved Signatory

Designation : Thirushen Pillay
 Date : Senior Civil Engineering Technician
 03/10/25



Test results indicated as not
 accredited are outside the
 scope of the laboratory's
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 10 September 2025
 Sampling method : SPT
 Sample description : Silty CLAY
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/92-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/92
Test pit no :	BH2B_1151
Depth :	2.00 - 2.45m
Liquid limit :	77
Plastic limit :	38
Plasticity index :	39
Fraction tested :	<0.425mm
Date tested :	29/10/2025
Natural water content :	46.7%
Fraction tested :	Whole Soil
Date tested :	17/10/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 29 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigations For Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon Ltd & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 10 September 2025
 Sampling method : SPT
 Sample description : Refer to BH2B_1151 log report
 Sample condition : As received
 Date received : 23 September 2025

Project No : 1-C2466.16
 Lab Ref No : WL4708/94-PI
 Client Ref No : 1-C2466.16

Test Results	
Lab reference :	WL4708/94
Test pit no :	BH2B_1151
Depth :	6.00 - 6.45m
Liquid limit :	80
Plastic limit :	34
Plasticity index :	46
Fraction tested :	<0.425mm
Date tested :	29/10/2025
Natural water content :	41.2%
Fraction tested :	Whole Soil
Date tested :	21/10/2025

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1

Date tested : 29 October 2025
 Date reported : 30 October 2025

Approved Signatory

Designation : Intermediate Laboratory Technician
 Date : 30 October 2025



All tests reported herein
 have been performed in
 accordance with the
 laboratory's scope of
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 11/09/2025
Date received : 19/09/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/98-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/98-PI
Sample Location ID : BH2B_1152
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 25.9
Liquid Limit : 57
Plastic Limit : 22
Plasticity Index : 35

Sample Description : WL4708/98-PI Clayey SILT with traces of sand and gravel

Test Methods

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Notes

Soil fraction tested as shown.

Date tested : 08/10/25

Date reported : 09/10/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

All information supplied by Client

Approved Signatory

Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 12/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 11/09/25
 Date received : 14/10/25
 Sampling method : SPT
 Sample condition : As Received
 Specific Depth: 4.5-4.95m

Project No : 1-C2466.16
 Lab Ref No : WL4708/99_PI
 Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/99_PI
Sample Location ID :	BH2B_1152
Sample Depth (m) :	4.5-4.95m
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	51
Plastic Limit :	29
Plasticity Index :	22
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 16/10/25
 Date reported : 17/10/25

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

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 17/10/25



Test results indicated as not
 accredited are outside the
 scope of the laboratory's
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 4/11/25
Date received : 25/11/25
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 3.00-3.45m

Project No : 1-C21466.16
Lab Ref No : WL4708/185_PI
Client Ref No :

Test Results

Sample Lab Ref No : WL4708/185_PI
Sample Location ID : BH2B_1153
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) :
Liquid Limit : 47
Plastic Limit : 33
Plasticity Index : 14

Sample Description : Refer to borehole log

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 26/11/25

Date reported : 27/11/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

All information supplied by Client

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 27/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 4/11/25
Date received : 25/11/25
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 6.00-6.45m

Project No : 1-C21466.16
Lab Ref No : WL4708/186_P1
Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/186_P1
Sample Location ID :	BH2B_1153
Sample Depth (m) :	6.00-6.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	37.5
Liquid Limit :	54
Plastic Limit :	36
Plasticity Index :	18
Sample Description :	Silty CLAY with minor sand and traces of gravel
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 27/11/25
Date reported : 28/11/25

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

Approved Signatory 
Rowan Carlyle
Designation : Laboratory Manager
Date : 28/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 23/10/25
Date received : 5/11/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/175-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/175-PI
Sample Location ID : BH2B_1154
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 40.2
Liquid Limit : 54
Plastic Limit : 27
Plasticity Index : 27

Sample Description : WL4708/175-PI Clayey SILT with some sand and minor gravel

Test Methods

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Notes

Soil fraction tested as shown.

Date tested : 19/11/25
Date reported : 24/11/2025

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 24/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : WSP(Whangarei)
 Sampled by : WSP(Whangarei)
 Date sampled : 23/10/25
 Sampling method : Unknown
 Sample description : clayey SILT; yellowish grey
 Sample condition : As Received
 Sample reference : BH2B_1154
 Sample depth : 4.5-4.95m

Project No : 1-C21466.16
 Lab Ref No : WL4708/176-PI
 Client Ref No : BH2B_1154, 4.5m

Test Results	
Liquid Limit :	50
Plastic Limit :	36
Plasticity Index :	14

Test Methods	Notes
Liquid Limit NZS 4402 : 1986, Test 2.2	Materials used: Whole soil All information supplied by Client
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	
Water Content NZS 4402 : 1986, Test 2.1	

Date tested : 25/11/25
 Date reported : 02/12/25

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

Approved Signatory

D Crawford

Designation : Senior Civil Engineering Technician

Date : 02/12/25

D Crawford



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : WSP(Whangarei)
 Sampled by : WSP(Whangarei)
 Date sampled : 23/10/25
 Sampling method : Unknown
 Sample description : Silty SAND; reddish brown
 Sample condition : As Received
 Sample reference : BH2B_1154
 Sample depth : 6.0-6.45m

Project No : 1-C21466.16
 Lab Ref No : WL4708/177-PI
 Client Ref No : BH2B_1154, 6.0m

Test Results	
Liquid Limit :	32
Plastic Limit :	31
Plasticity Index :	1

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1
	All information supplied by Client

Date tested : 28/11/25
 Date reported : 02/12/25

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

Approved Signatory

D Crawford

Designation : Senior Civil Engineering Technician

Date : 02/12/25

D Crawford



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 21/10/2025
Date received : 5/11/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 3.00-3.45

Project No : 1-C2466.16
Lab Ref No : WL4708/178-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/178-PI
Sample Location ID : BH2B_1155
Sample Depth (m) : 3.00-3.45
Soil Fraction Tested : -425µm
Natural Water Content (%) : 31.2
Liquid Limit : 62
Plastic Limit : 30
Plasticity Index : 32

Sample Description : WL4708/178-PI Silty CLAY with traces of sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 12/11/25
Date reported : 19/11/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 23/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : WSP(Whangarei)
Sampled by : WSP(Whangarei)
Date sampled : 22/10/25
Sampling method : Unknown
Sample description : Clayey SILT; grey
Sample condition : As Received
Sample reference : BH2B_1155
Sample depth : 7.5-7.95

Project No : 1-C21466.16
Lab Ref No : WL4708/179-PI
Client Ref No : BH2B_1155, 7.5m

Test Results	
Liquid Limit :	47
Plastic Limit :	23
Plasticity Index :	24

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1
	All information supplied by Client

Date tested : 28/11/25
Date reported : 02/12/25

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

Approved Signatory

D Crawford

Designation : Senior Civil Engineering Technician

Date : 02/12/25

D Crawford



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 20/10/2025
Date received : 31/10/2025
Sampling method : SPT
Sample condition : As received
Sample depth (m): 1.50-1.95

Project No : 1-C2466.16
Lab Ref No : WL4708/162 -PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/162 -PI
Sample Location ID : BH2B_1156
Sample Depth (m) : 1.50-1.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 60.3
Liquid Limit : 111
Plastic Limit : 53
Plasticity Index : 58

Sample Description : WL4708/162 -PI Clayey SILT; brown; moist; plastic.

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 27/11/25
Date reported : 01/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 18/12/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 23/10/25
Date received : 5/11/2025
Sampling method : SPT
Sample condition : As Received
Specific Depth (m): 4.50-4.95

Project No : 1-C2466.16
Lab Ref No : WL4708/181-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/181-PI
Sample Location ID : BH2B_1157
Sample Depth (m) : 4.50-4.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 51.7
Liquid Limit : 48
Plastic Limit : 36
Plasticity Index : 12

Sample Description : WL4708/181-PI SILT with some clay and sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 19/11/25
Date reported : 24/11/2025

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 24/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd.
 Contractor : WSP(Whangarei)
 Sampled by : WSP(Whangarei)
 Date sampled : 23/10/25
 Sampling method : Unknown
 Sample description : Silty SAND; brownish grey
 Sample condition : As Received
 Sample reference: BH2B_1157
 Sample depth: 7.5-7.95

Project No : 1-C21466.16
 Lab Ref No : WL4708/182-PI
 Client Ref No : BH2B_1157, 7.5m

Test Results	
Liquid Limit :	N/A
Plastic Limit :	NP
Plasticity Index :	Non-Plastic

Test Methods	Notes
Liquid Limit	NZS 4402 : 1986, Test 2.2
Plastic Limit	NZS 4402 : 1986, Test 2.3
Plasticity Index	NZS 4402 : 1986, Test 2.4
Water Content	NZS 4402 : 1986, Test 2.1
	All information supplied by Client

Date tested : 28/11/25
 Date reported : 02/12/25

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

Approved Signatory

D Crawford

Designation : Senior Civil Engineering Technician
 Date : 02/12/25

D Crawford



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

**PLASTICITY INDEX FOR AGGREGATES
TEST REPORT**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC_Site Team
 Date sampled : 23/10/25
 Sampling method : SPT
 Sample description : Sandy SILT with minor clay
 Sample condition : As Received
 Source : BH2B_1157
 Sample depth : 16.50-16.95m

Project No :	1-C2466.16
Lab Ref No :	WL4708/184-PI
Client Ref No :	1-C2466.16

Test Results	
Client Ref No :	1-C2466.16
Cone penetration limit :	44
Plastic limit :	Unable to Roll Threads
Plasticity index :	Non-Plastic
Sample fraction :	Fraction passing 425µm test sieve
As received water content :	40.3

Test Methods	Notes
Water Content	NZS 4407 : 2015 Test 3.1
Cone Penetration	NZS 4407 : 2015 : Test 3.2
Plastic Limit	NZS 4407 : 2015 : Test 3.3
Plasticity Index	NZS 4407 : 2015 : Test 3.4

Date tested : 17/12/25
 Date reported : 19/12/25

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

Approved Signatory

Thirushen Pillay
 Designation : Senior Civil Engineering Technician
 Date : 14/01/26



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR AGGREGATES TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC_Site Team
 Date sampled : 11/11/25
 Sampling method : SPT
 Sample description : Silty SAND with minor clay
 Sample condition : As Received
 Source : BH2B_1159
 Sample depth : 3.00-3.45m

Project No : 1-C2466.16
 Lab Ref No : WL4708/212-PI
 Client Ref No : 1-C2466.16

Test Results	
Client Ref No :	1-C2466.16
Cone penetration limit :	39
Plastic limit :	Unable to Roll Threads
Plasticity index :	Non-Plastic
Sample fraction :	Fraction passing 425µm test sieve
As received water content :	29.3

Test Methods	Notes
Water Content	NZS 4407 : 2015 Test 3.1
Cone Penetration	NZS 4407 : 2015 : Test 3.2
Plastic Limit	NZS 4407 : 2015 : Test 3.3
Plasticity Index	NZS 4407 : 2015 : Test 3.4

Date tested : 18/12/25
 Date reported : 19/12/25

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

Approved Signatory

Thirushen Pillay
 Designation : Senior Civil Engineering Technician
 Date : 13/01/26



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR AGGREGATES
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 11/11/25
 Sampling method : SPT
 Sample description : Refer to BH2B_1159 log report
 Sample condition : Natural; as excavated
 Source : BH2B_1159
 Sample depth : 9-9.45m

Project No : 1-C2466.16
 Lab Ref No : WL4708/213.PI
 Client Ref No : -

Test Results	
Client Ref No :	WL4708/213.PI
Cone penetration limit :	36
Plastic limit :	32
Plasticity index :	4
Sample fraction :	Fraction passing 425µm test sieve

Test Methods	Notes
Cone Penetration NZS 4407 : 2015 : Test 3.2	
Plastic Limit NZS 4407 : 2015 : Test 3.3	
Plasticity Index NZS 4407 : 2015 : Test 3.4	

Date tested : 16/12/25
 Date reported : 22/12/25

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

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 22/12/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 10/10/2025
Date received : 24/10/2025
Sampling method : SPT
Sample condition : As received
Sample depth (m): 4.50-4.95

Project No : 1-C2466.16
Lab Ref No : WL4708/157 -PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4708/157 -PI
Sample Location ID : BH2B_1160
Sample Depth (m) : 4.50-4.95
Soil Fraction Tested : -425µm
Natural Water Content (%) : 36.9
Liquid Limit : 50
Plastic Limit : 25
Plasticity Index : 25

Sample Description : WL4708/157 -PI Clayey SILT with minor sand

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 27/11/25
Date reported : 01/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 18/12/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 10/10/2025
Date received : 24/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m) : 9.00-9.45

Project No : 1-C2466.16
Lab Ref No : WL4708/158-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/158-PI
Sample Location ID :	BH2B_1160
Sample Depth (m) :	9.00-9.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	22.2
Liquid Limit :	55
Plastic Limit :	27
Plasticity Index :	28
Sample Description : WL4708/158-PI Refer to BH2B_1160 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 20/11/25
Date reported : 25/11/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 25/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 12/11/25
Date received : 21/11/25
Sampling method : SPT
Sample condition : As received
Sample depth (m) : 4.50-4.95

Project No : 1-C2466.16
Lab Ref No : WL4708/198 -PI
Client Ref No : 1-C2466.16

Test Results	
Sample Lab Ref No :	WL4708/198 -PI
Sample Location ID :	BH2B_1161
Sample Depth (m) :	4.50-4.95
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	22.8
Liquid Limit :	44
Plastic Limit :	24
Plasticity Index :	20
Sample Description : WL4708/198 -PI CW SILTSTONE (Clayey SILT)	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 12/12/25
Date reported : 19/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 14/01/26



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 12/11/25
Date received : 28/11/25
Sampling method : SPT
Sample condition : As received
Sample depth (m) : 6.00-6.45

Project No : 1-C2466.16
Lab Ref No : WL4708/199 -PI
Client Ref No : 1-C2466.16

Test Results	
Sample Lab Ref No :	WL4708/199 -PI
Sample Location ID :	BH2B_1161
Sample Depth (m) :	6.00-6.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	19.7
Liquid Limit :	47
Plastic Limit :	25
Plasticity Index :	22
Sample Description : WL4708/199 -PI Clayey SILT with minor sand and traces of gravel	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 12/12/25
Date reported : 19/12/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 14/01/26



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills Section
Client : NZTA C/- Aurecon & WSP NZ Ltd.
Contractor : N/A
Sampled by : NC Site Team
Date sampled : 29/10/25
Date received : 25/11/25
Sampling method : SPT
Sample condition : Natural; as excavated
Specific Depth: 6.00-6.45m

Project No : 1-C21466.16
Lab Ref No : WL4708/190_PI
Client Ref No :

Test Results	
Sample Lab Ref No :	WL4708/190_PI
Sample Location ID :	BH2B_1162
Sample Depth (m) :	6.00-6.45
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	
Liquid Limit :	58
Plastic Limit :	28
Plasticity Index :	30
Sample Description :	Refer to borehole log
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 27/11/25

Date reported : 28/11/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

All information supplied by Client

Approved Signatory

Rowan Carlyle

Designation : Laboratory Manager

Date : 28/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 20/10/2025
 Date received : 31/10/2025
 Sampling method : SPT
 Sample condition : Natural; as excavated
 Sample depth (m) : 4.70-5.15

Project No : 1-C2466.16
 Lab Ref No : WL4708/165-PI
 Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/165-PI
Sample Location ID :	BH2B_1164
Sample Depth (m) :	4.70-5.15
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	29.0
Liquid Limit :	49
Plastic Limit :	22
Plasticity Index :	27
Sample Description : WL4708/165-PI Refer to BH2B_1164 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 17/11/25
 Date reported : 21/11/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
 Date : 21/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 20/10/2025
Date received : 31/10/2025
Sampling method : SPT
Sample condition : Natural; as excavated
Sample depth (m) : 7.50-7.95

Project No : 1-C2466.16
Lab Ref No : WL4708/166-PI
Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4708/166-PI
Sample Location ID :	BH2B_1164
Sample Depth (m) :	7.50-7.95
Soil Fraction Tested :	-425µm
Natural Water Content (%) :	33.2
Liquid Limit :	70
Plastic Limit :	26
Plasticity Index :	44
Sample Description : WL4708/166-PI Refer to BH2B_1164 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 20/11/25
Date reported : 25/11/25

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

Approved Signatory

Designation : Senior Civil Engineering Technician
Date : 25/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills section: A new route close to SH1
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 27/09/25
 Date received : 27/09/25
 Sampling method : Digger
 Sample condition : Natural; as excavated
 Sample depth (m): 0.7-1.0

Project No : 1-C2466.16
 Lab Ref No : WL4709/6-PI
 Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4709/6-PI
Sample Location ID :	TP2B_1101
Sample Depth (m) :	0.7-1.0
Soil Fraction Tested :	Whole
Natural Water Content (%) :	48.9
Liquid Limit :	72
Plastic Limit :	34
Plasticity Index :	38
Sample Description : WL4709/6-PI Refer to TP2B_1101 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 04/11/25
 Date reported : 06/11/25

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

Approved Signatory

Designation : Laboratory Manager
 Date : 14/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2B - Bryderwyn to Marsden Point
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 23/09/25
Date received : 3/10/25
Sampling method : Digger
Sample condition : Natural; as excavated
Sample depth (m) : 1.0-1.5

Project No : 1-C2466.16
Lab Ref No : WL4709/7-PI
Client Ref No : -

Test Results

Sample Lab Ref No : WL4709/7-PI
Sample Location ID : TP2B_1102
Sample Depth (m) : 1.0-1.5
Soil Fraction Tested : Whole
Natural Water Content (%) :
Liquid Limit : 53
Plastic Limit : 24
Plasticity Index : 29

Sample Description : WL4709/7-PI Refer to TP2B_1102 log report

Test Methods	Notes
Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 08/10/25
Date reported : 09/10/25

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

Approved Signatory

Designation : Laboratory Manager
Date : 17/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR AGGREGATES
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills section: A new route close to SH1
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 27/09/25
 Sampling method : Digger
 Sample description : Refer to TP2B_1103 log report
 Sample condition : Natural; as excavated
 Source : TP2B_1103
 Sample depth : 1.80-2.00m

Project No : 1-C2466.16
 Lab Ref No : WL4709/9-PI
 Client Ref No : -

Test Results	
Client Ref No :	-
Cone penetration limit :	46
Plastic limit :	32
Plasticity index :	14
Sample fraction :	Fraction passing 425µm test sieve
As received water content :	38

Test Methods	Notes
Water Content	NZS 4407 : 2015 Test 3.1
Cone Penetration	NZS 4407 : 2015 : Test 3.2
Plastic Limit	NZS 4407 : 2015 : Test 3.3
Plasticity Index	NZS 4407 : 2015 : Test 3.4

Date tested : 12/11/25
 Date reported : 13/11/25

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

Approved Signatory

Designation : Laboratory Manager
 Date : 19/01/26



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2B - Bryderwyn to Marsden Point
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 25/09/25
Date received : 3/10/25
Sampling method : Digger
Sample condition : Natural; as excavated
Sample depth (m) : 2.0-3.0

Project No : 1-C2466.16
Lab Ref No : WL4709/11-PI
Client Ref No : -

Test Results

Sample Lab Ref No : WL4709/11-PI
Sample Location ID : TP2B_1104
Sample Depth (m) : 2.0-3.0
Soil Fraction Tested : -425µm
Natural Water Content (%) : 51.3
Liquid Limit : 68
Plastic Limit : 37
Plasticity Index : 31

Sample Description : WL4709/11-PI Refer to TP2B_1104 log report

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 08/10/25
Date reported : 09/10/25

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

Approved Signatory

Designation : *Laboratory Manager*
Date : 17/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2B - Bryderwyn to Marsden Point
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 27/09/25
Date received : 3/10/25
Sampling method : Digger
Sample condition : Natural; as excavated
Sample depth (m): 4.5-5.0

Project No : 1-C2466.16
Lab Ref No : WL4709/12-PI
Client Ref No : -

Test Results

Sample Lab Ref No : WL4709/12-PI
Sample Location ID : TP2B_1107
Sample Depth (m) : 4.5-5.0
Soil Fraction Tested : -425µm
Natural Water Content (%) : 27.7
Liquid Limit : 71
Plastic Limit : 29
Plasticity Index : 42

Sample Description : WL4709/12-PI Refer to TP2B_1107 log report

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 08/10/25
Date reported : 09/10/25

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

Approved Signatory

Designation : Laboratory Manager
Date : 17/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills section: A new route close to SH1
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : N/P
Date received : N/P
Sampling method : Digger
Sample condition : Natural; as excavated
Sample depth (m) : 0.5-1.0m

Project No : 1-C2466.16
Lab Ref No : WL4709/26-PI
Client Ref No : -

Test Results

Sample Lab Ref No : WL4709/26-PI
Sample Location ID : TP2B_1108
Sample Depth (m) : 0.5-1.0m
Soil Fraction Tested : Whole
Natural Water Content (%) : 42.1
Liquid Limit : 99
Plastic Limit : 30
Plasticity Index : 69

Sample Description : WL4709/26-PI Refer to TP2B_1108 log report

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 24/10/25
Date reported : 31/10/25

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

Approved Signatory

Designation : Laboratory Manager
Date : 14/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2B - Bryderwyn to Marsden Point
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 22/09/25
Date received : 3/10/25
Sampling method : Digger
Sample condition : Natural; as excavated
Sample depth (m) : 3.5-4.0

Project No : 1-C2466.16
Lab Ref No : WL4709/15-PI
Client Ref No : -

Test Results

Sample Lab Ref No : WL4709/15-PI
Sample Location ID : TP2B_1109
Sample Depth (m) : 3.5-4.0
Soil Fraction Tested : Whole
Natural Water Content (%) : 40.1
Liquid Limit : 63
Plastic Limit : 25
Plasticity Index : 38

Sample Description : WL4709/15-PI Refer to TP2B_1109 log report

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 08/10/25
Date reported : 10/10/25

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

Approved Signatory

Designation : Laboratory Manager
Date : 17/10/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills section: A new route close to SH1
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 27/09/25
 Date received : 27/09/25
 Sampling method : Digger
 Sample condition : Natural; as excavated
 Sample depth (m): 2.0-2.5

Project No : 1-C2466.16
 Lab Ref No : WL4709/16-PI
 Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4709/16-PI
Sample Location ID :	TP2B_1110
Sample Depth (m) :	2.0-2.5
Soil Fraction Tested :	Whole
Natural Water Content (%) :	17.9
Liquid Limit :	44
Plastic Limit :	22
Plasticity Index :	22
Sample Description : WL4709/16-PI Refer to TP2B_1110 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 04/11/25
 Date reported : 06/11/25

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

Approved Signatory

Designation : *Laboratory Manager*
 Date : 14/11/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR AGGREGATES
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2B - Bryderwyn to Marsden Point
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 18/09/25
Sampling method : Digger
Sample description : Refer to TP2B_1113 log report
Sample condition : Natural; as excavated
Source : TP2B_1113
Sample depth : 4.20-4.50m

Project No : 1-C2466.16
Lab Ref No : WL4709/18-PI
Client Ref No : -

Test Results	
Client Ref No :	-
Cone penetration limit :	53
Plastic limit :	32
Plasticity index :	21
Sample fraction :	Fraction passing 425µm test sieve
As received water content :	42.4
Note: Material slipped in Casagrande bowl. Cone Penetration test used	

Test Methods	Notes
Water Content	NZS 4407 : 2015 Test 3.1
Cone Penetration	NZS 4407 : 2015 : Test 3.2
Plastic Limit	NZS 4407 : 2015 : Test 3.3
Plasticity Index	NZS 4407 : 2015 : Test 3.4

Date tested : 13/10/25
Date reported : 14/10/25

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

Approved Signatory

Designation : Laboratory Manager
Date : 14/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC_Site Team
Date sampled : 15/09/2025
Date received : 19/09/2025
Sampling method : Digger
Sample condition : As Received
Sample depth (m): 1.90-2.60

Project No : 1-C2466.16
Lab Ref No : WL4709/2-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4709/2-PI

Sample Location ID : TP2B_1114

Sample Depth (m) : 1.90-2.60

Soil Fraction Tested : -425µm

Natural Water Content (%) : 29.3

Liquid Limit : 48

Plastic Limit : 30

Plasticity Index : 18

Sample Description : WL4709/2-PI Clay SILT with minor sand and traces of gravel

Test Methods

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Notes

Soil fraction tested as shown.

Date tested : 03/10/25
Date reported : 16/10/25

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

Approved Signatory

Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 26/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills section: A new route close to SH1
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 25/09/25
 Date received : 25/09/25
 Sampling method : Digger
 Sample condition : Natural; as excavated
 Sample depth (m) : 1.5-2.0m

Project No : 1-C2466.16
 Lab Ref No : WL4709/20-PI
 Client Ref No : -

Test Results	
Sample Lab Ref No :	WL4709/20-PI
Sample Location ID :	TP2B_1119
Sample Depth (m) :	1.5-2.0m
Soil Fraction Tested :	Whole
Natural Water Content (%) :	59.9
Liquid Limit :	110
Plastic Limit :	46
Plasticity Index :	64
Sample Description : WL4709/20-PI Refer to TP2B_1119 log report	
Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1	Soil fraction tested as shown.
Liquid Limit NZS 4402 : 1986, Test 2.2	
Plastic Limit NZS 4402 : 1986, Test 2.3	
Plasticity Index NZS 4402 : 1986, Test 2.4	

Date tested : 24/10/25
 Date reported : 31/10/25

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

Approved Signatory

Designation : Laboratory Manager
 Date : 14/11/25



Test results indicated as not
 accredited are outside the
 scope of the laboratory's
 accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills section: A new route close to SH1
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 25/09/25
Date received : 25/09/25
Sampling method : Digger
Sample condition : Natural; as excavated
Sample depth (m): 2.7-3.2

Project No : 1-C2466.16
Lab Ref No : WL4709/22-PI
Client Ref No : -

Test Results

Sample Lab Ref No : WL4709/22-PI
Sample Location ID : TP2B_1120
Sample Depth (m) : 2.7-3.2
Soil Fraction Tested : Whole
Natural Water Content (%) : 47.1
Liquid Limit : 66
Plastic Limit : 35
Plasticity Index : 31

Sample Description : WL4709/22-PI Refer to TP2B_1120 log report

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 06/11/25
Date reported : 07/11/25

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

Approved Signatory

Designation : Laboratory Manager
Date : 14/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC_Site Team
Date sampled : 15/09/2025
Date received : 19/09/2025
Sampling method : Digger
Sample condition : As Received
Sample depth (m): 1.90-2.50

Project No : 1-C2466.16
Lab Ref No : WL4709/4-PI
Client Ref No : 1-C2466.16

Test Results

Sample Lab Ref No : WL4709/4-PI

Sample Location ID : TP2B_1121

Sample Depth (m) : 1.90-2.50

Soil Fraction Tested : -425µm

Natural Water Content (%) : 27.6

Liquid Limit : 45

Plastic Limit : 27

Plasticity Index : 18

Sample Description : WL4709/4-PI Clayey SILT with some sand and traces of gravel

Test Methods

Water Content NZS 4402 : 1986, Test 2.1
Liquid Limit NZS 4402 : 1986, Test 2.2
Plastic Limit NZS 4402 : 1986, Test 2.3
Plasticity Index NZS 4402 : 1986, Test 2.4

Notes

Soil fraction tested as shown.

Date tested : 03/10/25
Date reported : 16/10/25

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

Approved Signatory

Thirushen Pillay
Designation : Senior Civil Engineering Technician
Date : 28/10/25



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

PLASTICITY INDEX FOR SOILS
TEST REPORT



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills section: A new route close to SH1
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 27/09/25
Date received : 27/09/25
Sampling method : Digger
Sample condition : Natural; as excavated
Sample depth (m) : 0.7-1.0

Project No : 1-C2466.16
Lab Ref No : WL4709/19-PI
Client Ref No : -

Test Results

Sample Lab Ref No : WL4709/19-PI
Sample Location ID : TP2B_1125
Sample Depth (m) : 0.7-1.0
Soil Fraction Tested : -425µm
Natural Water Content (%) : 29.1
Liquid Limit : 55
Plastic Limit : 20
Plasticity Index : 35

Sample Description : WL4709/19-PI Refer to TP2B_1125 log report

Test Methods	Notes
Water Content NZS 4402 : 1986, Test 2.1 Liquid Limit NZS 4402 : 1986, Test 2.2 Plastic Limit NZS 4402 : 1986, Test 2.3 Plasticity Index NZS 4402 : 1986, Test 2.4	Soil fraction tested as shown.

Date tested : 06/11/25
Date reported : 07/11/25

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

Approved Signatory

Designation : *Laboratory Manager*
Date : 14/11/25



Test results indicated as not
accredited are outside the
scope of the laboratory's
accreditation