Appendix A

Field Investigation Data

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GEOTECHNICAL AND GEOLOGICAL INFORMATION

SOIL TYPES AND SYMBOLS


FILL


TOPSOIL


SILT


SAND


GRAVEL


CLAY


PEAT


GROUNDWATER LEVEL

10,11,10
SCALA PENETROMETER
LAST 3 NUMBER OF BLOWS PER 50mm INCREMENT

ROCK TYPES AND SYMBOLS


SANDSTONE


SILTSTONE


MUDSTONE


LIMESTONE


BASALT


TUFF


IGNIMBRITE


GREYWACKE

SOIL STRENGTH CLASSIFICATION

FINE GRAINED COHESIVE SOILS

TERM	FIELD IDENTIFICATION	UNDRAINED SHEAR STRENGTH (KPa)
Very Soft (Vs)	Exudes between fingers when squeezed.	<12
Soft (S)	Easily indented by fingers.	12 – 25
Firm (F)	Indented only by strong finger pressure.	25 – 50
Stiff (St)	Indented by thumb pressure.	50 – 100
Very Stiff (VSt)	Indented by thumbnail.	100 – 200
Hard (H)	Difficult to indent by thumbnail.	200+

SPT & SCALA PENETROMETER RESULTS

TERM	SPT VALUE No. of BLOWS/300mm	SCALA PENETROMETER No. of BLOWS/100mm
very dense	>50	17+
dense	30 – 50	7 – 17
medium dense	10 – 30	3 – 7
loose	4 – 10	1 – 3
very loose	0 – 4	0 – 2

ROCK STRENGTH CLASSIFICATION

TERM		FIELD IDENTIFICATION	UNCONFINED UNIAXIAL COMPRESSIVE STRENGTH (MPa)
Extremely weak	(EW)	Indented by thumbnail.	< 1
Very weak	(VW)	Crumbles under firm blows with point of geological hammer. Can be peeled with pocket knife.	1 – 5
Weak	(W)	Difficult to peel with pocket knife.	5 – 20
Moderately strong	(MS)	Cannot be scraped or peeled with pocket knife.	20 – 50
Strong	(S)	More than one blow of geological hammer to fracture.	50 – 100
Very strong	(VS)	Many blows of geological hammer to break.	100 – 250
Extremely strong	(ES)	Can only be chipped with geological hammer.	250+

MOISTURE CONDITION

Dry (D)	Looks and feels dry; powdery and friable.
Moist (M)	Feels cool; darkened in colour; no free water when remoulded.
Wet (W)	Feels cool; darkened in colour; free water forms on hands.
Saturated (S)	Free water is present on sample.

SAMPLE TYPES


UNDISTURBED


MACHINE AUGER DISTURBED

D
HAND AUGER DISTURBED


STANDARD PENETRATION TEST (solid cone)


STANDARD PENETRATION TEST (hollow cone)

DRILLING METHOD

OB	OPEN BARREL
TT	TRIPLE TUBE
WB	WASH BORE
SH	UNDISTURBED SHELBY TUBE
RC	ROCK CORE
SPT	STANDARD PENETRATION TEST

FIELD TESTS

V	SHEAR VANE (corrected to BS:1377)
R	REMOULDED STRENGTH
P	POCKET PENETROMETER
CH	CLEGG HAMMER

INFORMATION BASED ON THE NZ GEOTECHNICAL SOCIETY INC. GUIDELINES FOR THE CLASSIFICATION AND DESCRIPTION OF SOIL AND ROCK FOR ENGINEERING PURPOSES

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA01
Date Augered:	**Client:**	**Hole Location:**	
06 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK110	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 34.3m	E1747736.0, N5949526.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
34.15	0.15	TOPSOIL	TS	Topsoil; some rootlets; light grey; [TOPSOIL].							
34.0	0.5	EAST COAST BAYS FORMATION		SILT; with some clay; with some rootlets; brownish orange. Very stiff; dry; low plasticity; [EAST COAST BAYS FORMATION].	D				V=139 R=54	0.5	
33.70	0.60			Clayey SILT; light grey and orange. Dry to moist; very stiff; medium plasticity.	DM				V=140 R=62	1.0	
33.5	1.0								V=172 R=96	1.5	
33.0	1.5										
32.5											
32.40	1.90			SILT; with some clayey; with trace fine sand; light grey with mottled orange. Moist; very stiff; low plasticity.					V=167 R=70	2.0	
32.0	2.0				M				V=201 R=97	2.5	
31.5	2.5								V=201 R=111	3.0	
31.0	3.0			3.60m: Becomes saturated.					V=145 R=74	3.5	
30.5	3.5								V=170 R=80	4.0	
30.30	4.00			SILT; with some fine sand; with minor clay; bluish grey. Saturated; very stiff; low plasticity.	S						
30.0	4.0									4.5	
29.5	4.5										
29.40	4.90			Fine SAND, with minor silt; dark grey. Dense; saturated; non-plastic.					V=193 R=107	5.0	
29.30	5.00			END OF HOLE: 5.00m (Target Depth)					2, 2, 3 4, 5, 5 5, 7, 7 8, 8, 9 10, 10, 10 11		
29.0	5.5									5.5	
28.5	6.0									6.0	
28.0	6.5									6.5	
27.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks

1. Hand auger at 53B Russell Road.
2. Groundwater encountered at approximately 3.6mBGL at the time of drilling.
3. Suction observed during drilling at 1.8m and 2.5m depth.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO3588-B	RS	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA02
Date Augered:	**Client:**	**Hole Location:**	
06 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 41.8m	E1748029.0, N5949670.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Backfill / Install
41.65	0.15	TOPSOIL	TS	Topsoil; some rootlets; light grey; [TOPSOIL].						
41.5	0.5	COLLUVIUM		SILT; with some clay; with some rootlets; brownish orange with mottled grey. Very stiff; try; low plasticity; [COLLUVIUM].	D				V=144 R=59	
40.90	0.90									
40.5	1.0	EAST COAST BAYS FORMATION		SILT; with some clay; with trace fine sand; light grey with mottled orange. Very stiff; dry to moist; low plasticity; [EAST COAST BAYS FORMATION].	DM				V=124 R=62 V=128 R=62 V=116 R=59	
40.0	1.5									
39.5	2.0								V=124 R=71	
39.30	2.50			SILT; with some fine sand; brownish orange. Very stiff; wet; non-plastic.	W					
39.0	3.0			3.00m: Becomes saturated.					V=147 R=74	
38.5	3.5									
38.30	3.50			SILT; with trace clay; with trace fine sand; light grey with mottled light orange. Very stiff; saturated; low plasticity.	S					
38.0	4.0			3.90m: Becomes grey.					V=162 R=59	
37.5	4.5									
36.80	5.00			END OF HOLE: 5.00m (Target Depth)				0.5, 0.5, 1, 1, 1, 1, 1, 2, 2, 3, 2, 2, 3, 2, 3, 4, 3, 4, 5, 5, 7, 7, 8, 8, 9, 9, 10, 10, 11	0, 0, 1 1, 1, 1 1, 2, 2 3, 2, 2 3, 3, 4 3, 3, 4 4, 5, 5 5, 7, 7 8, 8, 9 9, 9, 10 10, 11	
36.5	5.5									
36.0	6.0									
35.5	6.5									
35.0										

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks

1. Hand auger at 53B Russell Road.
2. Groundwater encountered at approximately 3.0mBGL at the time of drilling.
3. Suction observed during drilling at 1.5m depth.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO3588-A	RS	SRO

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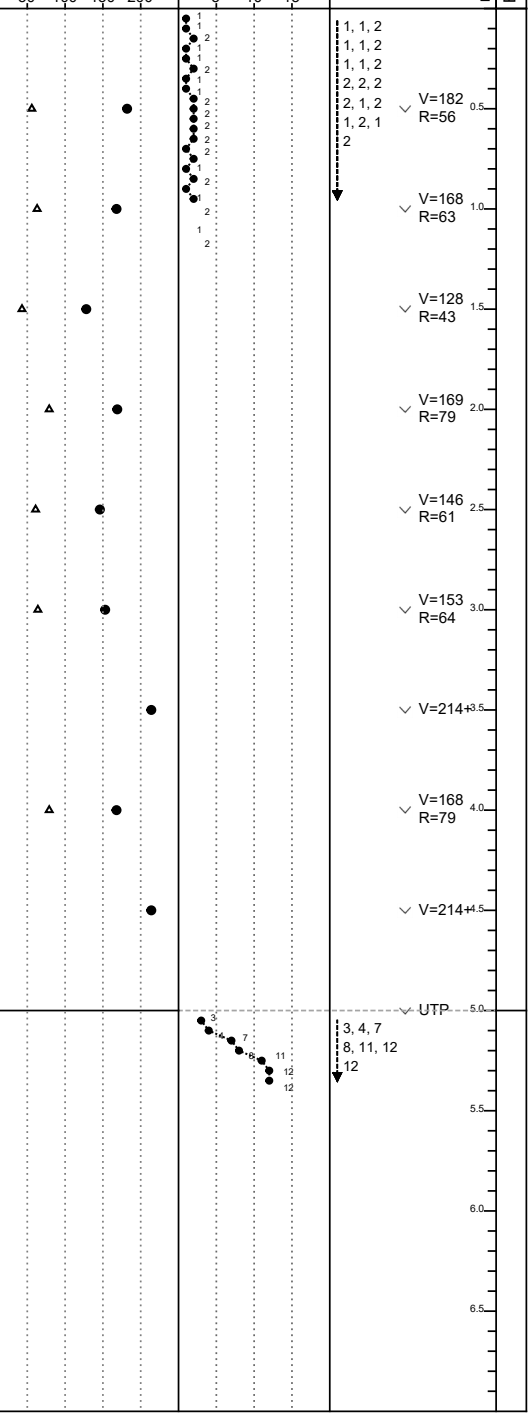
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA03
Date Augered:	**Client:**	**Hole Location:**	
08 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK112	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 61.3m	E1748415.0, N5949615.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
61.20	0.10	TS		Topsoil; with some rootlets; with some sand; dark brown; [TOPSOIL].		
61.0				Clayey SILT; with trace sand; with some rootlets. Brown; Very stiff; dry; low plasticity; [EAST COAST BAYS FORMATION].	D	
60.80	0.50					
60.5	1.0			SILT; with some clay and minor sand; whitish grey with mottled orange. Very stiff; dry to moist; low plasticity.		
60.0	1.5			1.10m - 1.30m: Grades to some bands of orange sandy silt.		
59.5	2.0	EAST COAST BAYS FORMATION		1.80m - 1.90m: Bands of orange sandy silt.	DM	
59.0	2.5			2.10m - 2.30m: Bands of orange sandy silt.		
58.5	3.0					
58.0	3.5					
57.70	3.60			Sandy SILT; light brown with mottled orange. Very stiff; moist; low plasticity.		
57.5	4.0			4.10m: Bands of orange sandy silt.		
57.00	4.30					
57.0				Sandy SILT; grey. Very stiff; moist; medium plasticity.	M	
56.5	4.5					
56.30	5.00			END OF HOLE: 5.00m (Target Depth)		
56.0	5.5					
55.5	6.0					
55.0	6.5					
54.5						



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. No groundwater was encountered at the time of drilling.
3. Squeeze observed during drilling at 3.2m depth.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1706	AB	SRO

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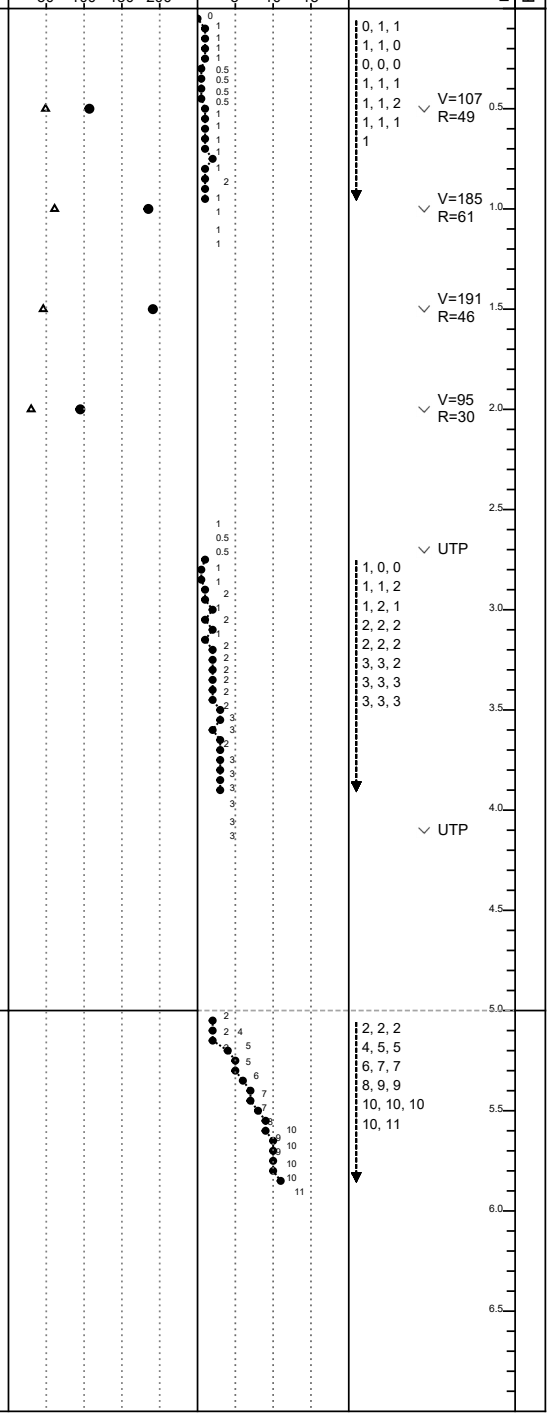
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA04
Date Augered:	**Client:**	**Hole Location:**	
08 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK112	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 38.2m	E1748257.0, N5949517.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
38.10	0.10	PSC	TS	Topsoil; dark grey; [TOPSOIL].		
38.0		EAST COAST BAYS FORMATION		Clayey SILT; orange. Very stiff; dry; medium plasticity; [EAST COAST BAYS FORMATION].	D	
37.5	0.5					
37.00	1.0					
37.0	1.20			SILT; with minor clay; light grey with orange and dark orange mottles. Very stiff; dry; low plasticity.		
36.60	1.5					
36.5	1.60			SILT; with minor clay; with minor fine sand; light grey with orange and dark orange mottles. Stiff to very stiff; dry to moist; low plasticity.	DM	
36.0	2.0			2.30m: Becomes some sand.		
35.50	2.5			2.70m: Becomes hard.		
35.5	2.70			SILT; with some clay; grey with mottled orange. Hard; moist; low plasticity.	M	
35.10	3.0			Sandy SILT; with trace clay; brownish grey with mottled orange. Hard; moist; low plasticity.		
35.0	3.10					
34.5	3.5					
34.30	3.90			SILT; with some clay; with minor fine sand; light grey with mottled orange. Hard; moist; low plasticity.		
34.0	4.0					
34.00	4.20			SILT; with some clay; dark grey. Hard; moist; low plasticity.		
33.80	4.40					
33.60	4.5			SAND; with some silt; brownish orange and grey. Loose; wet; highly oxdised.	W	
33.5	4.60			SILT; with some clay; dark grey. Hard; moist; low plasticity.		
33.20	5.00			4.80m: Grades to 100mm silt; some fine sand; dark grey; loose; wet; medium plasticity.		
33.0	5.0			END OF HOLE: 5.00m (Target Depth)		
32.5	5.5					
32.0	6.0					
31.5	6.5					



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

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- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. No groundwater was encountered at the time of drilling.
3. Squeeze observed during drilling at 3.0m, 4.1m and 4.5m depth.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO3588-A	RS	SRO

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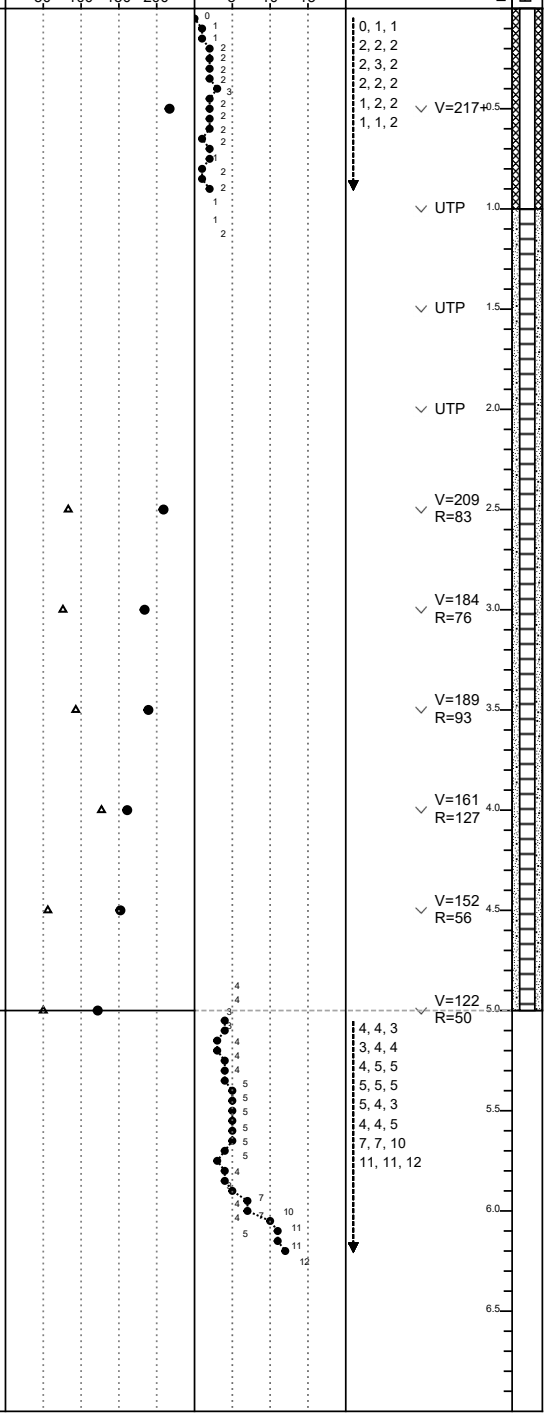
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA05

Date Augered:	Client:	Hole Location:
07 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK112

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 28m	E1748218.0, N5949536.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description	Water / Moisture	Samples
27.60	0.40	TOPSOIL	Topsoil; some rootlets; grey; [TOPSOIL].		
27.10	0.90	EAST COAST BAYS FORMATION	SILT; with some clay; grey and orange. Very stiff; dry; low plasticity. Intermixed with topsoil and some rootlets; [EAST COAST BAYS FORMATION].		
25.70	2.30		SILT; with some clay; light grey with mottled orange. Very stiff; dry; low plasticity. 1.00m: Becomes hard.	D	
24.50	3.50		SILT; with minor clay; light grey with mottle orange. Very stiff; dry to moist; low plasticity. 2.60m: Becomes oxidized; dark orange.	DM	
24.10	3.90		SILT; with minor clay; with minor to some fine sand; light grey. Very stiff; moist; low plasticity.		
23.20	4.80		Sandy SILT; light grey and bluish grey with mottled orange. Very stiff; moist; low plasticity.	M	
23.00	5.00		Silty SAND; brownish orange; loose; wet; non-plastic.	W	
23.0	5.0		END OF HOLE: 5.00m (Target Depth)		



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 55 Russell Road.
2. Groundwater encountered at approximately 4.8mBGL at the time of drilling.
3. Suction observed during drilling at 3.0m depth.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO3588-A	RS	SRO

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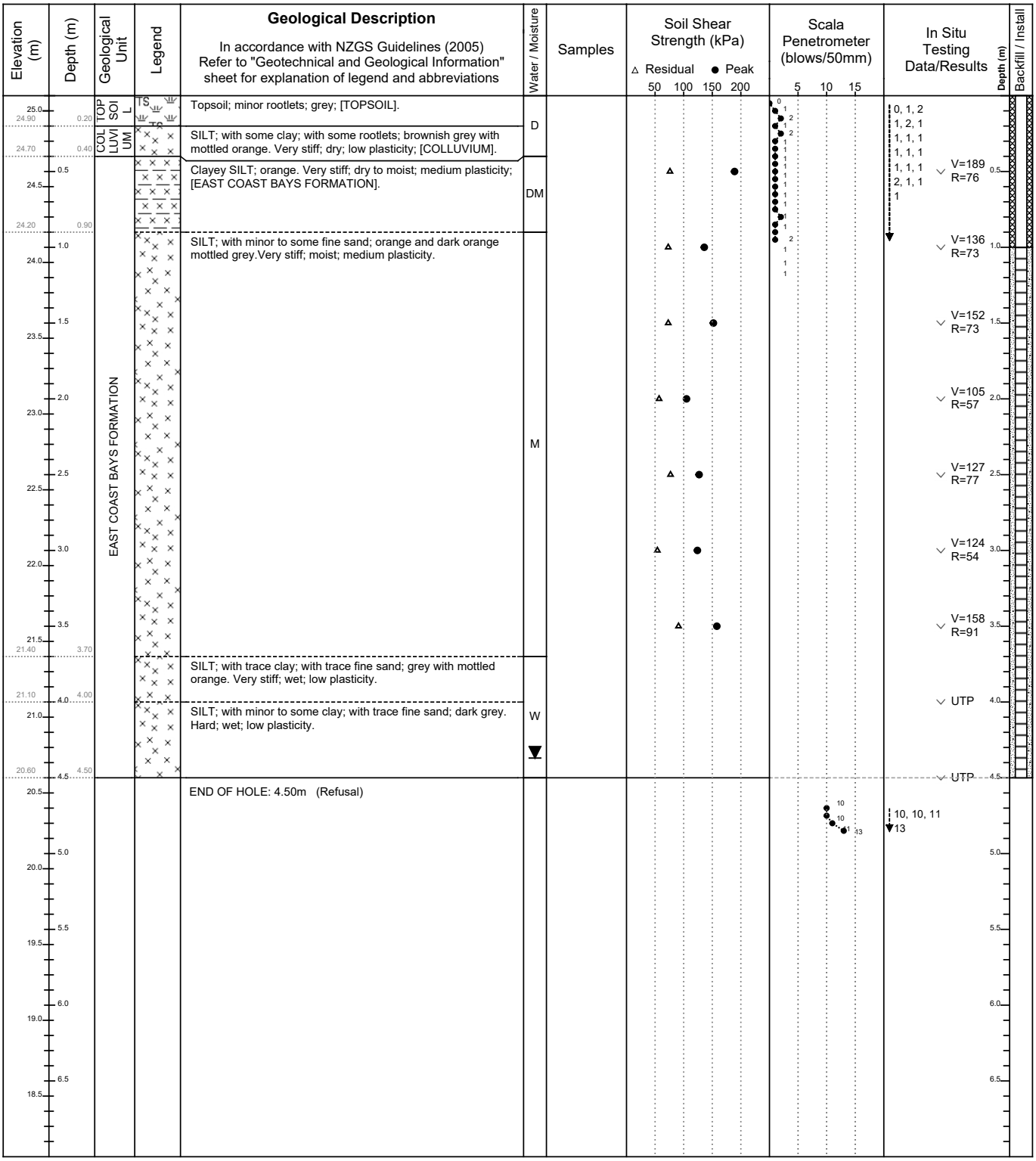
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA06
Date Augered:	**Client:**	**Hole Location:**	
07 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK115	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 25.1m	E1748308.0, N5949196.0	4.50 m	Refusal	1 of 1	FINAL



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks

1. Hand auger at 55 Russell Road.
2. Groundwater encountered at approximately 4.37mBGL at the time of drilling.
3. Suction observed during drilling at 2.0m depth.
4. Grinding observed during drilling at 2.3m depth.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO3588-A	RS	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA07
Date Augered:	**Client:**	**Hole Location:**	
07 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK116	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 35m	E1748336.0, N5949057.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
34.80	0.20	TOPSOIL	TS	Topsoil; some rootlets; grey; [TOPSOIL].		
34.40	0.60	COLLUVIUM		SILT; with some clay; with some rootlets; brownish grey with mottled orange. Very stiff; dry; low plasticity; [COLLUVIUM].	D	
33.20	1.80	EAST COAST BAYS FORMATION		Clayey SILT; light orange and grey. Very stiff; dry to moist; medium plasticity; [EAST COAST BAYS FORMATION].	DM	
				SILT; with trace clay; with trace fine sand; light grey with mottled orange. Very stiff; moist; non-plastic.	M	
				3.78m: Becomes saturated.		
30.90	4.10			Sandy SILT; brownish grey with mottled orange. Very stiff; saturated; non-plastic.	S	
30.70	4.30			SILT; with some clay; grey. Very stiff; saturated; low plasticity.		
30.50	4.50			Sandy SILT; brownish grey. Very stiff; saturated; non-plastic.		
30.30	4.70			SILT; with minor clay; dark grey. Very stiff; saturated; low plasticity.		
30.00	5.00			END OF HOLE: 5.00m (Target Depth)		

Soil Shear Strength (kPa): △ Residual ● Peak; 50 100 150 200

Scala Penetrometer (blows/50mm): 5 10 15

In Situ Testing Data/Results (Depth (m))	Backfill / Install
0, 2, 2	
2, 1, 1	
1, 2, 1	
1, 1, 1	
0, 0, 1	V=141 R=54
1, 1, 1	
1	V=144 R=68
	V=183 R=91
	V=161 R=82
	V=108 R=62
	V=110 R=71
	V=110 R=74
	V=186 R=105
	V=217+
	UTP
0, 0, 1	
1, 2, 2	
2, 3, 3	
3, 4, 5	
5, 6, 6	
7, 7, 7	
8, 8, 9	
9, 9, 9	
9, 10, 11	
14	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture: M = moist; W = wet; S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 55 Russell Road.
2. Groundwater encountered at approximately 3.78mBGL at the time of drilling.
3. Suction observed during drilling at 2.0m depth.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO3588-A	RS	SRO

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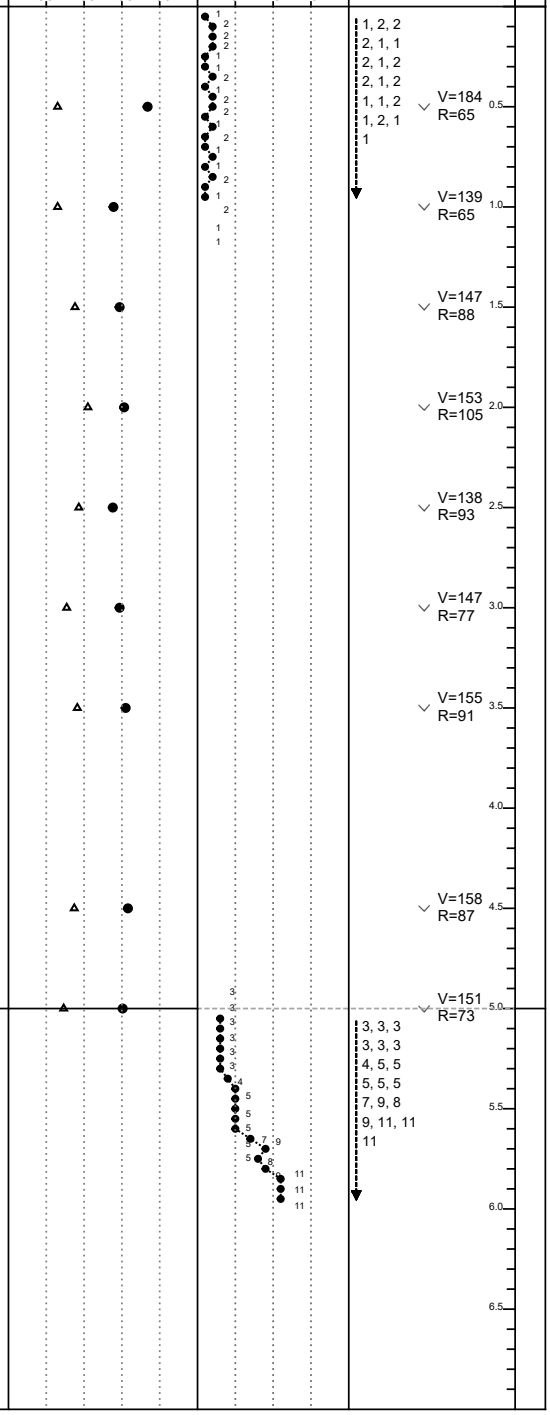
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA08
Date Augered:	**Client:**	**Hole Location:**	
07 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK115	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 30.6m	E1748235.0, N5949215.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
30.45	0.15	TOPSOIL	TS	Topsoil; some rootlets; dark grey; [TOPSOIL].		
30.10	0.50	EAST COAST BAYS FORMATION		Clayey SILT; with some rootlets; brown. Very stiff; moist; non-plastic; [EAST COAST BAYS FORMATION].		
				SILT; with some sand; brownish orange with mottled whitish grey. Very stiff; moist; non-plastic.		
				2.00m: Becomes brownish orange mottled whitish grey and red.	M	
27.00	3.60			SILT; with minor clay; with minor sand; light brown with mottled light grey. Very stiff; moist; low plasticity.		
26.00	4.60			Sandy SILT; with trace gravel at sandstone; brownish orange with mottled light grey. Firm; wet; Very stiff; wet; low plasticity.	W	
25.60	5.00			END OF HOLE: 5.00m (Target Depth)		



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks

1. Hand auger at 55 Russell Road.
2. No groundwater was encountered at the time of drilling.
3. Squeezing observed during drilling at 1.5m, 2.5m and between 3.0 and 4.0m depth.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO3588-A	AB	SRO

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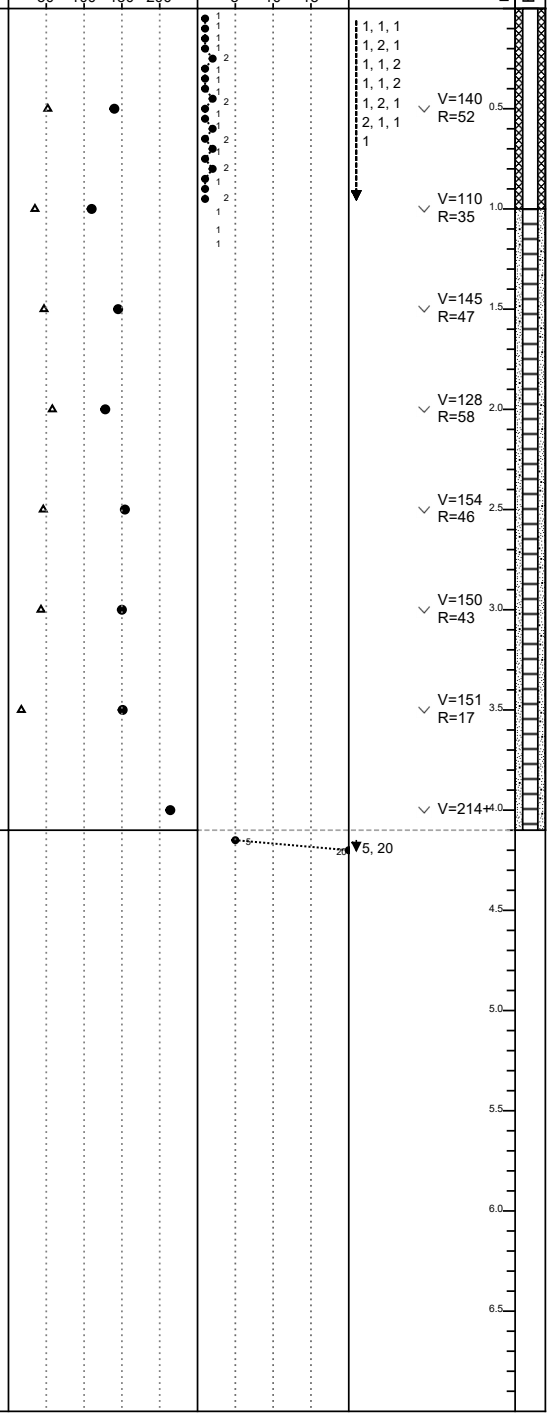
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA11

Date Augered:	Client:	Hole Location:
07 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 20.2m	E1748247.0, N5949354.0	4.10 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description	Water / Moisture	Samples
20.00	0.20	FILL	Topsoil; some rootlets; dark grey; [TOPSOIL].	D	
19.70	0.50	EAST COAST BAYS FORMATION	SILT; with some clay; with some and fine gravel; brown. Very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].		
			SILT; with some clay; with minor sand with mottled brown, whitish grey and red. Rare lense of reddish brown limonite fine gravel and sand. Very stiff; moist; low plasticity.		
	1.0		1.00m: Grades to some sand.		
18.70	1.50		Sandy SILT; brownish orange with mottled whitish grey. Very stiff; moist; non-plastic.	M	
18.30	1.90		SILT; with some clay; with minor sand; whitish grey with mottled orange. Very stiff; moist; low plasticity.		
	2.5		2.70m: Some lenses of fine grey sand.		
17.30	2.90		SILT; with some sand; with minor clay; grey with orange limonite staining. Stiff; wet; low plasticity.		
			3.30m: Becomes saturated.		
16.70	3.50		Sandy SILT; with some clay; with minor gravels; fine of siltstone; bluish grey. Very stiff; saturated; low plasticity.	S	
16.10	4.10		END OF HOLE: 4.10m (Target Depth)		



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 55 Russell Road.
2. Groundwater encountered at approximately 3.6mBGL at the time of drilling. Groundwater rose to 3.3m upon completion of the hole.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1706	AB	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA12

Date Augered:	Client:	Hole Location:
19 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK120

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 66.3m	E1747734.0, N5950280.0	4.10 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
66.10	0.20	TOPSOIL	TS	Topsoil; some rootlets; dark grey; [TOPSOIL].		
66.0	0.5	EAST COAST BAYS FORMATION		SILT; with some clay; brownish orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].		
65.5	1.0			1.00m: Becomes stiff.		
65.10	1.20			Silty CLAY; light grey mottled orange. Stiff; moist; medium plasticity.	M	
65.0	1.5					
64.5	2.0					
64.0	2.50					
63.80	2.5			SILT; with some clay; light grey. Very stiff; moist; medium plasticity.		
63.5	3.0			3.00m: 100mm layer of clayey silt; with trace sand; brown mottled dark red.		
63.10	3.20			Sandy SILT; bluish grey. Very stiff; wet; non-plastic.	W	
63.0	3.5					
62.5	4.0					
62.20	4.10			END OF HOLE: 4.10m (Refusal)		
62.0	4.5					
61.5	5.0					
61.0	5.5					
60.5	6.0					
60.0	6.5					
59.5						

Soil Shear Strength (kPa): △ Residual ● Peak — 50, 100, 150, 200

Scala Penetrometer (blows/50mm): 5, 10, 15

Scala Penetrometer readings: 13, 10, 8 / 10, 12, 10

In Situ Testing Data/Results (Depth (m) / Backfill / Install):

Depth (m)	In Situ Testing Data/Results
0.5	V=117 R=52
1.0	V=95 R=37
1.5	V=89 R=37
2.0	V=92 R=40
2.5	V=172 R=61
3.0	V=126 R=37
3.5	V=215+
4.0	V=215+

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 2.4mBGL at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO3588-B	SY	SRO

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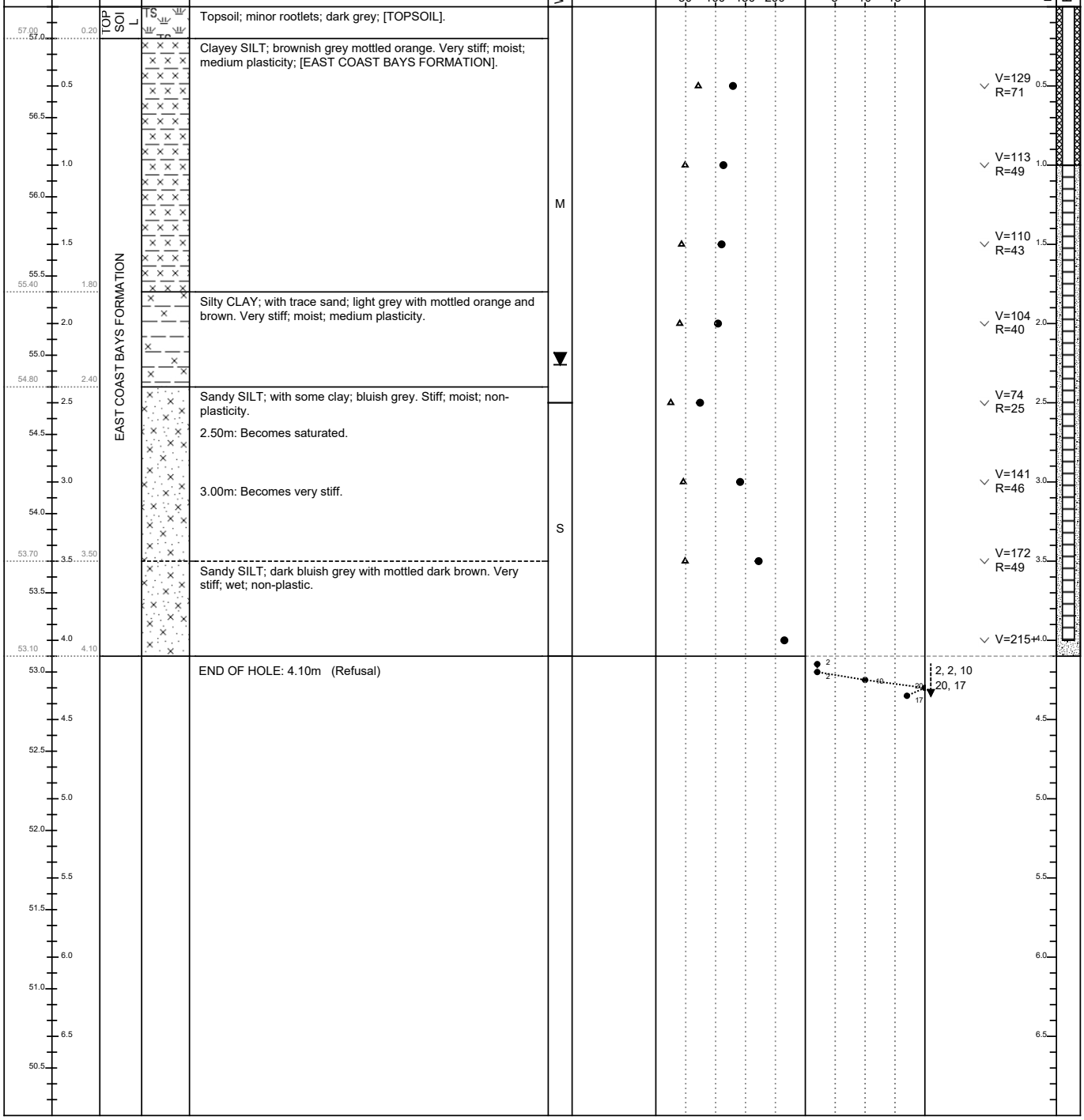
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA13
Date Augered:	**Client:**	**Hole Location:**	
20 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK120	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 57.2m	E1747634.0, N5950202.0	4.10 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
57.00	0.20	TOPSOIL	TS	Topsoil; minor rootlets; dark grey; [TOPSOIL].		
56.80	0.40	EAST COAST BAYS FORMATION		Clayey SILT; brownish grey mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].	M	
55.40	1.80			Silty CLAY; with trace sand; light grey with mottled orange and brown. Very stiff; moist; medium plasticity.		
54.80	2.40			Sandy SILT; with some clay; bluish grey. Stiff; moist; non-plasticity. 2.50m: Becomes saturated. 3.00m: Becomes very stiff.	S	
53.70	3.50			Sandy SILT; dark bluish grey with mottled dark brown. Very stiff; wet; non-plastic.		
53.10	4.10			END OF HOLE: 4.10m (Refusal)		



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 130 Upper Orewa Road.
2. Groundwater inflow encountered at approximately 2.26mBGL at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 70 mm	GEO3588-B	SY	SRO

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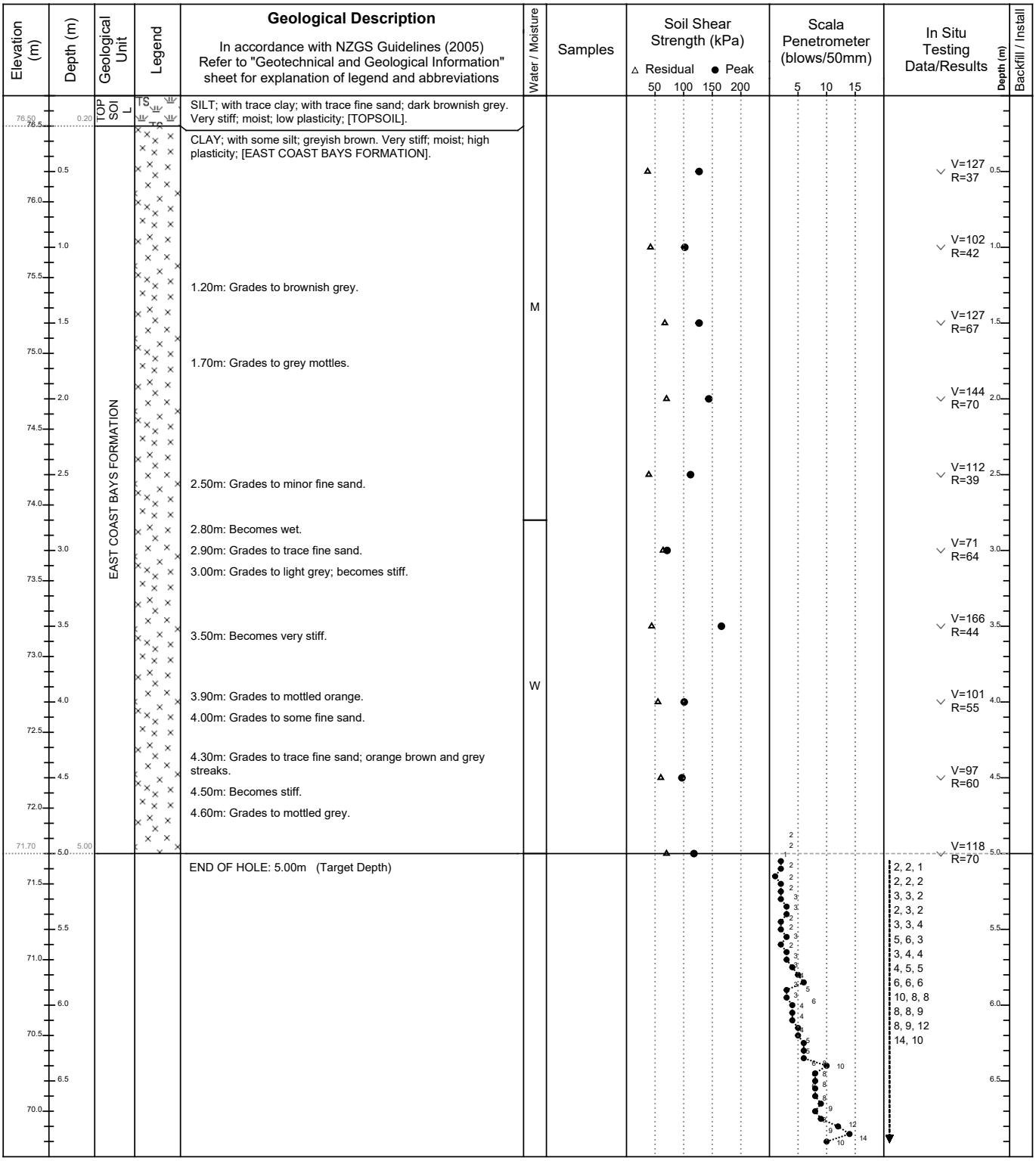
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA14

Date Augered:	Client:	Hole Location:
19 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK120

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 76.7m	E1747756.0, N5950170.0	5.00 m	Target Depth	1 of 1	FINAL



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 130 Upper Orewa Road.
2. No groundwater encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1575	MAH	SRO

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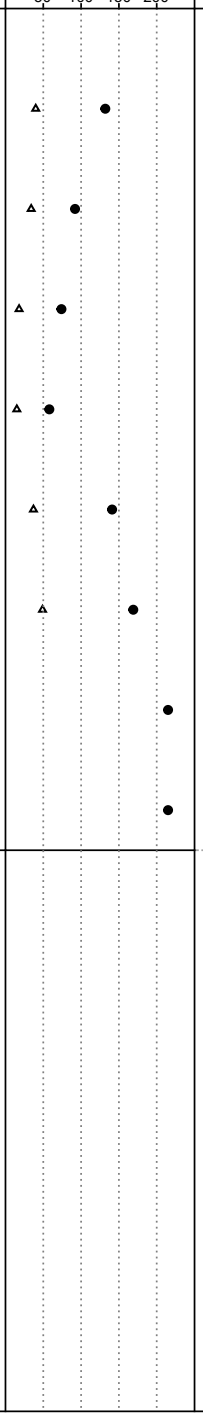
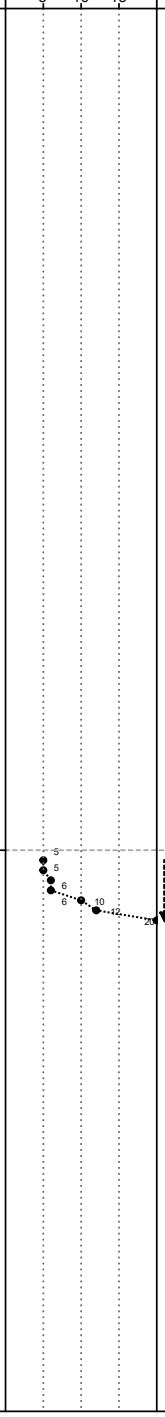
HAND AUGER LOG

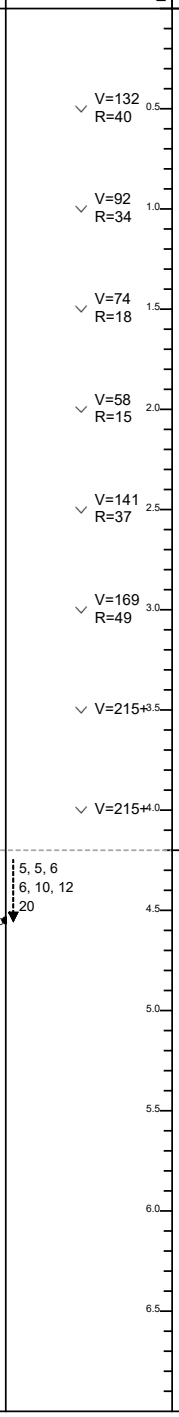
Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA15
Date Augered:	**Client:**	**Hole Location:**	
19 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK120	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 32.7m	E1747534.0, N5949888.0	4.20 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
32.60	0.10	TS		Topsoil; dark grey; [TOPSOIL].		
32.5	0.5	EAST COAST BAYS FORMATION		SILT; with some clay; with trace fine sand; light grey with mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].		
32.0	1.0					
31.50	1.20			Silty CLAY; with trace fine sand; light grey with mottled orange. Stiff; moist; medium plasticity.	M	
31.5	1.5					
31.0	2.0					
30.5	2.5			2.50m: Becomes very stiff.		
30.0	3.0					
29.60	3.10			Silty CLAY; with some fine sand; brownish grey. Very stiff; wet; low plasticity.	W	
29.5	3.5			3.50m: Grades to brownish orange.		
29.0	3.80			Sandy SILT; bluish grey. Very stiff; Saturated; non-plastic.	S	
28.90	4.0					
28.50	4.20			END OF HOLE: 4.20m (Refusal)		
28.5	4.5					
28.0	5.0					
27.5	5.5					
27.0	6.0					
26.5	6.5					
26.0						







Backfill / Install

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 3.2mBGL at the time of drilling.
3. Scala raw data from 4.5mBGL is 30 blows for 50mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO3588-B	SY	SRO

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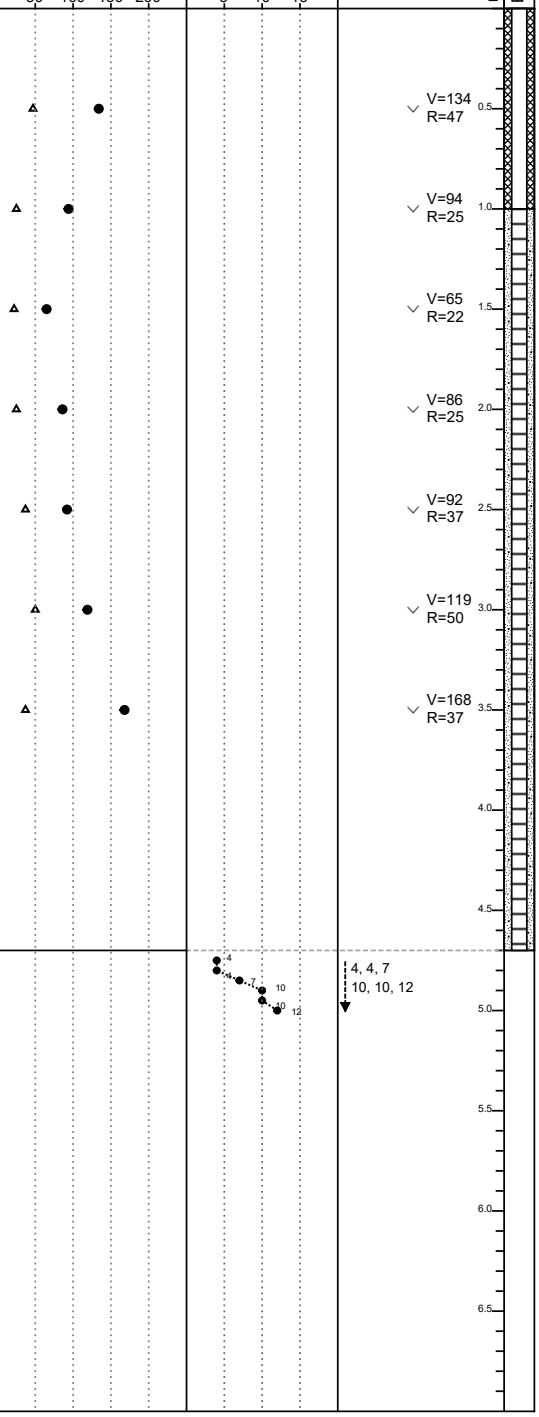
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA16
Date Augered:	**Client:**	**Hole Location:**	
20 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK119	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 48.5m	E1747788.0, N5949909.0	4.70 m	Hole Collapse	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description	Water / Moisture	Samples
48.30	0.20	TOPSOIL	TS	SILT; with trace fine sand and orgranics; with black inclusions; dark grey. Very stiff; moist; non-plastic; [TOPSOIL].		
48.0	0.5	EAST COAST BAYS FORMATION		SILT; brown. Very stiff; moist; non-plastic; [EAST COAST BAYS FORMATION]. 0.30m: Grades to trace fine sand. 0.50m: Grades to grey specks.	M	
47.40	1.10			1.00m: Becomes stiff.		
47.5	1.0			CLAY; with some silt; grey with mottled orange. Stiff; moist; high plasticity.		
47.0	1.5			1.50m: Becomes wet.		
46.70	1.80			Sandy SILT, with trace clay; grey mottled orange. Stiff; wet; low plasticity; sand, fine to medium.	W	
46.5	2.0					
46.10	2.40			CLAY; with some silt; grey. Stiff; saturated; high plasticity. 2.50m: Becomes saturated.	S	
46.0	2.5					
45.5	3.0			3.00m: Becomes very stiff. 3.10m: Grades to some fine sand; mottled orange. 3.30m: Grades to trace fine sand. 3.40m: Grades to some fine sand.		
45.0	3.5					
44.70	3.80			Silty SAND; grey. Medium dense; saturated; non-plastic.		
44.5	4.0					
44.30	4.20			Clayey SILT; with minor fine sand; grey. Very stiff; saturated; high plasticity.		
44.10	4.40			Silty SAND; with trace clay; grey. Medium dense; saturated; non-plastic; sand, fine to medium.		
44.0	4.5					
43.80	4.70			END OF HOLE: 4.70m (Hole Collapse)		
43.5	5.0					
43.0	5.5					
42.5	6.0					
42.0	6.5					



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 2.6mBGL at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 70 mm	GEO1575	MAH	SRO

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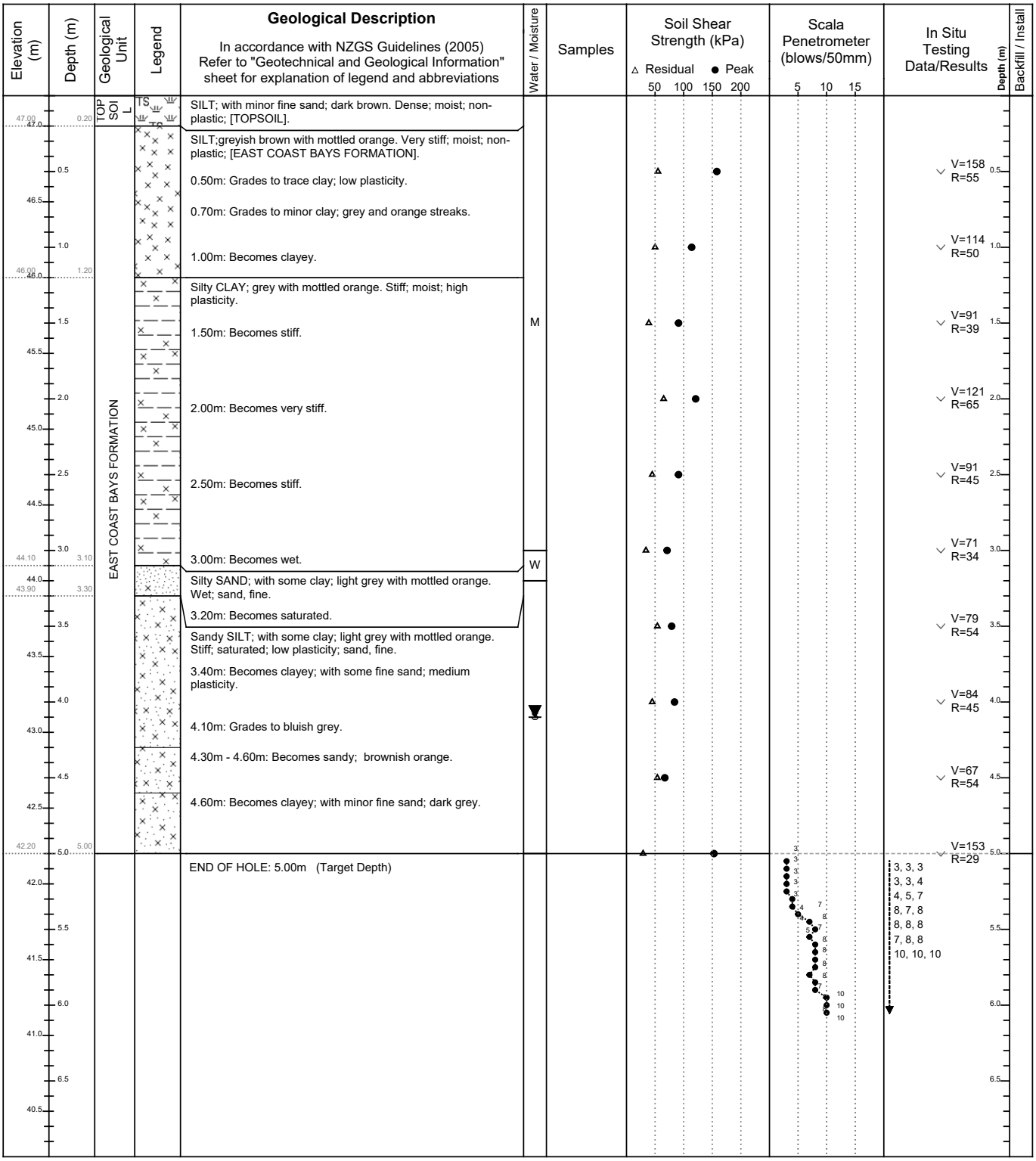
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA17

Date Augered:	Client:	Hole Location:
20 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK117

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 47.2m	E1747786.5, N5949675.6	5.00 m	Target Depth	1 of 1	FINAL



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

Scala Penetrometer Tests
Raw data in blows per 50mm
unless remarks state otherwise

Vane Shear Strength (kPa)
V = Peak, R = Residual
UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 88 Upper Orewa Road.
2. Groundwater encountered at approximately 4.1mBGL at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1575	MAH	SRO

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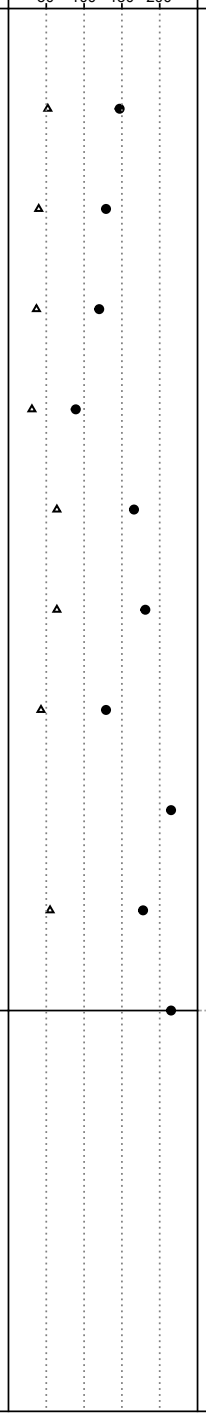
HAND AUGER LOG

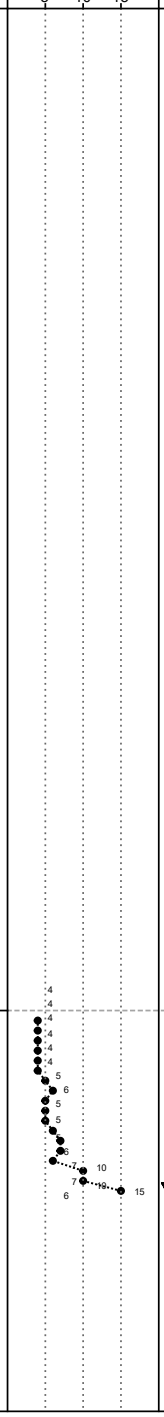
Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA18

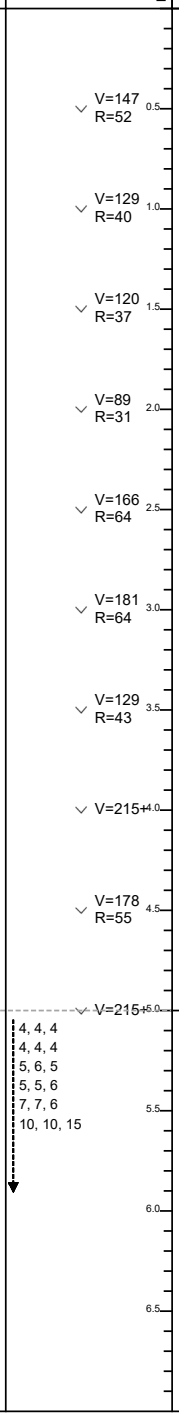
Date Augered:	Client:	Hole Location:
20 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK118

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 32.6m	E1747646.9, N5949519.7	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
32.5	0.00	TOPSOIL	TS	Topsoil; dark brownish grey; [TOPSOIL].		
32.40	0.20					
				Clayey SILT; brownish grey with mottled orange and dark red. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].		
32.0	0.5					
31.5	1.0					
31.30	1.30					
		EAST COAST BAYS FORMATION		SIlty CLAY; light grey with mottled orange. Very stiff; moist; medium plasticity.		
31.0	1.5					
30.5	2.0			2.00m: Becomes stiff.		
30.0	2.5			2.50m: Becomes very stiff.	M	
				2.80m: Grades to brownish orange with trace fine sand.		
29.5	3.0					
29.10	3.50					
29.0	3.5			Sandy SILT; light grey with mottled orange. Very stiff; moist; non-plastic.		
28.5	4.0			4.00m: Grades to brownish orange.		
				4.30m: Grades to light grey.		
28.0	4.5					
27.60	5.00			4.80m: Grades to brownish orange.		
27.5	5.0			END OF HOLE: 5.00m (Target Depth)		
27.0	5.5					
26.5	6.0					
26.0	6.5					







Backfill / Install

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 88 Upper Orewa Road.
2. No Groundwater encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 70 mm	GEO3588-B	SY	SRO

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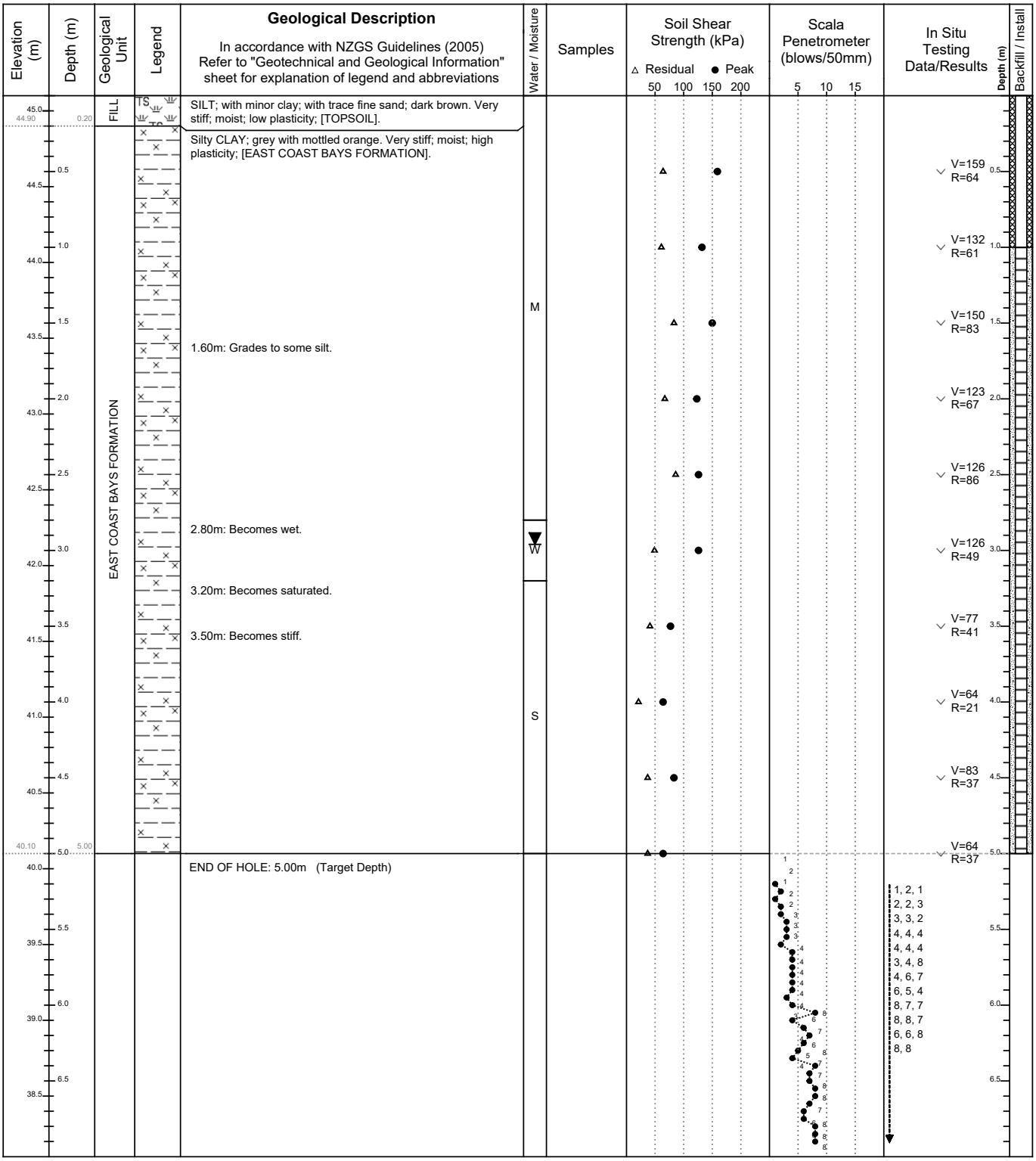
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA19

Date Augered:	Client:	Hole Location:
18 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK121

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 45.1m	E1747300.6, N5949479.1	5.00 m	Target Depth	1 of 1	FINAL



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 2.96mBGL at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 70 mm	GEO3588-B	MAH	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA20
Date Augered:	**Client:**	**Hole Location:**	
18 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK122	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 51.5m	E1747214.4, N5949759.2	4.00 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description	Water / Moisture	Samples
51.40	0.10	PSC	TS	Topsoil; some rootlets; dark grey; [TOPSOIL].		
				Clayey SILT;brownish grey mottled. Stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].		
51.00	0.50	EAST COAST BAYS FORMATION		Silty CLAY; brownish grey with mottled orange and dark brown. Stiff; moist; high plasticity.	M	
50.30	1.20			CLAY; with some silt; with trace fine sand; light grey with mottled orange. Stiff; moist; medium plasticity.		
				2.10m: Becomes wet.		
49.20	2.30			Silty CLAY; with trace fine sand; brown. Stiff; wet; medium plasticity.	W	
48.70	2.80			Sandy SILT, with trace gravel; brownish grey. Very stiff; wet; non-plastic; sand, fine; gravel, fine to medium, angular, black.		
48.20	3.30			Silty SAND, with trace gravel; brownish grey. Medium dense; wet; non-plastic; gravel, fine, angular.		
47.70	3.80			Sandy SILT, with trace gravel; brownish grey with heavy orange mottling. Very stiff; wet; sand, fine; gravel, fine to medium, angular.		
47.50	4.00			END OF HOLE: 4.00m (Refusal)		

Soil Shear Strength (kPa): △ Residual ● Peak — 50, 100, 150, 200

Scala Penetrometer (blows/50mm): 5, 10, 15

In Situ Testing Data/Results	Depth (m)	Backfill / Install
V=86 R=50	0.5	
V=99 R=20	1.0	
V=84 R=17	1.5	
V=81 R=30	2.0	
V=77 R=30	2.5	
V=109 R=34	3.0	
V=235+	4.0	
1, 1, 1	4.5	
2, 2, 3	5.0	
2, 2, 2	5.5	
2, 2, 1	6.0	
1, 2, 2	6.5	
1, 1, 1		
1, 2, 2		
3, 2, 2		
3, 2, 3		
3, 2, 5		
3, 3, 10		
8, 9		

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 132 Upper Orewa Road.
2. No groundwater encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 70 mm	GEO1575	MAH	SRO

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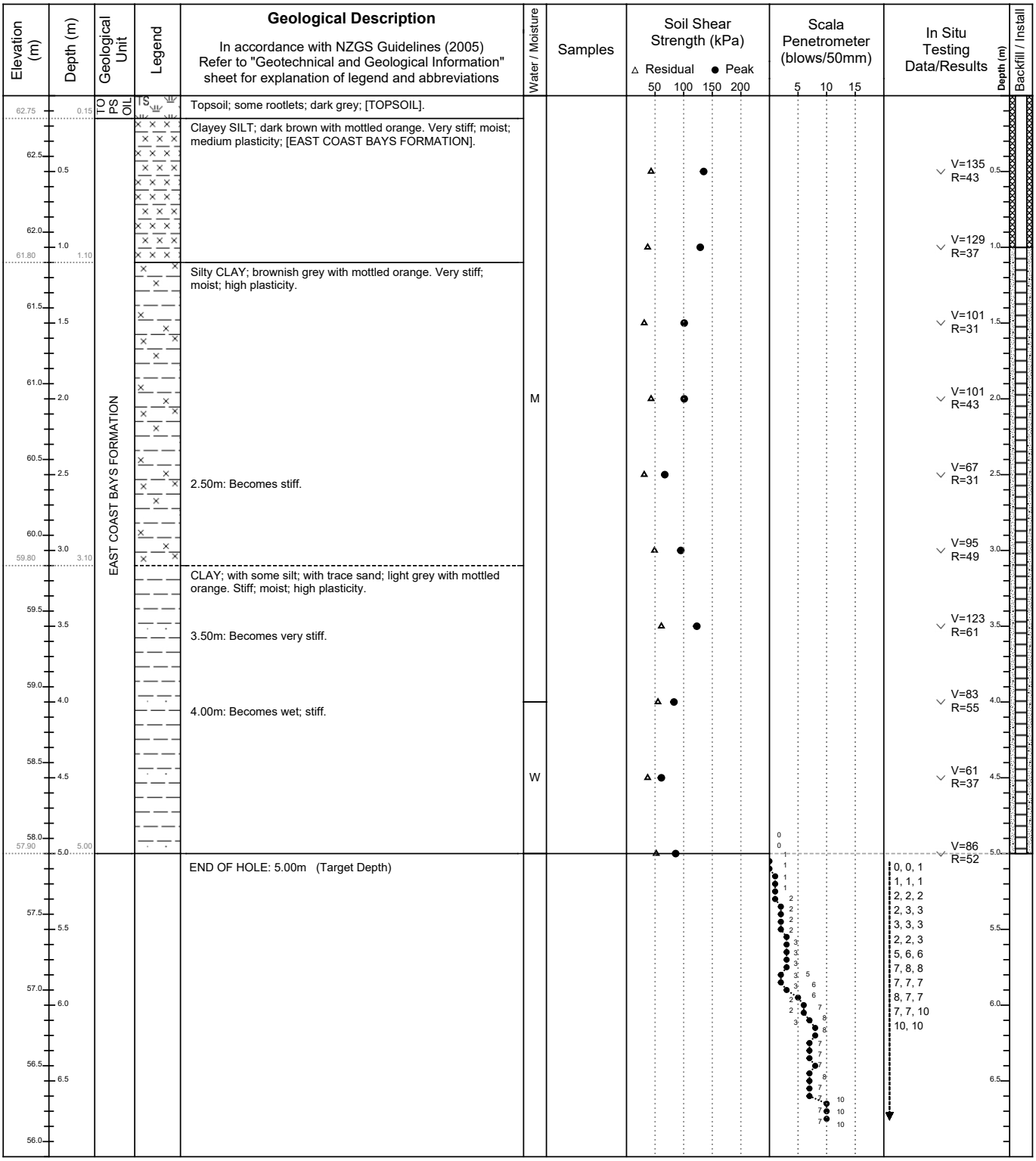
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA21

Date Augered:	Client:	Hole Location:
19 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK123

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 62.9m	E1747307.0, N5949843.0	5.00 m	Target Depth	1 of 1	FINAL



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks
1. Hand auger at 132 Upper Orewa Road.
2. No groundwater encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 70 mm	GEO3588-B	SY	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA22
Date Augered:	**Client:**	**Hole Location:**	
19 Nov 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK123	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 58.9m	E1747257.0, N5949908.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
58.60	0.30	TOPSOIL	TS	SILT; with minor fine sand; dark brown. Very stiff; moist; non-plastic; [TOPSOIL].							
58.5	0.5	EAST COAST BAYS FORMATION		Silty CLAY; brown; very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].					V=154 R=72	0.5	
58.00	0.90			Clayey SILT; brown. Very stiff; moist; medium plasticity.							
58.0	1.0			1.20m: Grades to bluish grey.					V=148 R=54	1.0	
57.5	1.5			1.50m: Grades to brownish grey.					V=154 R=72	1.5	
57.10	1.80			Silty CLAY; brownish grey. Very stiff; moist; high plasticity.	M						
57.0	2.0								V=151 R=50	2.0	
56.70	2.20			SILT; with some fine sand; brownish orange. Very stiff; moist; non-plastic.							
56.50	2.40			Silty CLAY; with trace fine sand; brownish grey with mottled orange. Very stiff; moist; high plasticity.					V=118 R=34	2.5	
56.5	2.5			2.70m: Grades to grey; no mottles.							
56.00	2.90			SILT; some fine sand; grey with mottled orange. Very stiff; moist; non-plastic.					V=118 R=30	3.0	
56.0	3.0			3.00m: Grades to orange.							
55.50	3.40			Silty CLAY; grey with mottled orange. Stiff; moist; high plasticity.					V=173 R=67	3.5	
55.5	3.5			3.80m: Becomes wet.							
55.0	4.0			4.00m: Becomes hard.	W				V=235+	4.0	
54.5	4.5			4.20m - 4.40m: Silty sand; brownish orange; gravel; angular to subangular; reddish black.					V=208 R=54	4.5	
54.00	4.90										
53.90	5.00			Silty SAND; brownish orange with mottled orange; trace black inclusions. Medium dense; wet; non-plasitic.							
53.5	5.5			END OF HOLE: 5.00m (Target Depth)					1, 1, 1 1, 2, 2 2, 4, 3 3, 3, 4 4, 5, 4 5, 5, 5 5, 5, 6 6, 7, 7 5, 6, 7 7, 6, 6 7, 6, 7 6, 6, 6 7, 7	5.5	
53.0	6.0									6.0	
52.5	6.5									6.5	
52.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 132 Upper Orewa Road.
2. No groundwater encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1575	MAH	SRO

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MH01 Photographs – 1 to 4

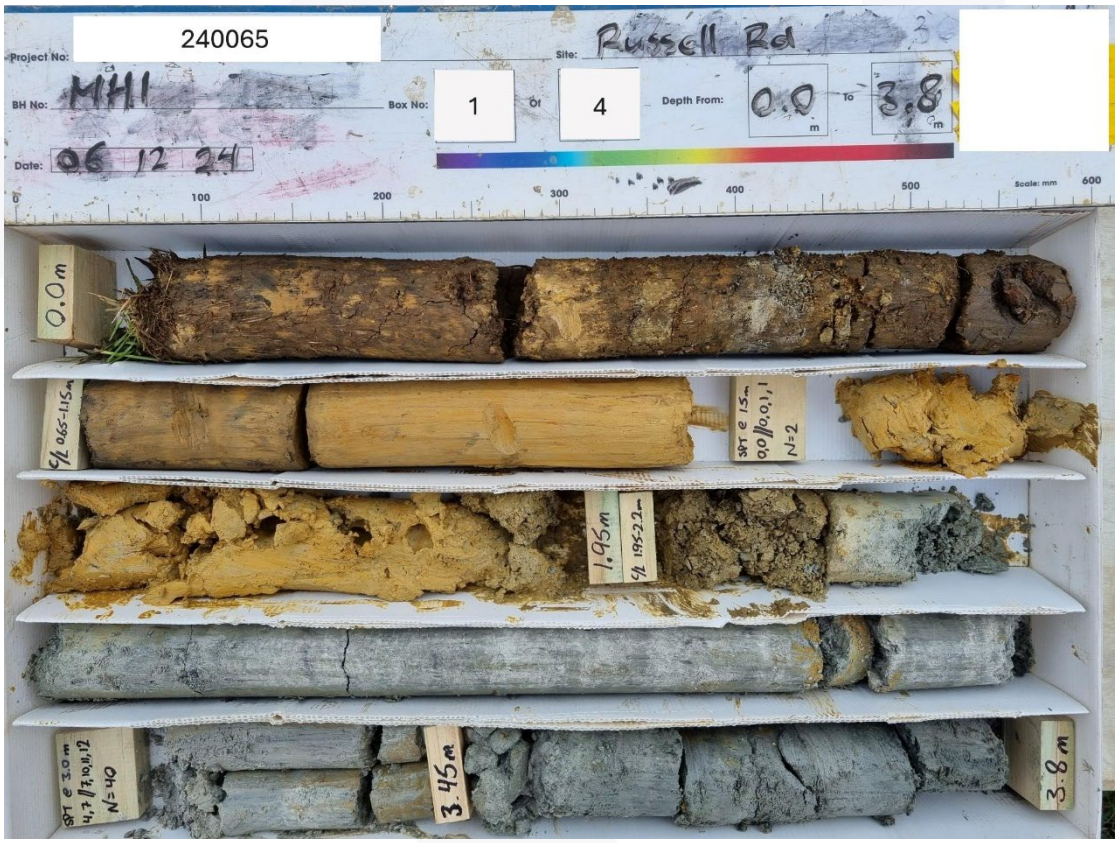

Photo 1: MH01 – depth from 0.0m to 3.8m

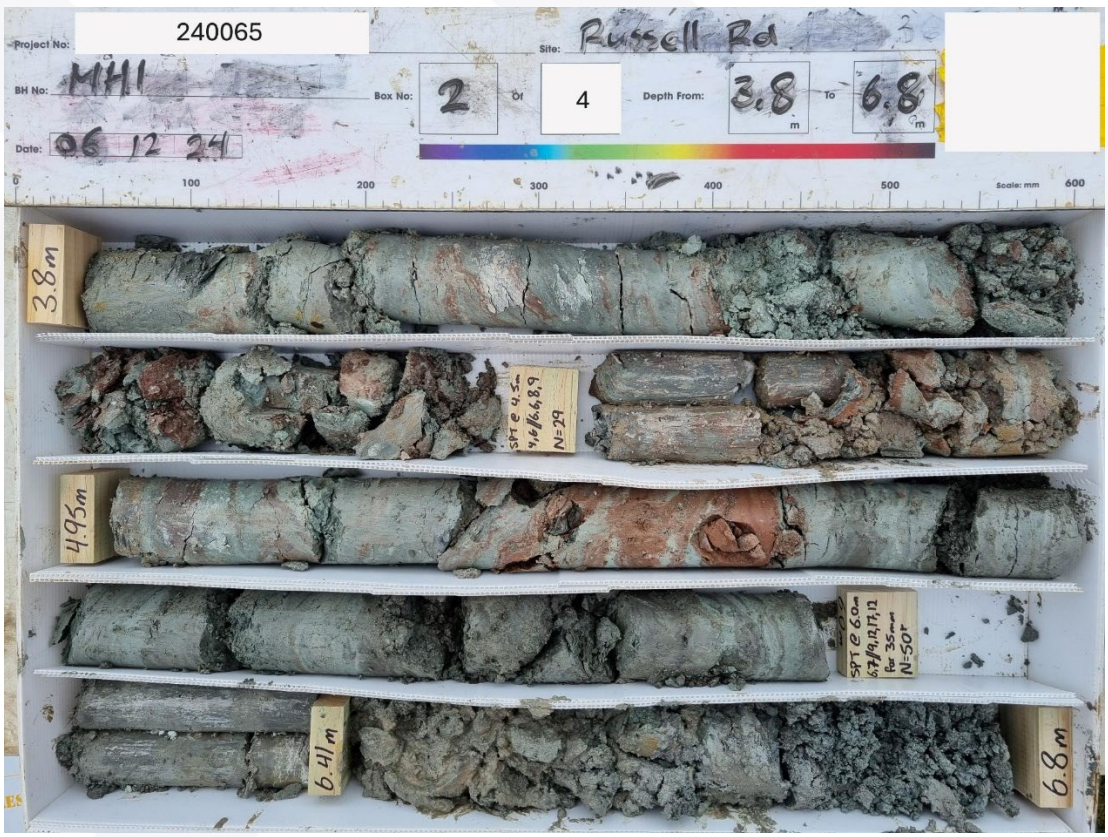

Photo 2: MH01 – depth from 3.8m to 6.8m

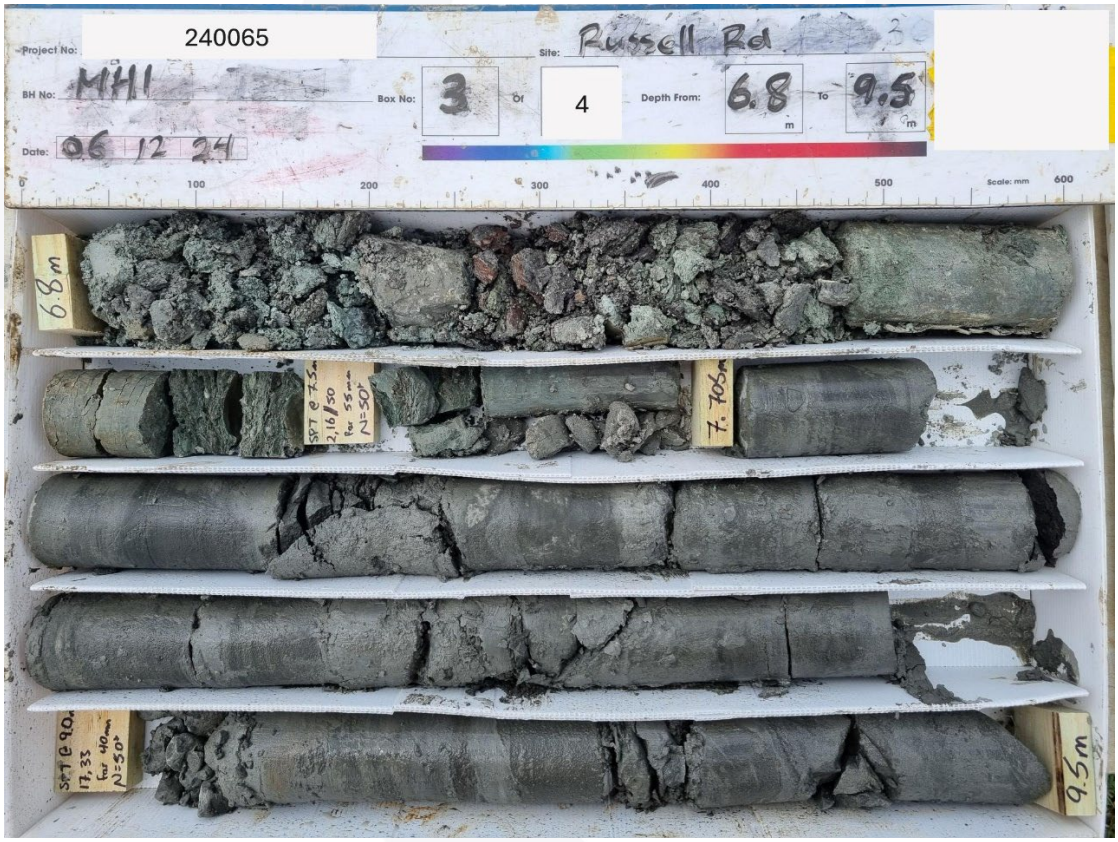

Photo 3: MH01 – depth from 6.8m to 9.5m

Photo 4: MH01 – depth from 9.5m to 12.0m

MH02 Photographs – 5 to 8

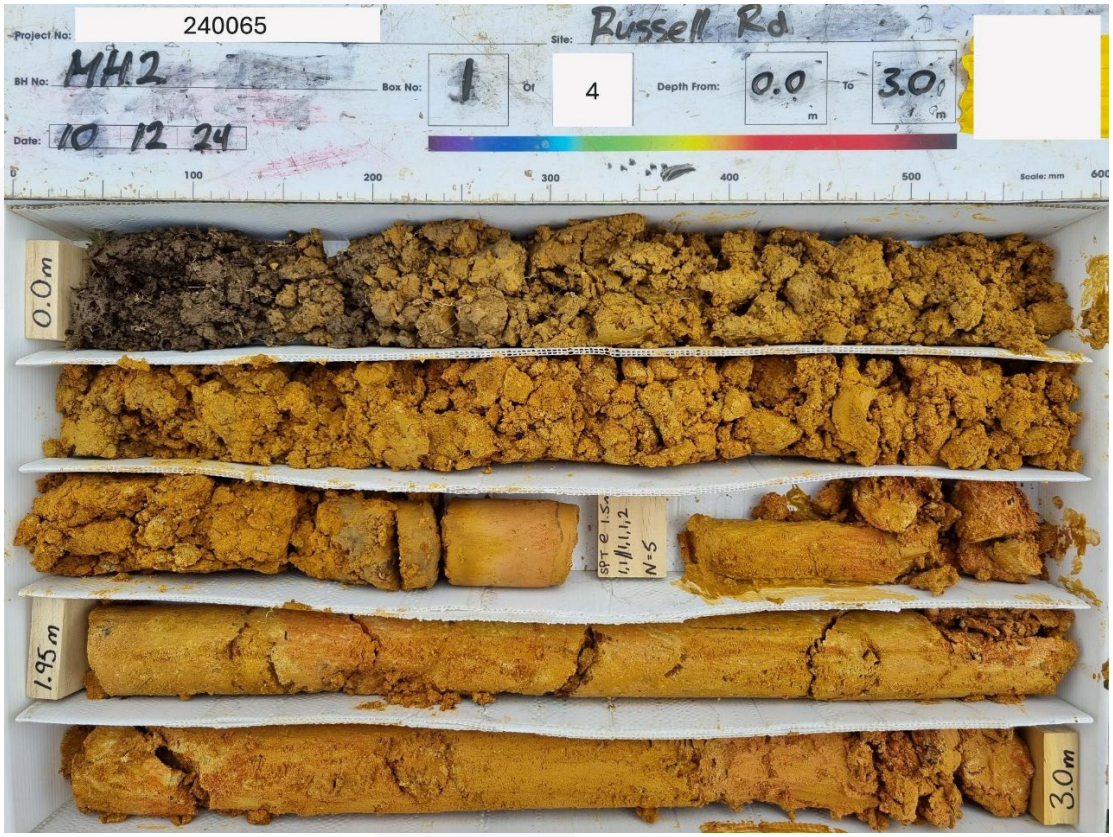

Photo 5: MH02 – depth from 0.0m to 3.0m

Photo 6: MH02 – depth from 3.0m to 6.9m

Photo 7: MH02 – depth from 6.9m to 10.0m

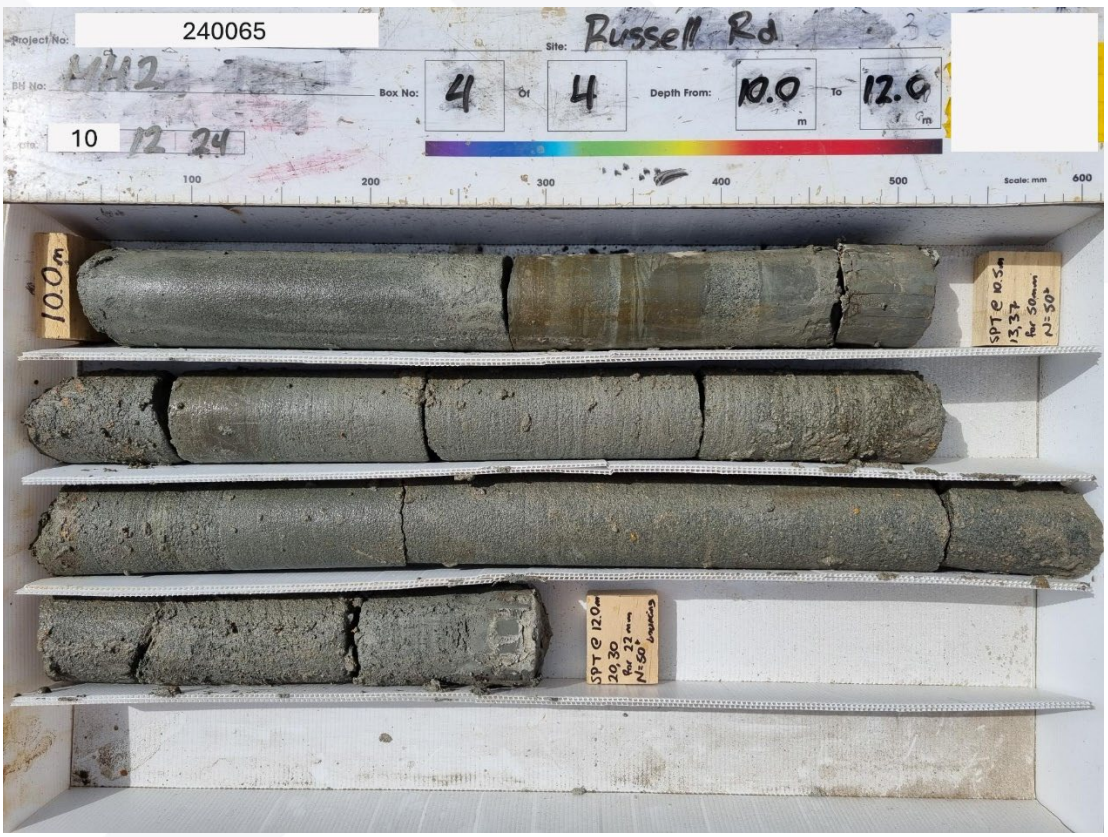

Photo 8: MH02 – depth from 10.0m to 12.0m

MH03 – Photos 9 to 13

Photo 9: MH03 – depth from 0.0m to 3.45m

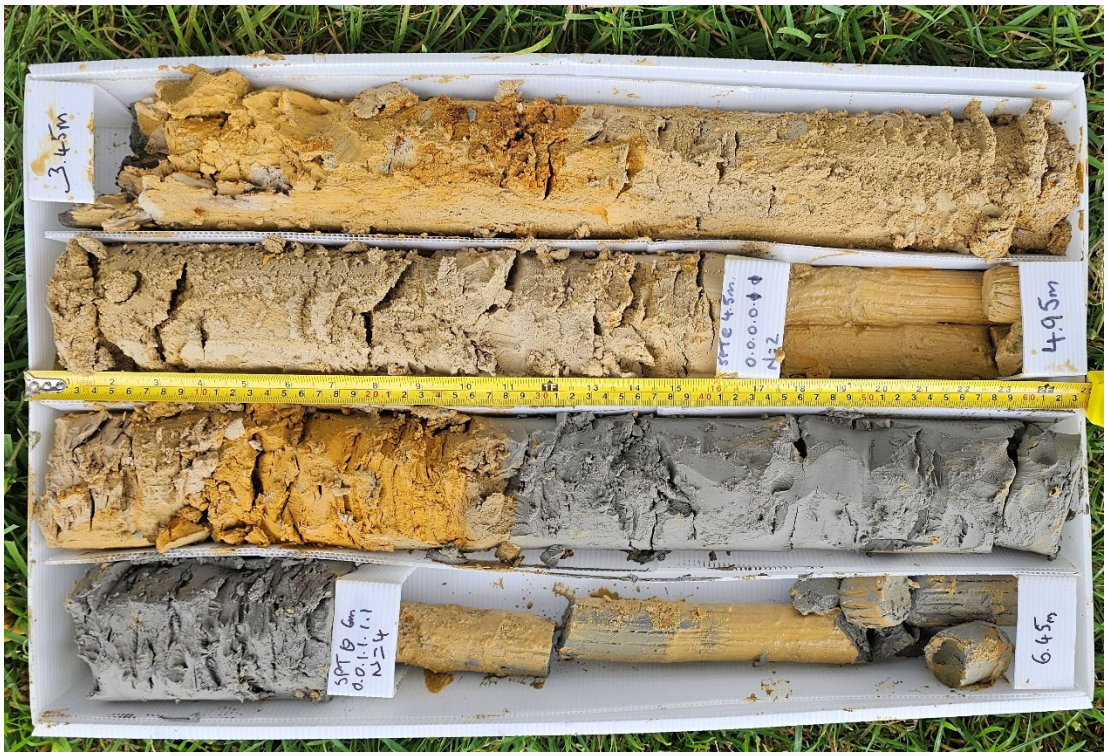

Photo 10: MH03 – depth from 3.45m to 6.45m

Photo 11: MH03 – depth from 6.45m to 9.0m

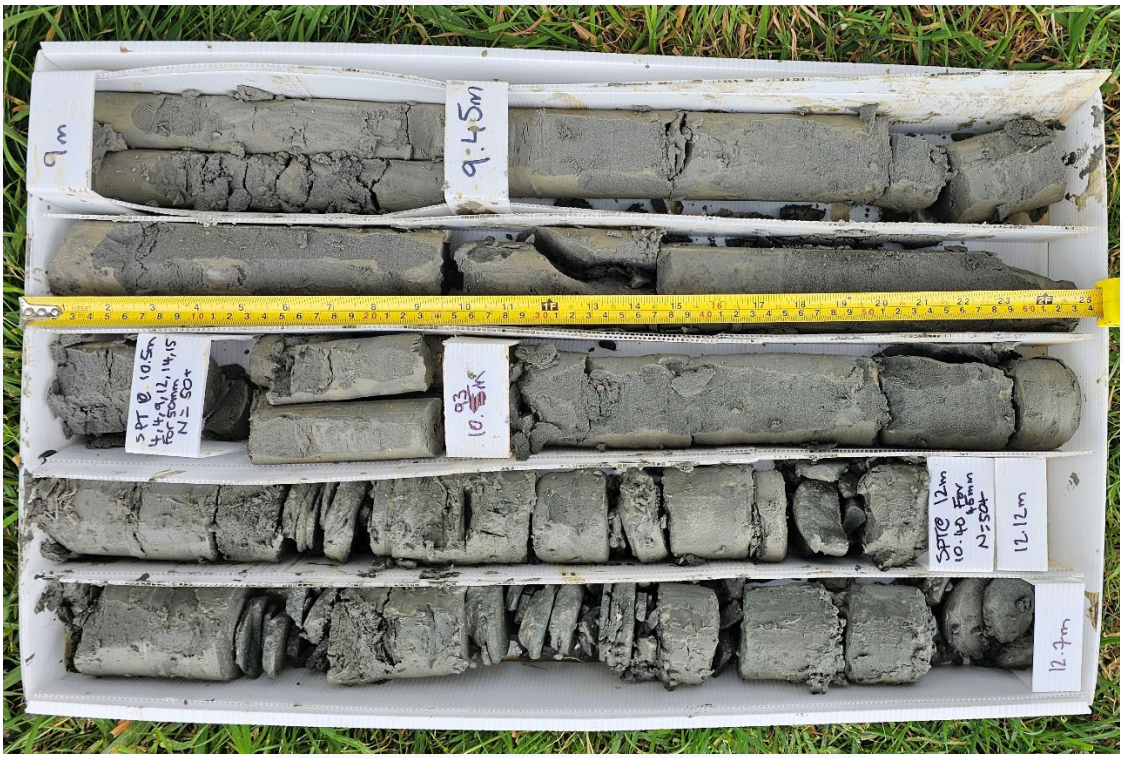

Photo 12: MH03 – depth from 9.0m to 12.7m

Photo 13: MH03 – depth from 12.7m to 15.09m

MH04 – Photos 14 to 18

Photo 14: MH04 – depth from 0.0m to 3.7m

Photo 15: MH04 – depth from 3.7m to 6.37m

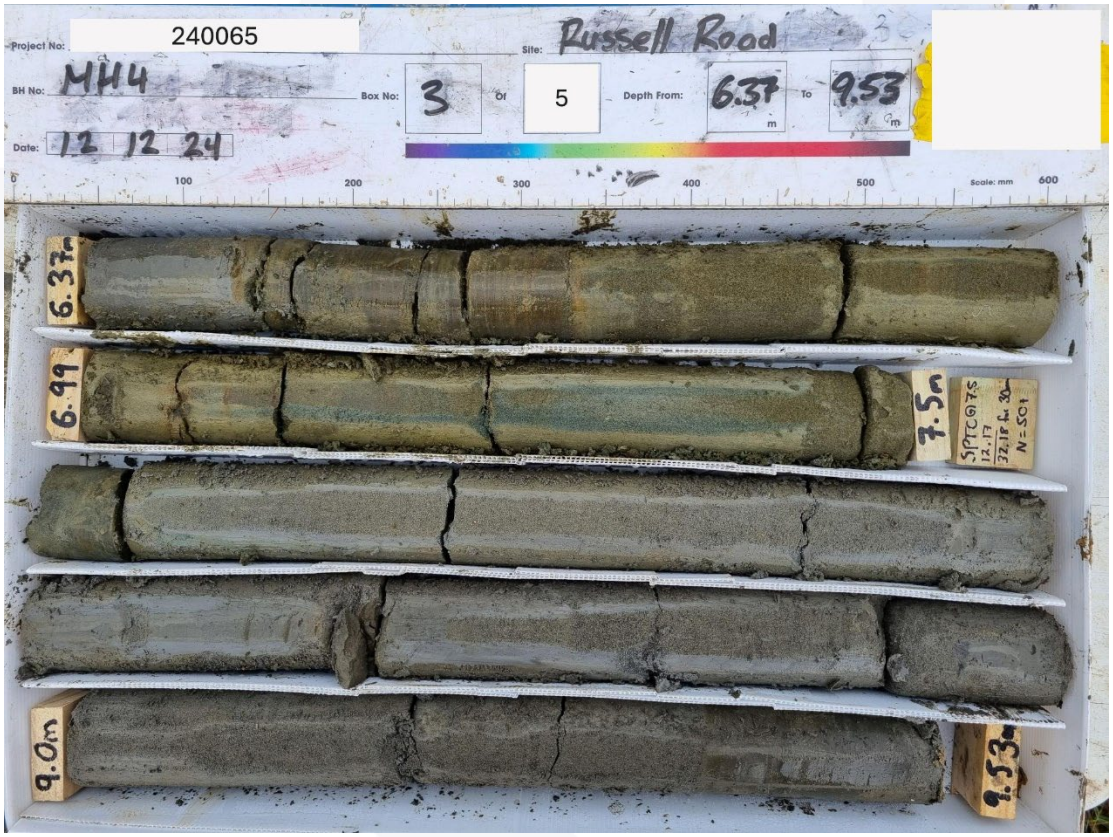

Photo 16: MH04 – depth from 6.37m to 9.53m

Photo 17: MH04 – depth from 9.53m to 12.6m

Photo 18: MH04 – depth from 12.6m to 15.0m

MH05 – Photos 19 - 22

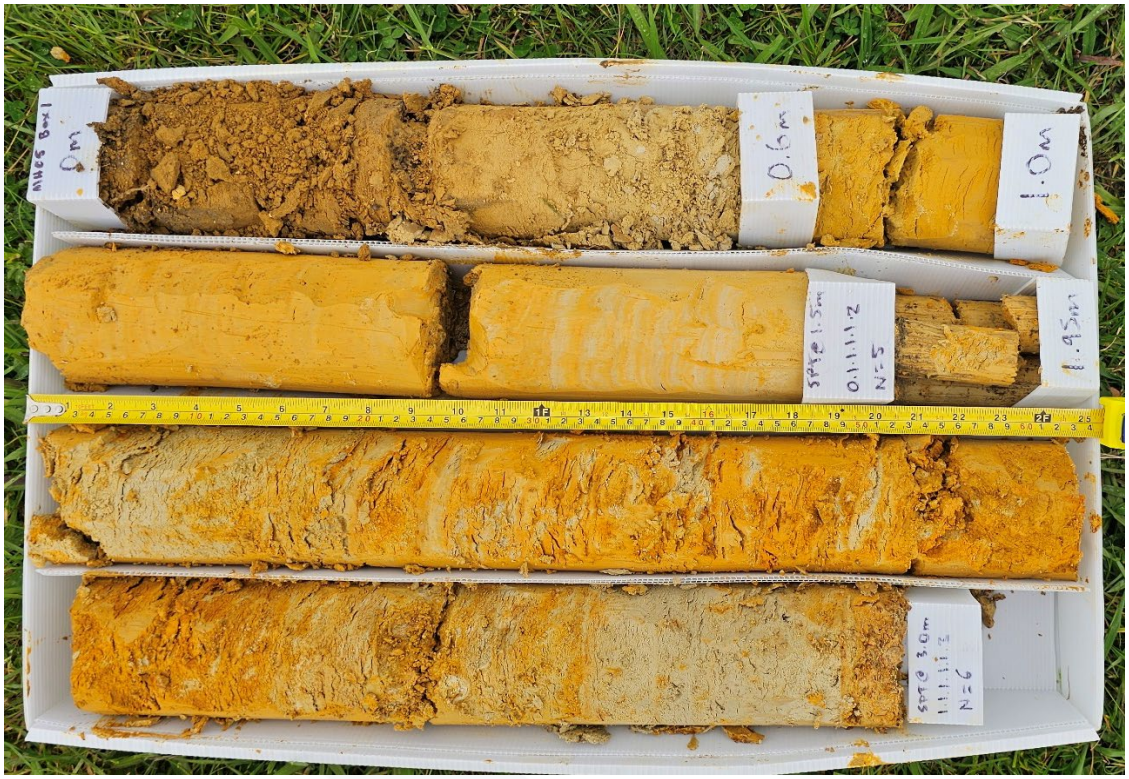

Photo 19: MH05 – depth from 0.0m to 3.0m

Photo 20: MH05 – depth from 3.0m to 5.7m

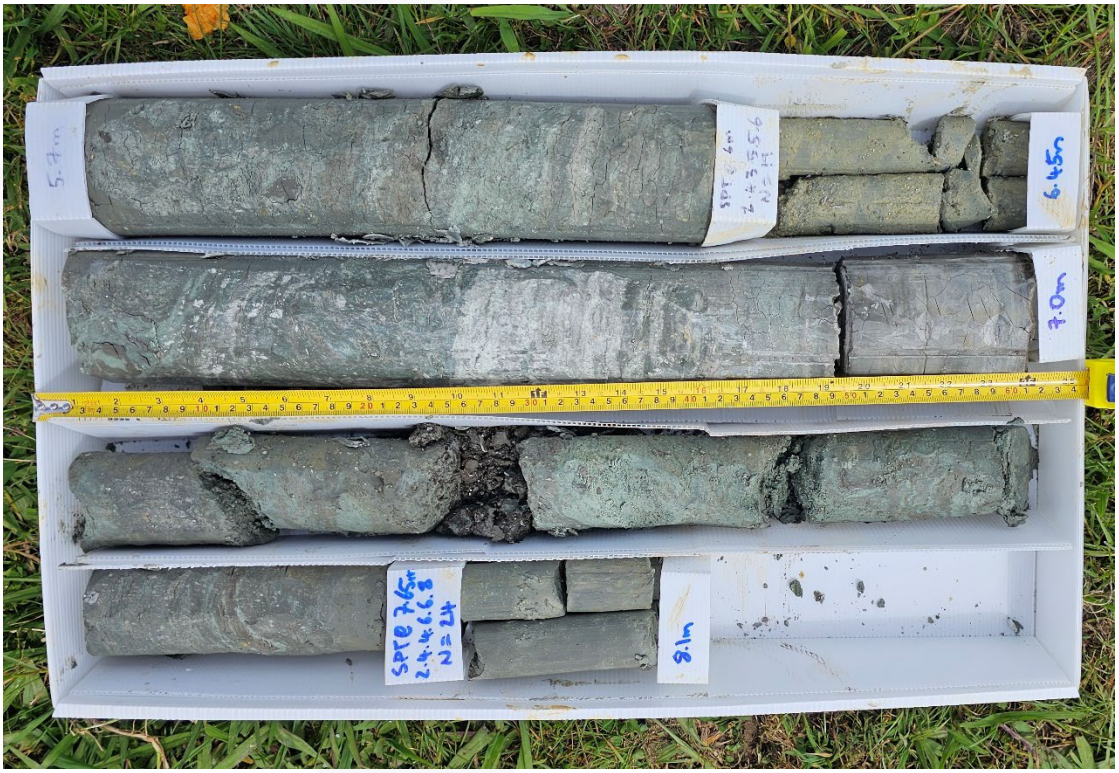

Photo 21: MH05 – depth from 5.7m to 8.1m

Photo 22: MH05 – depth from 8.1m to 9.37m

MH06 – Photos 23 to 27

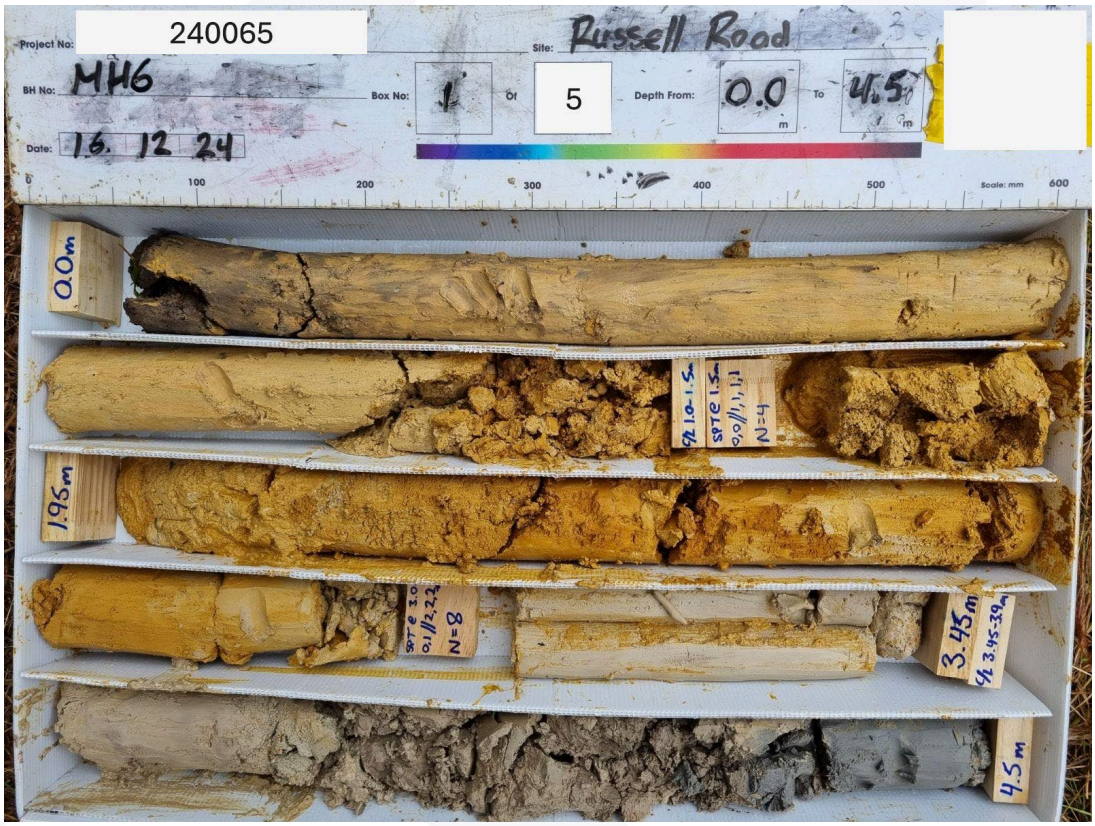

Photo 23: MH06 – depth from 0.0m to 4.5m

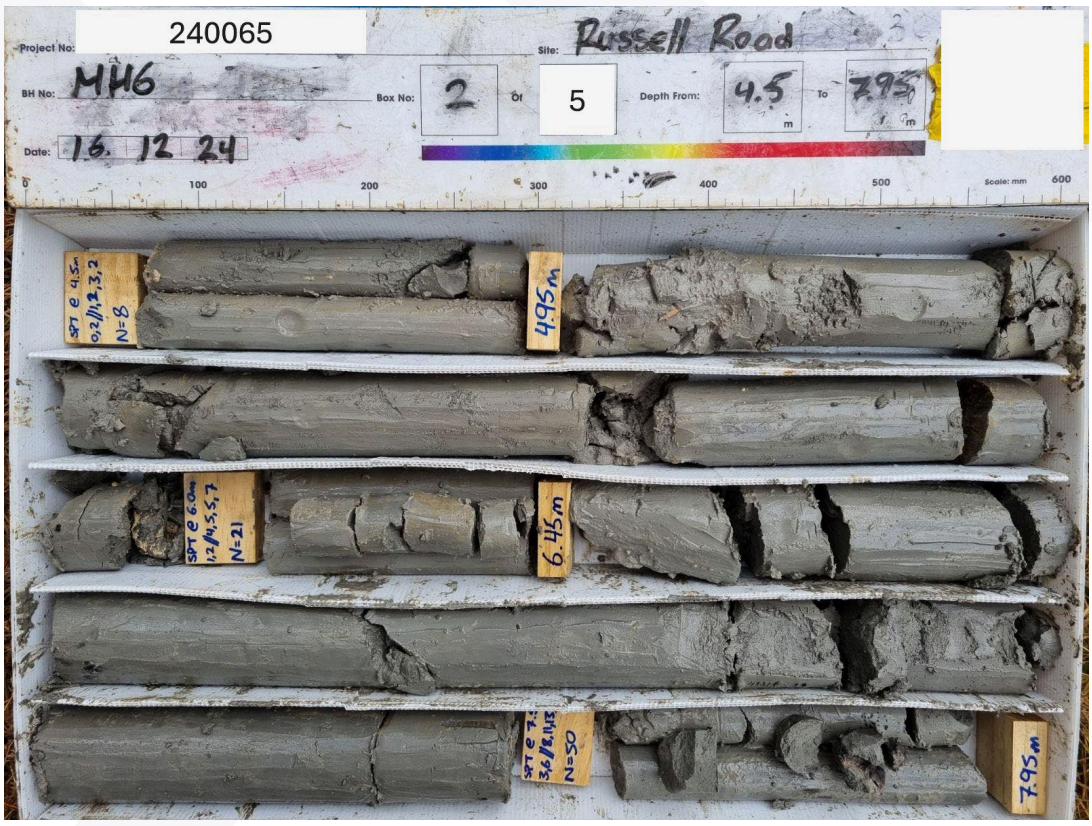

Photo 24: MH03 – depth from 4.5m to 7.95m

Photo 25: MH06 – depth from 7.95m to 11.0m

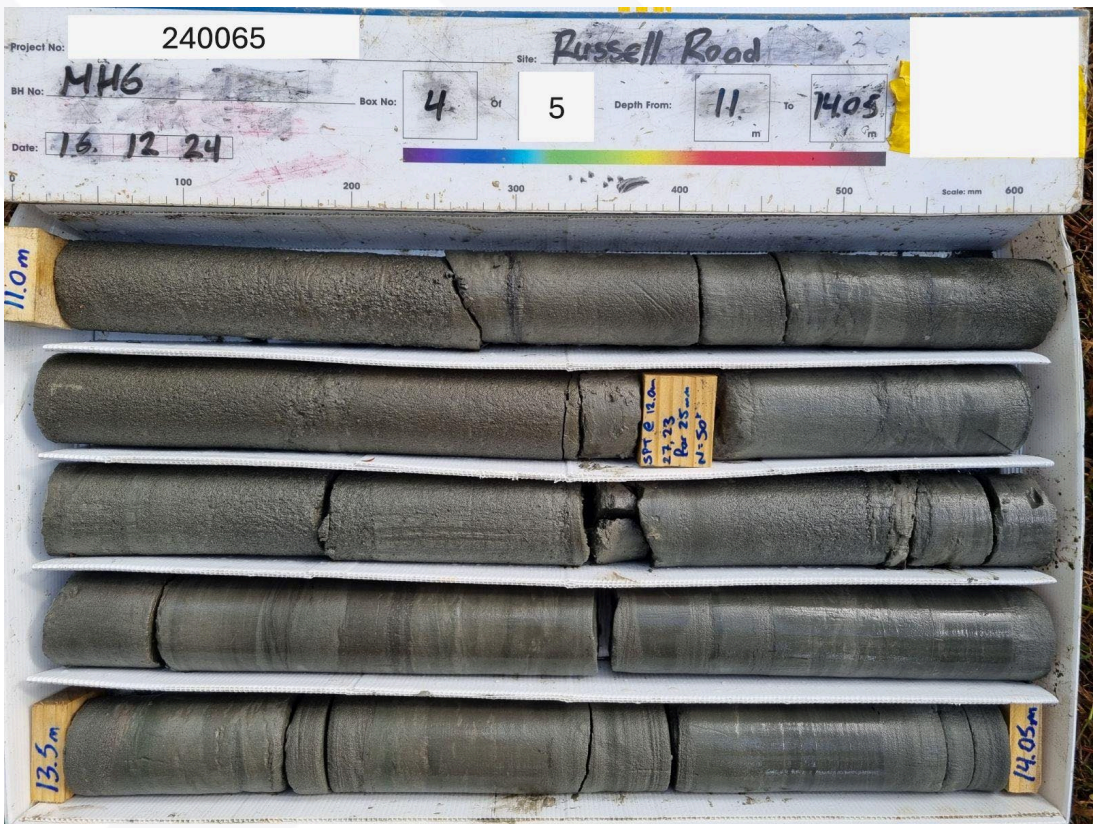

Photo 26: MH06 – depth from 11.0m to 14.05m

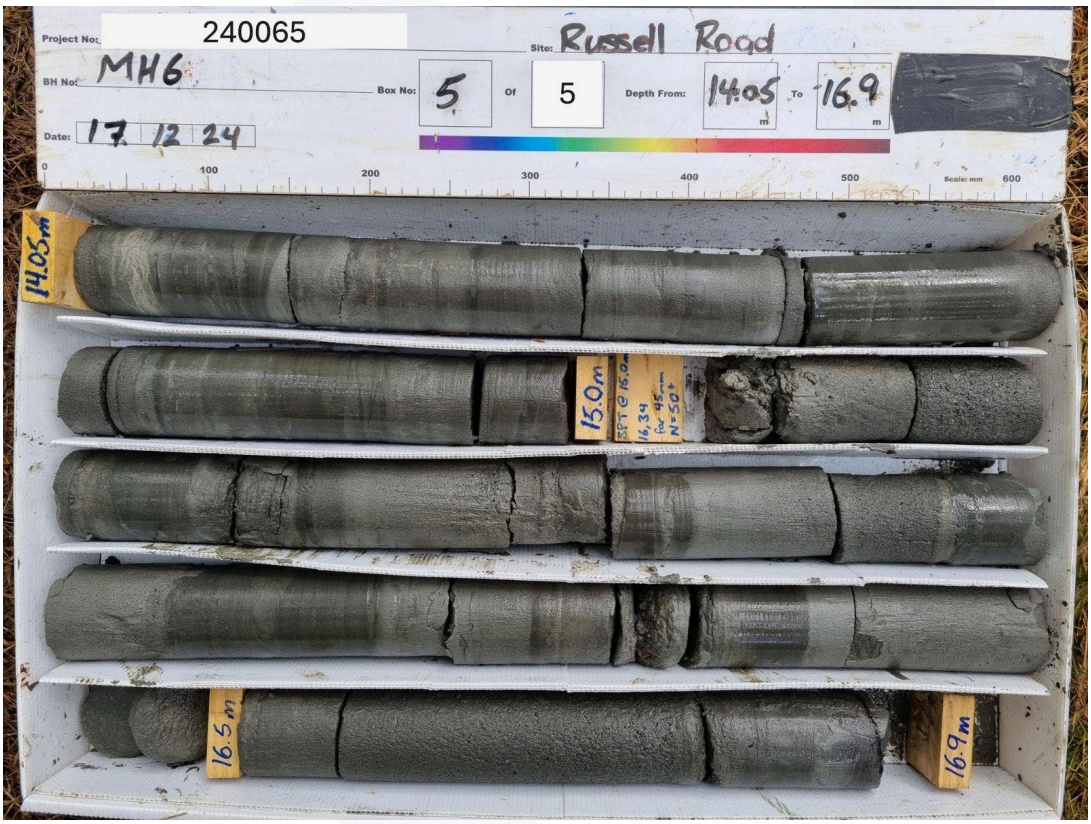

Photo 27: MH06 – depth from 14.05m to 16.9m

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK110	TP01

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	07 Nov 2024	28.8 m	E 1747778.0, N 5949469.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.60 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results	Backfill / Install
28.60	0.20	TOPSOIL	TS	Sandy SILT; with some rootlets; dark brown. Firm; moist; non-plastic; [TOPSOIL].							
	0.5	NORTHLAND ALLOCHTHON		SILT; with some sand; whitish grey with mottled orange; some lenses of orange sandy silt. Stiff; moist; low plasticity. [HUKERENUI MUDSTONE]							
	1.0			0.20m - 1.00m: Grades to grey sandy silt and rootlets.		0.50 - 2.00m, 1		M		V=82 R=34	
	1.5										
	2.0			2.00m: Becomes orange with mottled whitish grey; limonite weathering.			Not Encountered			V=67 R=34	
25.95	2.85										
	3.0			Highly weathered; bluish grey; sheared; SILTSTONE; very weak. Very closely fractured. Interbedded black and grey silt.						UTP	
	3.5			3.50m: Becomes moderately weathered; bluish grey with mottled black.		2.90 - 4.60m, 2					
24.50	4.30										
24.20	4.60			Slightly weathered; dark grey; SILTSTONE; very weak; closely fractured. Fractures lined with water.							
	5.0			END OF HOLE: 4.60m - Refusal							
	5.5										
	6.0										

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:

Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK113	TP02

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	06 Nov 2024	35.5 m	E 1747872.0, N 5949491.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.30 m	Target Depth	1 of 1	FINAL

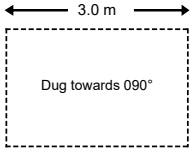
Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
35.35	0.15	TOPSOIL	TS	Sandy SILT; with some rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL].						
34.90	0.60	COLLUVIUM		Clayey SILT; with some rootlets; brown. Firm to stiff; dry; medium plasticity; [COLLUVIUM].				D		
		EAST COAST BAYS FORMATION		Sandy SILT; with trace gravel of siltstone; brownish orange mottled grey. Firm to stiff; moist; non-plastic [EAST COAST BAYS FORMATION]. 1.00m: Becomes very stiff. 1.30m: Becomes whitish brown with mottled orange and pink.			Not Encountered	M		V=134 R=64; V=122 R=40
32.50	3.00			SILT; light grey; occasional mottled orange. Very stiff; moist; medium plasticity.						V=116 R=46
32.10	3.40			Completely weathered; grey; SILTSTONE; extremely weak; SILT; grey. Very stiff; moist; non-plastic.						
31.50	4.00			Highly weathered; grey; SILTSTONE; very weak; laminated. 4.50m: Becomes moderately weathered; occasionally interbedded with sandstone.						
30.20	5.30			END OF HOLE: 5.30m - Target Depth						

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK111	TP03

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	06 Nov 2024	43.8 m	E 1747968.0, N 5949674.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.30 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture
43.60	0.20	TOPSOIL	TS	Sandy SILT; dark brown; [TOPSOIL].			Not Encountered	
		EAST COAST BAYS FORMATION		SILT; with some sand; with some gravel of residual siltstone; with some lenses of orange sand; whitish grey with mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. 0.20m - 2.00m: Grades to some rootlets; lense of grey silt.		1.00 - 2.00m, 1		M
40.30	3.50			Sandy SILT; with some clay; brownish orange with mottled whitish brown and pink. Stiff; moist to wet; medium plasticity. 4.00m - 5.00m: Banded locally; some lenses of brownish orange silty sand.		4.00 - 5.00m, 2		M W
38.50	5.30			END OF HOLE: 5.30m - Target Depth				

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=146 R=52; V=82 R=43; V=92 R=27; V=52 R=27

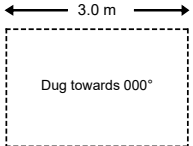
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK111	TP04

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	06 Nov 2024	33.3 m	E 1747948.0, N 5949597.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.80 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
33.15	0.15	TOPSOIL	Sandy SILT; with some rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL].
32.60	0.70	COLLUVIUM	SILT; with some clay; with some sand; with some rootlets; brown. Firm to stiff; moist; low plasticity; [COLLUVIUM].
		EAST COAST BAYS FORMATION	Clayey SILT; with some sand; whitish grey with mottled orange. Firm to stiff; moist; medium plasticity [EAST COAST BAYS FORMATION].
			1.00m: Becomes very stiff.
30.50	2.80	EAST COAST BAYS FORMATION	SILT; grey. Very stiff; moist; non-plastic.
29.90	3.40	EAST COAST BAYS FORMATION	Moderately weathered; grey; SANDSTONE; very weak to weak. Interbedded with, Moderately weathered; grey; SILTSTONE; very weak to weak.
28.50	4.80		END OF HOLE: 4.80m - Target Depth

Field Strength: Soil | Rock (VSYL, SFT, FIRM, STIF, VSTIF, HARD, VW, W, M, S, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=128 R=64 @ 1.0m; V=131 R=35 @ 2.0m; UTP @ 3.0m

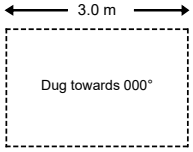
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK112	TP05

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	06 Nov 2024	38.3 m	E 1748126.0, N 5949673.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.50 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture	In-Situ Testing Data/Results
38.00	0.30	TOP SOIL	Clayey SILT; with grass over topsoil; with some rootlets; brown with mottled grey. Firm; wet; medium plasticity; [TOPSOIL]	W	
37.80	0.50	LL UV IU	Silty SAND; greenish blue. Loose to medium dense; wet; non-plastic. [COLLUVIUM]		
36.70	1.60	NORTHLAND ALLOCHTHON	SILT, with some clay and sand and gravel; bluish grey with mottled brown and whitish grey. Stiff; moist; non-plastic [HUKERENUI MUDSTONE].	M	V=60 R=15
35.80	2.50		SILT, with trace clay; bluish grey. Stiff; moist; low plasticity. Completely weathered; bluish grey; SILTSTONE; extremely weak to very weak; sheared and closed spaced fractured.		V=52 R=18
35.30	3.00		Highly weathered; bluish grey; SILTSTONE; extremely weak to very weak; sheared and closely space fractured.		UTP
33.80	4.50		Moderately weathered; bluish grey with mottled reddish brown; SILTSTONE; very weak.		UTP
			END OF HOLE: 4.50m - Target Depth		

Field Strength: Soil | Rock (VSXL, XL, L, MD, SD, FRIXD, SRIXD, VSW, EW, MW, SW, W, S, ES)

Samples + Lab Tests

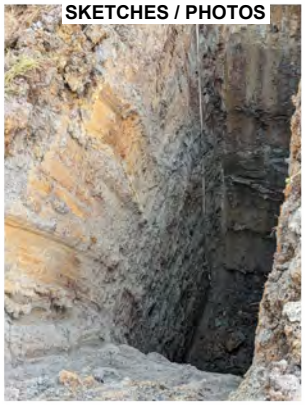
Groundwater

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals

Backfill / Install

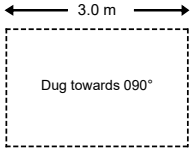
SKETCHES / PHOTOS



LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- None
- Slow Seep (@1.00m)
- Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. Perched groundwater encountered at 1.0m depth.
4. Pit collapsed between 2.0m and 2.5m on the northern side.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK111	TP06

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	06 Nov 2024	26.9 m	E 1748100.0, N 5949574.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.90 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
26.60	0.30	TOP SOIL	SILT, with some rootlets and sand and gravel. Medium dense; moist; non-plastic; gravel, fine to medium; [TOPSOIL].
26.30	0.60	COLLUVIUM	Clayey SILT; with trace sand; fine to medium; brown with mottled reddish brown and brownish orange. Stiff; moist; medium plasticity; [COLLUVIUM].
26.00	0.90		Silty SAND, with some rootlets and gravel, with minor cobbles; bluish grey. Stiff; moist; non-plastic; Cobbles of manganese black-stained siltstone [HUKERENUI MUDSTONE].
24.90	2.00	NORTHLAND ALLOCHTHON	SILT; with residual siltstone gravel; bluish grey. 1.60m: Becomes saturated.
23.90	3.00		Highly weathered; bluish grey with mottled reddish sheared; SILTSTONE; extremely weak.
22.00	4.90		Moderately weathered; bluish grey; SILTSTONE; closely fractured; very weak to weak; bands of dark grey siltstone; laminated bluish grey and black.
	4.90		END OF HOLE: 4.90m - Target Depth

Field Strength: Soil | Rock (VSXL, EL, VL, L, MD, ST, VST, HARD, VW, W, M, S, ES)

Samples + Lab Tests

Groundwater

Soil Moisture: M, S

Scala Penetrometer (blows / 50mm): 5, 10, 15

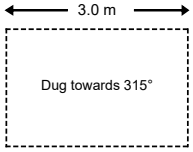
In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=55 R=18 at 1.0m; V=58 R=31 at 2.0m; UTP at 3.0m

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [ ] None
- [x] Slow Seep (@1.60m)
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. Perched groundwater encountered at 1.6m depth.
4. Pit collapsed at 1.6m depth on both sides of the pit.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK113	TP07

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	05 Nov 2024	25.9 m	E 1748050.0, N 5949448.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.60 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Samples + Lab Tests	Soil Moisture
25.60	0.30	TOP SOIL	Topsoil; with some rootlets; grey; [TOPSOIL]		
25.30	0.60	COLLUVIUM	SILT; with some clay and rootlets; with some interbedded topsoil; orange with mottled grey. Firm to stiff; dry to moist; low plasticity; [COLLUVIUM].	0.60 - 0.80m, 1	DM
24.70	1.20	COLLUVIUM	SILT; with minor clay; with some rootlets and fine sand; brownish grey and orange with mottled dark orange. Firm to stiff; dry to moist; low plasticity.		
23.90	2.00	NORTHLAND ALLOCHTHON	SILT; with minor to some clay; with trace fine sand; light grey with mottled orange. Stiff; moist; low plasticity; [HUKERENUI MUDSTONE]. 1.60m: 200mm to 300mm oxidised lenses.		
23.10	2.80	NORTHLAND ALLOCHTHON	SILT; with trace clay and fine sand; light grey with mottled orange. Firm to stiff; moist; low plasticity.	2.00 - 2.30m, 2	M
22.80	3.10	NORTHLAND ALLOCHTHON	SILT; with minor clay; grey. Very stiff; dry; low plasticity.	2.80 - 3.10m, 3	D
22.30	3.60	NORTHLAND ALLOCHTHON	SILT; with trace clay and fine sand; light grey with mottled orange. Very stiff; moist; low plasticity.		M
22.00	3.90	NORTHLAND ALLOCHTHON	SILT; with minor clay; grey. Very stiff to hard; dry; low plasticity.		
21.70	4.20	NORTHLAND ALLOCHTHON	SAND; with some silt; brownish grey with mottled orange. Loose; dry; non-plastic.		D
21.30	4.60	NORTHLAND ALLOCHTHON	SAND; with some silt; brownish grey with mottled dark orange. Loose; dry; highly oxidised lenses. Recovered as platy 100 x 100mm, 100 x 300mm, 200 x 400mm blocks.	4.20 - 4.50m, 4	
			END OF HOLE: 4.60m - Target Depth		

Field Strength: Soil | Rock (VSTL, STF, FM, STIFD, STIF, VSTIFD, VSW, W, M, S, ID, ES)

Groundwater: Not Encountered

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=79 R=47 @ 1.0m; V=79 R=24 @ 2.0m; V=214 + @ 3.0m; UTP @ 3.5m

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability: 3.0 m; Dug towards 045°; 1.0 m

Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater: None; Slow Seep; Rapid Inflow; Standing Water Level; Inflow; Outflow

Backfill: Bentonite; Grout/concrete; Spoil/arisings; Filter sand

Remarks:
1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK112	TP08

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	05 Nov 2024	46.6 m	E 1748303.0, N 5949507.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.70 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
46.45	0.15	TS	TS	Topsoil; with some rootlets; grey; [TOPSOIL]
		P. s. c.		SILT; with minor to fine sand; with trace clay; orange and light grey with mottled dark orange. Stiff to very stiff; dry; low plasticity; [EAST COAST BAYS FORMATION].
				0.70m: Grades to light grey with mottled orange.
				1.30m: Grades to dark brownish orange; highly oxidised lenses; interbedded highly oxidised sandier lenses around 100-200mm thick at approximately 500mm intervals.
				3.00m: Grades to hard.
42.20	4.40			
41.90	4.70			SILT; with trace clay; with trace fine sand; light grey with mottled orange and dark orange. Very stiff; dry to moist; low plasticity.
				4.50m: Sand is recovered as weakly cemented gravels.
				END OF HOLE: 4.70m - Target Depth

Field Strength: Soil | Rock (VSYL, SFT, FIRM, STIFF, VSTIF, HARD, VW, W, M, D, ES)

Samples + Lab Tests: 4.70m, 1

Groundwater: Not Encountered

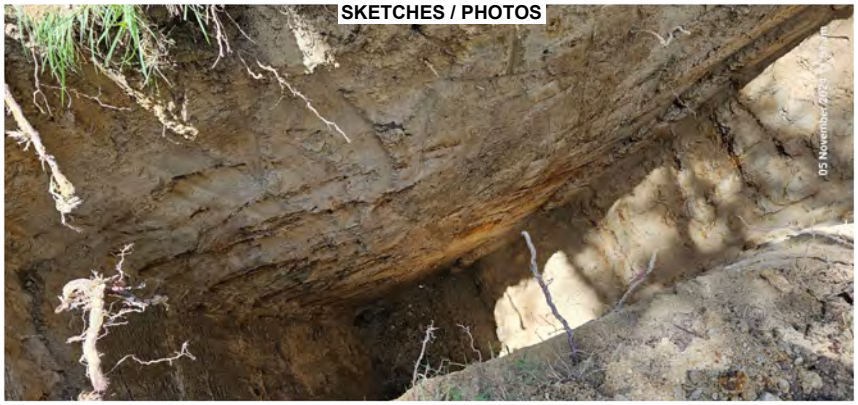
Soil Moisture

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals, Depth (m)): V=110 R=40; V=172 R=49; V=214 +

Backfill / Install

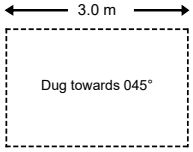
SKETCHES / PHOTOS



LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 55 Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK114	TP09

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	07 Nov 2024	26.4 m	E 1748172.0, N 5949488.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.30 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
26.10	0.30	TOP SOIL	TS	SILT, with some rootlets and sand; dark grey. Firm; dry; non-plastic; [TOPSOIL].			Not Encountered	D		
25.90	0.50	EAST COAST BAYS FORMATION		Sandy SILT, with trace rootlets and gravel. Firm; dry; non-plastic; sand, fine to coarse; gravel, fine; [EAST COAST BAYS FORMATION].						
				SILT, with some sand; brownish orange mottled whitish grey. Firm to stiff; moist; non-plastic; sand, fine to medium.						V=79 R=27
				1.50m: Becomes whitish grey mottled orange. Becomes sandy.						V=113 R=37
								M		
										V=82 R=27
22.30	4.10			SILT; grey. Firm; wet; non-plastic; Bands of orange.						V=70 R=27
22.20	4.20			Silty fine to medium SAND, with trace gravel; whitish grey and red and brownish orange bands. Medium dense; wet; gravel, fine.				W		
				4.60m: Lenses of dark grey in the corner of the pit.						
21.10	5.30			5.00m: Becomes brownish orange.						
				END OF HOLE: 5.30m - Target Depth						

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals / In-Situ Testing Data/Results — Depth (m): 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0

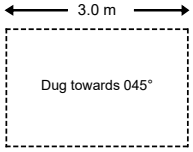
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53A Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK114	TP10

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	04 Nov 2024	38.7 m	E 1748270.0, N 5949432.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.10 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture
38.50	0.20	TOPSOIL	TS	TOPSOIL; dark grey; Some rootlets [TOPSOIL].				
38.00	0.70	EAST COAST BAYS FORMATION		SILT, with some clay, with minor rootlets; orange and light grey mottled dark orange. Very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].				M
36.30	2.40			SILT, with some sand, with trace clay; orange and light grey mottled dark orange. Very stiff; dry to moist; low plasticity; sand, fine. 2.10m: Highly oxidised dark brownish orange.		1.50 - 1.80m, 1	Not Encountered	DM
35.70	3.00			Sandy SILT; light grey mottled orange and dark orange. Very stiff; dry to moist; non-plastic; sand, fine to medium.		2.40 - 2.70m, 2		
35.10	3.60			SILT, with some sand, with minor clay; orange and dark orange mottled light grey. Very stiff; dry to moist; low plasticity; sand, fine; Highly oxidised.		3.40 - 3.60m, 3		
34.60	4.10			SILT, with trace clay and sand; dark grey. Very stiff; moist; low plasticity; sand, fine. 4.00m: Locally very hard. Recovered as platy blocks; 100x100mm and 200-300x300mm.				M
				END OF HOLE: 4.10m - Refusal				

Scala Penetrometer (blows / 50mm): 5, 10, 15

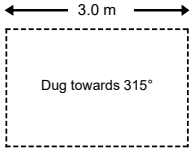
In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=153 R=56 @ 1.0; V=130 R=47 @ 1.5; V=214 + @ 2.5; V=214 + @ 3.0; UTP @ 4.0

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 55 Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK114	TP12

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	04 Nov 2024	17.6 m	E 1748301.0, N 5949330.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	3.70 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
17.25	0.35	TOPSOIL	TS	TOPSOIL; dark grey; Some rootlets [TOPSOIL].			Not Encountered	M	5 10 15	V=122 R=70 (0.5); V=108 R=58 (1.0); V=125 R=41 (2.0); UTP (2.5)
16.40	1.20	EAST COAST BAYS FORMATION		SILT, with some clay; dark orange and orange mottled light grey. Stiff to very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].						
16.00	1.60			SILT, with minor clay; orange and light grey mottled dark orange. Stiff to very stiff; moist; low plasticity.						
14.90	2.70			Sandy SILT; light grey mottled orange and dark orange. Very stiff; moist to wet; non-plastic; sand, fine to medium.						
13.90	3.70			SILT with trace clay; dark grey. Very stiff to hard; moist; non-plastic to low plasticity; Interbedded with, SAND; dark grey. Very dense; moist. Moderately thin beds approx. 100-200mm. Locally cemented. Recovered as platy 100-300mm x 100mm blocks.						
				END OF HOLE: 3.70m - Refusal						

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:

Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 55 Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK114	TP13

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	04 Nov 2024	34.5 m	E 1748399.0, N 5949419.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.50 m	Target Depth	1 of 1	FINAL

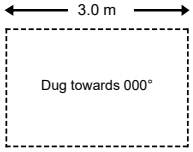
Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
34.20	0.30	TOP SOIL	TS	TOPSOIL; dark grey; Minor rootlets [TOPSOIL].						
	0.5	EAST COAST BAYS FORMATION		SILT, with some clay, with minor rootlets; light grey and orange mottled dark orange. Stiff to very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].						V=113 R=49
	1.0									
	1.5									V=156 R=73
	2.0									
32.00	2.50			2.20m - 2.30m: Hard pan layer. Highly weathered; dark orange (hard).		2.20m, 1	Not Encountered	M		V=214 +
31.50	3.00			Sandy SILT; brownish grey mottled orange. Very stiff; moist; non-plastic; sand, fine.						V=214 +
31.20	3.30			SILT, with trace sand; dark grey. Very stiff; moist; non-plastic; sand, fine.						
30.00	4.50			Sandy SILT; brownish grey mottled orange and dark orange. Very stiff; moist; non-plastic; sand, fine.						
	5.0			END OF HOLE: 4.50m - Target Depth						
	5.5									
	6.0									

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 55 Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK114	TP14

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	04 Nov 2024	23.0 m	E 1748388.0, N 5949334.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.60 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
22.75	0.25	TOPSOIL	TS	TOPSOIL; dark grey; Some rootlets [TOPSOIL].
22.40	0.60	EAST COAST BAYS FORMATION		SILT, with some rootlets and clay; brownish grey and grey mottled orange. Stiff to very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].
22.00	1.00			Clayey SILT, with some rootlets; light grey mottled orange. Very stiff; moist; medium plasticity.
				Sandy SILT; light grey mottled orange. Very stiff; moist; non-plastic; sand, fine to medium.
20.50	2.50			SILT, with trace clay; dark grey. Very stiff; moist; low plasticity.
18.40	4.60			END OF HOLE: 4.60m - Target Depth

Field Strength: Soil | Rock (VSTL, ST, F, FRD, SFRD, HSTIFD, VSTIFD, VW, W, M, D, S, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)):
- V=108 R=66 @ 1.0
- V=183 R=64 @ 2.0
- V=183 R=61 @ 2.5
- V=214 + @ 3.0
- UTP @ 4.0

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:

Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:
- [✓] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:
- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:
1. 55 Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK114	TP15

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	04 Nov 2024	12.7 m	E 1748322.0, N 5949285.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	2.40 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
12.30	0.40	TOPSOIL	TS	TOPSOIL; dark grey; Some rootlets [TOPSOIL].
11.10	1.60	EAST COAST BAYS FORMATION		SILT, with some rootlets and clay; light grey and orange mottled dark orange. Very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION]. 0.45m: Dark brownish orange oxidation. 1.60m - 1.70m: Highly weathered brownish orange oxidation.
10.30	2.40			Fine to medium SAND, with some silt; dark grey. Medium dense; moist; non-plastic. 2.00m: Recovered as platy 250x100mm, 300x200mm.
				END OF HOLE: 2.40m - Refusal

Field Strength: Soil | Rock (VSYL, SFT, FMD, STIF, VSTIF, HARD, VW, W, M, D, S, ES)

Samples + Lab Tests

Groundwater

Soil Moisture: M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=122 R=32; UTP; UTP; UTP

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability: 3.0 m; Dug towards 270°; 1.0 m

Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater: None; Slow Seep (@2.40m); Rapid Inflow; Standing Water Level; Inflow; Outflow

Backfill: Bentonite; Grout/concrete; Spoil/arisings; Filter sand

Remarks:
1. 55 Russell Road.
2. Test pit was backfilled upon completion.
3. Groundwater inflow from north and west at 2.4m depth.
4. Pit collapsed on the eastern side at 1.5m depth.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK115	TP16

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	04 Nov 2024	30.4 m	E 1748371.0, N 5949139.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.60 m	No more reach	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
30.10	0.30	TOP SOIL	TS	TOPSOIL; grey; Some rootlets [TOPSOIL].						
29.10	1.30	EAST COAST BAYS FORMATION		Clayey SILT, with some rootlets; orange mottled dark orange. Very stiff; dry to moist; medium plasticity; [EAST COAST BAYS FORMATION].		1.00 - 1.20m, 2	Not Encountered	D		V=108 R=50
27.90	2.50			SILT, with trace clay; light grey mottled light orange. Stiff to very stiff; dry; low plasticity.		2.00 - 2.20m, 3 2.30m, 1				V=102 R=44 V=133 R=50
25.80	4.60			SILT, with minor clay; light grey mottled orange and dark orange. Stiff to very stiff; dry; low plasticity. 2.70m: Dark orange oxidation.						V=107 R=44 V=122 R=56
				END OF HOLE: 4.60m - No more reach						

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:

Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 55 Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK116	TP17

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	04 Nov 2024	30.0 m	E 1748259.0, N 5949055.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.50 m	No more reach	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
29.75	0.25	TOPSOIL	TS	TOPSOIL; dark grey; Some rootlets [TOPSOIL].
29.40	0.60	EAST COAST BAYS FORMATION		SILT, with some rootlets and clay; grey mottled orange and dark orange. Stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].
				SILT, with minor rootlets and clay; light orange and grey mottled dark orange. Stiff; moist; low plasticity.
26.90	3.10			2.90m - 3.10m: Dark orange oxidation.
				SILT, with trace clay; grey. Very stiff; moist; low plasticity.
26.50	3.50			SILT, with trace sand; greenish grey; sand, fine; Laminated 2-6mm. Interbedded with, SILT, with minor clay; dark grey. Very stiff; moist; low plasticity to non-plastic; Laminated 2-3mm. Dark grey laminations have a sheen along the face.
				3.50m: Breaks apart approximately along dark grey layers.
25.50	4.50			END OF HOLE: 4.50m - No more reach

Field Strength (Soil | Rock): M

Samples + Lab Tests

Groundwater: ◁ at 2.90m

Soil Moisture: M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals, Depth (m)):
- V=92 R=53
- V=76 R=27
- V=81 R=75
- V=168 R=75
- V=160 R=75

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability: 3.0 m; Dug towards 270°; 1.0 m

Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater: None; Slow Seep (@2.90m); Rapid Inflow; Standing Water Level; Inflow; Outflow

Backfill: Bentonite; Grout/concrete; Spoil/arisings; Filter sand

Remarks:
1. 55 Russell Road.
2. Test pit was backfilled upon completion.
3. Groundwater inflow at 2.9m depth from west and south.
4. Hole collapse on the south face from 0.25m to 3.1m depth.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK115	TP18

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	05 Nov 2024	31.0 m	E 1748284.2, N 5949223.3

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	Scala Intervals	In-Situ Testing Data/Results	Depth (m)	Backfill / Install
30.60	0.40	TOPSOIL	TS	TOPSOIL; dark grey; Some rootlets [TOPSOIL].									
29.00	2.00	EAST COAST BAYS FORMATION		SILT, with some clay; orange and light grey with dark orange mottles. Very stiff; dry to moist; low plasticity; [EAST COAST BAYS FORMATION].			Not Encountered	DM	5 10 15		V=157 R=85 V=105 R=61	0.5 1.0 1.5 2.0	
26.80	4.20			SILT, with minor clay and sand; dark orange and orange mottled light grey. Very stiff; dry to moist; low plasticity; sand, fine. Intermixed with, SILT, with some sand and minor clay; Pink, grey and orange. Stiff; moist; low plasticity.							V=82 R=43 V=95 R=32	2.5 3.0 3.5 4.0	
26.00	5.00			SILT, with trace clay and sand; light grey mottled pink and orange. Stiff; moist; low plasticity; sand, fine. 4.50m: Becomes very stiff to hard and highly oxidised; dark orange.				M			V=214 +	4.5	
				END OF HOLE: 5.00m - Target Depth								5.0 5.5 6.0	

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:

Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 55 Russell Road.
2. Test pit was backfilled upon completion.
3. Excavating between 2.0m - 4.2m depth was very messy.
4. No groundwater encountered.
5. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	RS	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK112	TP19

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	06 Nov 2024	37.4 m	E 1748187.0, N 5949645.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
37.10	0.30	TOPSOIL	SILT, with some rootlets and sand; dark brown. Firm; dry; non-plastic; sand, fine to medium; [TOPSOIL].
	0.5	NORTHLAND ALLOCHTHON	SILT, with some gravel; grey mottled orange. Stiff; moist; medium plasticity; gravel, fine; [HUKERENUI MUDSTONE].
	1.0		0.30m - 0.70m: Some rootlets. Grey sand tracing rootlets.
	1.5		
35.40	2.00		Moderately weathered; bluish grey; SILTSTONE; very weak; Sheared and closely fractured.
	2.5		
	3.0		3.00m: Becomes slightly weathered.
	3.5		
	4.0		
	4.5		
32.50	4.90		Moderately weathered; brownish orange; SILTSTONE; very weak; Lenses of orange fine to medium sand and reddish brown limonite.
	5.0		END OF HOLE: 5.00m - Target Depth
	5.5		
	6.0		

Field Strength: Soil | Rock (VSYL, SFT, FIRM, STIF, VSTIF, HARD, VW, W, MS, S, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: D; M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results: V=95 R=52; UTP

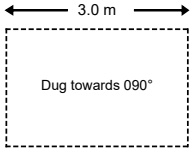
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.
5. Northland Allochthon boundary was at 2.0m on north face, as per the log, and 2.5m on the southern face.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK111	TP20

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	06 Nov 2024	32.9 m	E 1748029.0, N 5949605.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
32.70	0.20	TOPSOIL	TS	Sandy SILT, with some rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL].
		NORTHLAND ALLOCHTHON		SILT, with some sand, with trace gravel; whitish grey mottled orange. Stiff; moist; medium plasticity; gravel, fine; [HUKERENUI MUDSTONE].
30.50	2.40			Moderately weathered; bluish grey; SILTSTONE; very weak; Sheared and closely fractured.
				3.30m: Becomes bluish grey mottled reddish brown.
27.90	5.00			END OF HOLE: 5.00m - Target Depth

Field Strength: Soil | Rock (VSYL, SFT, FIRM, STIF, VSTIF, HARD, VW, W, M, D, S, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: D; M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=104 R=34 at 1.0 m; UTP at 2.0 m; UTP at 3.0 m

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability: 3.0 m; Dug towards 000°; 1.0 m

Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater: None; Slow Seep; Rapid Inflow; Standing Water Level; Inflow; Outflow

Backfill: Bentonite; Grout/concrete; Spoil/arisings; Filter sand

Remarks:
1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK111	TP21

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	07 Nov 2024	50.5 m	E 1747868.0, N 5949701.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.60 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture
50.30	0.20	TOPSOIL	TS	Sandy SILT, with some rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL].	D
49.60	0.90	EAST COAST BAYS FORMATION		SILT, with some rootlets and sand; light brown mottled dark grey and brownish orange. Firm to stiff; moist; non-plastic; sand, fine to coarse; [EAST COAST BAYS FORMATION].	
49.30	1.20			SILT, with trace sand; pink mottled grey. Firm to stiff; moist; non-plastic.	
48.50	2.00			Sandy SILT; pink mottled orange. Stiff; moist. 1.60m: Locally cemented.	
47.80	2.70			Silty SAND; orange banded grey and pink and black. Medium dense; moist. 2.60m: Locally cemented.	M
46.30	4.20			Fine to coarse SAND, with some silt and gravel; orange and pink and black and grey. Medium dense; gravel, fine to medium; Locally cemented. Gravel is limonite. 3.00m - 4.20m: Limonite layer, recovered as gravel.	
44.90	5.60			Highly weathered; grey; SILTSTONE; very weak; Orange staining. Bands of fine to medium silty sand. Sand bands are wet.	
				END OF HOLE: 5.60m - Target Depth	

Field Strength: Soil | Rock (VSYL, SFT, FIRM, STIF, VSTIF, HARD, VW, W, M, S, ES)

Samples + Lab Tests

Groundwater

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals, Depth (m)): V=110 R=29 at 1.0 m; V=66 R=24 at 2.0 m

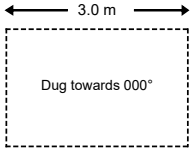
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [ ] None
- [x] Slow Seep (@5.00m)
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. Groundwater inflow at 5.0m depth.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK111	TP22

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	07 Nov 2024	41.3 m	E 1747860.0, N 5949583.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.30 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture	In-Situ Testing Data/Results
41.15	0.15	Pleistocene	TS	SILT, with some rootlets and sand; dark brown. Firm; dry; non-plastic; [TOPSOIL].	D	
40.90	0.40			SILT, with minor rootlets and clay and sand; brown. Firm; dry; non-plastic; [EAST COAST BAYS FORMATION].		
	0.5			SILT, with some clay, with trace sand; brownish orange mottled light grey and brown. Firm to stiff; moist; medium plasticity.		
	1.0					V=110 R=46
	1.5				M	
	2.0					V=85 R=46
38.90	2.40			2.20m: Becomes bluish grey mottled orange.		
	2.5			Sandy SILT, with some clay; brownish orange speckled bluish grey. Firm to stiff; moist; medium plasticity.		
38.10	3.0					V=101 R=34
	3.20			Highly weathered; grey; SILTSTONE; extremely weak.		
37.70	3.5			3.50m: Locally hard to excavate.		
	3.60			Completely weathered; bluish grey; SILTSTONE; very weak; Bands of blue and black.		
37.20	4.0					
	4.10			Highly weathered; bluish grey; SANDSTONE; Closely fractured.		
36.80	4.5					
	4.50			Highly weathered; bluish grey; SILTSTONE; very weak.		
36.30	5.00					
	5.0			Moderately weathered; bluish grey; SILTSTONE; very weak.		
36.00	5.30					
	5.5			END OF HOLE: 5.30m - Target Depth		
	6.0					

Field Strength: Soil | Rock — VSXL, EL, VL, L, MD, ST, VSTIFD, STIFD, VSTIF, VW, W, M, S, ES

Samples + Lab Tests

Groundwater: Not Encountered

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals

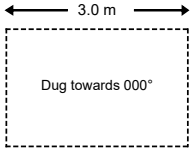
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK111	TP23

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	07 Nov 2024	36.0 m	E 1747810.0, N 5949536.0

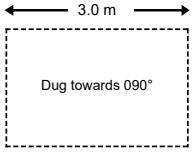
Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
35.70	0.30	TOP SOIL	TS	Sandy SILT; dark brown. Firm; dry; non-plastic; [TOPSOIL].				D		
35.40	0.60	NORTHLAND ALLOCHTHON		SILT, with some rootlets and sand; grey. Firm; moist; non-plastic; sand, fine; [HUKERENUI MUDSTONE].						
				0.30m - 0.40m: Becomes grey mottled dark brown.						
				Clayey SILT, with some sand; brownish orange mottled whitish grey. Stiff; moist.						V=124 R=60
				3.00m: Becomes whitish grey mottled orange.				M		V=58 R=27
32.50	3.50									
32.30	3.70			SILT, with trace sand; bluish grey mottled reddish brown and dark grey. Stiff; moist; non-plastic.						
31.90	4.10			Highly weathered; bluish grey; SILTSTONE; very weak; Sheared.						
				Slightly weathered; dark grey; SILTSTONE; very weak; Interbedded with, Slightly weathered; dark grey; SANDSTONE; very weak; closely fractured. Fractures are wet.						
31.00	5.00			END OF HOLE: 5.00m - Target Depth						

SKETCHES / PHOTOS

LOCATION PLAN

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- None
- Slow Seep
- Rapid Inflow (@4.90m)
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. Groundwater inflow at 4.9m depth.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK114	TP24

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	07 Nov 2024	28.5 m	E 1748170.0, N 5949413.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.90 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
28.20	0.30	TOP SOIL	TS	SILT, with some rootlets and sand; dark grey. Firm; dry; non-plastic; sand, fine; [TOPSOIL].			Not Encountered	D		
26.20	2.30	EAST COAST BAYS FORMATION		Sandy SILT, with some rootlets; brownish orange mottled whitish grey. Stiff; dry; non-plastic; [EAST COAST BAYS FORMATION]. 1.80m: Limonite layer						V=79 R=26; V=92 R=27
25.90	2.60			Silty SAND; brownish orange. Medium dense; moist.				M		
25.50	3.00			SILT; grey. Stiff; moist; Thinly bedded. 2.60m: Locally cemented clasts of siltstone						V=96 R=27
24.90	3.60			Sandy SILT; brownish orange mottled grey. Stiff; wet; sand, fine to medium; Some lenses of sand.				W		
24.60	3.90			Silty fine to medium SAND, with trace gravel; brownish orange. Medium dense; wet; gravel, fine.						
24.20	4.30			Highly weathered; grey; SILTSTONE; extremely weak; Thinly bedded.						UTP
23.80	4.70			Silty fine to medium SAND; brown. Medium dense; wet.				W		
23.60	4.90			Moderately weathered; light grey; SILTSTONE; extremely weak. END OF HOLE: 4.90m - Target Depth						

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results — Scala Intervals — Depth (m): 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0

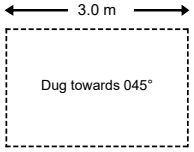
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 53B Russell Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK120	TP25

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	19 Nov 2024	82.3 m	E 1747762.0, N 5950221.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.50 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Samples + Lab Tests	Soil Moisture	In-Situ Testing Data/Results
82.00	0.30	TOP SOIL	SILT, with some rootlets and clay and sand; dark grey. Firm; dry to moist; non-plastic; sand, fine; [TOPSOIL].		DM	
81.80	0.50	EAST COAST BAYS FORMATION	SILT, with some clay, with trace rootlets and sand; brown with brownish orange mottles. Stiff; moist to dry; medium plasticity; [EAST COAST BAYS FORMATION].			
			SILT, with some rootlets and clay and sand, with trace gravel; brownish orange mottled whitish grey. Firm; moist; medium plasticity; gravel, limonite.	1.00 - 2.00m, 1	M	V=153 R=64; V=128 R=67
79.50	2.80		SILT, with some clay, with minor rootlets and sand; whitish grey mottled brownish orange. Firm to stiff; moist; medium plasticity.			V=81 R=34
78.80	3.50		Completely weathered; whitish grey banded red mottled orange; SILTSTONE; extremely weak; With some rootlets and bands of sand and some silt; grey. Medium dense; wet.	3.50 - 4.00m, 2	W	UTP
78.30	4.00		Highly weathered; bluish grey; laminated; SILTSTONE; extremely weak. Interbedded with, Completely weathered; bluish grey; SANDSTONE; extremely weak.	4.00 - 5.50m, 3		
76.80	5.50		END OF HOLE: 5.50m - Target Depth			

Groundwater: Not Encountered

Field Strength: Soil | Rock — VSXL, EL, VL, L, MD, ST, VST, HARD, VSW, W, M, S, ES

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals

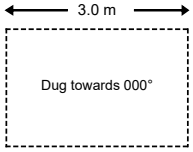
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater, seepage or pooling encountered.
4. Pit remained stable for the duration of the excavation.
5. Roots present down to 4.0m.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK120	TP26

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	19 Nov 2024	56.0 m	E 1747665.0, N 5950279.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.10 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
55.80	0.20	TOPSOIL	TS	SILT, with some rootlets and clay and sand; dark brown. Firm; dry; non-plastic; [TOPSOIL].	D		
55.50	0.50	EAST COAST BAYS FORMATION		Clayey SILT, with some rootlets, with trace sand; brown. Firm; moist; medium plasticity; [EAST COAST BAYS FORMATION].	M		
53.90	2.10			SILT, with some clay, with minor rootlets and sand; whitish grey mottled brownish orange and orange. Firm to stiff; dry to moist; medium plasticity; sand, fine.	DM		V=122 R=64; V=95 R=20
53.00	3.00			Clayey SILT, with some rootlets, with trace sand; orange mottled whitish grey. Firm to stiff; moist; medium plasticity; sand, fine; Hard limonite layers.	M		V=55 R=18
52.20	3.80			Clayey sandy SILT; light grey and some brownish orange mottles. Firm; moist; medium plasticity; sand, fine.			
51.70	4.30			Silty SAND; grey. Medium dense; moist to wet.	M W		V=49 R=15
51.20	4.80			Sandy SILT, with some gravel; bluish grey. Firm; wet to saturated; medium plasticity; gravel, coarse; Pockets of sand; dark green, fine.	WS		
50.90	5.10			Highly weathered; bluish grey; laminated; SILTSTONE; extremely weak. Interbedded with, Highly weathered; bluish grey; SANDSTONE; very weak.			
				END OF HOLE: 5.10m - Target Depth			

Field Strength: Soil | Rock (VSXL, EH, VL, LD, MD, ED, VSWD, SWD, VW, W, M, S, ES)

Samples + Lab Tests

Groundwater

Scala Intervals

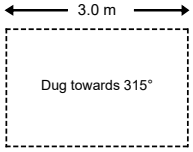
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- None
- Slow Seep
- Rapid Inflow (@4.30m)
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. Groundwater encountered at 4.3m with quite a fast seepage inflow.
4. Collapse on the SE side of the pit, first from 4.3m to 5.5m and then from 2.5m to 5.5m.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK120	TP27

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	19 Nov 2024	54.3 m	E 1747596.0, N 5950134.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.40 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
54.00	0.30	TOP SOIL	TS	SILT, with some rootlets and sand; dark brown. Firm; dry; non-plastic; [TOPSOIL].
	0.5	EAST COAST BAYS FORMATION		SILT, with some sand, with minor rootlets; whitish grey mottled brown mottled orange. Firm; dry to moist; medium plasticity; Some bands of fine sand; brown [EAST COAST BAYS FORMATION].
	1.0			
	1.5			
	2.0			
	2.5			2.50m: Grades to orange mottled grey with hard layers of limonite. Firm; moist.
	3.0			
	3.5			
	4.0			
49.70	4.60			Completely weathered; bluish grey; SILTSTONE; extremely weak; Closely fractured. Interbedded with, Silty SAND; brown and red; saturated.
	5.0			
49.10	5.20			Highly weathered; bluish grey; laminated; SILTSTONE; very weak. Interbedded with, Highly weathered; bluish grey; SANDSTONE; very weak. Cracks and fractures are lined with water.
48.90	5.40			END OF HOLE: 5.40m - Target Depth
	5.5			
	6.0			

Field Strength (Soil | Rock): VSXL, EHD, VHD, HD, MD, SD, VSD, VW, W, M, S, ES

Samples + Lab Tests: 1.10 - 2.00m, 1; 4.60 - 5.20m, 2; 5.20 - 5.40m, 3

Groundwater: ◁ (5.20m)

Soil Moisture: D; DM; M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results: V=119 R=64 (1.0m); V=76 R=31 (2.0m); V=67 R=23 (3.0m); V=76 R=34 (4.0m)

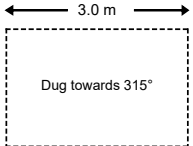
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- None
- Slow Seep
- Rapid Inflow
- Standing Water Level
- Inflow
- Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. Groundwater and pooling encountered at 5.2m.
4. Localised collapse of pit wall from 5.0m to 5.4m.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK118	TP28

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	19 Nov 2024	69.6 m	E 1747686.0, N 5950066.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.30 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture
69.30	0.30	TOP SOIL	SILT, with some rootlets and clay; dark brown. Firm; dry to moist; non-plastic; [TOPSOIL].	D
68.90	0.70	COLLUVIUM	SILT, with some clay, with minor rootlets, with trace sand; brown. Firm; moist; medium plasticity; sand, fine; [COLLUVIUM].	
68.50	1.10	EAST COAST BAYS FORMATION	SILT, with some rootlets; whitish grey mottled orange. Firm; moist; low plasticity; [EAST COAST BAYS FORMATION].	
68.30	1.30		Sandy SILT, with some rootlets; orange mottled grey. Firm; moist; non-plastic.	
67.80	1.80		SILT, with minor clay, with trace rootlets and sand; whitish grey mottled orange. Firm; moist; low plasticity.	
67.20	2.40		Sandy SILT, with some rootlets; orange mottled grey. Firm; moist; non-plastic.	M
65.70	3.90		SILT, with trace rootlets and sand; whitish grey mottled orange. Stiff to very stiff; moist; low plasticity.	
65.60	4.00		Silty SAND; light grey. Medium dense; moist to wet.	
64.60	5.00		Completely weathered; bluish grey and some red bands; SILTSTONE; extremely weak. Interbedded with, Completely weathered; bluish grey SANDSTONE; extremely weak. Residual sand is wet.	W
64.30	5.30		Highly weathered; bluish grey; laminated; SILTSTONE; extremely weak.	
			END OF HOLE: 5.30m - Target Depth	

Groundwater: Not Encountered

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results: V=89 R=31 (1.0 m); V=67 R=27 (1.5 m); V=127 R=44 (3.0 m)

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability: 3.0 m; Dug towards 045°; 1.0 m

Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater: None; Slow Seep; Rapid Inflow; Standing Water Level; Inflow; Outflow

Backfill: Bentonite; Grout/concrete; Spoil/arisings; Filter sand

Remarks:
1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater or pooling encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK118	TP29

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	19 Nov 2024	51.0 m	E 1747588.0, N 5950043.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	6.00 m	Target Depth	1 of 1	FINAL

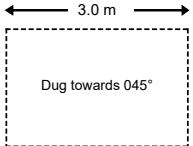
Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
50.75	0.25	TOPSOIL	TS	SILT, with minor sand; dark grey. Firm; dry; non-plastic; [TOPSOIL].			Not Encountered	D	5 10 15	
	0.5	EAST COAST BAYS FORMATION		Silty CLAY, with some rootlets, with trace sand; brown. Firm; moist; medium plasticity to high plasticity; sand, fine; Roots lined with sandy silt; grey [EAST COAST BAYS FORMATION].						V=90 R=47
	1.0									
	1.5			1.50m: Grades to brown mottled light grey.				M		V=137 R=64
	2.0									
	2.5									V=96 R=31
48.20	2.80									
	3.0			SILT, with some rootlets and clay and sand; whitish grey mottled brownish orange. Firm; moist; medium plasticity; sand, fine; Some bands of brownish orange sand.						
	3.5									
47.30	3.70									
47.00	4.00			Completely weathered; light grey banded orange; fine fabric, laminated; SILTSTONE; extremely weak.						V=98 R=27
	4.0			Silty fine to medium SAND; brownish grey. Medium dense; wet.						
	4.5									
	5.0			5.00m: Grades to brownish grey and bluish grey with some moderately thick (500mm thick) lenses of silt; bluish grey and brownish orange. Firm; wet; non-plastic.				W		
	5.5									
45.00	6.00									
	6.0			END OF HOLE: 6.00m - Target Depth						

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater or pooling encountered.
4. Small collapse of pit wall from 5m to 6m.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK124	TP30

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	20 Nov 2024	49.0 m	E 1747351.0, N 5950037.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.30 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture
48.80	0.20	TOPSOIL	TS	SILT, with some clay, with trace rootlets and sand; dark brown. Firm; dry; low plasticity; [TOPSOIL].				D
		EAST COAST BAYS FORMATION		Clayey SILT, with minor rootlets and sand; brown and grey and brownish orange. Stiff; dry to moist; low plasticity; Brown sandy silt tracing roots [EAST COAST BAYS FORMATION].		0.50 - 1.20m, 1	Not Encountered	DM
47.80	1.20			SILT, with some clay, with trace rootlets and sand; whitish grey mottled orange. Firm; moist; low plasticity. 1.50m: Limonite layer.		1.50 - 2.10m, 2		
46.20	2.80			Clayey SILT, with trace rootlets and sand; brownish orange and some bands of whitish grey. Stiff to very stiff; moist; medium plasticity; Roots traced with brown sandy silt.		2.50 - 3.10m, 3		M
45.55	3.45			SILT, with minor clay, with trace sand; whitish grey and some brownish orange mottles. Stiff to very stiff; moist; low plasticity; Banded/bedded. 4.50m: Becomes very stiff to hard; locally cemented.		3.45 - 4.10m, 4		
43.70	5.30			END OF HOLE: 5.30m - Target Depth				

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=140 R=70; V=76 R=32; V=119 R=41; V=150 R=44

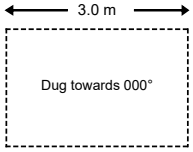
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater or pooling encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK118	TP31

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	20 Nov 2024	40.2 m	E 1747439.0, N 5949983.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.30 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture
39.80	0.40	TOPSOIL	TS	SILT, with some clay, with trace rootlets and sand; dark brown. Firm; dry to moist; low plasticity; [TOPSOIL].	DM
39.70	0.50	EAST COAST BAYS FORMATION		Clayey SILT, with some rootlets; brown. Firm; moist; low plasticity; [EAST COAST BAYS FORMATION].	
				Silty SAND, with some rootlets; brownish orange with rare light brown mottles. Medium dense; Bands of sandy silt.	
37.90	2.30			SILT; whitish grey mottled pink and orange. stiff to very stiff; moist; low plasticity. Interbedded with, Fine SAND, with some silt; grey and orange. Medium dense; moist to wet.	M
36.40	3.80			SILT; grey banded pink and mottled orange. Very stiff to hard; moist; low plasticity; Bands of orange silty sand and some limonite.	
36.10	4.10			Fine SAND, with some silt; greyish brown and brownish orange. Medium dense; wet.	W
35.70	4.50			SILT, with minor sand; grey and pink and orange. Very stiff; moist; Some bands of orange sand, fine, and limonite.	M
34.90	5.30			END OF HOLE: 5.30m - Target Depth	

Field Strength: Soil | Rock (VSXL, EL, VL, L, MD, F, SFRD, FRD, VSW, W, M, S, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results: V=191 R=60; UTP

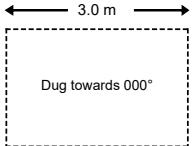
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK118	TP32

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	20 Nov 2024	41.5 m	E 1747577.0, N 5949965.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.70 m	Refusal	1 of 1	FINAL

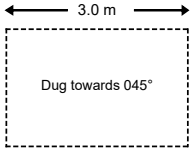
Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
41.30	0.20	TOPSOIL	TS	Clayey SILT, with some rootlets, with trace sand; dark grey. Firm; dry; low plasticity; [TOPSOIL].			Not Encountered	D		
40.70	0.80	EAST COAST BAYS FORMATION		Clayey SILT, with some rootlets; brown and grey and brownish orange. Stiff; dry; low plasticity to medium plasticity; Roots traced with sandy silt; brown [EAST COAST BAYS FORMATION].						V=119 R=50
39.00	2.50			SILT, with some sand, with trace rootlets and clay; whitish grey mottled orange. Stiff; dry to moist; low plasticity.				DM		V=89 R=37
38.80	2.70			Sandy SILT; grey mottled orange. Firm; wet; sand, fine to medium.				W		
38.00	3.50			SILT; grey mottled orange. Very stiff; moist; low plasticity; Some bands of sand; grey; fine to medium.				M		V=146 R=34
37.80	3.70			Silty fine to medium SAND; grey mottled orange. Medium dense; wet.				W		
37.60	3.90			SAND, with minor silt and gravel; bluish grey with some orange mottles. Medium dense to dense; wet; gravel, fine to medium, Siltstone.						UTP
36.80	4.70			Highly weathered; fine fabric, laminated; SILTSTONE; very weak.						
				END OF HOLE: 4.70m - Refusal						

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.
5. Recovered one intact piece that was 0.8m wide

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK118	TP33

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	20 Nov 2024	47.7 m	E 1747640.0, N 5949902.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.40 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture	Groundwater
47.35	0.35	TOPSOIL	Clayey SILT, with some rootlets; dark grey. Firm; moist; medium plasticity; [TOPSOIL].	M	Not Encountered
46.50	1.20	EAST COAST BAYS FORMATION	Clayey SILT, with minor rootlets and sand; brown and mottled brownish orange. Stiff to very stiff; dry to moist; [EAST COAST BAYS FORMATION].	DM	
46.10	1.60		Sandy SILT, with some clay; orange. Stiff; moist; medium plasticity.		
			SILT, with some sand; whitish grey mottled orange. Stiff; moist; Some bands of brown sandy silt and some bands of brown silty sand.		
44.50	3.20		3.00m: Band of grey sand with pinkish brown band within it.	M	
			SILT, with some sand; whitish grey banded red. Stiff; moist; low plasticity; Some limonite.		
43.20	4.50				
43.00	4.70		Completely weathered; bluish grey; SANDSTONE; extremely weak.		
42.70	5.00		Sandy SILT; light grey. Stiff; moist; medium plasticity; Thin bands of sand; fine to medium.		
42.40	5.30		Completely weathered; bluish grey; fine fabric, laminated; SILTSTONE; extremely weak.		
42.30	5.40		Completely weathered; grey mottled orange; SILTSTONE; very weak; Limonite band.		
			END OF HOLE: 5.40m - Target Depth		

Field Strength: Soil | Rock (VSXL, EL, VL, L, MED, F, STIFF, VSTIF, HARD, VW, W, MS, S, ES)

Samples + Lab Tests

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals

In-Situ Testing Data/Results (Depth (m)):
- V=107 R=49
- V=96 R=32
- V=119 R=35
- V=72 R=50

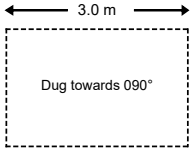
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:
- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:
- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:
1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK118	TP34

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	20 Nov 2024	44.0 m	E 1747710.0, N 5949950.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.50 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture
43.75	0.25	TOPSOIL	TS	SILT, with trace rootlets and sand; dark grey. Firm; dry; low plasticity; [TOPSOIL].	D
43.20	0.80	EAST COAST BAYS FORMATION		SILT, with some clay, with trace rootlets and sand; whitish grey mottled orange and brown. Very stiff; moist; medium plasticity; Roots traced with silty sand; brown, fine [EAST COAST BAYS FORMATION].	
42.20	1.80			SILT, with some sand, with minor clay, with trace rootlets; whitish grey mottled brownish orange. Stiff to very stiff; moist; low plasticity; sand, fine.	M
40.50	3.50			Sandy SILT; whitish grey. Stiff to very stiff; moist; low plasticity; Some mottled orange bands of sand with some silt; sand, brown, fine to medium.	
40.00	4.00			Sandy SILT; orange. Stiff; wet.	W
39.00	5.00			SILT, with some clay; whitish grey with some thinly laminated to laminated orange bands (1- 3mm). Stiff; moist to wet; Some bands of sandy silt; sand, fine.	M W
38.50	5.50			Silty SAND; grey with some orange bands and red patches; Some bands of extremely weak siltstone. 5.40m: Becomes reddish brown with locally cemented sandstone and limonite.	
				END OF HOLE: 5.50m - Target Depth	

Field Strength: Soil | Rock

Samples + Lab Tests

Groundwater: Not Encountered

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=159 R=40; V=113 R=34; V=111 R=44; V=73 R=43

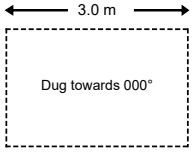
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK119	TP35

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	20 Nov 2024	71.7 m	E 1747885.0, N 5949893.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.20 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
71.60	0.10	PSO	TS	SILT, with some rootlets and clay, with trace sand; dark brownish grey. Firm; moist; medium plasticity; [TOPSOIL].
	0.5			Clayey SILT, with trace rootlets and sand; whitish grey mottled brownish orange. Stiff to very stiff; moist; medium plasticity; sand, fine; Roots traced by sand silt; greyish brown; [EAST COAST BAYS FORMATION].
	1.0			
	1.5			
69.70	2.00	EAST COAST BAYS FORMATION		SILT, with some clay and sand; whitish grey mottled orange and brownish red. Stiff; moist; low plasticity; sand, fine; Bands of limonite.
69.20	2.50			Sandy SILT; pink and whitish grey and orange and dark reddish brown. Stiff to very stiff; moist; non-plastic.
	3.0			
68.20	3.50			Fine to medium SAND, with some silt; brownish orange. Medium dense. Interbedded with, SILT; light grey. Firm to stiff, moist, thinly bedded.
	4.0			
67.10	4.60			
66.90	4.80			Completely weathered; bluish grey; SANDSTONE; extremely weak; Some bands of siltstone.
66.60	5.10			Completely weathered; brown and orange banded; SANDSTONE; extremely weak; Limonite layers.
66.50	5.20			Completely weathered; bluish grey; SANDSTONE; extremely weak; Some bands of siltstone.
	5.5			END OF HOLE: 5.20m - Target Depth
	6.0			

Field Strength (Soil | Rock): SOFT, FIRM, STIFF, VSTIF, HARD, VLOW, LOW, MED, HIGH, VHIGH, EHIGH

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: M

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals

In-Situ Testing Data/Results (Depth (m)): V=104 R=40; V=72 R=27; V=113 R=32

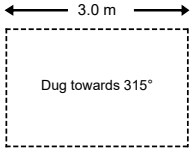
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 130 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.
5. Stiff to very stiff to excavate with bucket between 0.1m and 1.0m.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK119	TP36

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	25 Nov 2024	47.5 m	E 1747734.0, N 5949820.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.40 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture
47.20	0.30	TOP SOIL	TS	SILT, with some clay, with minor rootlets and sand; dark brown. Firm to stiff; moist; low plasticity; [TOPSOIL].				
	0.5	EAST COAST BAYS FORMATION	TS	Clayey SILT, with some rootlets and sand; brown mottled grey and brownish orange. Stiff; moist; medium plasticity; Bands of fine sand; orange. Roots traced with sandy silt; grey [EAST COAST BAYS FORMATION].		1.10 - 2.00m, 1	Not Encountered	M
45.30	2.20			SILT, with some rootlets and sand, with minor clay; whitish grey mottled brownish orange. Firm to stiff; moist; low plasticity; Some bands of sand; brownish grey.		2.20 - 3.30m, 2		
43.90	3.60							
43.70	3.80			Silty fine SAND; orange. Medium dense; wet.				
				Silty fine to medium SAND; brownish grey mottled orange. Medium dense; wet; Some bands of silt.		3.80 - 4.60m, 3		W
42.30	5.20							
42.10	5.40			Completely weathered, bluish grey SANDSTONE. Extremely weak. Interbedded with, Completely weathered, bluish grey SILTSTONE. Extremely weak. Laminated; wet.		5.20 - 5.40m, 4		
	6.0			END OF HOLE: 5.40m - Target Depth				

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m); Backfill / Install)

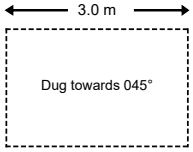
- V=90 R=52 (1.0 m)
- V=78 R=34 (2.0 m)
- V=99 R=31 (3.5 m)

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 88 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK117	TP37

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	25 Nov 2024	40.7 m	E 1747679.0, N 5949752.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture
40.40	0.30	TOP SOIL	SILT, with trace rootlets and clay and sand; dark brown. Firm to stiff; dry; non-plastic; [TOPSOIL].	D
	0.5	EAST COAST BAYS FORMATION	SILT, with trace rootlets and sand; whitish grey mottled brownish orange. Very stiff; moist; low plasticity; sand, fine; Roots traced by brown silt with trace sand; [EAST COAST BAYS FORMATION].	M
39.00	1.70		SILT; orange with whitish grey bands. Very stiff to hard; moist; Limonite bands.	
38.70	2.00		Fine to medium SAND, with some silt, with trace rootlets; grey mottled brownish orange with occasional black spots (3 - 5 mm wide). Medium dense; wet.	W
			3.80m - 4.00m: Orange layer.	
36.10	4.60		Completely weathered, bluish grey, SANDSTONE. Very weak. Interbedded with, Completely weathered, bluish grey, SILTSTONE. Very weak. Thinly bedded.	
35.80	4.90		Highly weathered; bluish grey; SANDSTONE; extremely weak.	
35.70	5.00		END OF HOLE: 5.00m - Target Depth	

Field Strength: Soil | Rock (VSXL, EH, VL, LAD, MD, FD, VDXFD, VSW, VW, W, MS, S, ES)

Samples + Lab Tests

Groundwater

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals

In-Situ Testing Data/Results: V=140, R=52 at 1.0 m

Depth (m)

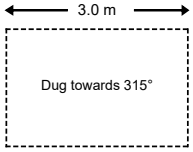
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- None
- Slow Seep
- Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 88 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. Groundwater and pooling encountered at 4.0m.
4. Collapse on East and South sides of pit wall from 3.5m to 4.0m.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK117	TP38

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	25 Nov 2024	53.2 m	E 1747786.0, N 5949738.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.70 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results	Backfill / Install
52.90	0.30	TOP SOIL	TS	SILT, with some rootlets and sand; dark brown. Firm to stiff; dry to moist; non-plastic; [TOPSOIL].							
51.20	2.00	EAST COAST BAYS FORMATION		Sandy SILT, with some rootlets; whitish grey mottled brownish orange. Firm to stiff; moist; low plasticity; Limonite bands; [EAST COAST BAYS FORMATION].		1.00 - 2.00m, 1		M		V=90 R=34 @ 1.0m; V=148 R=49 @ 2.0m	
50.40	2.80			SILT, with some clay and sand; orange with some bands/laminations of whitish grey. Firm to stiff; moist; low plasticity.							
49.80	3.40			Sandy SILT; whitish grey. Firm; moist; Bands of fine to medium SAND; grey with orange mottles. Medium dense; wet.				M W		V=82 R=49 @ 3.0m	
49.00	4.20			Completely weathered; bluish grey; SANDSTONE; extremely weak. 3.60m: Becomes banded reddish brown limonite.							
48.50	4.70			Highly weathered, bluish grey with reddish brown mottles, SANDSTONE; Extremely weak to very weak. Reddish brown mottles are wet. Interbedded with, Highly weathered, bluish grey with reddish brown mottles, SILTSTONE. Extremely weak. Thinly bedded.							
				END OF HOLE: 4.70m - Refusal							

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:

Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- None
- Slow Seep
- Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 88 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. Groundwater and water ponding encountered at 4.0m.
4. The pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK110	TP39

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	25 Nov 2024	35.0 m	E 1747688.0, N 5949589.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.60 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture
34.70	0.30	TOP SOIL	TS	Sandy SILT, with some rootlets; grey. Firm; dry; non-plastic; sand, fine; [TOPSOIL].			Not Encountered	D
34.10	0.90	EAST COAST BAYS FORMATION		SILT, with some rootlets and sand, with minor clay; brown and grey and brownish orange. Stiff; dry to moist; low plasticity; [EAST COAST BAYS FORMATION].		0.30 - 0.90m, 1		
				SILT, with minor clay, with trace rootlets and sand; whitish grey mottled orange. Stiff to very stiff; dry to moist.		1.00 - 2.00m, 2		DM
				2.00m: Becomes some sand with pockets of fine to medium (up to 300 mm thick) grey sand.				
31.50	3.50			Silty fine to medium SAND; grey mottled orange. Medium dense to dense; moist to wet.		3.50 - 4.10m, 3		M W
30.90	4.10			4.00m: Trace large gravel to cobbles of grey sandstone and limonite.				
				Completely weathered, bluish grey, SILTSTONE. Extremely weak. Interbedded with, Completely weathered, bluish grey, SANDSTONE. Extremely weak, wet.		4.10 - 5.60m, 4		W
29.40	5.60			END OF HOLE: 5.60m - Target Depth				

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=134 R=70 at 1.0m; V=104 R=43 at 2.0m; V=133 R=50 at 3.0m; UTP at 4.0m

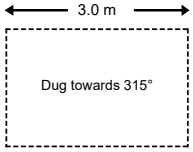
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- None
- Slow Seep
- Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 88 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No Groundwater or pooling encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK110	TP40

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	22 Nov 2024	26.0 m	E 1747674.0, N 5949432.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
25.80	0.20	TOPSOIL	TS	SILT, with some rootlets and clay; dark brown. Firm; moist; medium plasticity; [TOPSOIL].
25.20	0.80	EAST COAST BAYS FORMATION		CLAY; orange brown. Stiff to very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].
				CLAY, with some silt; greyish brown. Stiff; moist; medium plasticity.
23.50	2.50			SILT; light brown laminated orange. Firm to stiff; moist; medium plasticity.
22.00	4.00			Highly weathered, bluish grey MUDSTONE; extremely weak, interbedded with; SILT; grey mottled brown.
21.50	4.50			Highly weathered; grey; MUDSTONE; very weak. Interbedded with, Highly weathered; grey; SANDSTONE; very weak; Some lenses of hard SILT with some sand; grey.
21.00	5.00			END OF HOLE: 5.00m - Target Depth

Field Strength: Soil | Rock (VSTL, SFT, FIRM, STIF, VSTIF, HARD, EXTW, VSW, W, MS, S, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=107 R=34; V=61 R=31; V=107 R=46; V=98 R=61; UTP

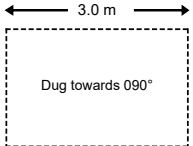
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 88 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK121	TP41

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	18 Nov 2024	52.0 m	E 1747272.0, N 5949455.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.40 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Samples + Lab Tests	Soil Moisture
51.70	0.30	TOP SOIL	SILT, with some clay, with trace rootlets and sand; dark grey. Firm; moist; medium plasticity; sand, fine; [TOPSOIL].		
	0.5	EAST COAST BAYS FORMATION	SILT, with some sand, with minor clay; brownish orange mottled light grey. Stiff to very stiff; moist; low plasticity; sand, fine to medium; [EAST COAST BAYS FORMATION]. 0.30m - 1.20m: Sandy SILT, with some rootlets; grey; sand, fine; Cracks along roots line easily.	1.00 - 2.00m, 1	M
48.80	3.20		Completely weathered; banded light grey and red; SILTSTONE; extremely weak.		
48.50	3.50		Sandy SILT; grey mottled orange. Firm; saturated; low plasticity.	3.20 - 4.60m, 2	S
47.90	4.10		Completely weathered, light grey mottled orange, SILTSTONE. Very weak. Interbedded with, Silty fine to medium SAND, with trace clay; brown, grey and black. Medium dense, wet to saturated.		WS
46.80	5.20		SILT, with some clay, with trace sand; bluish grey. Stiff; moist; medium plasticity.		M
46.60	5.40		END OF HOLE: 5.40m - Target Depth		

Field Strength: Soil | Rock (VSXL, EL, VL, L, MD, F, VSTIFF, STIFF, VSW, W, M, S, ES)

Groundwater

Scala Penetrometer (blows / 50mm): 5, 10, 15

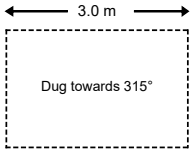
In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=110 R=49; V=90 R=34; V=52 R=23; V=79 R=27

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater: None; Slow Seep; Rapid Inflow; Standing Water Level; Inflow; Outflow

Backfill: Bentonite; Grout/concrete; Spoil/arisings; Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. Groundwater and seepage encountered at 3.5 m.
4. Collapse on all sides of pit from 3.5m to 5.4m.
5. Feels stiff to evacuate.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK121	TP42

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	18 Nov 2024	34.6 m	E 1747199.0, N 5949560.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.30 m	Target Depth	1 of 1	FINAL

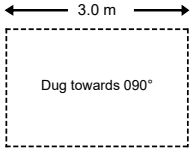
Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
34.40	0.20	TO PS OIL	TS SILT, with some clay, with minor rootlets and sand; dark grey. Firm; moist; medium plasticity; [TOPSOIL].						
34.20	0.40	LL UV IU	Clayey SILT, with some rootlets, with minor sand; greyish brown. Firm to stiff; moist; sand, fine to coarse; [COLLUVIUM].						
		EAST COAST BAYS FORMATION	Sandy SILT; whitish grey mottled brownish orange. Stiff to very stiff; moist; non-plastic; sand, fine to medium; [EAST COAST BAYS FORMATION].			Not Encountered	M		V=156 R=52 V=89 R=31
31.80	2.80								
31.70	2.90		Silty SAND; brownish orange. Medium dense; moist.						V=67 R=31
31.30	3.30		SILT, with some clay, with trace rootlets and sand; whitish grey mottled brownish orange. Firm to stiff; moist; medium plasticity; sand, fine to medium.						
			Sandy SILT, with minor clay; brownish orange mottled light grey. Stiff; moist; medium plasticity.						
30.70	3.90		SILT, with minor clay, with trace rootlets and sand; light grey. Stiff; moist; medium plasticity; Orange stain around roots.						V=95 R=27
29.90	4.70								
29.60	5.00		Fine to medium SAND, with trace silt; grey. Medium dense; moist to wet.				M W		
29.30	5.30		SILT, with some clay; bluish grey. Stiff to very stiff; moist; medium plasticity.				M		
			END OF HOLE: 5.30m - Target Depth						

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK121	TP43

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	18 Nov 2024	37.0 m	E 1747327.0, N 5949518.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
36.70	0.30	TOP SOIL	SILT, with some rootlets, with trace clay and sand; dark grey. Firm; dry to moist; non-plastic; sand, fine; [TOPSOIL].	DM		
	0.5	EAST COAST BAYS FORMATION	SILT, with trace rootlets and clay and sand; brownish grey mottled brownish orange. Stiff; moist; non-plastic; Orange staining of roots and lined with grey sand [EAST COAST BAYS FORMATION].	M		V=95 R=31
	1.0					
	1.5					
	2.0					V=79 R=27
34.50	2.50					
34.10	2.90		Completely weathered, light grey, SILTSTONE. Extremely weak. Interbedded with, Fine to medium SAND, with some silt; grey. Medium dense, moist to wet.			
	3.0		SILT, with minor sand, with trace rootlets; whitish grey mottled brownish orange. Firm to stiff; medium plasticity; Trace plant matter.	M W		V=67 R=31
	3.5					
33.10	3.90					
32.70	4.30		Sandy SILT; brownish orange. Firm; moist to wet; non-plastic; sand, fine.			V=75 R=34
32.40	4.60		Silty fine to medium SAND; light grey. Medium dense; moist to wet.			
32.00	5.00		Highly weathered; bluish grey; fine fabric, laminated; SILTSTONE; extremely weak.			
	5.5		END OF HOLE: 5.00m - Target Depth			
	6.0					

Field Strength: Soil | Rock — VSYL, SFT, FIRM, STIFF, VSTIF, HARD, VW, W, M, S, ID, ES

Samples + Lab Tests

Groundwater

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals

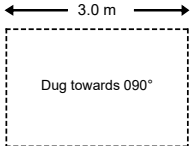
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- None
- Slow Seep
- Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. Groundwater and localised seepage encountered at 3.9m with no pooling of water.
4. Collapse on southern wall of the pit between 1.0m to 2.5m.
5. Desiccation and roots extend down to 2.5m minimum.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK110	TP44

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	18 Nov 2024	29.5 m	E 1747496.0, N 5949504.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.20 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
29.30	0.20	TOPSOIL	TS	SILT, with minor rootlets and sand; dark grey. Firm; dry; non-plastic; sand, fine; [TOPSOIL].
	0.5	EAST COAST BAYS FORMATION		SILT, with some clay, with trace rootlets and sand; brown. Firm to stiff; dry; medium plasticity; sand, fine to medium; [EAST COAST BAYS FORMATION].
28.60	0.90			SILT, with some rootlets and sand, with minor clay; whitish grey banded red and mottled brownish orange. Stiff to very stiff; moist; medium plasticity; sand, fine to medium.
	1.0			1.85m - 2.00m: Bands of brown fine sand.
	1.5			2.20m - 2.25m: Bands of brown fine sand.
	2.0			2.30m - 2.45m: Bands of brown fine sand.
	2.5			2.80m - 3.00m: Bands of brown fine sand.
	3.0			
26.10	3.40			Fine SAND, with trace silt; brown. Medium dense; moist.
	3.5			3.60m - 3.65m: Bands of highly weathered; grey and pink and brownish orange and black; siltstone; very weak to extremely weak. Some limonite/manganese.
	4.0			3.85m - 3.90m: Grey and pink and brownish orange and black limonite/manganese.
	4.5			4.10m - 4.20m: Grey and pink and brownish orange and black limonite/manganese.
	5.0			4.45m - 4.50m: Grey and pink and brownish orange and black limonite/manganese.
24.30	5.20			4.70m - 4.75m: Grey and pink and brownish orange and black limonite/manganese.
	5.5			4.90m - 5.00m: Grey and pink and brownish orange and black limonite/manganese.
	6.0			END OF HOLE: 5.20m - Target Depth

Field Strength (Soil | Rock): VSXL, EHD, VHD, HD, MD, SD, VSD, VW, W, M, S, ES

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: D; M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)):
- V=137 R=64
- V=81 R=43
- UTP
- UTP

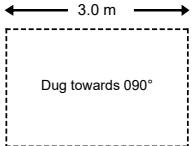
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:
- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:
- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:
1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	AB	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK122	TP45

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	21 Nov 2024	35.6 m	E 1747445.0, N 5949658.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.70 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
35.40	0.20	TOPSOIL	TS	SILT; dark brown. Firm; moist; medium plasticity; [TOPSOIL].
34.60	1.00	EAST COAST BAYS FORMATION		SILT; orange mottled grey. Stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].
				SILT, with some sand; orange brown mottled grey. Stiff; moist; medium plasticity.
33.40	2.20			SILT, with trace sand; light brown. Firm; moist; medium plasticity.
29.90	5.70			END OF HOLE: 5.70m - Target Depth

Field Strength: Soil | Rock (VSXL, EL, VL, L, MD, ST, VST, HSTIFD, VSW, W, M, S, IS, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)):
- 1.00 m: V=76 R=46
- 2.20 m: V=67 R=21
- 3.00 m: V=46 R=21
- 4.00 m: V=46 R=31

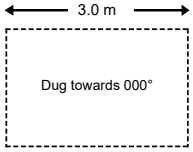
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:
- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:
- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:
1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK122	TP46

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	22 Nov 2024	54.7 m	E 1747343.0, N 5949728.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
54.40	0.30	TOP SOIL	TS	CLAY; dark brown. Firm; moist; medium plasticity; [TOPSOIL].
	0.5	EAST COAST BAYS FORMATION		CLAY, with some gravel; brown and mottled reddish brown. Stiff; moist; medium plasticity; gravel, coarse; [EAST COAST BAYS FORMATION].
50.90	3.80			
50.70	4.00			SILT; orange. Stiff to very stiff; wet; medium plasticity; Laminated.
				SILT, with some sand; brown. Stiff to very stiff; moist; medium plasticity.
49.90	4.80			
49.70	5.00			Sandy SILT; grey. Very stiff; moist; low plasticity; Locally cemented..
				END OF HOLE: 5.00m - Target Depth

Field Strength (Soil | Rock): VSXL, EH, VL, LAD, MD, SD, VSXSD, VSW, W, M, S, ES

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: M; W; M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=76 R=31; V=61 R=18; V=67 R=21; V=104 R=61

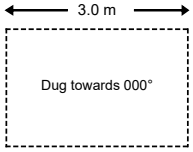
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK122	TP47

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	22 Nov 2024	36.5 m	E 1747270.0, N 5949659.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
36.20	0.30	TOP SOIL	Topsoil; Dark brown. Firm; moist; [TOPSOIL].
		COLLUVIUM	SILT, with some clay; brown and mottled reddish brown. Firm to stiff; moist; medium plasticity; [COLLUVIUM].
			3.00m: Becomes reddish brown.
33.00	3.50		
		EAST COAST BAYS FORMATION	SILT, with some clay; grey. Stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].
32.30	4.20		
			SILT; grey. Very stiff to hard; dry; low plasticity.
31.50	5.00		
			END OF HOLE: 5.00m - Target Depth

Field Strength (Soil | Rock): VSTL, ST, FM, STD, LOOSE, MD, VDW, W, M, S, ES

Samples + Lab Tests: 1.00 - 2.00m, 1; 4.00 - 5.00m, 2

Groundwater: Not Encountered

Soil Moisture: M; D

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results: V=82 R=37; V=46 R=18; V=89 R=31; V=67 R=27; UTP

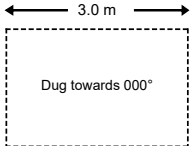
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK122	TP48

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	22 Nov 2024	44.8 m	E 1747214.0, N 5949708.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
44.60	0.20	TOPSOIL	TS	SILT, with some rootlets and clay; dark brown; dry; low plasticity; [TOPSOIL].						
	0.5	COLLUVIUM		CLAY, with some silt; greyish orange and orange stains. Stiff; moist; [COLLUVIUM].						
43.60	1.20			1.00m - 1.80m: SILT; orange. Firm; non-plastic.				D		V=46 R=34
43.00	1.80			SILT; orange. Firm; moist; medium plasticity.						
	2.0			SILT; grey mottled orange. Stiff; moist; medium plasticity.						V=72 R=34
	3.0									V=55 R=27
41.00	3.80							M		
	4.0			SILT, with some sand; brown mottled orange. Firm; moist; medium plasticity.						V=46 R=31
40.00	4.80									
39.80	5.00			SAND & GRAVEL; brown. Very dense; wet.				W		
	5.0			END OF HOLE: 5.00m - Target Depth						
	5.5									
	6.0									

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results: Scala Intervals; Depth (m); Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:

Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- None
- Slow Seep
- Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. Groundwater encountered at 5.0m.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK122	TP49

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	22 Nov 2024	70.3 m	E 1747267.0, N 5949784.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Field Strength (Soil | Rock)	Samples + Lab Tests	Groundwater	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
70.10	0.20	TOPSOIL	TS	CLAY, with some rootlets; dark brown. Firm; moist; medium plasticity; [TOPSOIL].						
	0.5			SILT; light orange brown. Stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].						
69.30	1.00									
	1.5	EAST COAST BAYS FORMATION		SILT, with some clay; greyish orange. Stiff; moist; medium plasticity; Sub-horizontal bedding.		1.00 - 2.00m, 1	Not Encountered	M		V=76 R=15
	2.0									V=82 R=21
	2.5			2.50m: Becomes grey with bedding dipping gently downslope to the South-West.						
67.30	3.00			SILT, with some sand; grey. Stiff; moist; Locally cemented to extremely weak siltstone.						V=82 R=31
	3.5									
	4.0									V=82 R=52
	4.5					4.00 - 5.00m, 2				
65.30	5.00			END OF HOLE: 5.00m - Target Depth						
	5.5									
	6.0									

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals / In-Situ Testing Data/Results — Depth (m): 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0

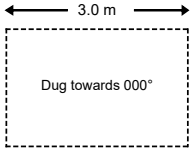
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater was encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK122	TP50

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	21 Nov 2024	42.1 m	E 1747440.0, N 5949783.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.30 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
41.90	0.20	TOPSOIL	TS	SILT, with some rootlets and clay; dark brown to black; moist; medium plasticity; [TOPSOIL].
		EAST COAST BAYS FORMATION		CLAY, with some silt; grey mottled orange. Stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].
39.30	2.80			
39.10	3.00			SILT, with some sand; orange. Stiff; moist.
				SILT, with some clay; orange to brown. Stiff; moist.
37.80	4.30			
36.80	5.30			SAND; grey. Very dense, moist. Interbedded with, Completely weathered, grey, SILTSTONE; extremely weak.
				END OF HOLE: 5.30m - Target Depth

Field Strength: Soil | Rock — VSOL, SOFT, FIRM, STIFF, VSTIF, HARD, VW, W, M, S, ES

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=80 R=76 at 1.0 m; V=92 R=31 at 2.0 m; V=61 R=15 at 3.0 m; V=31 R=15 at 4.0 m

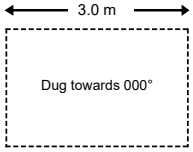
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater was encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK118	TP51

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	21 Nov 2024	34.0 m	E 1747437.0, N 5949896.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)	Soil Moisture	In-Situ Testing Data/Results
33.70	0.30	TOPSOIL	TS	CLAY; dark brown. Stiff; moist; medium plasticity; [TOPSOIL].	M	
33.60	0.40	PEAT	TS	CLAY; black. Soft; wet; Organic [PEAT].	W	
		EAST COAST BAYS FORMATION		SILT, with some clay; greyish brown. Stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].	M	V=76 R=31 @ 1.0m; V=61 R=21 @ 2.0m
31.20	2.80			SILT, with some sand; light grey. Stiff; moist; low plasticity.		V=52 R=27 @ 3.0m
30.00	4.00			Highly weathered, grey laminated orange, SILTSTONE; extremely weak. Interbedded with, SILT, with some sand. Very stiff to hard.		V=73 R=40 @ 4.0m
29.00	5.00			END OF HOLE: 5.00m - Target Depth		UTP @ 5.0m

Field Strength: Soil | Rock (VSYL, SFT, FIRM, STIF, VSTIF, HARD, VW, W, M, S, ES)

Samples + Lab Tests

Groundwater

Scala Penetrometer (blows / 50mm): 5, 10, 15

Scala Intervals

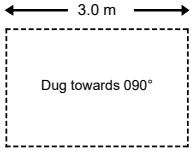
Depth (m)

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater: None; Slow Seep; Rapid Inflow; Standing Water Level; Inflow; Outflow

Backfill: Bentonite; Grout/concrete; Spoil/arisings; Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. Groundwater encountered at 4.3m.
4. Pit remained stable for the duration of the excavation.
5. No structure, bedding or shear plane apparent.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK123	TP52

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	21 Nov 2024	53.9 m	E 1747362.0, N 5949832.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
53.65	0.25	TOPSOIL	TS	SILT; dark brown to black. Stiff; dry; [TOPSOIL].
52.70	1.20	EAST COAST BAYS FORMATION		SILT, with some clay; brown mottled orange. Stiff to very stiff; moist; [EAST COAST BAYS FORMATION].
51.90	2.00			CLAY, with some silt; light brown. Stiff; moist.
50.50	3.40			SILT, with some sand; greyish brown. Stiff; moist; medium plasticity.
50.40	3.50			SAND; greyish orange. Very dense; moist; uniformly graded.
49.90	4.00			SAND, with some silt; grey. Very dense; moist; uniformly graded.
48.90	5.00			Highly weathered, grey laminated orange SANDSTONE; extremely weak.
	5.00			END OF HOLE: 5.00m - Target Depth

Field Strength: Soil | Rock (VSXL, EL, VL, L, MD, F, ST, VSTF, HSTF, VW, W, M, S, ID, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: D; M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals; Depth (m)): V=101 R=43; V=89 R=43; V=73 R=46; V=73 R=55

Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:

Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK123	TP53

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	21 Nov 2024	71.8 m	E 1747175.0, N 5949891.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	4.40 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" for explanation of material legend and abbreviations)
71.60	0.20	TOPSOIL	TS	Topsoil; dark brown; moist; [TOPSOIL].
71.30	0.50	EAST COAST BAYS FORMATION		SILT, with some clay; grey mottled orange. Soft; [EAST COAST BAYS FORMATION].
				SILT; orange brown. Stiff; moist; medium plasticity.
70.00	1.80			SILT, with some clay; orange brown to brown. Firm; moist; medium plasticity.
67.80	4.00			SILT, with some sand; grey. Very stiff to hard. Locally cemented to siltstone. Interbedded with, Highly weathered, bluish grey SANDSTONE; extremely weak.
67.40	4.40			END OF HOLE: 4.40m - Refusal

Field Strength: Soil | Rock (VSYL, SFT, FMD, STIFD, VSTIFD, VHW, W, M, S, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Soil Moisture: M

Scala Penetrometer (blows / 50mm): 5, 10, 15

In-Situ Testing Data/Results (Scala Intervals, Depth (m)):
- V=31 R=15
- V=85 R=46
- V=45 R=21
- V=46 R=15

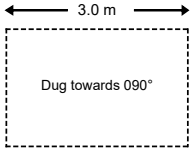
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:
- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:
- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:
- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:
1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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TEST PIT LOG

Project:	Location:	Pit Position:	No.:
Russell Road, Silverdale	Russell Road & Upper Orewa Road	Refer to Riley Dwg 240065-SK124	TP54

Project No.:	Date Excavated:	Ground Level (m):	Co-ordinates :
240065	21 Nov 2024	71.8 m	E 1747149.0, N 5950022.0

Client:	Pit Depth:	Reason Terminated:	Sheet:	Status:
Vineway Ltd	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Geological Description	Soil Moisture	Scala Penetrometer (blows / 50mm)	In-Situ Testing Data/Results
71.50	0.30	TOP SOIL	CLAY, with some rootlets; dark brown. Firm; moist; [TOPSOIL].	M		
71.30	0.50		SILT; light brown. Firm; moist; [COLLUVIUM].			
			SILT, with some sand; orange mottled brown. Firm; wet.	W		V=45 R=15
70.60	1.20		SILT, with some sand; greyish brown. Firm; moist; low plasticity.			V=45 R=15
68.80	3.00	COLLUVIUM	Medium to coarse GRAVEL, with some silt and sand; brownish orange. Dense to very dense; moist; sand, medium to coarse.	M		V=45 R=15
68.60	3.20		SILT, with some sand; grey. Firm; moist.			
66.90	4.90		SAND, with some gravel; grey. Very dense; [EAST COAST BAYS FORMATION].			
66.80	5.00	EAST COAST BAYS FORMATION	END OF HOLE: 5.00m - Target Depth			

Field Strength: Soil | Rock (VSYL, SFT, FIRM, STIFF, VSTIF, HARD, VW, W, M, D, VD, ES)

Samples + Lab Tests

Groundwater: Not Encountered

Scala Intervals

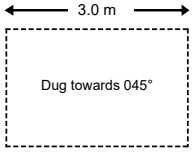
Backfill / Install

SKETCHES / PHOTOS

LOCATION PLAN

NOT TO SCALE

Stability:



Explanations:

- Scala Penetrometer Tests Raw data in blows per 100mm
- Vane Shear Strength (kPa) V=Peak, R=Residual, UTP=Unable to penetrate
- Moisture: M = moist; W = wet; S = saturated

Groundwater:

- [x] None
- [ ] Slow Seep
- [ ] Rapid Inflow
- Standing Water Level
- Inflow / Outflow

Backfill:

- Bentonite
- Grout/concrete
- Spoil/arisings
- Filter sand

Remarks:

1. 132 Upper Orewa Road.
2. Test pit was backfilled upon completion.
3. No groundwater was encountered.
4. Pit remained stable for the duration of the excavation.

All dimensions in metres NOT TO SCALE	Contractor:	Machine Type:	Shear Vane ID:	Logged By:	Checked By:
	Platform Civil	13.5t Excavator	GEO1706	CWC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA101
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK112	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 48.8m	E1748350.0, N5949597.0	3.20 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
48.60	0.20	TOPSOIL	TS	Organic SILT, with some sand, with minor clay; dark brown. Very stiff; dry to moist; non-plastic to low plasticity; [TOPSOIL].	DM						
48.5	0.5	EAST COAST BAYS FORMATION		Clayey SILT, with trace rootlets and sand; light brownish orange streaked brown. Very stiff; moist; medium plasticity to high plasticity; [EAST COAST BAYS FORMATION].					V=129 R=49	0.5	
48.0	1.0			0.40m: Grades to brownish orange streaked dark grey.					V=122 R=50	1.0	
				0.80m: Grades to light grey streaked brownish orange.							
47.5	1.5			1.20m: Grades to minor sand. High plasticity.					V=158 R=70	1.5	
				1.50m: Grades to trace sand.	M						
47.0	2.0								V=127 R=50	2.0	
46.5	2.40										
46.40	2.50			SILT, with some clay and sand, with trace organic flecks; light brownish orange streaked light grey, black and brownish orange. Very stiff to hard; moist; medium plasticity.					V=201 R=20	2.5	
46.30	2.60										
46.20	2.70			Silty gravelly fine to medium SAND, with trace clay; light brownish grey mixed brownish red. Hard; moist; low plasticity to non-plastic; sand rounded to subrounded; tightly packed.							
46.10	2.90										
46.0	3.00			Clayey SILT, with trace sand; dark grey. Hard; moist; medium plasticity to high plasticity.					UTP	3.0	
45.90	3.20										
45.80				Silty gravelly fine to medium SAND, with trace clay; light brownish grey mixed brownish red. Hard; moist; low plasticity to non-plastic; sand rounded to subrounded; tightly packed.					20, 20, 20 20		
45.60				Clayey SILT, with trace sand; dark grey streaked brownish red. Hard; moist; medium plasticity to high plasticity.							
45.5	3.5			SILT, with some clay, with trace sand; dark grey. Hard; moist; medium plasticity.						3.5	
45.0	4.0			END OF HOLE: 3.20m (Refusal)						4.0	
44.5	4.5									4.5	
44.0	5.0									5.0	
43.5	5.5									5.5	
43.0	6.0									6.0	
42.5	6.5									6.5	
42.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks

1. Hand Auger at 55 Russell Road.
2. Groundwater not encountered during drilling.
3. Refusal @ 3.2 mBGL, auger spinning.
4. Scala raw data from 3.2mBGL recorded 21, 40, 40, 38 blows per 50mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
		Hand Auger	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA102
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK112	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 43m	E1748349.7, N5949661.7	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005). Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
42.80	0.20	TOPSOIL	TS	SILT; with minor fine sand; dark brown. Very stiff; moist; non-plastic; [TOPSOIL].							
		EAST COAST BAYS FORMATION		SILT, with some clay; light brown, mottled orange. Very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].					V=221 R=104	0.5	
42.0	1.0			0.90m: Grades to reddish brown.					V=221 R=57	1.0	
41.5	1.5			1.30m: Grades to grey and pink streaks.					V=148 R=34	1.5	
				1.60m: Grades to grey.							
41.0	2.0			1.90m: Grades to brown with grey, black, orange and pink streaks. Some fine sand, trace clay.					V=156 R=34	2.0	
				2.00m: Grades to minor fine sand, absence of clay; non plastic.							
40.5	2.5			2.40m: Grades to trace clay; low plasticity.	M				V=185 R=49	2.5	
				2.60m: Grades to grey mottled orange.							
40.10	2.90										
40.0	3.0			Silty fine SAND, with trace gravel; reddish brown mottled orange, with grey streaks. Medium dense; moist; non-plastic.					V=218 R=50	3.0	
39.5	3.5			3.40m: Grades to trace clay; low plasticity.					V=198 R=45	3.5	
39.20	3.80										
39.00	4.00			Clayey SILT; brown, Hard; moist; medium plasticity.					V=168 R=40	4.0	
39.0	4.0			Silty CLAY; grey mottled orange. Hard; moist; high plasticity.							
38.5	4.5								V=235+	4.5	
				4.80m: Grades to dark grey.							
38.00	5.00										
38.0	5.0			END OF HOLE: 5.00m (Target Depth)					V=235+	5.0	
37.5	5.5									5.5	
37.0	6.0									6.0	
36.5	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. Groundwater not encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1575	MAH	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA103
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK112	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 27.4m	E1748255.5, N5949683.9	1.80 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
27.20	0.20	TOPSOIL	TS	SILT, with trace sand; dark brown. Very stiff; moist; low plasticity; [TOPSOIL].							
27.0	0.5	EAST COAST BAYS FORMATION		Clayey SILT; brownish orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].			△ 50 ● 150		V=171 R=57	0.5	
26.60	0.80			Silty CLAY; with trace fine sand; light grey mottled orange. Very stiff; moist; medium plasticity.	M						
26.5	1.0			1.00m: Becomes hard.			● 200		V=235+	1.0	
26.20	1.20			Sandy SILT, with trace gravel; reddish brown. Hard; moist; non-plastic; gravel, fine to medium.							
26.0	1.5			1.50m: Grades to brownish grey.					UTP	1.5	
25.60	1.80								UTP		
25.5	2.0			END OF HOLE: 1.80m (Refusal)						2.0	
25.0	2.5									2.5	
24.5	3.0									3.0	
24.0	3.5									3.5	
23.5	4.0									4.0	
23.0	4.5									4.5	
22.5	5.0									5.0	
22.0	5.5									5.5	
21.5	6.0									6.0	
21.0	6.5									6.5	
20.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. Groundwater was not encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1575	SY	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA104

Date Augered:	Client:	Hole Location:
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 31.6m	E1748375.0, N5949404.0	2.00 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
31.5	0.0	TOPSOIL	TS	SILT, with some clay, with trace rootlets; dark grey. Very stiff; moist; low plasticity; [TOPSOIL].							
31.40	0.20										
		EAST COAST BAYS FORMATION		Clayey SILT; brownish grey. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].					V=159 R=70	0.5	
31.0	0.5										
30.70	0.90			Silty CLAY; with trace fine sand; brownish grey mottled reddish brown. Very stiff; moist; medium plasticity. 1.00m: Becomes hard.	M				V=214+	1.0	
30.5	1.0										
30.10	1.50			Sandy SILT; brownish orange. Very stiff; moist; non-plastic. 1.80m: Grades to light grey mottled brown.					V=214+	1.5	
30.0	1.5										
29.60	2.00								UTP	2.0	
29.5	2.0			END OF HOLE: 2.00m (Refusal)					2, 2, 2 5, 4, 5 4, 13, 10 4, 4, 4 10, 12, 15		
29.0	2.5									2.5	
28.5	3.0									3.0	
28.0	3.5									3.5	
27.5	4.0									4.0	
27.0	4.5									4.5	
26.5	5.0									5.0	
26.0	5.5									5.5	
25.5	6.0									6.0	
25.0	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. Groundwater was not encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1706	SY	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA105
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 31.6m	E1748301.3, N5949411.2	3.30 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
31.5	0.00	TOPSOIL	TS	SILT, with trace sand; dark brown. Very stiff; moist; non-plastic; sand, fine; [TOPSOIL].		
31.40	0.20	EAST COAST BAYS FORMATION		SILT; with some clay; brown. Very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].		
31.0	0.5			0.60m: Grades to brown with grey and orange streaks.	M	
30.80	0.80			0.70m: Becomes clayey.		
30.5	1.0			Silty CLAY; grey mottled orange. Very stiff; moist; high plasticity.		
				0.90m: Grades to minor fine sand; reddish brown mottled grey; heavily mottled orange.		
30.0	1.5			1.20m: Becomes wet; minor mottling.		
				1.30m: Grades to some fine sand.		
				1.40m: Grades to minor fine sand; grey mottled orange.		
				1.50m: Becomes stiff.		
29.5	2.0			1.60m: Grades to light grey.	W	
				1.90m: Becomes heavily mottled.		
				2.10m: Grades to trace fine sand; mottled orange.		
29.10	2.50			2.40m: Becomes heavily mottled.		
29.0	2.5			Silty fine SAND; with trace gravel; brownish orange with grey specks. Very stiff; moist; non-plastic; gravel; find to medium.		
28.60	3.00			2.60m: Grades to trace clay; absence of grey streaks; brown mottled orange.		
28.5	3.0			2.80m: Becomes saturated.	S	
28.30	3.30			Clayey SILT; grey mottled orange. Very stiff; wet; non-plastic.		
				3.20m: Grades to trace clay; dark grey with black inclusions; heavily orange staining; low plasticity.		
				END OF HOLE: 3.30m (Refusal)		

Soil Shear Strength (kPa): △ Residual ● Peak — 50 100 150 200

Scala Penetrometer (blows/50mm): 5 10 15

In Situ Testing Data/Results (Depth (m)): V=117 R=50 @ 0.5; V=128 R=34 @ 1.0; V=84 R=27 @ 1.5; V=94 R=20 @ 2.0; V=139 R=23 @ 2.5; V=151 R=17 @ 3.0

Scala Penetrometer Tests: 4, 3, 6 / 6, 10, 6 / 6, 8, 9 / 9, 7, 9 / 20

Backfill / Install

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture: M = moist; W = wet; S = saturated

Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise

Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 55 Russell Road.
2. Groundwater was not encountered at the time of drilling.
3. Scala raw data from 3.90mBGL is 30 blows.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1575	MAH	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA106
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 16.8m	E1748359.1, N5949307.5	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
16.60	0.20	TOPSOIL	TS	SILT, with trace sand; dark brown. Very stiff; moist; non-plastic; sand, fine; [TOPSOIL].		
16.30	0.50	COLLUVIUM		Silty CLAY; brown with dark brown streaks; Very stiff; moist; high plasticity; [COLLUVIUM].		
15.40	1.40	EAST COAST BAYS FORMATION		Silty CLAY; brownish grey mottled orange; Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. 0.80m: Grades to some silt; grey.	M	
				SILT; with trace gravel; grey with mottled orange. Very stiff; moist; non-plastic; gravel; fine to medium. 1.50m: Grades to no gravel. 2.00m: Becomes hard. 2.30m: Grades to trace clay; low plasticity. 2.40m: Becomes wet. 2.80m: Grades to minor fine sand; grey mottled orange. 3.00m - 3.20m: Heavily mottled. 3.20m: Becomes clayey; trace fine sand; high plasticity. 4.20m: Grades to dark brown.	W	
12.20	4.60			CLAY; with some silt; bluish grey. Hard; wet; high plasticity.		
11.80	5.00			END OF HOLE: 5.00m (Target Depth)		

Soil Shear Strength (kPa): △ Residual ● Peak; 50 100 150 200

Scala Penetrometer (blows/50mm): 5 10 15; 5, 3, 5 / 3, 5, 10 / 9, 9, 12 / 20

In Situ Testing Data/Results (Depth (m)):
- 0.5: V=134 R=45
- 1.0: V=111 R=49
- 1.5: V=185 R=47
- 2.0: V=235+
- 2.5: V=235+
- 3.0: V=178 R=50
- 3.5: V=141 R=34
- 4.0: V=158 R=47
- 4.5: V=235+
- 5.0: V=235+

Backfill / Install

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture: M = moist; W = wet; S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. Groundwater was not encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1575	MAH	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA107
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 12.5m	E1748295.5, N5949309.3	2.10 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
12.40	0.10	TS		SILT, with trace sand; dark brown mottled orange. Firm; moist; non-plastic; sand, fine; [TOPSOIL].	M	
12.10	0.40	EAST COAST BAYS FORMATION		Sandy SILT; grey with dark grey and orange streaks. Firm; moist; non-plastic; [EAST COAST BAYS FORMATION].		
12.00	0.50			0.20m: Becomes wet.		
12.0	0.5			0.25m: Becomes saturated.		
11.60	0.90			Silty CLAY; bluish grey mottled orange. Firm; saturated; high plasticity.		
11.5	1.0			Sandy SILT, with trace clay; bluish grey mottled orange. Stiff; saturated; low plasticity; sand, fine to medium.		
11.40	1.10			Silty SAND; greyish brown with orange staining, Loose; saturated; non-plastic.	S	
11.0	1.5			1.00m: Becomes hard.		
				SILT; with minor clay; dark grey. Hard; saturated; low plasticity.		
10.5	2.0			1.40m: Grades to some fine sand; trace clay.		
10.40	2.10			2.00m: Grades to minor fine sand; minor clay.		
				END OF HOLE: 2.10m (Refusal)		

Soil Shear Strength (kPa): △ Residual ● Peak — 50 100 150 200

Scala Penetrometer (blows/50mm): 5 10 15

In Situ Testing Data/Results (Depth (m)): V=45 R=13 @ 0.5; V=86 R=13 @ 1.0; V=235+ @ 1.5; V=235+ @ 2.0; 15, 15

Backfill / Install

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. Groundwater encountered at 0.25m at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1575	MAH	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA108
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK115	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 21.6m	E1748344.0, N5949163.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
21.5	0.0	TOPSOIL	TS	SILT; dark grey. Very stiff; moist; non-plastic; sand, fine; [TOPSOIL].							
21.40	0.20			Clayey SILT; brown mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].					V=143 R=46	0.5	
21.0	0.5										
20.5	1.0			1.00m: Grades to light grey mottled orange.					V=131 R=43	1.0	
20.0	1.5								V=110 R=46	1.5	
19.80	1.80	EAST COAST BAYS FORMATION		Sandy SILT; brownish grey mottled orange. Very stiff; moist; non-plastic.					V=153 R=55	2.0	
19.5	2.0										
19.0	2.5				M				V=125 R=43	2.5	
18.5	3.0								V=110 R=43	3.0	
18.10	3.50			Silty CLAY; with trace fine sand; light grey mottled brown. Stiff; moist; medium plasticity.					V=95 R=46	3.5	
18.0	4.0			4.00m: Becomes very stiff.					V=122 R=64	4.0	
17.5	4.30			Silty CLAY; bluish grey. Very stiff; moist; high plasticity.					V=107 R=55	4.5	
17.30	4.5										
17.0	5.00								V=214	5.0	
16.60	5.0			END OF HOLE: 5.00m (Target Depth)				1, 1, 2 1, 2, 4 4, 4, 4 4, 4, 4 10, 10, 10			
16.5	5.5										
16.0	6.0										
15.5	6.5										
15.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. Groundwater was not encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1706	SY	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA109
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK116	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 27.5m	E1748305.0, N5949108.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) Δ Residual ● Peak 50 100 150 200	Scala Penetrometer (blows/0mm) 5 10 15	In Situ Testing Data/Results Depth (m)	Backfill / Install
27.30	0.20	TOPSOIL	TS	SILT, with trace rootlets; dark grey. Very stiff; moist; non-plastic; sand, fine; [TOPSOIL].						
27.0	0.5	EAST COAST BAYS FORMATION		Clayey SILT; with trace rootlets; brownish grey mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].					V=125 R=46 0.5	
26.80	0.70									
26.5	1.0			Silty CLAY; light grey mottled orange. Very stiff; moist; medium plasticity.					V=107 R=37 1.0	
26.0	1.5								V=104 R=46 1.5	
				1.80m: Grades to brownish orange with reddish brown streaks.						
25.5	2.0			2.00m: Becomes stiff.	M				V=61 R=21 2.0	
25.30	2.20			SILT; with some clay; with trace fine sand; greyish brown with orange streaks. Stiff; moist; medium plasticity.						
25.0	2.5								V=61 R=34 2.5	
24.5	3.0								V=85 R=49 3.0	
24.0	3.5			3.50m: Becomes very stiff.					V=122 R=55 3.5	
23.70	3.80			Silty CLAY; bluish grey. Stiff; moist; high plasticity.						
23.5	4.0								V=76 R=46 4.0	
				4.20m: Becomes wet.						
23.0	4.5			4.50m: Becomes very stiff.	W				V=140 R=73 4.5	
22.50	5.00									
22.5	5.0			END OF HOLE: 5.00m (Target Depth)					V=171 R=107 5.0	
22.0	5.5								5.5	
21.5	6.0								6.0	
21.0	6.5								6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. Groundwater was not encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1706	SY	SRO

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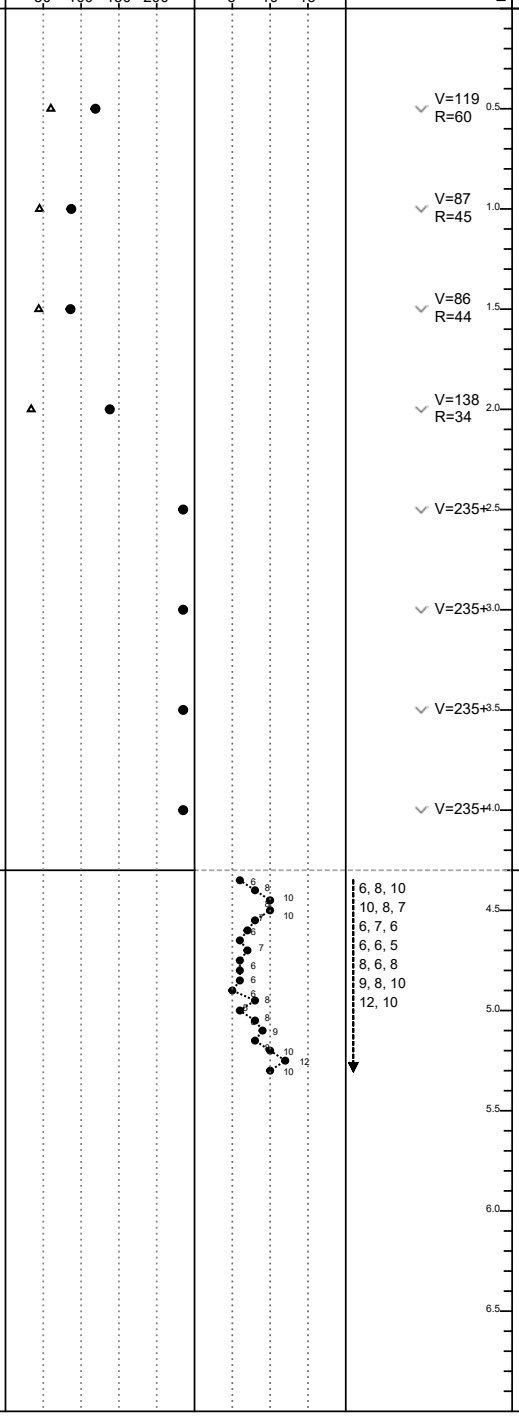
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA110
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK116	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 32.5m	E1748184.7, N5949038.7	4.30 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
32.40	0.10	TOPSOIL	TS	SILT; with trace organics and sand; dark brown with orange streaks. Very stiff; moist; non-plastic; sand; fine; [TOPSOIL].		
32.00	0.50	COLLUVIUM		Clayey SILT; dark brownish grey with orange and light grey streaks. Very stiff; moist; medium plasticity; [COLLUVIUM].		
31.5	1.0	EAST COAST BAYS FORMATION		Silty CLAY; light grey mottled orange. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION]. 1.00m: Becomes stiff.	M	
30.80	1.70			Clayey SILT; brownish grey mottled orange. Stiff; moist; medium plasticity. 2.00m: Becomes very stiff.		
30.30	2.20			Silty CLAY; dark grey. Very stiff; moist; high plasticity. 2.50m: Becomes hard.		
29.90	2.60			SILT; with some clay; dark grey, Hard; moist to wet; low plasticity. 2.70m: Become wet. 2.90m: Become saturated.	W / S	
28.20	4.30			END OF HOLE: 4.30m (Refusal)		



Backfill / Install

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. Groundwater encountered at 1.7m at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1575	MAH	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA111
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK115	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 29.9m	E1748244.0, N5949125.0	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
29.75	0.15	TOPSOIL	TS	SILT; dark brown. Very stiff; moist; low plasticity; [TOPSOIL].		
				SILT; with some clay; brown mottled orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].		
29.00	0.90			Silty CLAY; light grey with mottled orange. Stiff; moist; high plasticity.	M	
		EAST COAST BAYS FORMATION		2.50m: Grades to brownish orange.		
				2.80m: Becomes wet.		
				3.00m: Becomes very stiff.		
26.40	3.50			CLAY, with some silt; bluish grey. Very stiff; wet; high plasticity.	W	
24.90	5.00			END OF HOLE: 5.00m (Target Depth)		

Soil Shear Strength (kPa) — △ Residual ● Peak; 50, 100, 150, 200

Scala Penetrometer (blows/50mm) — 5, 10, 15

In Situ Testing Data/Results

Depth (m)	Backfill / Install
0.5	V=113 R=49
1.0	V=95 R=46
1.5	V=89 R=43
2.0	V=82 R=37
2.5	V=79 R=34
3.0	V=110 R=43
3.5	V=143 R=70
4.0	V=140 R=67
4.5	V=198 R=89
5.0	V=214

Scala Penetrometer: 2, 2, 2 / 2, 3, 4 / 8, 8, 8 / 8, 10, 12 / 12

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture: M = moist; W = wet; S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 55 Russell Road.
2. Groundwater encountered at 4.7m at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1706	SY	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA112
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 15.8m	E1748233.0, N5949298.0	3.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
15.60	0.20	TOPSOIL	TS	SILT, with some sand, with trace rootlets; dark grey. Very stiff; moist; low plasticity; [TOPSOIL].							
15.5	0.5	EAST COAST BAYS FORMATION		Clayey SILT; brownish orange. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].			50 100 150 200	5 10 15	V=171 R=92	0.5	
15.0	1.0								V=168 R=82	1.0	
14.5											
14.30	1.5				M				V=134 R=82	1.5	
14.0	2.0			Silty CLAY; light grey mottled orange. Very stiff; moist; medium plasticity.					V=107 R=52	2.0	
13.5	2.5								V=174 R=79	2.5	
13.0											
12.80	3.00			END OF HOLE: 3.00m (Target Depth)					V=140 R=76	3.0	
12.5	3.5									3.5	
12.0	4.0									4.0	
11.5	4.5									4.5	
11.0	5.0									5.0	
10.5	5.5									5.5	
10.0	6.0									6.0	
9.5	6.5									6.5	
9.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2. Groundwater not encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1706	SY	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA113
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 21.4m	E1748211.0, N5949362.0	2.80 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
21.20	0.20	TOPSOIL	TS	SILT, with trace sand; dark grey. Very stiff; moist; non-plastic; sand, fine; [TOPSOIL].							
20.90	0.50	EAST COAST BAYS FORMATION		Clayey SILT; greyish brown. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].							
20.20	1.20			SILT; with some clay; with trace fine sand; brownish orange. Very stiff; moist; low plasticity.					V=140 R=58	0.5	
19.80	1.60			Silty CLAY; light grey mottled orange. Very stiff; moist; medium plasticity.	M				V=128 R=27	1.0	
18.90	2.50			CLAY; with some silt; with some fine sand; light grey mottled orange. Very stiff; moist; medium plasticity. 2.20m: Becomes low plasticity.					V=140 R=31	1.5	
18.60	2.80			Sandy SILT; dark reddish brown. Hard; moist; non-plastic. 2.70m: Grades to dark brown and black.					V=116 R=37	2.0	
				END OF HOLE: 2.80m (Refusal)					UTP	2.5	
									UTP		
								8, 8, 15	12, 4, 4	3.0	
									8, 8, 8		
									8, 10, 10		
									12		

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 55 Russell Road.
2.Groundwater not encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	GEO1706	SY	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA114

Date Augered:	Client:	Hole Location:
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 17.5m	E1748157.6, N5949317.1	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
17.20	0.30	TOPSOIL	TS TS	SILT, with minor sand, with trace rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL].	D						
17.0	0.5	EAST COAST BAYS FORMATION		Silty CLAY; grey streaked orange. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].	M				V=226 R=85	0.5	
16.5	1.0								V=174 R=81	1.0	
16.0	1.5								V=192 R=101	1.5	
15.5	2.0								V=154 R=88	2.0	
15.0	2.5								V=232+	2.5	
14.5	3.0								V=148 R=80	3.0	
				3.20m: Locally stiff							
14.0	3.5								V=106 R=58	3.5	
13.5	4.0								V=103 R=46	4.0	
				4.10m: Trace sand; orange.							
13.10	4.40										
13.0	4.5			SILT, with some clay; dark grey. Very stiff; moist; low plasticity.					V=128 R=73	4.5	
12.50	5.00			4.90m: Grades to hard.							
12.5	5.0			END OF HOLE: 5.00m (Target Depth)					UTP	5.0	
12.0	5.5									5.5	
11.5	6.0									6.0	
11.0	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater not encountered.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE231	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA115
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 12.3m	E1748180.3, N5949335.6	3.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
12.0	0.0	TOPSOIL	TS	SILT, with some sand, with trace rootlets; dark brown. Firm; dry; non-plastic; [TOPSOIL].	D						
11.90	0.40										
11.5	0.5	EAST COAST BAYS FORMATION		SILT, with trace rootlets and sand; dark brown. Stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].	M				V=95 R=36	0.5	
11.30	1.00										
11.0	1.0		C/L	CORE LOSS (wet).	W				V=80 R=36	1.0	
11.00	1.30										
10.5	1.5			Silty CLAY; grey streaked orange. Stiff; wet; high plasticity.					V=56 R=27	1.5	
10.0	2.0								UTP	2.0	
9.5	2.5								V=83 R=32	2.5	
9.40	2.85										
9.30	3.00			SILT, with trace sand; grey. Hard; moist; low plasticity.	M				V=85 R=35	3.0	
9.0	3.0			END OF HOLE: 3.00m (Target Depth)							
8.5	3.5									3.5	
8.0	4.0									4.0	
7.5	4.5									4.5	
7.0	5.0									5.0	
6.5	5.5									5.5	
6.0	6.0									6.0	
6.0	6.5									6.5	
5.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater encountered at 0.93 mBGL @ 16:48.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE231	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA116
Date Augered: 09 Dec 2024	**Client:** Vineway Ltd	**Hole Location:** Refer to Riley Dwg 240065-SK114	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 17.3m	E1748180.0, N5949361.3	1.60 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
17.00	0.30	TOPSOIL	TS TS	SILT, with trace rootlets and sand; dark brown. Firm; dry; low plasticity; [TOPSOIL].	D						
16.80	0.5	EAST COAST BAYS FORMATION		SILT, with some clay and sand; brownish orange streaked grey mixed red. Stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].	M		△ ● 50 100 150 200	5 10 15	V=61 R=25	0.5	
16.5	1.0						△ ●		V=60 R=20	1.0	
16.0											
15.80	1.50			1.40m - 1.50m: Wet	W				UTP	1.5	
15.70	1.60			SILT, with trace sand; dark grey. Hard; moist; low plasticity.	M			20 20	20, 20		
15.5	2.0			END OF HOLE: 1.60m (Refusal)						2.0	
15.0	2.5									2.5	
14.5	3.0									3.0	
14.0	3.5									3.5	
13.5	4.0									4.0	
13.0	4.5									4.5	
12.5	5.0									5.0	
12.0	5.5									5.5	
11.5	6.0									6.0	
11.0	6.5									6.5	
10.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1.Hand Auger at 53A Russell Road.
2. No groundwater recorded at the time of drilling.
3. Scala raw data from 1.6mBGL recorded 29 blows for 50mm.
4. Scala raw data from 1.65mBGL recorded 30 blows for 20mm and recorded bouncing.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE231	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA117
Date Augered:	**Client:**	**Hole Location:**	
09 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK114	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 23.2m	E1748142.5, N5949449.1	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
23.00	0.20	TOPSOIL		Organic SILT with some sand; brown, dry, low plasticity, very stiff. [TOPSOIL].							
		EAST COAST BAYS FORMATION		Silty CLAY; brownish orange. Very stiff; dry; medium plasticity; [EAST COAST BAYS FORMATION].					V=148 R=68	0.5	
22.00	1.20			CLAY, with some silt; brownish orange streaked light grey. Stiff; dry; high plasticity.	D				V=116 R=61	1.0	
									V=100 R=64	1.5	
									V=68 R=32	2.0	
20.90	2.30			SILT, with some clay and sand; brownish orange streaked light grey. Stiff; moist; medium plasticity to high plasticity.					V=100 R=39	2.5	
20.50	2.70			CLAY, with some silt, with minor sand; brownish orange . Stiff; moist; high plasticity.					V=89 R=26	3.0	
				3.20m: Light grey and orange.							
19.70	3.50			Silty CLAY, with some sand; grey. Stiff to very stiff; moist; high plasticity.	M				V=81 R=40	3.5	
									V=177 R=71	4.0	
									V=195 R=64	4.5	
18.20	5.00			END OF HOLE: 5.00m (Target Depth)					V=225+	5.0	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53A Russell Road.
2. Groundwater encountered at 4.8mBGL at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE111	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA118
Date Augered:	**Client:**	**Hole Location:**	
09 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK112	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 21.1m	E1748161.8, N5949534.0	4.80 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
21.0	0.0			Organic SILT, with some sand; brown. Firm; dry; Rootlets. [ALLUVIUM].							
20.75	0.35										
20.5	0.5	ALLUVIUM		Sandy SILT, with some clay; light brown grey mottled orange. Very stiff; dry; low plasticity; rootlets.					V=201 R=73	0.5	
20.0	1.0								V=131 R=58	1.0	
19.60	1.50								V=138 R=66	1.5	
19.5	1.5			Clayey SILT; light grey streaked orange. Stiff; moist; high plasticity.							
19.0	2.0								V=94 R=47	2.0	
18.50	2.60								V=58 R=29	2.5	
18.5	2.5			Silty CLAY; brownish grey. Stiff; moist; high plasticity; Organics; wood.							
18.10	3.00								V=29 R=16	3.0	
18.0	3.0			Silty CLAY, with minor organics; brownish grey and black. Soft to firm; saturated; high plasticity; organics; wood.					UTP	3.5	
17.5	3.5				▼				V=34 R=81		
17.0	4.0			3.90m: Wood, hard, brown and black, 100mm thick.					V=45 R=16	4.0	
16.5	4.5								V=50 R=23	4.5	
16.40	4.70										
16.30	4.80	D A L		Clayey SILT, with minor sand, with trace organics; grey speckled brown. Hard; moist; high plasticity; [HUKERENUI MUDSTONE].					UTP		
16.0	5.0			END OF HOLE: 4.80m (Refusal)					20	5.0	
15.5	5.5									5.5	
15.0	6.0									6.0	
14.5	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger at 53B Russell Road.
2. Groundwater encountered at approximately 3.67 mBGL during drilling.
3. Scala raw data from 4.8mBGL recorded 90 for 50mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE569	CCUS	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA119
Date Augered:	**Client:**	**Hole Location:**	
09 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK112	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 37.9m	E1748203.0, N5949683.3	3.00 m	Target depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
37.60	0.30	TOPSOIL	TS TS	SILT, with trace rootlets and sand; dark brown. Firm; dry; non-plastic; [TOPSOIL].	D						
37.5	0.5	NORTHLAND ALLOCHTHON		Silty CLAY; orange. Stiff; moist; high plasticity; [HUKERENUI MUDSTONE].	M		△ ●		V=93 R=33	0.5	
37.0	1.0			0.85m - 0.90m: Grey streaked orange and black, trace organics, amorphous organic flecks. 0.90m - 2.20m: Grey streaked orange.			△ ●		V=100 R=27	1.0	
36.5	1.5						△ ●		V=86 R=41	1.5	
36.0	2.0			1.90m: Grades to trace sand. Very Stiff.			●		V=232+	2.0	
35.70	2.20			SILT, with some sand; dark grey. Hard; moist; low plasticity.							
35.5	2.5			2.50m - 2.70m: Grades to sandy, non-plastic. Becomes dry.					UTP	2.5	
35.0	3.0								UTP	3.0	
34.90	3.00			END OF HOLE: 3.00m (Target depth)							
34.5	3.5									3.5	
34.0	4.0									4.0	
33.5	4.5									4.5	
33.0	5.0									5.0	
32.5	5.5									5.5	
32.0	6.0									6.0	
31.5	6.5									6.5	
31.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger at 53A Russell Road.
2. No groundwater recorded at time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE231	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA120
Date Augered:	**Client:**	**Hole Location:**	
09 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK112	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 41.8m	E1748177.1, N5949687.5	3.65 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
41.70	0.10	PS	TS	Organic SILT with some sand, minor clay and trace rootlets; dark brown. Very stiff, dry to moist, non plastic to low plasticity. [TOPSOIL]	DM	
41.45	0.35	NORTHLAND ALLOCHTHON		SILT, with some clay, with minor sand, with trace rootlets; light greyish brown streaked light grey and brownish orange. Very stiff; moist; low plasticity to medium plasticity; [HUKERENUI MUDSTONE].		
40.90	0.90			Clayey SILT, with trace rootlets and sand; light greyish brown streaked brownish orange. Stiff; moist; medium plasticity to high plasticity.		
40.70	1.10			Silty CLAY, with trace sand; light grey streaked brownish orange. Very stiff; moist; high plasticity. 1.00m - 1.10m: Grades to brownish red streaked light grey and brownish orange		
				CLAY, with some silt, with trace sand; light grey streaked brownish orange. Very stiff; moist; high plasticity.	M	
39.80	2.00			SILT, with some clay, with minor sand; dark grey. Hard; moist; medium plasticity. 2.80m - 3.20m: Grades to SILT with some sand and clay.		
38.15	3.65			END OF HOLE: 3.65m (Refusal)		

Soil Shear Strength (kPa): △ Residual ● Peak; 50 100 150 200

Scala Penetrometer (blows/50mm): 5 10 15

In Situ Testing Data/Results (Depth (m)): V=156 R=37 @ 0.5; V=119 R=35 @ 1.0; V=100 R=34 @ 1.5; V=129 R=52 @ 2.0; V=140+ @ 2.5; UTP @ 3.0; UTP @ 3.5

Scala: 15, 20, 20

Backfill / Install

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture: M = moist; W = wet; S = saturated

Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise

Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand Auger at 53B Russell Road.
2. Groundwater not encountered.
3. Scala raw data from 3.7mBGL is 50 blows for 50mm.
4. Scala raw data from 3.75mBGL is 24 blows for 25mm and recorded bouncing.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE111	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA121
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 46.9m	E1748109.4, N5949709.0	3.00 m	Early Termination	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
46.70	0.20	TOPSOIL		Clayey SILT; greyish brown; low plasticity; [TOPSOIL].							
46.5	0.5	NORTHLAND ALLOCHTHON		Silty CLAY; light brown mottled grey. Stiff to firm; low plasticity to medium plasticity; [HUKERENUI MUDSTONE].					V=109 R=58	0.5	
46.0	1.0			0.70m: Brown. Stiff.					V=113 R=48	1.0	
				1.00m: Mottled grey. Firm.							
45.5	1.5			1.20m: Soft to firm.					V=177 R=64	1.5	
45.0	2.0			2.00m: Soft, moderate to high plasticity.					V=116 R=40	2.0	
44.5	2.5								V=121 R=40	2.5	
44.0				2.80m: Band of fine to coarse SAND; dark brown.							
43.90	3.00			3.00m: Grey. Soft to Firm, moderate plasticity.					V=137 R=56	3.0	
				END OF HOLE: 3.00m (Early Termination)							
43.5	3.5									3.5	
43.0	4.0									4.0	
42.5	4.5									4.5	
42.0	5.0									5.0	
41.5	5.5									5.5	
41.0	6.0									6.0	
40.5	6.5									6.5	
40.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger at 53B Russell Road.
2. Groundwater not encountered at time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE111	JSOU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA122
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 39.3m	E1748069.3, N5949659.4	3.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
39.15	0.15	TOPSOIL	TS	SILT, with some organics and clay; dark brown. Very stiff; dry; low plasticity; [TOPSOIL].	D		50 100 150 200	5 10 15			
39.0	0.5	COLLUVIUM		CLAY, with some silt; greyish dark brown mottled brown. Very stiff; moist; high plasticity.					V=171 R=81	0.5	
38.5	1.0			0.80m: Becomes brownish orange mottled brown.					V=116 R=61	1.0	
38.0	1.5			1.50m: Becomes stiff.	M				V=81 R=35	1.5	
37.5	2.0			1.80m: Becomes greyish light brown mottled brownish orange. 2.00m: Becomes very stiff.					V=116 R=45	2.0	
37.10	2.20			Clayey SILT; light brown. Very stiff; moist; low plasticity.					V=97 R=32	2.5	
37.0	2.5										
36.5	3.0			3.00m: Becomes stiff.					V=69 R=34	3.0	
36.30	3.00			END OF HOLE: 3.00m (Target Depth)							
36.0	3.5									3.5	
35.5	4.0									4.0	
35.0	4.5									4.5	
34.5	5.0									5.0	
34.0	5.5									5.5	
33.5	6.0									6.0	
33.0	6.5									6.5	
32.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater not encountered at time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA123
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 32.2m	E1748062.8, N5949615.3	2.50 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
32.0	0.0	TOPSOIL	TS	SILT, with some rootlets and clay; dark brown. Stiff; moist; low plasticity; [TOPSOIL].			50 100 150 200	5 10 15			
31.90	0.30										
31.80	0.40	COLLUVIUM		SILT, with some clay and gravel; dark brown speckled black. Stiff; moist; low plasticity; [COLLUVIUM].							
31.5	0.5			Silty CLAY; brownish orange mottled light brown. Stiff; moist; high plasticity.					V=53 R=18	0.5	
31.50	0.70										
31.20	1.00			Silty CLAY, with minor organics; dark brownish grey mottled brownish orange, speckled black. Stiff; moist; high plasticity.					V=58 R=29	1.0	
31.0	1.0			Silty CLAY; greyish brown mottled light brown and brownish orange. Stiff; moist; high plasticity.	M						
30.5	1.5			1.30m: Becomes brownish orange mottled light brown.					V=72 R=32	1.5	
30.0	2.0			1.70m: Becomes light grey mottled brownish orange.					V=40 R=16	2.0	
29.85	2.35								UTP		
29.70	2.50	DALC		Highly weathered, light grey, MUDSTONE. Extremely weak. [HUKERENUI MUDSTONE].	W				UTP	2.5	
29.5	2.5			CLAY; light grey. Hard, wet, medium plasticity.					2, 2, 2		
29.0	3.0			2.40m: Becomes grey.					3, 3, 2		
28.5	3.5			END OF HOLE: 2.50m (Refusal)					3, 4, 4	3.0	
28.0	4.0								5, 6, 6		
27.5	4.5								5, 6, 12		
27.0	5.0								19, 8, 4	3.5	
26.5	5.5								9, 10, 13		
26.0	6.0								10, 6, 10	4.0	
25.5	6.5								12		
										4.5	
										5.0	
										5.5	
										6.0	
										6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks

1. Hand Auger at 53B Russell Road.
2. Groundwater encountered at 0.28mBGL 0.5 hrs post completion.
3. Recorded bouncing for scala measurement from 3.15mBGL.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA124
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 29m	E1748085.1, N5949584.9	4.50 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
28.60	0.40	TOPSOIL	TS	SILT, with some rootlets and clay; dark brown mottled light brown speckled brownish orange. Stiff; moist; low plasticity; [TOPSOIL].							
28.5	0.5	COLLUVIUM		SILT, with some sand; dark brown mottled brown and speckled white. Stiff; moist; low plasticity; [COLLUVIUM].					V=81 R=32	0.5	
				Clayey SILT; brownish grey, mottled brown, speckled black. Stiff; moist; medium plasticity.							
28.0	1.0								V=56 R=26	1.0	
27.5	1.5								V=45 R=19	1.5	
27.10	1.90										
27.0	2.0			Silty CLAY, with some organics (humus); bluish grey, mottled dark brownish dark grey. Stiff; moist; high plasticity.	M				V=61 R=32	2.0	
26.90	2.10	NORTHLAND ALLOCHTHON		2.00m: Becomes dark brownish dark grey.							
				CLAY, with some silt; dark brownish grey. Stiff; moist; high plasticity; [HUKERENUI MUDSTONE].							
26.5	2.5			2.50m: Becomes grey mottled brownish orange.					V=56 R=24	2.5	
26.0	3.0			3.00m: Becomes brown mottled grey.					V=50 R=29	3.0	
25.5	3.5			3.50m: Becomes grey, very stiff.					V=129 R=21	3.5	
25.0	4.0			4.00m: Becomes hard.					V=225+	4.0	
24.90	4.10			Slightly weathered MUDSTONE; light grey; extremely weak, recovered as, Silty CLAY; light grey. Hard; saturated; medium plasticity.	S						
24.50	4.50								UTP		
24.5	4.5			END OF HOLE: 4.50m (Refusal)				2, 8, 10 12, 10, 10 10, 9, 5 15, 18, 17 17, 20			
24.0	5.0									5.0	
23.5	5.5									5.5	
23.0	6.0									6.0	
22.5	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger at 53B Russell Road.
2. Groundwater encountered at 2.37 mBGL @1559.
3. Scala raw data from 5.15mBGL is 21 blows for 50mm and recorded bouncing.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA125
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 24.4m	E1748100.2, N5949550.7	3.00 m	Target depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description	Water / Moisture	Samples	Soil Shear Strength (kPa)	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
24.30	0.10	TOPSOIL		Organic SILT with some sand, with trace clay and rootlets; dark brown. Very stiff, dry to moist, non plastic to low plasticity. [TOPSOIL].	DM		△ Residual ● Peak 50 100 150 200	5 10 15			
24.0	0.5	NORTHLAND ALLOCHTHON		Clayey SILT, with trace rootlets and sand; light greyish brown streaked brownish orange. Very stiff; moist; medium plasticity to high plasticity; [HUKERENUI MUDSTONE].					V=116 R=37	0.5	
23.50	0.90			0.30m: Grades to light grey streaked brownish orange.							
23.5	1.0			Silty CLAY, with trace rootlets and sand; light grey streaked brownish orange. Stiff; moist; high plasticity.					V=77 R=34	1.0	
23.20	1.20			CLAY, with some silt; light grey mottled brownish orange. Stiff; moist; high plasticity.							
23.0	1.5				M				V=69 R=39	1.5	
22.50	1.90			Clayey SILT, with trace sand and gravel; dark grey. Very stiff; moist; medium plasticity to high plasticity.					V=119 R=64	2.0	
22.5	2.0										
22.20	2.20			SILT, with some clay and sand; dark grey. Hard; moist; medium plasticity; sand, fine to coarse.					UTP	2.5	
22.0	2.5			2.70m: Grades to SILT with some clay, and minor sand.							
21.5											
21.40	3.00			END OF HOLE: 3.00m (Target depth)					V=235+	3.0	
21.0	3.5									3.5	
20.5	4.0									4.0	
20.0	4.5									4.5	
19.5	5.0									5.0	
19.0	5.5									5.5	
18.5	6.0									6.0	
18.0	6.5									6.5	
17.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger at 53B Russell Road.
2. Groundwater not encountered at time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA126
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 26.2m	E1748057.5, N5949562.1	4.00 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description	Water / Moisture	Samples
26.00	0.20	TOPSOIL		Organic SILT with some sand and rootlets; brown. Stiff, dry; [TOPSOIL].		
		NORTHLAND ALLOCHTHON		Clayey SILT, with trace sand; light brownish grey streaked orange. Stiff; dry; [HUKERENUI MUDSTONE].		
24.80	1.40			SILT, with some clay, with trace sand; light brownish grey streaked orange. Hard; dry.		
24.30	1.90			SILT, with some clay, with minor sand; light grey. Hard; dry.	D	
				Completely weathered; light grey; SILTSTONE; extremely weak; pervasively sheared.		
				3.50m - 3.80m: Dark greyish black.		
22.40	3.80			Highly weathered; light grey; SILTSTONE; extremely weak; pervasively sheared.		
22.20	4.00			END OF HOLE: 4.00m (Refusal)		

Soil Shear Strength (kPa): △ Residual ● Peak — 50 100 150 200

Scala Penetrometer (blows/50mm): 5 10 15

In Situ Testing Data/Results	Depth (m)	Backfill / Install
V=119 R=34	0.5	
V=106 R=37	1.0	
UTP	1.5	
V=205 R=57	2.0	
V=235+	2.5	
UTP	3.0	
UTP	3.5	
UTP	4.0	

Scala Penetrometer Data:
7, 11, 8
5, 5, 4
5, 4, 4
5, 7, 6
9, 8, 5
5, 5, 6
7, 7, 6
8, 12, 18
15, 8, 7
6, 9, 8
9, 9, 7
8, 10, 8
10, 10, 11
11, 12, 15
18, 18, 19

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger at 53B Russell Road.
2. Groundwater not encountered at time of drilling or on 6/12/2024 @1611.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA127
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK113	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 28.1m	E1748045.5, N5949494.4	1.00 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
28.0	0.00	TOPSOIL	TS	SILT, with some rootlets and clay; dark brown. Hard; dry; low plasticity; [TOPSOIL].							
27.90	0.20	NORTHLAND ALLOCHTHON		Silty CLAY; light brown, mottled brown. Hard; dry; high plasticity; [HUKERENUI MUDSTONE].	D				UTP	0.5	
27.10	1.00			END OF HOLE: 1.00m (Refusal)				9, 15, 13 15, 13, 10 14, 16, 16 14	UTP	1.0	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger at 53B Russell Road.
2. Groundwater not encountered at time of drilling.
3. Recorded bouncing for scala measurement from 1.45mBGL.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA128
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK113	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 18.9m	E1748072.8, N5949430.1	4.00 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
18.70	0.20	TOPSOIL	TS	Organic SILT with some fine, rounded sand and trace rootlets; Light greyish brown. Hard, dry to moist. [TOPSOIL].	DM						
18.50	0.40	NORTHLAND ALLOCHTHON		Sandy SILT, with trace rootlets and clay; light grey streaked brownish orange. Hard; dry to moist; non-plastic to low plasticity; sand, fine, rounded; [HUKERENUI MUDSTONE].							
18.0	0.90			Clayey SILT, with trace sand; light grey streaked brownish orange. Stiff; moist; medium plasticity to high plasticity.					V=235+	0.5	
17.5	1.5			CLAY, with some silt; light grey streaked brownish orange. Stiff; moist; high plasticity.					V=84 R=50	1.0	
17.30	1.60			1.50m: Trace sands.					V=80 R=27	1.5	
17.0	2.0			CLAY, with some silt and sand; light grey streaked brownish orange. Stiff; moist; high plasticity.					V=65 R=25	2.0	
16.5	2.5			2.16m: Grades to trace sands.	M				V=62 R=30	2.5	
16.00	2.90			Clayey SILT, with trace sand; dark grey. Very stiff; moist; high plasticity.					V=77 R=37	3.0	
15.5	3.5			SILT, with some clay and sand; dark grey. Very stiff to hard; moist; low plasticity to medium plasticity.					V=117 R=50	3.5	
15.00	3.90			Sandy SILT, with minor clay; dark grey . Very stiff; moist; low plasticity; tightly packed.					UTP	4.0	
14.90	4.00			END OF HOLE: 4.00m (Refusal)					9, 12, 14 20		
14.5	4.5									4.5	
14.0	5.0									5.0	
13.5	5.5									5.5	
13.0	6.0									6.0	
12.5	6.5									6.5	
12.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks

1. Hand Auger carried out at 53B Russell Road.
2. Groundwater encountered at approximately 3.49mBGL at the time of drilling.
3. Scala raw data from 4.15mBGL is 30 blows for 25mm and bouncing recorded.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA129
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK113	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 26.5m	E1748054.3, N5949377.8	3.00 m	Target depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
26.20	0.30	TOPSOIL	TS TS	SILT, with some sand, with trace rootlets; dark brown. Firm; dry; low plasticity; [TOPSOIL].	D						
26.0	0.5	NORTHLAND ALLOCHTHON		Silty CLAY; brownish orange. Very stiff; moist; high plasticity; [HUKERENUI MUDSTONE].					V=199 R=55	0.5	
25.50	1.00										
25.5	1.0			Silty CLAY; grey streaked orange. Very stiff; moist; high plasticity.					V=148 R=61	1.0	
25.0	1.5			1.50m - 1.70m: Trace sand; streaked red. Low plasticity.	M				V=232+	1.5	
24.5	2.0								V=232+	2.0	
				2.20m - 2.30m: Trace sand; streaked red. Low plasticity.							
24.10	2.40										
24.0	2.5			Silty CLAY; orange. Very stiff; moist; high plasticity.					V=232+	2.5	
23.50	3.00										
23.5	3.0			END OF HOLE: 3.00m (Target depth)					V=171 R=76	3.0	
23.0	3.5									3.5	
22.5	4.0									4.0	
22.0	4.5									4.5	
21.5	5.0									5.0	
21.0	5.5									5.5	
20.5	6.0									6.0	
20.0	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger carried out at 53B Russell Road.
2. No groundwater encountered @ 1626 hrs.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE231	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA130
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK113	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 20.4m	E1748033.8, N5949326.9	3.90 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
20.20	0.20	TOPSOIL	TS	SILT, with some sand, with trace rootlets; brown. Firm; dry; non-plastic; [TOPSOIL].	D						
20.0	0.5	NORTHLAND ALLOCHTHON		Silty CLAY; orange. Very stiff; moist; high plasticity; [HUKERENUI MUDSTONE].					V=138 R=66	0.5	
19.5	1.0								V=133 R=56	1.0	
19.0	1.5			1.30m: Grey streaked orange.					V=129 R=58	1.5	
18.5	2.0				M				V=100 R=38	2.0	
18.0	2.5			2.10m - 2.30m: Trace sand; orange.					V=136 R=56	2.5	
17.5	3.0								V=176 R=65	3.0	
17.00	3.40			3.30m - 3.40m: Trace sand; orange.							
17.0	3.5			Sandy SILT; dark grey. Hard; moist; low plasticity.					UTP	3.5	
16.50	3.90										
16.5	4.0			END OF HOLE: 3.90m (Refusal)					20, 20	4.0	
16.0	4.5									4.5	
15.5	5.0									5.0	
15.0	5.5									5.5	
14.5	6.0									6.0	
14.0	6.5									6.5	
13.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger at 53B Russell Road.
2. Groundwater encountered at 2.95mBGL @ 1639 hrs.
3. Scala raw data from 3.9mBGL recorded 32 and 35 blows per 50mm.
4. Recorded bouncing for scala measurement from 3.95mBGL.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
		Hand Auger	VANE231	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA131
Date Augered:	**Client:**	**Hole Location:**	
06 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK113	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 23.6m	E1747954.3, N5949398.3	3.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
23.40	0.20	TOPSOIL	TS	SILT, with trace rootlets and clay and sand; brown mixed brownish orange. Firm; dry; non-plastic; [TOPSOIL].	D						
		NORTHLAND ALLOCHTHON		Silty CLAY; grey streaked orange. Very stiff; moist; high plasticity; [HUKERENUI MUDSTONE].	M				V=189 R=80 V=159 R=76 V=158 R=70 V=199 R=65 V=194 R=65		
21.30	2.30			SILT, with minor sand; dark blackish brown. Very stiff; dry; low plasticity.	D				V=232+		
20.60	3.00			END OF HOLE: 3.00m (Target Depth)							

Soil Shear Strength (kPa): 50 100 150 200
Scala Penetrometer (blows/0mm): 5 10 15

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater encountered @ 1632 hrs at 2.52mBGL.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
		Hand Auger	VANE231	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA132
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK113	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 24m	E1747940.6, N5949462.6	2.80 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
23.80	0.20	TOPSOIL	TS	Clayey SILT; grey; dry; low plasticity; [TOPSOIL].							
		NORTHLAND ALLOCHTHON		Silty CLAY; grey mottled brown. Firm; dry; low plasticity; [HUKERENUI MUDSTONE].							
23.5	0.5			0.60m: Becomes brown mottled grey and dark brown, stiff.					V=148 R=68	0.5	
23.0	1.0								V=97 R=55	1.0	
22.5	1.5			1.50m: Becomes light brown. Firm, moderate plasticity.	D				V=129 R=45	1.5	
22.0	2.0			2.00m: Become mottled dark brown, grades to moderate to high plasticity.					V=206 R=77	2.0	
21.50	2.50			CLAY, with some silt; grey. Firm to stiff; moist; medium plasticity to high plasticity.					V=209 R=52	2.5	
21.20	2.80			2.70m: Becomes very stiff to hard.					UTP		
				END OF HOLE: 2.80m (Refusal)							

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater encountered at 2.37mBGL @15:41.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE111	JSOU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA133
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 32.1m	E1748002.0, N5949540.4	2.50 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
32.0	0.15	TOPSOIL		Sandy SILT, with some clay, with minor rootlets; dark brown. Very stiff; dry to moist; low plasticity; [TOPSOIL].	DM		50 100 150 200	5 10 15			
31.70	0.40	NORTHLAND ALLOCHTHON		Clayey SILT, with minor sand, with trace rootlets; brownish orange streaked brown . Stiff to very stiff; moist; medium plasticity to high plasticity; [HUKERENUI MUDSTONE].					V=114 R=34	0.5	
31.5	0.5			Clayey SILT, with minor sand, with trace rootlets. Stiff; moist; high plasticity.							
31.30	0.80			Clayey SILT, with minor sand, with trace rootlets; light grey streaked brownish orange. Very stiff; moist; medium plasticity to high plasticity.					V=127 R=32	1.0	
31.0	1.0				M						
30.60	1.50			Silty CLAY, with minor sand, with trace rootlets; light grey streaked brownish orange dotted black. Stiff; moist; high plasticity; minor organic flecks.					V=64 R=20	1.5	
30.5	1.5			CLAY, with some silt, with minor sand, with trace rootlets; light grey streaked light brownish grey and brownish orange. Stiff; moist; high plasticity.					UTP	2.0	
30.30	1.80			CLAY, with some silt and sand; light grey. Very stiff; moist; high plasticity; sand, fine to medium.							
30.10	2.00			Completely weathered; light grey; SILTSTONE; extremely weak.					UTP	2.5	
30.0	2.0			Gravelly SILT, with some clay and sand; light grey. Hard; moist; low plasticity to medium plasticity.				18 18 20	18, 18, 20		
29.90	2.20			END OF HOLE: 2.50m (Refusal)							
29.60	2.50										
29.5	3.0										
29.0	3.5										
28.5	4.0										
28.0	4.5										
27.5	5.0										
27.0	5.5										
26.5	6.0										
26.0	6.5										
25.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater encountered at 1.72mBGL at time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA134
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 54.9m	E1747986.5, N5949719.6	3.00 m	Early Termination	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
54.65	0.25	COLLUVIUM		Silty fine GRAVEL; grey mottled light brown. Loose; dry; [COLLUVIUM].							
54.5	0.5			Silty CLAY, with some organics; grey mottled brown. Very stiff; dry; low plasticity.					V=180 R=35	0.5	
54.0	1.0			0.60m: Brown. Very stiff, low to moderate plasticity.					V=164 R=32	1.0	
53.80	1.10										
53.5	1.5	EAST COAST BAYS FORMATION		Clayey SILT; light brown mottled grey. Very stiff; dry; low plasticity; [EAST COAST BAYS FORMATION].					V=177 R=77	1.5	
53.40	1.50			Silty CLAY; greyish brown. Very stiff; dry; low plasticity to medium plasticity.	D						
53.0	2.0			1.90m: Dark brown, moderate to high plasticity.					UTP	2.0	
52.5	2.5			2.00m: Thin band of coarse SAND, minor silt; dark brown.					V=113 R=39	2.5	
52.0	3.0								V=113 R=61	3.0	
51.90	3.00			END OF HOLE: 3.00m (Early Termination)							
51.5	3.5									3.5	
51.0	4.0									4.0	
50.5	4.5									4.5	
50.0	5.0									5.0	
49.5	5.5									5.5	
49.0	6.0									6.0	
48.5	6.5									6.5	
48.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater not encountered at time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE111	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA135

Date Augered:	Client:	Hole Location:
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 38.5m	E1747903.8, N5949688.5	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
38.25	0.25	ALLUVIUM		Clayey SILT, with minor sand, with trace rootlets; brown and dark brown streaked dark grey. Stiff; moist; medium plasticity to high plasticity; [ALLUVIUM].							
38.0	0.5			0.10m: Grades to dark grey streaked light grey and brownish orange.	M				V=54 R=29	0.5	
37.70	0.80			Silty CLAY, with trace rootlets and sand; light grey streaked brownish orange. Stiff; moist; high plasticity.							
37.5	1.0			CLAY, with some silt; brownish grey and black . Soft; moist to wet; high plasticity; Trace organics [black silt and fibrous organics].					V=20 R=5	1.0	
37.0	1.5			1.20m: Some sand.					V=52 R=25	1.5	
36.5	2.0								V=37 R=13	2.0	
36.40	2.10			Silty fine to medium SAND, with some clay; grey. Firm to stiff; moist to wet; low plasticity to medium plasticity.							
36.0	2.5				M W				V=47 R=34	2.5	
35.5	3.0			2.90m: Grades to brownish orange, fine to coarse sand.					V=80 R=37	3.0	
35.0	3.5			3.20m: Brownish orange mixed with light grey.					V=111 R=45	3.5	
34.5	4.0								V=165 R=47	4.0	
34.0	4.5								V=235+	4.5	
33.70	4.80										
33.50	5.00	ST BAY S		Sandy SILT, with some clay; dark grey. Hard; moist; low plasticity to medium plasticity; sand, medium; [EAST COAST BAYS FORMATION].	M				UTP	5.0	
33.5	5.0			END OF HOLE: 5.00m (Target Depth)				4, 6, 6 7, 6, 7 9, 9, 6 15, 13, 15 12, 18			
33.0	5.5									5.5	
32.5	6.0									6.0	
32.0	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater encountered at 0.81mBGL at time of drilling.
3. Recorded bouncing for scala measurement from 5.4mBGL.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE303	JOMU	SRO

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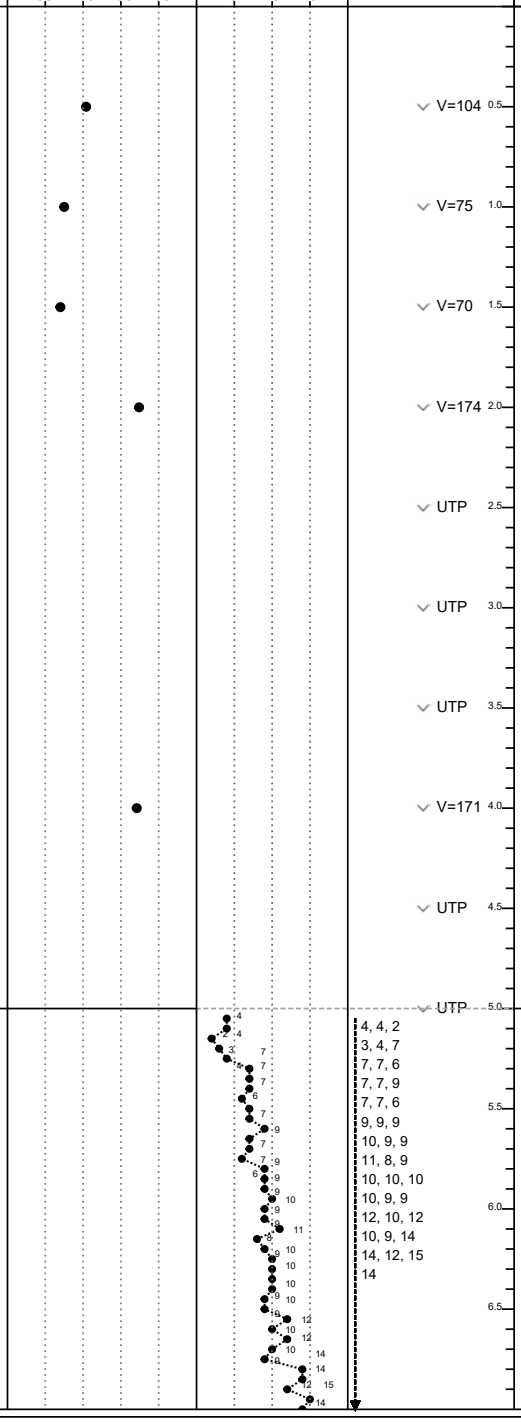
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA136
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 42.5m	E1747887.7, N5949666.6	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
42.10	0.40	TOPSOIL	TS	SILT, with some sand, with minor rootlets and clay; dark brown mottled brownish orange. Very stiff; dry to moist; non-plastic to low plasticity; [TOPSOIL].	DM	
42.00	0.50	EAST COAST BAYS FORMATION		SILT, with some clay, with minor sand, with trace rootlets; brownish orange streaked brown. Stiff; moist; medium plasticity; Organic flecks; [EAST COAST BAYS FORMATION].		
41.5	1.0			Clayey SILT, with some sand, with trace rootlets; brownish orange and light brownish orange. Stiff; moist; medium plasticity to high plasticity.		
41.20	1.30			0.90m: Grades to high plasticity.		
41.0	1.5			Silty fine to coarse SAND, with some clay; light grey streaked brownish orange. Stiff; moist; medium plasticity; slow dilatancy.		
40.70	1.80			1.60m: Grades to moist to wet.		
40.50	2.00			1.70m: Dark brownish orange streaked light grey. Grades to wet.	M	
40.5	2.0			Clayey SILT, with minor sand; light grey streaked brownish orange. Very stiff; moist; high plasticity.		
40.10	2.40			Clayey SILT; light grey. Very stiff; moist; high plasticity.		
40.0	2.5			2.20m: Grades to minor sand; light grey streaked brownish orange.		
39.5	3.0			Silty fine to medium, subrounded to subangular SAND, with minor clay; light brownish orange. Dense, moist, non-plastic to low plasticity. 2.70m: Grades to light brownish grey.		
39.10	3.40					
39.0	3.5			Silty fine to coarse. rounded to angular SAND, with some clay; brownish red. Moist to wet, low plasticity to medium plasticity, tightly packed.		
38.50	4.00					
38.5	4.0			Medium to coarse SAND, with some silt, with minor clay; dark grey. Sand, subrounded to angular, white and grey. Hard; moist; low plasticity. Completely weathered; dark grey; SANDSTONE; extremely weak.	M W	
38.0	4.5					
37.50	5.00					
37.5	5.0			END OF HOLE: 5.00m (Target Depth)		
37.0	5.5					
36.5	6.0					
36.0	6.5					



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater encountered at 3.52mBGL at time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA137
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK111	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 32.7m	E1747904.0, N5949531.7	3.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
32.55	0.15	TOPSOIL		Sandy SILT, with some clay, with minor rootlets; dark brown. Very stiff; dry to moist; low plasticity to medium plasticity; sand, fine to coarse; [TOPSOIL].	DM		50 100 150 200	5 10 15			
32.20	0.50	EAST COAST BAYS FORMATION		SILT, with some clay and sand, with trace rootlets; brownish orange streaked brown. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].					V=149 R=50	0.5	
31.80	0.90			Clayey SILT, with minor sand, with trace rootlets; brownish orange streaked light grey. Stiff to very stiff; moist; medium plasticity to high plasticity.							
	1.0			0.70m: Grades to light grey streaked brownish orange. High plasticity.					V=114 R=42	1.0	
				0.80m: Grades to some sand, trace gravels (10mm, rounded, completely weathered sandstone); brownish orange streaked light grey.							
	1.5			Silty CLAY, with some sand, with trace rootlets; light grey streaked brownish orange. Stiff to very stiff; moist; high plasticity.	M				V=84 R=34	1.5	
30.70	2.00			1.80m - 2.00m: Trace gravels [5mm, rounded, completely weathered sandstone].					V=122 R=40	2.0	
				Clayey SILT, with some sand, with trace rootlets; light grey streaked brownish orange. Stiff to very stiff; moist; high plasticity.							
30.20	2.50			Silty CLAY, with minor sand, with trace rootlets; dark grey streaked brownish orange. Very stiff; moist; high plasticity.					V=119 R=47	2.5	
29.70	3.00			2.90m: Some sand.					V=70 R=34	3.0	
				END OF HOLE: 3.00m (Target Depth)							

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand Auger at 53B Russell Road.
2. No groundwater encountered at time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA138
Date Augered:	**Client:**	**Hole Location:**	
04 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK113	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 33.5m	E1747865.6, N5949465.6	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
33.40	0.10	TOPSOIL		SILT, with some clay and sand, with minor rootlets; dark brown. Very stiff; dry to moist; medium plasticity to low plasticity; [TOPSOIL].							
33.00	0.50	EAST COAST BAYS FORMATION		Clayey SILT, with some sand, with trace rootlets; brownish orange and blackish grey mix. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].					V=188 R=54	0.5	
32.5	1.0			Clayey SILT, with minor sand, with trace rootlets; grades to light grey with brownish orange streaks. Very stiff; moist; medium plasticity to high plasticity.					V=134 R=60	1.0	
32.0	1.5			1.50m: Grading to stiff.					V=106 R=50	1.5	
31.5	2.0								V=67 R=20	2.0	
31.0	2.5								V=84 R=34	2.5	
30.80	2.70			Silty CLAY, with some sand, with trace rootlets; light grey with streaks of brownish orange. Stiff; moist; high plasticity.							
30.5	3.0			3.00m: Sandy CLAY, with some silt; brownish orange mixed with light grey.					V=86 R=35	3.0	
30.0	3.5			3.40m - 3.70m: With trace gravel; gravel, rounded, completely weathered, Sandstone, 5 mm.					UTP	3.5	
29.80	3.70			Clayey SILT, with trace sand; grey. Very stiff; moist; high plasticity.							
29.50	4.00			Sandy SILT, with some clay; light grey mixed with brownish orange. Very stiff; moist; medium plasticity.					V=134 R=59	4.0	
29.40	4.10			Clayey SILT, with trace sand; grey. Very stiff; moist; high plasticity.	▼						
29.10	4.40			Sandy SILT, with some clay; brownish orange. Very stiff; moist; medium plasticity.					V=126 R=57	4.5	
29.00	4.50			Clayey SILT, with trace sand; grey. Very stiff; moist; high plasticity.							
28.50	5.00			END OF HOLE: 5.00m (Target Depth)					V=171 R=72	5.0	

Scala Penetrometer (blows/50mm): 1, 2, 1 | 1, 2, 2 | 2, 2, 3 | 2, 3, 3 | 3, 5, 5 | 5, 6, 6 | 11, 8, 10 | 10, 12, 13 | 7, 15, 14 | 15, 16, 20

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture: M = moist; W = wet; S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 53B Rusell Road.
2. No Groundwater encountered at 16:55. However, Groundwater was encountered at 4.25mBGL at 08:19 (5/12/24).
3. Scala raw data from 6.45mBGL is 30 blows for 50mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA139
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK110	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 28.2m	E1747783.4, N5949453.7	4.00 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
28.00	0.20	TOPSOIL		SILT, with some clay and sand, with minor rootlets; dark brown. Very stiff; dry to moist; low plasticity to medium plasticity; [TOPSOIL].	DM						
27.70	0.50	NORTHLAND ALLOCHTHON		Clayey SILT, with some sand, with trace rootlets; light grey brown with streaks brownish orange. Very stiff; wet to moist; medium plasticity; [HUKERENUI MUDSTONE]. 0.30m: Grades to moist.					V=174 R=59	0.5	
				Silty CLAY, with minor sand, with trace rootlets; light grey with streaks of brownish orange. Very stiff; moist; high plasticity.					V=181 R=84	1.0	
26.60	1.60			CLAY, with some silt, with minor sand, with trace rootlets; light grey streaks brownish orange. Stiff; moist; high plasticity.					V=141 R=55	1.5	
					M				V=96 R=32	2.0	
25.70	2.50			Clayey SILT, with minor sand, with trace rootlets; light grey with streaks of orange. Hard; moist; high plasticity.					V=139 R=42	2.5	
									V=235	3.0	
24.60	3.60			3.50m: GRAVELS with some sand.					V=235	3.5	
24.20	4.00			SILT, with some clay and sand; dark grey and red brown. Hard; moist; medium plasticity to high plasticity.					UTP	4.0	
				END OF HOLE: 4.00m (Refusal)				6, 2, 2 4, 3, 5 5, 5, 7 8, 10, 8 8, 12, 14 14, 13, 15 12, 17, 15 15			

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater encountered at approximately 3.81mBGL at time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA140
Date Augered:	**Client:**	**Hole Location:**	
05 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK110	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 24.7m	E1747710.7, N5949464.1	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
24.5	0.25	TOPSOIL		SILT, with some sand, with minor clay; dark brownish. Very stiff; wet to moist; medium plasticity to low plasticity; [TOPSOIL].	DM						
24.10	0.60	NORTHLAND ALLOCHTHON		Clayey SILT, with some sand, with trace rootlets; brownish orange with black-grey and black mottle. Very stiff; moist; medium plasticity; [HUKERENUI MUDSTONE].					V=124 R=57	0.5	
24.0	1.0			Silty CLAY, with minor sand, with trace rootlets; brownish orange streaks of light grey. Stiff; moist; medium plasticity to high plasticity.					V=84 R=37	1.0	
23.60	1.10			Clayey SILT, with minor sand, with trace rootlets; brownish orangewith streaks of light grey. Stiff; moist; medium plasticity to high plasticity.					V=94 R=20	1.5	
23.5	1.5			1.50m: With some sand; sand, fine to coarse.							
23.0	2.0			1.80m: Clayey SILT, with minor sand, with trace rootlets; high plasticity.					V=86 R=20	2.0	
22.5	2.35			SILT, with some clay and sand, with trace rootlets; dark grey mottled light grey. Firm; moist; medium plasticity to low plasticity.	M				V=44 R=17	2.5	
22.0	2.80			2.75m: Silty CLAY, with minor sand; light grey streaks redish orange. Firm; moist; high plasticity.					V=34 R=17	3.0	
21.5	3.0			Clayey SILT, with minor sand; dark brownish grey. Firm to very stiff; medium plasticity to high plasticity.							
21.0	3.5			3.00m - 3.10m: With some sand; light brownish grey; sand, fine to coarse.					V=186 R=50	3.5	
20.60	4.10			3.10m - 4.10m: With minor sand.					V=235+	4.0	
20.5	4.5			SILT, with some clay and sand; dark grey and light grey mix. Hard; moist; medium plasticity; sand, medium to coarse.					V=235+	4.5	
20.0	4.76			Clayey SILT, with minor sand; dark grey, grey green mix. Hard; moist; medium plasticity to high plasticity; sand, medium to coarse.							
19.70	5.00			SILT, with some clay and sand; dark grey brown. Hard; moist; medium plasticity to low plasticity.						5.0	
19.5				END OF HOLE: 5.00m (Target Depth)							
19.0	5.5									5.5	
18.5	6.0									6.0	
18.0	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 53B Russell Road.
2. Groundwater encountered at approximately 3.6mBGL at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger	VANE303	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA141
Date Augered:	**Client:**	**Hole Location:**	
19 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK110	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 29m	E1747617.0, N5949466.8	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak 50 100 150 200	Scala Penetrometer (blows/0mm) 5 10 15	In Situ Testing Data/Results Depth (m)	Backfill / Install
28.90	0.10	EAST COAST BAYS FORMATION	TS	SILT; with some sand and organics; with trace rootlets; dark brown. Very stiff; dry to moist; non-plastic; [TOPSOIL].	DM					
28.60	0.40			SILT; with some sand; with minor clay; with trace rootlets; dark brown mixed brownish orange, Very stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].						
28.5	0.5			SILT; with some clay; with trace sand and rootlets; brownish orange with dark brown streaks. Very stiff; moist; medium plasticity.					V=129 R=66 0.5	
28.10	0.90									
28.0	1.0			Clayey SILT; with trace sand; light grey with brownish orange streaks. Very stiff; moist; medium plasticity.					V=157 R=70 1.0	
				1.20m: Grades to brownish orange with light grey streaks; high plasticity.						
27.50	1.50								V=149 R=66 1.5	
27.5	1.5			Silty CLAY; with trace sand; brownish orange with light grey streaks. Very stiff; moist; high plasticity.						
27.0	2.0								V=115 R=45 2.0	
26.60	2.40									
26.5	2.5			Clayey SILT; with minor sand; brownish orange mottled light grey. Stiff; moist; medium plasticity to high plasticity.	M				V=97 R=32 2.5	
				2.60m: Grades to light grey.						
26.0	3.0			3.00m: Becomes very stiff.					V=136 R=47 3.0	
25.5	3.5								V=145 R=40 3.5	
25.20	3.80									
25.0	4.0			Clayey SILT; with trace sand; dark grey. Very stiff to hard; moist; medium plasticity to high plasticity.					V=196 R=55 4.0	
24.5	4.5								V=226+ 4.5	
24.20	4.80									
24.00	5.00			SILT, with some clay and sand; dark grey. Hard; moist; low plasticity to medium plasticity; sand, fine.						
24.0	5.0			END OF HOLE: 5.00m (Target Depth)					UTP 5.0	
23.5	5.5								5.5	
23.0	6.0								6.0	
22.5	6.5								6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 88 Upper Orewa Road.
2. Groundwater encountered at approximately 4.81mBGL after drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE569	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA142
Date Augered:	**Client:**	**Hole Location:**	
19 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK110	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 23.8m	E1747548.7, N5949477.9	3.00 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
23.60	0.20	TOPSOIL	TS	SILT; with some clay and rootlets; dark brown. Stiff; dry; non-plastic; [TOPSOIL].							
23.5	0.5	EAST COAST BAYS FORMATION		Silty CLAY; brownish orange. Stiff; dry; medium plasticity; [EAST COAST BAYS FORMATION].	D		50 100 150 200	5 10 15	V=100 R=47	0.5	
23.0	0.90			Silty CLAY; light brown mottled brownish orange. Stiff; moist; high plasticity.							
22.90	1.0			1.00m: Becomes very stiff.					V=113 R=45	1.0	
22.70	1.10			Silty fine SAND; with some clay; light brown mottled brownish orange. Loose to medium dense; moist; slow dilatancy.					V=84 R=24		
22.60	1.20										
22.5	1.5								V=142 R=45	1.5	
22.20	1.60			Sandy CLAY; light brown mottled brownish orange. Very stiff; moist; medium plasticity; sand fine.	M				V=113 R=32		
22.0	2.0			Silty fine SAND; with some clay; light brown mottled brownish orange. Medium dense; moist; slow dilatancy.						2.0	
21.70	2.10			Silty SAND; brown . Medium dense; moist; dilatant.					UTP		
21.5	2.40									2.5	
21.40	2.50			Silty CLAY; brown mottled brownish orange, Hard; moist; medium plasticity.					UTP		
21.30	2.5			Silty SAND; with some clay; brownish orange mottled brown. Dense; dry; slow dilatancy.	D						
21.0	3.00								UTP	3.0	
20.80	3.0			END OF HOLE: 3.00m (Refusal)							
20.5	3.5									3.5	
20.0	4.0									4.0	
19.5	4.5									4.5	
19.0	5.0									5.0	
18.5	5.5									5.5	
18.0	6.0									6.0	
17.5	6.5									6.5	
17.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 88 Upper Orewa Road.
2. Groundwater encountered at approximately 2.54mBGL after drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA143
Date Augered:	**Client:**	**Hole Location:**	
19 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK110	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 24.8m	E1747611.9, N5949595.0	2.75 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
24.65	0.15	TOPSOIL	TS	SILT; with some sand; with trace rootlets. Very stiff; dry; non-plastic; [TOPSOIL].	D						
24.5		EAST COAST BAYS FORMATION		SILT; with some clay; with trace sand; light greyish brown with brownish orange streaks.Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].					V=129 R=50	0.5	
24.20	0.60			Clayey SILT; with trace sand; brownish orange with light grey streaks. Very stiff; moist; medium plasticity to high plasticity.							
24.0	1.0				M				V=179 R=49	1.0	
23.70	1.10			SILT; with some clay and sand; brownish orange mixed light grey and brownish red. Very stiff; moist; medium plasticity; sand fine.							
23.5									V=49 R=32	1.5	
23.40	1.40			Silty CLAY; with trace sand; brownish orange with light grey streaks. Very stiff; moist; high plasticity.							
23.30	1.50			CLAY; with some silt; with trace sand; light grey. Firm to stiff; moist; high plasticity.							
23.0									V=68 R=16 UTP	2.0	
22.80	2.00			Sandy SILT; with some clay; dark grey. Stiff; moist to wet; medium plasticity to high plasticity; sand; fine to medium.							
22.70	2.10			Silty SAND; with minor clay; dark grey. Dense; moist to wet; slow dilatancy.	M-W						
22.5	2.5									2.5	
22.20	2.60			Fine to coarse SAND, with some silt; brownish red with dark grey streaks. Dense; moist to wet; slow dilatancy.							
22.05	2.75			END OF HOLE: 2.75m (Refusal)					4, 15, 20		
22.0	3.0									3.0	
21.5	3.5									3.5	
21.0	4.0									4.0	
20.5	4.5									4.5	
20.0	5.0									5.0	
19.5	5.5									5.5	
19.0	6.0									6.0	
18.5	6.5									6.5	
18.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 88 Upper Orewa Road.
2. Groundwater encountered at approximately 1.45mBGL after drilling.
3. Scala raw data from 2.85mBGL is 35 blows for 50mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE569	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA144
Date Augered:	**Client:**	**Hole Location:**	
19 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK117	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 40.6m	E1747734.6, N5949680.0	3.70 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
40.50	0.10	TOPSOIL	TS	SILT; with some clay and rootlets; dark brown. Stiff; dry; non-plastic; [TOPSOIL].	D						
40.40	0.20		TS								
40.30	0.30		TS	Silty CLAY; brown. Stiff; moist; medium plasticity.							
				SILT; with some clay and rootlets; dark brown. Stiff; moist; non-plastic.							
40.0	0.5			Silty CLAY; hight greyish brown mottled brown. Stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].					V=95 R=37	0.5	
39.5	1.0			1.20m - 1.50m: Grades to some sand.					V=79 R=35	1.0	
39.10	1.50	EAST COAST BAYS FORMATION		Silty CLAY; light greyish brown mottled brown. Firm; wet; high plasticity.					V=44 R=17	1.5	
39.0	2.0			2.00m: Becomes stiff.	S				V=72 R=23	2.0	
38.5	2.5			2.50m: Grades to brownish orange.					V=84 R=21	2.5	
38.0				2.60m: Grades to grey.							
37.80	2.80			SAND; with some silt; grey; Loose to medium dense; wet; low dilatancy; sand; fine.							
37.60	3.00			Silty CLAY; grey. Very stiff; saturated; high plasticity.					V=186 R=66	3.0	
37.5	3.5			3.50m: Becomes hard.					UTP	3.5	
37.0											
36.90	3.70			END OF HOLE: 3.70m (Refusal)							
36.5	4.0									4.0	
36.0	4.5									4.5	
35.5	5.0									5.0	
35.0	5.5									5.5	
34.5	6.0									6.0	
34.0	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 88 Upper Orewa Road.
2. Groundwater encountered at approximately 0.88mBGL after drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE1051	JMAC	SRO

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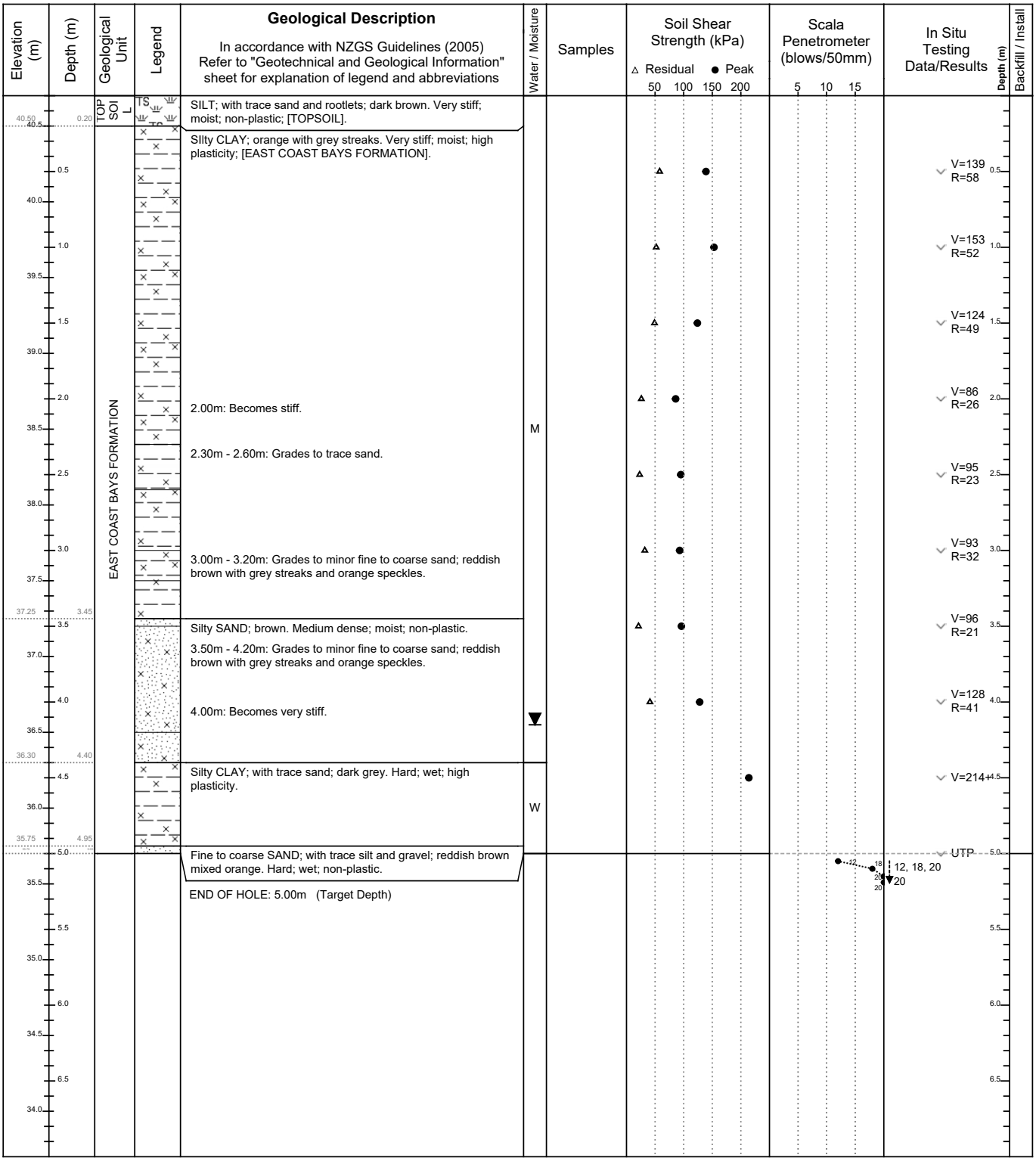
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA145

Date Augered:	Client:	Hole Location:
19 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK117

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 40.7m	E1747694.1, N5949815.4	5.00 m	Target Depth	1 of 1	FINAL



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 88 Upper Orewa Road.
2. Groundwater encountered at approximately 4.15mBGL after drilling.
3. Scala raw data from 5.10mBGL is 24 blows for 50mm.
4. Scala raw data from 5.15mBGL is 30 blows for 40mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE1051	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA146
Date Augered:	**Client:**	**Hole Location:**	
19 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK119	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 46.7m	E1747739.7, N5949866.4	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
46.60	0.10	TS		SILT; with some clay and rootlets; dark brown. Very stiff; dry; non-plastic; [TOPSOIL].	D		50 100 150 200	5 10 15			
46.5				Silty CLAY; brown. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].							
	0.5			0.50m: Becomes brownish orange mottled brown.					V=143 R=48	0.5	
46.0											
	1.0			1.00m: Becomes stiff.					V=81 R=45	1.0	
45.50	1.20										
45.5				SILT; with some clay; light greyish brown mottled brownish orange. Stiff; moist; low plasticity.							
	1.5			1.25m: Grades to include limonite banding.					V=87 R=29	1.5	
45.0				1.70m - 1.75m: Grades to silt with some sand; light brownish orange.	M				V=92 R=29	2.0	
	2.0	EAST COAST BAYS FORMATION									
44.5									V=137 R=40	2.5	
44.10	2.60			2.50m: Becomes very stiff.							
44.0				Fine SAND; with some silt and clay; brownish orange mottled brown. Medium dense; dry; non-plastic.							
	3.0								V=140 R=39	3.0	
43.60	3.10										
43.5				SILT; with some clay; light greyish brown mottled brownish orange. Stiff; moist; low plasticity.							
	3.5								V=100 R=34	3.5	
43.0	3.75										
42.80	3.90			Fine SAND; with some silt and clay; brownish orange mottled brown. Loose to medium dense; dry; non-plastic.	D						
	4.0			SILT; with some clay; brownish orange. Very stiff; moist; medium plasticity.					V=105 R=48	4.0	
42.5					▼ M						
	4.5								V=129 R=50	4.5	
42.0											
41.70	5.00			END OF HOLE: 5.00m (Target Depth)					V=187 R=55	5.0	
41.5											
	5.5									5.5	
41.0											
	6.0									6.0	
40.5											
	6.5									6.5	
40.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 88 Upper Orewa Road.
2. Groundwater encountered at approximately 4.27mBGL after drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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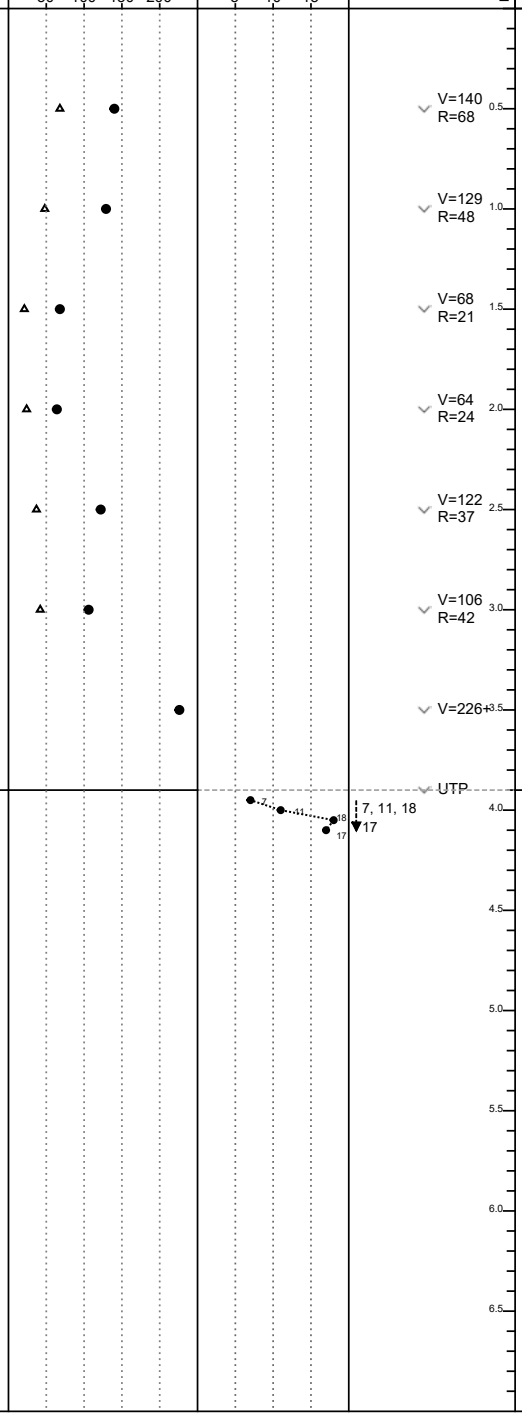
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA147
Date Augered:	**Client:**	**Hole Location:**	
19 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK119	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 43.4m	E1747790.0, N5949955.9	3.90 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
43.25	0.15	TOPSOIL	TS	SILT; with some clay and rootlets; dark brown mottled brownish orange. Very stiff; dry; medium plasticity; [TOPSOIL].	D	
43.0	0.5	EAST COAST BAYS FORMATION		Clayey SILT; brown. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].		
42.50	0.90			Clayey SAND; brownish orange. Medium dense; moist; non-plastic; sand fine.		
42.30	1.10			Clayey SILT; brownish orange. Very stiff; moist; medium plasticity.		
42.0	1.5			1.50m: Becomes stiff.	M	
41.5	2.0					
41.0	2.5			2.50m: Grades to some fine sand; very stiff.		
40.60	2.80					
40.50	2.90			Silty CLAY; light greyish brown mottled brownish orange. Very stiff; moist; low plasticity.		
40.5	3.0					
40.30	3.10			SAND; with some clay; brown. Loose to medium dense; wet; non-plastic; sand; fine.		
40.0	3.5			Silty CLAY; brownish orange. Very stiff; wet; high plasticity. 3.30m: Grades to grey. 3.50m: Become hard.	W	
39.50	3.90			END OF HOLE: 3.90m (Refusal)		
39.0	4.0					
38.5	4.5					
38.0	5.0					
37.5	5.5					
37.0	6.0					
36.5	6.5					



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 3.84mBGL after drilling.
3. Bouncing recorded for scala measurement from 4.00mBGL.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA148
Date Augered:	**Client:**	**Hole Location:**	
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK118	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 56.9m	E1747697.4, N5950004.3	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
56.80	0.10	TS		SILT; with trace sand and rootlets; dark brown. Very stiff; moist; high plasticity; [TOPSOIL].							
56.5	0.5	EAST COAST BAYS FORMATION		Clayey SILT; with trace sand and rootlets; brownish orange mottled light grey. Very stiff; moist; medium plasticity to high plasticity; [EAST COAST BAYS FORMATION]. 0.50m: Grades to light grey; stiff; high plasticity.					V=144 R=63	0.5	
56.0	1.0								V=110 R=53	1.0	
55.70	1.20			Silty CLAY; with trace sand and rootlets; brownish orange with light grey streaks. Very stiff; moist; high plasticity.							
55.5	1.5			1.50m: Becomes stiff.					V=97 R=49	1.5	
55.0	2.0			2.00m: Becomes very stiff.					V=112 R=49	2.0	
54.5	2.5				M				V=113 R=50	2.5	
54.0	3.0								V=126 R=61	3.0	
53.90	3.00			SILT; with some clay; with minor sand; with trace rootlets; light grey with brownish orange streaks. Very stiff; moist; medium plasticity.							
53.70	3.20			Clayey SILT; with minor sand; brownish orange with light grey streaks. Very stiff; moist; medium plasticity to high plasticity.					V=165 R=68	3.5	
53.5	3.5										
53.10	3.80			Silty CLAY with trace sand; brownish orange with light grey streaks. Very stiff; moist; high plasticity.							
53.0	4.0			Clayey SILT; with minor sand; light brownish orange. Very stiff; moist; medium plasticity to high plasticity.					V=113 R=47	4.0	
52.90	4.00										
52.5	4.5			4.50m: Grades to some fine to medium sand; light grey.	▼				V=118 R=52	4.5	
52.0	5.0								V=155 R=133	5.0	
51.90	5.00			END OF HOLE: 5.00m (Target Depth)							
51.5	5.5									5.5	
51.0	6.0									6.0	
50.5	6.5									6.5	
50.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 4.61mBGL after drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE569	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA149
Date Augered:	**Client:**	**Hole Location:**	
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK118	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 41.1m	E1747565.8, N5949994.6	4.50 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
41.00	0.10	PS	TS	SILT; with minor clay and sand and rootlets; dark brown. Very stiff; dry to moist; low plasticity; [TOPSOIL].	D-M						
40.90	0.20	EAST COAST BAYS FORMATION		SILT; with some clay; with trace sand and rootlets; dark brown mottled grey. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].							
40.30	0.80			Clayey SILT; with trace sand and rootlets; brownish orange with light grey streaks. Very stiff; moist; medium plasticity to high plasticity.							
39.40	1.70			Silty CLAY; with trace sand and rootlets; brownish orange with light grey streaks. Very stiff; moist; high plasticity.							
38.60	2.50			Clayey SILT; with minor sand; with trace rootlets; brownish orange with light grey streaks. Stiff; moist; medium plasticity to high plasticity; sand; fine.	M						
38.00	3.10			Silty CLAY; with some sand; brownish red and light grey with brownish orange streaks. Stiff; moist; high plasticity. 2.70m: Grades to light grey with brownish orange streaks. 3.00m: Becomes very stiff.							
37.60	3.50			Clayey SILT; with trace sand; dark grey. Very stiff; moist; high plasticity. 3.20m: Grades to minor sand.							
36.60	4.50			SILT; with some clay; with trace sand; dark grey. Hard; moist; medium plasticity.							
				END OF HOLE: 4.50m (Refusal)							

Soil Shear Strength (kPa): 50, 100, 150, 200

Scala Penetrometer (blows/50mm): 5, 10, 15

In Situ Testing Data/Results: V=124 R=52 (0.5); V=119 R=53 (1.0); V=116 R=53 (1.5); V=100 R=37 (2.0); V=65 R=27 (2.5); V=115 R=23 (3.0); V=210 R=55 (3.5); UTP (4.0)

Scala: 5, 14, 20 / 20

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 4.2mBGL after drilling.
3. Scala raw data from 4.65mBGL is 39 blows for 50mm and recorded bouncing.
4. Scala raw data from 4.70mBGL is 30 blows for 10mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE569	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA150
Date Augered:	**Client:**	**Hole Location:**	
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK118	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 39.1m	E1747527.0, N5950048.9	4.10 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
39.0	0.15	TOPSOIL	TS	SILT; with minor sand; with trace clay and rootlets; dark brown. Very stiff; moist; non-plastic; [TOPSOIL].							
38.60	0.50	EAST COAST BAYS FORMATION		SILT; with some clay; with trace sand and rootlets; dark brown mixed brownish orange. Very stiff; moist; low plasticity to medium plasticity; [EAST COAST BAYS FORMATION].					V=116 R=53	0.5	
38.5				Clayey SILT; with minor sand; light brownish orange. Very stiff; moist; medium plasticity to high plasticity.							
38.0	1.0			1.00m: Grades to light grey streaks; very stiff.					V=74 R=32	1.0	
37.90	1.20			SILT; with some sand; with minor clay; light grey. Stiff; moist; low plasticity.							
37.60	1.50			Sandy SILT; with minor clay; light grey. Stiff; moist; low plasticity.					V=92 R=28	1.5	
37.5											
37.10	2.00			Silty SAND; light brownish grey. Loose to medium dense; moist; non-plastic; sand; fine to medium.	M				V=79 R=24	2.0	
37.0	2.20			Sandy SILT; with minor clay; brownish orange with light grey streaks. Stiff; moist; low plasticity.							
36.90	2.50			Silty SAND; light brownish grey. Loose to medium dense; moist; non-plastic; sand; fine to medium.					V=89 R=21	2.5	
36.60	3.00								UTP	3.0	
36.5											
36.10	3.10			Fine to course SAND; with trace gravel; subangular to angular. Dense; moist; non-plastic.							
36.00											
36.0	3.40			Silty SAND; light brownish grey. Medium dense; moist; non-plastic; sand; fine to medium.							
35.70	3.50			Sandy SILT, with minor gravel; brownish orange and brownish red. Medium dense; moist; non-plastic; gravel, angular, 5mm.					V=138 R=15	3.5	
35.60	3.70			Fine to course SAND; with some silt, with trace gravel; brownish orange and brownish red. Medium dense; moist; non-plastic; gravel, angular, 5mm.							
35.5	4.0								UTP	4.0	
35.40	4.10			Clayey SILT; with trace sand; dark grey. Very stiff to hard; moist; high plasticity.					5, 15, 18 20		
35.0				END OF HOLE: 4.10m (Refusal)							
34.5	4.5									4.5	
34.0	5.0									5.0	
33.5	5.5									5.5	
33.0	6.0									6.0	
32.5	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 3.29mBGL after drilling.
3. Bouncing recorded for scala measurement from 4.2mBGL.
4. Scala raw data from 4.25mBGL is 36 blows for 50mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE569	JOMU	SRO

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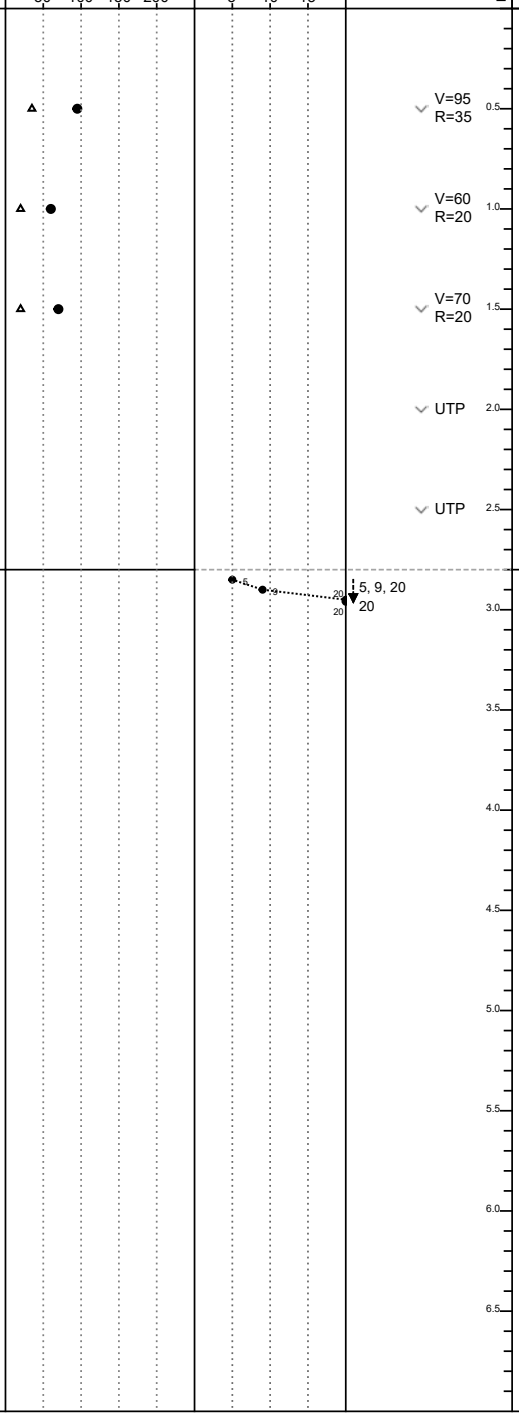
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA151
Date Augered:	**Client:**	**Hole Location:**	
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK124	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 31.3m	E1747438.4, N5950030.6	2.80 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
31.10	0.20	TOPSOIL	TS	SILT; with trace clay and sand and rootlets; dark brown. Firm; moist; low plasticity; [TOPSOIL].		
31.0	0.5	EAST COAST BAYS FORMATION		Silty CLAY; orange with grey streaks. Stiff; moist; low plasticity; [EAST COAST BAYS FORMATION].	M	
30.5	1.0					
30.0	1.5			1.60m: Becomes wet.		
29.50	1.80			Sandy SILT; brown. Loose to medium dense; wet; non-plastic.	W	
29.5	2.0			1.90m: Grades to dark grey.		
29.0	2.5			2.00m: Becomes hard.		
28.70	2.60			Clayey SILT; with minor sand; dark grey. Hard; wet; non-plastic.		
28.50	2.80			END OF HOLE: 2.80m (Refusal)		
28.0	3.0					
27.5	3.5					
27.0	4.0					
26.5	4.5					
26.0	5.0					
25.5	5.5					
25.0	6.0					
24.5	6.5					



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 2.4mBGL after drilling.
3. Scala raw data from 2.9mBGL is 22 blows for 50mm.
4. Scala raw data from 2.95mBGL is 30 blows for 10mm and recorded bouncing.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE1051	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA152
Date Augered:	**Client:**	**Hole Location:**	
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK124	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 32.2m	E1747401.2, N5950061.9	4.70 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
32.0	0.0	TOPSOIL	TS	SILT; with trace sand and rootlets; dark brown. Firm; moist; low plasticity; [TOPSOIL].			50 100 150 200	5 10 15			
31.80	0.40										
31.5	0.5	EAST COAST BAYS FORMATION		Silty CLAY; grey with orange streaks. Stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].	M				V=72 R=24	0.5	
				0.50m: Becomes stiff.							
31.0	1.0			1.00m: Becomes soft.					V=18 R=5	1.0	
30.90	1.30										
30.5	1.5			Sandy SILT; dark grey. Very stiff; wet; non-plastic.					V=147 R=12	1.5	
30.0	2.0								V=150 R=17	2.0	
29.5	2.5								V=171 R=31	2.5	
29.0	3.0			3.00m: Becomes hard.	W				V=214+	3.0	
28.90	3.30										
28.80	3.40			Clayey SILT; with trace sand; brown with dark grey streaks. Hard; wet; low plasticity.							
28.70	3.50								V=214+	3.5	
28.5	3.5			Sandy SILT; brown with dark grey streaks. Hard; wet; non-plastic.							
28.0	4.0			SILT; with some clay; with minor sand; dark grey, Hard; wet; low plasticity.					UTP	4.0	
27.50	4.70										
27.5				END OF HOLE: 4.70m (Refusal)				20	20		
27.0	5.0									5.0	
26.5	5.5									5.5	
26.0	6.0									6.0	
25.5	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 3.8mBGL after drilling.
3. Scala raw data from 4.7mBGL is 30 blows for 40mm and recorded bouncing.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE1051	JMAC	SRO

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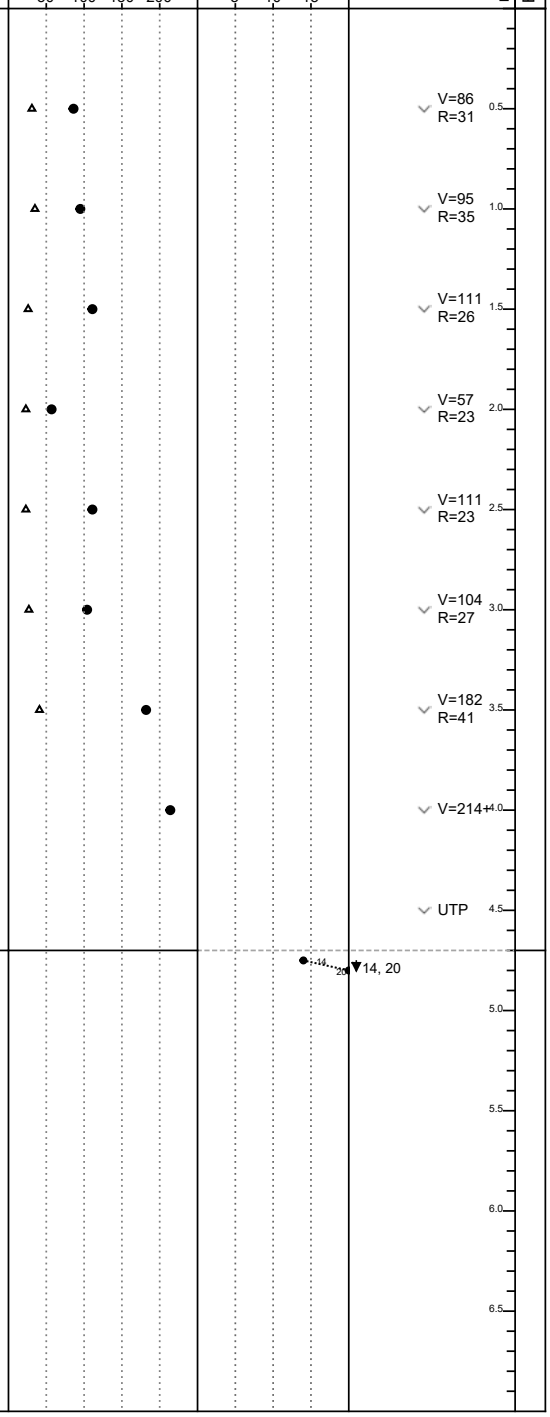
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA153

Date Augered:	Client:	Hole Location:
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK124

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 38.3m	E1747364.7, N5950090.9	4.70 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
38.00	0.30	TOPSOIL	TS	SILT; with trace sand and rootlets; dark brown. Firm; moist; low plasticity; [TOPSOIL].		
38.0	0.5	EAST COAST BAYS FORMATION		Silty CLAY; grey with orange streaks. Stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].		
37.5	1.0					
37.0	1.5			1.40m - 2.60m: Grades to trace sand; orange with grey streaks; very stiff.	M	
36.5	2.0			1.50m: Becomes very stiff.		
36.0	2.5			2.00m: Becomes stiff.		
35.70	2.60			Clayey SILT; with trace sand; dark grey. Very stiff; wet; low plasticity.		
35.5	3.0					
35.0	3.5					
34.80	3.50			Silty CLAY; dark grey. Very stiff; wet; high plasticity.	W	
34.5	4.0			4.00m: Becomes hard.		
34.0	4.5			4.50m - 4.70m: Grades to trace sand.		
33.60	4.70			END OF HOLE: 4.70m (Refusal)		
33.5	5.0					
33.0	5.5					
32.5	6.0					
32.0	6.5					
31.5						



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 130 Upper Orewa Road.
2. Groundwater encountered at approximately 4.5mBGL after drilling.
3. Scala raw data from 4.75mBGL is 30 blows for 45mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE1051	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA154
Date Augered:	**Client:**	**Hole Location:**	
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK124	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 60.9m	E1747175.4, N5950044.7	2.95 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description	Water / Moisture	Samples
60.70	0.20	TOPSOIL	TS	SILT; with some clay and rootlets; dark brown. Very stiff; dry; non-plastic; [TOPSOIL].		
60.5	0.5	EAST COAST BAYS FORMATION		Silty CLAY; dark brown mottled brownish orange. Very stiff; dry; medium plasticity; [EAST COAST BAYS FORMATION].		
				0.50m: Grades to brownish orange and light brown mottled brown; high plasticity.	D	
60.0	1.0			1.00m: Becomes stiff.		
59.60	1.30			Clayey SAND; light grey mottled brownish orange. Loose to medium dense; moist; non-plastic; sand; fine.		
59.5						
59.40	1.50			Fine SAND; with some clay; light grey mottled brownish orange. Loose to medium dense; moist; non-plastic.	M	
59.0	2.0					
58.70	2.20			Silty fine SAND; grey. Dense; saturated; non-plastic.		
58.5	2.5				S	
58.00	2.90			SILT; grey. Hard; dry; non-plastic.	D	
58.0	3.0			END OF HOLE: 2.95m (Refusal)		

Soil Shear Strength (kPa): △ Residual ● Peak — 50 100 150 200

Scala Penetrometer (blows/50mm): 5 10 15

In Situ Testing Data/Results	Depth (m)
V=100 R=45	0.5
V=77 R=40	1.0
V=97 R=29	1.5
V=209 R=45	2.0
V=226+	2.5
20	2.9
UTP	3.0

Backfill / Install

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 2.0mBGL after drilling.
3. Scala raw data from 2.95mBGL is 60 blows for 50mm and recorded bouncing.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA155
Date Augered:	**Client:**	**Hole Location:**	
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK123	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 42m	E1747299.3, N5949963.8	2.95 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
41.60	0.40	TOPSOIL	TS	SILT; with some clay and rootlets; dark brown. Very stiff; dry; low plasticity; [TOPSOIL].	D						
41.5	0.5	EAST COAST BAYS FORMATION		Silty CLAY; dark brown mottled brown. Very stiff; moist; highly plasticity; [EAST COAST BAYS FORMATION].					V=121 R=40	0.5	
				0.60m: Grades to light grey mottled brown.							
41.0	1.0								V=97 R=48	1.0	
				1.00m: Grades to light grey mottled brownish orange; stiff.	M						
40.5	1.5								V=53 R=32	1.5	
39.95	2.05				▼						
40.0	2.0								V=61 R=24	2.0	
				Clayey fine SAND; grey. Loose to medium dense; saturated; slow dilatancy.							
39.60	2.40										
39.5	2.5			Clayey SILT; brownish orange with light brownish grey speckles. Stiff; saturated; medium plasticity.	S				V=53 R=23	2.5	
39.05	2.95										
39.0	3.0			END OF HOLE: 2.95m (Refusal)					UTP 20	3.0	
38.5	3.5									3.5	
38.0	4.0									4.0	
37.5	4.5									4.5	
37.0	5.0									5.0	
36.5	5.5									5.5	
36.0	6.0									6.0	
35.5	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual
- UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 2.0mBGL after drilling.
3. Scala raw data from 2.95mBGL is 25 blows for 50mm and bouncing recorded.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA156

Date Augered:	Client:	Hole Location:
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK123

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 37.4m	E1747373.9, N5949932.6	3.10 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
37.25	0.15	TOPSOIL	TS	SILT; with some clay and rootlets; dark brown. Stiff; dry; non-plastic; [TOPSOIL].	D	
37.0	0.5	EAST COAST BAYS FORMATION		Clayey SILT; dark brown mottled brown. Stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].		
				0.50m: Grades to brown mottled brownish orange and dark brown.		
36.5	1.0			0.80m: Grades to light greyish brown mottled brownish orange.	M	
36.0	1.5			1.50m: Becomes firm.		
35.40	2.00			Clayey SILT; with some sand; brownish orange mottled light grey. Firm; moist; medium plasticity.		
35.10	2.30			SAND; with some clay; brownish orange mottled light grey. Loose to medium dense; saturated; non-plasticity.	S	
34.90	2.50			Fine SAND; brownish orange with light grey streaks. Loose to medium dense; saturated; dilatant.		
34.70	2.70			Fine SAND; with some clay; brownish orange mottled light grey. Loose to medium dense; saturated; dilatant.		
34.55	2.85			SILT; with some clay; grey. Hard; moist; slow dilatancy.	M	
34.30	3.10			END OF HOLE: 3.10m (Refusal)		

Soil Shear Strength (kPa): △ Residual ● Peak; 50 100 150 200

Scala Penetrometer (blows/50mm): 5 10 15

In Situ Testing Data/Results (Depth (m)):
- 0.5: V=98 R=40
- 1.0: V=81 R=39
- 1.5: V=48 R=32
- 2.0: V=31 R=19
- 3.0: V=225+
- 20: 20

Backfill / Install

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture: M = moist; W = wet; S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 1.6mBGL after drilling.
3. Scala raw data from 3.10mBGL is 70 blows for 50mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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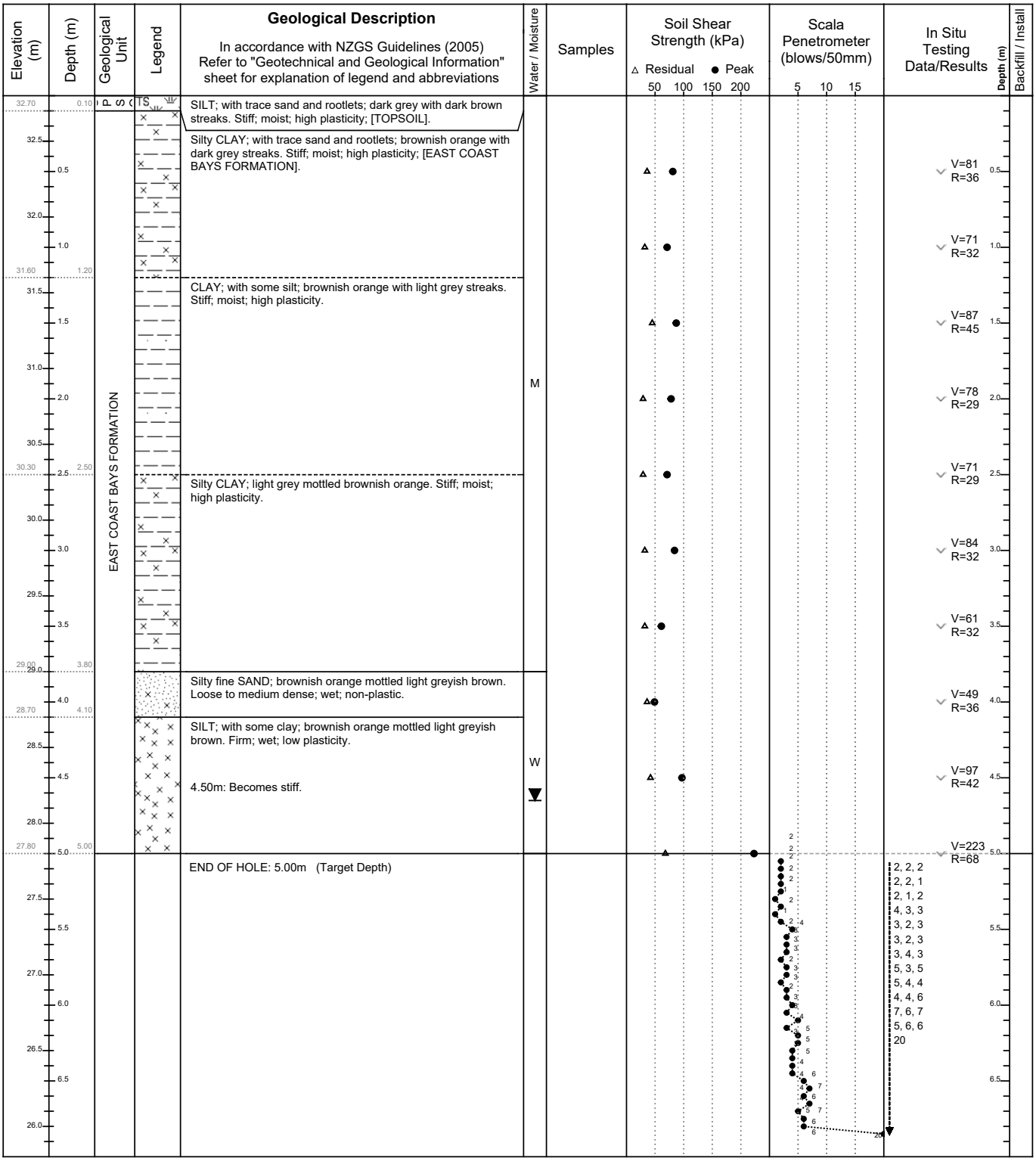
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA157

Date Augered:	Client:	Hole Location:
18 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK122

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 32.8m	E1747215.6, N5949655.4	5.00 m	Target Depth	1 of 1	FINAL



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 4.65mBGL after drilling.
3. Scala raw data from 6.8mBGL is 26 blows for 50mm and bouncing recorded.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE569	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA158
Date Augered:	**Client:**	**Hole Location:**	
17 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK122	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 31.9m	E1747454.4, N5949614.9	5.00 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
31.80	0.10	TS		SILT; with some clay and organics; dark brown. Very stiff; dry; non-plastic; [TOPSOIL].	D						
31.5	0.5	EAST COAST BAYS FORMATION		Clayey SILT; brownish orange mottled light brown with limonite staining. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].					V=113 R=65	0.5	
31.0	1.0								V=126 R=66	1.0	
30.5	1.5			1.20m: Becomes stiff.					V=126 R=56	1.5	
30.0	2.0			1.50m: Becomes very stiff.					V=97 R=48	2.0	
29.5	2.5			2.10m: Relict limonite joint; stiff.					V=145 R=40	2.5	
29.0	3.0			2.40m: Becomes very stiff.	M				V=109 R=24	3.0	
28.5	3.5			2.70m: Becomes stiff.					V=52 R=32	3.5	
28.0	4.0			3.60m: Relict limonite joint; very stiff.					V=193 R=32	4.0	
27.5	4.5			4.20m: Becomes hard.					V=61 R=29	4.5	
27.0	5.0			4.50m: Becomes very stiff.					V=74 R=29	5.0	
26.90	5.00			4.80m: Becomes hard.					V=64 R=29		
26.5	5.5			END OF HOLE: 5.00m (Refusal)					V=193 R=52		
26.0	6.0								V=174 R=55		
25.5	6.5								V=226+		
25.0									V=116 R=74		
									V=209 R=52		

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 132 Upper Orewa Road.
2. No groundwater encountered at the time of drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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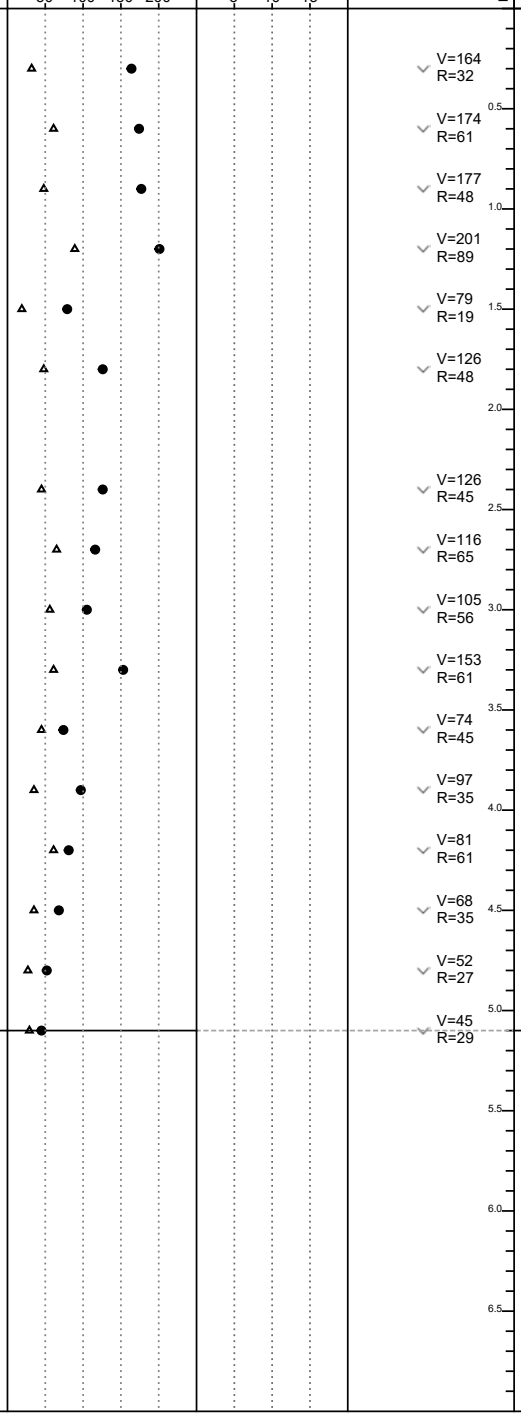
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA159
Date Augered:	**Client:**	**Hole Location:**	
17 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK121	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 22.9m	E1747449.0, N5949560.6	5.10 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description	Water / Moisture	Samples
22.80	0.10	TS		SILT; with some clay and rootlets; dark brown. Very stiff; dry; non-plastic; [TOPSOIL].	D	
22.5	0.5	EAST COAST BAYS FORMATION		Silty CLAY; light brown mottled brown. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].		
22.0	1.0			0.80m: Grades to brown mottled dark grey with brownish orange speckles.		
21.5	1.5			1.50m: Becomes stiff.		
21.0	2.0			1.80m: Becomes very stiff. 1.90m: Grades to some gravel; medium; rounded; 10mm.		
20.50	2.40			Silty CLAY; with some gravel; dark grey mottled brownish orange. Very stiff; moist; high plasticity.	M	
20.20	2.70			Silty CLAY; greyish brown. Very stiff; moist; high plasticity.		
20.0	3.0					
19.40	3.50			Clayey SILT; dark greyish brown. Very stiff; moist; medium plasticity.		
19.0	4.0			3.60m: Becomes stiff. 4.20m: Becomes dark grey.		
18.40	4.50			Silty CLAY; grey. Stiff; moist; high plasticity.		
18.0	5.0					
17.80	5.10			END OF HOLE: 5.10m (Target Depth)		
17.5	5.5					
17.0	6.0					
16.5	6.5					
16.0						



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 3.5mBGL after drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE111	DAVA	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA160
Date Augered:	**Client:**	**Hole Location:**	
17 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK121	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 42.4m	E1747399.3, N5949468.6	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description	Water / Moisture	Samples	Soil Shear Strength (kPa)	Scala Penetrometer (blows/0mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
42.30	0.10	TS		SILT; with some sand; with minor rootlets; with trace clay; dark brown. Very stiff; dry; non-plastic; [TOPSOIL].	D		△ Residual ● Peak 50 100 150 200	5 10 15			
42.0	0.5	EAST COAST BAYS FORMATION		SILT; with some clay; with trace sand and rootlets and gravel; dark brown with brownish orange streaks. Gravel, subangular, 15mm. Very stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION]. 0.30m: Grades to gravel absent.					V=179 R=74	0.5	
41.50	0.90										
41.5	1.0			SILT; with some clay; with minor sand; light grey with light brownish orange streaks, Stiff to very stiff; moist; medium plasticity.					V=142 R=68	1.0	
41.0	1.5			1.50m: Becomes stiff.					V=89 R=37	1.5	
40.50	1.90			1.80m: Grades to light grey with dark brown streaks.							
40.5	2.0			SILT; with some clay; with minor sand; with trace gravel; light grey and brownish orange with dark brown streaks. Stiff; moist; low plasticity to medium plasticity; gravel; subangular to angular, 5mm.					V=87 R=31	2.0	
40.00	2.40										
40.0	2.5			Clayey SILT; with minor sand; light grey with dark brown streaks. Stiff; moist; medium plasticity to high plasticity.	M				V=89 R=29	2.5	
39.5	3.0								V=79 R=29	3.0	
39.40	3.00			Silty CLAY; with minor sand; light grey with dark brown streaks. Stiff; moist; high plasticity.							
39.0	3.5			3.50m - 3.60m: Grades to trace gravel; subangular to subrounded; 5mm.					V=95 R=36	3.5	
38.5	4.0								V=61 R=32	4.0	
38.35	4.05			Silty SAND; brownish orange mottled black. Loose to medium dense; moist; non-plastic.							
38.0	4.5			4.10m: Grades to silty clay; medium plasticity.	▼				V=73 R=39	4.5	
37.50	4.90										
37.5	5.0			SILT; with some clay and sand; light brownish grey. Very stiff; moist; medium plasticity.					V=131 R=34	5.0	
37.40	5.00			END OF HOLE: 5.00m (Target Depth)							
37.0	5.5									5.5	
36.5	6.0									6.0	
36.0	6.5									6.5	
35.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 4.35mBGL after drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE569	JOMU	SRO

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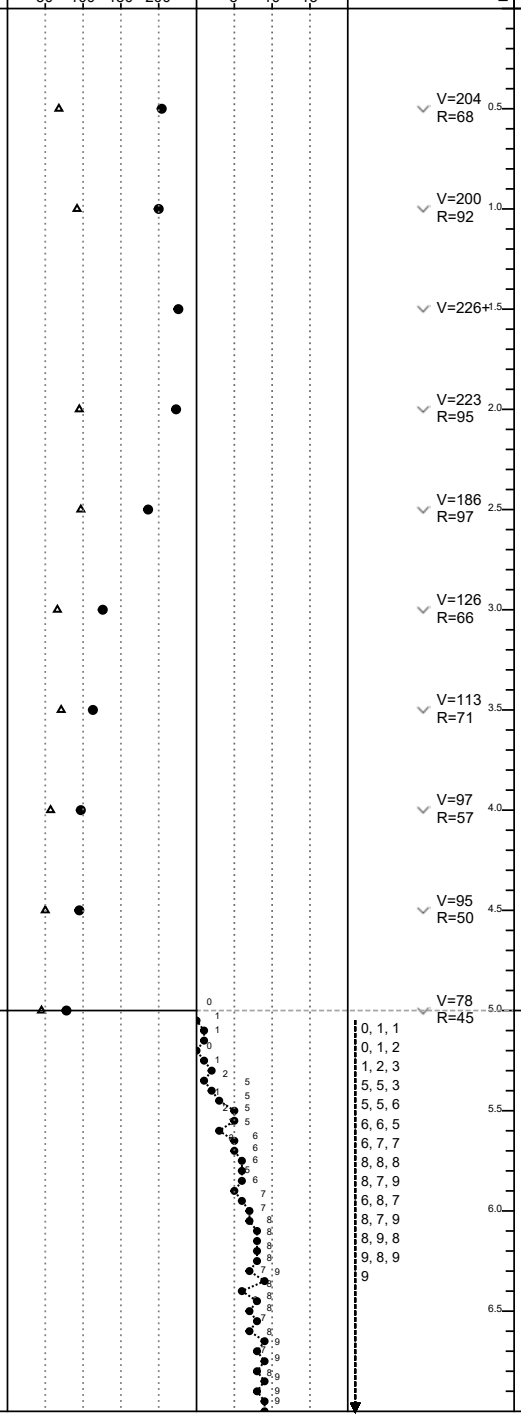
HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA161
Date Augered:	**Client:**	**Hole Location:**	
17 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK121	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 28.8m	E1747369.6, N5949565.3	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples
28.65	0.15	TOPSOIL	TS	SILT; with minor clay and sand and rootlets; dark brown. Very stiff; dry; low plasticity; [TOPSOIL].	D	
28.40	0.40			Silty fine SAND; with trace rootlets; brownish orange. Medium dense; dry; non-plastic.		
28.20	0.60			Sandy SILT; with trace rootlets; light brownish grey mottled light grey. Very stiff; moist; non-plastic; [EAST COAST BAYS FORMATION].		
28.00	0.80			0.50m: Becomes hard.		
27.60	1.20			SILT; with some clay; with trace sand; light grey with brownish orange streaks. Hard; moist; low plasticity to medium plasticity.		
				Clayey SILT; with trace sand; brownish orange with light grey streaks. Hard; moist; medium plasticity.		
				SILT; with some clay; with trace sand and gravel; light grey with dark brownish orange streaks. Hard; moist; medium plasticity; gravel; subangular to subrounded; 5mm.		
26.80	2.00	EAST COAST BAYS FORMATION		Clayey SILT; with trace sand; brownish orange with light grey streaks. Very stiff; moist; medium plasticity.		
				2.50m: Becomes very stiff.		
26.10	2.70			Silty CLAY; with trace sand; brownish orange with light grey streaks. Very stiff; moist; high plasticity.	M	
				3.00m - 3.10m: Grades to light grey with brownish orange streaks.		
				3.60m: Grades to minor fine to medium sand.		
				4.00m: Grades to light grey, stiff.		
23.80	5.00			END OF HOLE: 5.00m (Target Depth)		



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 4.9mBGL after drilling.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE569	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA162
Date Augered:	**Client:**	**Hole Location:**	
17 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK121	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 25.2m	E1747307.6, N5949570.1	3.85 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
25.0	0.25	TOPSOIL	TS	SILT; with minor clay sand and rootlets; dark brown. Very stiff; moist; non-plastic to low plasticity; [TOPSOIL].							
24.5	0.5	EAST COAST BAYS FORMATION		Clayey SILT; with trace sand and rootlets; light grey and brownish orange with grey streaks. Stiff; most; high plasticity; [EAST COAST BAYS FORMATION].					V=118 R=49	0.5	
				0.50m: Grades to brownish orange with light grey streaks.							
24.20	1.00			Silty CLAY; with trace sand; brownish orange with light grey streaks. Stiff; moist; medium plasticity.					V=71 R=29	1.0	
24.00	1.20			Silty CLAY; with some sand; with trace gravel; brownish orange mixed light grey. Very stiff; moist; high plasticity; sand fine to medium; gravel; subangular to subgrounded; 3mm.					V=104 R=24	1.5	
23.5	1.5			1.50m: Becomes very stiff.							
23.40	1.80			Clayey SILT; with minor sand; light brown mixed light grey, Very stiff; moist; medium plasticity to high plasticity.	M				V=144 R=18	2.0	
23.20	2.00			Clayey SILT; with trace sand; dark grey. Very stiff; moist; medium plasticity to high plasticity.							
23.0	2.0										
22.5	2.5			2.50m: Grades to light grey; stiff.					V=78 R=26	2.5	
22.0	3.0			3.00m - 3.15m: Core loss, no recovery.					V=99 R=29	3.0	
				3.15m: Grades to dark grey.							
21.5	3.5			3.50m: Becomes hard.					UTP	3.5	
21.35	3.85			3.60m: Grades to minor sand.							
21.0	4.0			END OF HOLE: 3.85m (Refusal)				2, 4, 9 9, 10, 17 17, 20		4.0	
20.5	4.5									4.5	
20.0	5.0									5.0	
19.5	5.5									5.5	
19.0	6.0									6.0	
18.5	6.5									6.5	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 2.3mBGL after drilling.
3. Bouncing recorded for scala measurements from 4.1mBGL.
3. Scala raw data from 4.2mBGL is 29 for 50mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE569	JOMU	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA163

Date Augered:	Client:	Hole Location:
17 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK121

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 31.1m	E1747253.7, N5949547.3	5.00 m	Target Depth	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
31.0	0.00	TOPSOIL	TS TS	SILT; with some clay; with trace sand and rootlets; dark brown. Very stiff; moist; low plasticity; [TOPSOIL].							
30.80	0.30	EAST COAST BAYS FORMATION		Silty CLAY; with trace sand; orange with grey streaks. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].					V=107 R=23	0.5	
30.5	0.5								V=124 R=37	1.0	
30.0	1.0								V=116 R=38	1.5	
29.5	1.5				M				V=83 R=37	2.0	
29.0	2.0			2.00m: Becomes stiff.					V=115 R=26	2.5	
28.5	2.5			2.50m: Becomes very stiff.					V=101 R=47	3.0	
28.0	3.0								V=137 R=34	3.5	
27.5	3.5				▼				V=214+	4.0	
27.00	4.0			3.90m - 4.10m: Grades to orange; wet.					V=214+	4.5	
27.0	4.10			Silty CLAY; dark grey. Hard; wet; high plasticity.	W				UTP	5.0	
26.10	5.00			END OF HOLE: 5.00m (Target Depth)				12, 14, 14 20, 20, 20			
26.0	5.5									5.5	
25.5	6.0									6.0	
25.0	6.5									6.5	
24.5											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 3.6mBGL after drilling.
3. Scala raw data from 5.15mBGL is 24 and 23 blows per 50mm.
4. Scala raw data from 5.25mBGL is 20 blows for 30mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE1051	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA164

Date Augered:	Client:	Hole Location:
17 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK121

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 41.7m	E1747173.9, N5949505.1	4.50 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
41.50	0.20	TOPSOIL	TS	SILT; with trace clay and sand and rootlets; dark brown. Firm; moist; low plasticity; [TOPSOIL].							
		EAST COAST BAYS FORMATION		Sandy SILT; brownish orange. Very stiff; moist; non-plastic; [EAST COAST BAYS FORMATION].							
41.20	0.50			Silty CLAY; orange with grey streaks. Very stiff; moist; high plasticity.					V=127 R=44	0.5	
41.0	1.0								V=122 R=52	1.0	
40.5	1.5								V=121 R=44	1.5	
40.0	2.0			1.90m - 3.50m: Grades to trace sand.	M				V=125 R=49	2.0	
39.5	2.5			2.50m: Becomes stiff.					V=79 R=29	2.5	
39.0	3.0								V=63 R=20	3.0	
38.5	3.5								V=136 R=29	3.5	
38.20	3.50			Sandy SILT; orange. Very stiff; wet; non-plastic.							
38.0	3.80			Clayey SILT; with trace sand; dark grey. Very stiff to hard; wet; low plastticity.	W				V=214+	4.0	
37.90	4.0										
37.5	4.5								UTP	4.5	
37.20	4.50			END OF HOLE: 4.50m (Refusal)				20	20		
37.0	5.0									5.0	
36.5	5.5									5.5	
36.0	6.0									6.0	
35.5	6.5									6.5	
35.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual, UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks

1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 4.4mBGL after drilling.
3. Scala raw data from 4.50mBGL is 30 blows for 50mm and bouncing recorded.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE1051	JMAC	SRO

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HAND AUGER LOG

Project No.:	Project name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	HA165
Date Augered:	**Client:**	**Hole Location:**	
17 Dec 2024	Vineway Ltd	Refer to Riley Dwg 240065-SK121	

Ground Level:	Co-ordinates:	Hole Depth:	Reason Terminated:	Sheet:	Status:
RL 57.8m	E1747178.5, N5949409.5	4.80 m	Refusal	1 of 1	FINAL

Elevation (m)	Depth (m)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005) Refer to "Geotechnical and Geological Information" sheet for explanation of legend and abbreviations)	Water / Moisture	Samples	Soil Shear Strength (kPa) △ Residual ● Peak	Scala Penetrometer (blows/50mm)	In Situ Testing Data/Results	Depth (m)	Backfill / Install
57.60	0.20	TOPSOIL	TS	SILT; with some clay; with trace sand and rootlets; dark brown. Firm; moist; low plasticity; [TOPSOIL].							
57.5	0.5	EAST COAST BAYS FORMATION		Silty CLAY; brownish orange. Very stiff; moist; high plasticity; [EAST COAST BAYS FORMATION].					V=134 R=47	0.5	
57.0	1.0								V=102 R=46	1.0	
56.70	1.10			Clayey SILT; with trace sand; orange with grey streaks. Very stiff; moist; high plasticity.	M						
56.5	1.5			1.50m: Becomes stiff.					V=73 R=18	1.5	
56.0	2.0								V=69 R=27	2.0	
55.5	2.5								V=67 R=27	2.5	
55.10	2.70										
55.00	2.80			SILT; with trace sand; dark brown. Stiff; wet; low plasticity.							
55.0	3.0			Clayey SILT; with trace sand; grey with orange streaks. Stiff; wet; low plasticity.					V=87 R=57	3.0	
54.5	3.5			3.30m: Grades to dark grey.					V=183 R=57	3.5	
54.0	4.0			3.50m: Becomes very stiff.	W				20, 20, 20 V=188 R=66	4.0	
53.5	4.5			3.80m: Grades to some sand.					V=214	4.5	
53.00	4.80			4.50m: Becomes hard.					UTP		
53.0	5.0			END OF HOLE: 4.80m (Refusal)						5.0	
52.5	5.5									5.5	
52.0	6.0									6.0	
51.5	6.5									6.5	
51.0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Standing Water Level
- Out-flow
- In-flow

Moisture:
M = moist
W = wet
S = saturated

- Scala Penetrometer Tests: Raw data in blows per 50mm unless remarks state otherwise
- Vane Shear Strength (kPa): V = Peak, R = Residual; UTP = Unable To Penetrate

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks
1. Hand auger at 132 Upper Orewa Road.
2. Groundwater encountered at approximately 3.6mBGL after drilling.
3. Scala raw data from 3.8mBGL is 21 and 26 blows per 50mm.
4. Scala raw data from 3.9m0mBGL is 30 blows for 40mm.

All dimensions in metres NOT TO SCALE	Contractor (if applicable):	Instrument Details:	Shear Vane No.:	Logged By:	Checked By:
	N/A	Hand Auger 50 mm	VANE1051	JMAC	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH01

Client:	Start Date: 06 Dec 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK111

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748082.0, N 5949623.0	33.4 m	12.00	-90°	N/A	1 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
33.15	0.25	Rotary cored	0.00	80 - -	20	FILL		Organic SILT, with some sand; brown mottled orange. Very stiff; moist. [FILL]								
33.0	0.50							SILT, with some clay, with minor gravel, with trace organics; brown and grey. Very stiff; moist; rootlets; [FILL].								
32.90	0.5							Clayey SILT, with trace organics; grey. Stiff; moist; rootlets; [FILL].								
32.80	0.60							CORE LOSS.								
32.5	1.0		0.75	46 - -	54			Silty CLAY; light grey mottled orange and black. Stiff; moist; [HUKERENUI MUDSTONE].								
32.25	1.15															
32.0	1.5	In situ SPT test	1.50	0 - -	100									0, 0 / 0, 0, 1, 1 N=2		
31.45	1.95							CORE LOSS.								
31.20	2.20	Rotary cored	1.95	76 - -	24	NORTHLAND ALLOCHTHON		CLAY, with some silt, with minor gravel; brownish grey. Stiff; saturated; gravel, Extremely weak mudstone, pervaisively sheared.								
31.10	2.30							Slightly weathered; light grey; MUDSTONE; extremely weak to very weak, pervasively sheared, polished surfaces.								
31.0	2.5															
30.5	3.0	In situ SPT test	3.00	66 - -	34									4, 7 / 7, 10, 11, 12 N=40		
30.0	3.5	Rotary cored	3.45	100 - -	0			3.45m - 4.20m: Extremely weak.								
29.5	4.0															
29.20	4.20							Extremely weak sheared zone, Silty CLAY; light grey. Firm; saturated.								
29.10	4.30							Slightly weathered; light grey streaked red; MUDSTONE; extremely weak to very weak, pervasively sheared, clay shales.								
29.0	4.5	In situ SPT test	4.50	100 - -	0									4, 6 / 6, 6, 8, 9 N=29		
28.5	5.0	Rotary cored	4.95	100 - -	0											
28.0																

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) — Filled = Solid cone (C); No Fill = Split spoon (S)
- Vane Shear Strength (kPa) — V = Peak, R = Residual; UTP = Unable to penetrate; PP = Pocket Penetrometer

Backfill: Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 53B Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Leon	CCUS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH01

Client:	Start Date: 06 Dec 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK111

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748082.0, N 5949623.0	33.4 m	12.00	-90°	N/A	2 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run / Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
27.60	5.80	Rotary cored		100 - -	0	NORTHLAND ALLOCHTHON		5.45m: Sheared zone: clay infil 1 - 2mm thick, polished surface 20°.						5.45m - CZ: 20°, Planar, Smooth, Clay Infill, 1-2mm		
27.5	6.0		6.00					Slightly weathered; light grey streaked black and red; MUDSTONE; extremely weak to very weak, pervasively sheared.							6, 7 / 9, 12, 17, 12 for 35mm N=50+	
		In situ SPT test		100 - -	0											
27.0	6.5		6.45					6.40m - 7.20m: Extremely weak.								
26.5	7.0	Rotary cored		100 - -	0											
26.0	7.5														2, 16 / 50 for 55mm N=50+	
25.75	7.65	In situ SPT test	7.50	100 - -	0											
			7.71					Slightly weathered; dark grey; SANDSTONE; very weak, well cemented, fine to medium sand. Interbedded with, Slightly weathered SILTSTONE, dark grey, very weak. [EAST COAST BAYS FORMATION]						7.82m - JT: 10°, Planar, Smooth, No Infill		
25.5	8.0	Rotary cored		100 - 53	0									7.98m - JT: 60°, Planar, Rough, No Infill		
														8.07m - JT: 15°, Planar, Smooth, No Infill		
25.0	8.5													8.20m - BP: 5°		
														8.30m - BP: 5°		
24.5	9.0	SPT	9.00		100									8.58m - BP: 5°		
			9.12											8.72m - JT: 10°, Planar, Smooth, Clay		
														8.82m - JT: 45°, Planar, Smooth, No Infill	17, 33 for 40mm Nc=50+	
24.0														9.25m - CZ: 50mm		
23.90	9.50													9.40m - JT: 45°, Planar, Smooth, No Infill		
														9.50m - JT: 50°, Planar, Smooth, No Infill		
23.5	10.0	Rotary cored		100 - 90	0	EAST COAST BAYS FORMATION		Unweathered; dark grey; SANDSTONE; weak, well cemented, fine to medium sand.								
23.0	10.5		10.50											10.20m - JT: 70° - 90°, Undulating, Smooth, No Infill		
				100 - 60	0									10.70m - JT: 60° - 90°, Undulating, Smooth, No Infill		
22.5														10.80m - JT: 70°, Planar, Smooth, No Infill		

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Topsoil	Clay	Bentonite
Peat	Silt	Grout/concrete
Fill	Sand	Drill arisings
Core Loss	Gravel	Filter sand

Backfill:

Remarks:
1. 53B Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Leon	CCUS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH01

Client:	Start Date: 06 Dec 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK111

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748082.0, N 5949623.0	33.4 m	12.00	-90°	N/A	3 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run (Box No.)	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
22.0	11.5	Rotary cored		100 - 60	0	EAST COAST BAYS FORMATION		[CONT] Unweathered; dark grey; SANDSTONE; weak, well cemented, fine to medium sand.						10. 86m - BP: 5° 11. 16m - JT: 5°, Planar, Smooth, No Infill		
21.5															11.5	
21.40	12.00													11. 92m - JT: 60°, Planar, Smooth, No Infill		
	12.0	SPT	12.00	° -	100			END OF HOLE: 12.00m (Target Depth)							8, 42 for 65mm Nc=50+	
21.0	12.5														12.5	
20.5	13.0														13.0	
20.0	13.5														13.5	
19.5	14.0														14.0	
19.0	14.5														14.5	
18.5	15.0														15.0	
18.0	15.5														15.5	
17.5	16.0														16.0	
17.0																

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) — Filled = Solid cone (C); No Fill = Split spoon (S)
- Vane Shear Strength (kPa) — V = Peak, R = Residual; UTP = Unable to penetrate; PP = Pocket Penetrometer

Backfill:
Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 53B Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Leon	CCUS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH02

Client:	Start Date: 10 Dec 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK111

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1747958.0, N 5949682.0	43.5 m	12.00	-90°	N/A	1 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
43.30	0.20	Rotary cored	0.00	100 - -	0	TOPSOIL	TS	SILT, with some sand; brown. Firm; moist; low plasticity; trace rootlets. [TOPSOIL].								
43.00	0.50							Clayey SILT, with minor sand; light brown. Firm; moist; medium plasticity; [EAST COAST BAYS FORMATION].								
42.5	1.0							SILT, with some clay and sand; brownish orange. Firm; moist; low plasticity.								
42.0	1.5	In situ SPT test	1.50	66 - -	34										1, 1 / 1, 1, 1, 2 N=5	
41.5	2.0	Rotary cored	1.95	100 - -	0			2.00m: With minor gravel; gravel, fine to coarse, completely weathered, reddish brown sandstone.								
40.70	2.80							Clayey SILT, with minor sand; light brownish orange; high plasticity.								
40.50	3.00	In situ SPT test	3.00	0 - -	100	EAST COAST BAYS FORMATION	C/L	CORE LOSS.							0, 1 / 1, 1, 1, 1 N=4	
40.0	3.5	Rotary cored	3.45	100 - -	0			Clayey SILT, with minor sand; brownish orange. Firm; moist; high plasticity.								
39.85	3.65							Sandy SILT, with minor clay; pinkish red. Firm; moist; low plasticity.								
39.40	4.10							CLAY, with some silt; pinkish grey. Soft; moist; high plasticity.								
39.30	4.20							SILT, with some clay, with minor sand; pinkish grey. Soft; moist; low plasticity.								
39.00	4.50	In situ SPT test	4.50	0 - -	100		C/L	CORE LOSS.							0, 0 / 0, 0, 1, 0 N=1	
38.55	4.95	Rotary cored	4.95	100 - -	0			SILT, with some clay, with minor sand; orange and pink. Soft; moist; low plasticity.								
38.30	5.20							Sandy SILT, with some clay, with trace gravel; brownish orange mottled pink. Firm; moist; low plasticity; gravel, fine to								

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Backfill:
Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 53B Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Tharindu	CCUS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH02

Client:	Start Date: 10 Dec 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK111

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1747958.0, N 5949682.0	43.5 m	12.00	-90°	N/A	2 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
37.50	6.00	Rotary cored		100 - -	0	EAST COAST BAYS FORMATION		coarse, angular, siltstone.								
37.5	6.0		6.00													
37.05	6.45	In situ SPT test		0 - -	100			CORE LOSS.							0, 0 / 0, 0, 0, 1 N=1	
37.0	6.5		6.45					Sandy SILT, with some clay, with trace gravel; brownish orange mottled pink. Firm; moist; low plasticity; gravel, fine to coarse, angular, siltstone.								
36.70	6.80	Rotary cored		100 - -	0			SILT, with some clay, with minor sand; light brownish orange. Firm; moist; low plasticity.								
36.5	7.0															
36.0	7.5	In situ SPT test	7.50	100 - -	0										1, 0 / 1, 1, 2, 2 N=6	
35.60	7.90							Silty fine to coarse SAND, with minor clay; grey; dilatant. Interbedded with, Laminated CLAY, typically 5cm thick layers; grey. Stiff; moist; high plasticity.								
35.5	8.0	Rotary cored	7.95	100 - -	0											
35.0	8.5															
34.5	9.0	In situ SPT test	9.00	66 - -	34										2, 4 / 7, 10, 11, 22 N=50	
34.15	9.35							Slightly weathered; grey; SILTSTONE; extremely weak to very weak. Interbedded with, Slightly weathered; grey; SANDSTONE; extremely weak; well cemented.						9.50-9.90m - BP: x 9, 5°, Planar, Smooth		
34.0	9.5	Rotary cored	9.45	100 - 76	0			Unweathered; grey; SILTSTONE; weak. Interbedded with, Unweathered; grey; SANDSTONE; weak; well cemented.								
33.70	9.80															
33.5	10.0													10.25m - JT: 10°, Planar, Smooth, no infill		
33.0	10.5	SP	10.50	°	100										13, 37 for 50mm Nc=50+	
		Rotary cored	10.63	109 - 94	9									10.60m - BP: 5°, Undulating, Rough, no infill, tight. 10.75m - BP: 5°, Undulating, Rough, no infill, tight. 10.92m - BP: 5°, Undulating,		

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
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W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Backfill:
Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 53B Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Tharindu	CCUS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH02

Client:	Start Date: 10 Dec 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK111

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1747958.0, N 5949682.0	43.5 m	12.00	-90°	N/A	3 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run (Box No.)	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
32.0	11.5	Rotary cored		109 - 94	9	EAST COAST BAYS FORMATION		[CONT] Unweathered; grey; SILTSTONE; weak. Interbedded with, Unweathered; grey; SANDSTONE; weak; well cemented.						Rough, no infill, tight.		
														11.61m - BP: 5°, Undulating, Rough, no infill, tight.		
31.50	12.00	SP						END OF HOLE: 12.00m (Target Depth)							20, 30 for 22mm Nc=50+	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow
- Standard Penetration Test (SPT) — Filled = Solid cone (C); No Fill = Split spoon (S)
- Vane Shear Strength (kPa) — V = Peak, R = Residual; UTP = Unable to penetrate; PP = Pocket Penetrometer

Moisture: M = moist; W = wet; S = saturated

Backfill: Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 53B Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Tharindu	CCUS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH03

Client:	Start Date: 28 Nov 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK114

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748181.0, N 5949480.0	27.8 m	15.00	-90°	N/A	1 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
27.75	0.05	Rotary open hole	0.00	54 - -	46	TOPSOIL	TS	Topsoil.	RS CW HW MW SW UW	UNYL SFL SND GRVD HSW W MS SS ES						
27.60	0.20					COLLUVIUM		SILT with some fine sand and minor clay; light grey mottled orange. Very stiff, dry, low plasticity [COLLUVIUM].								
27.45	0.35							SILT with some clay and minor fine sand; orange mottled grey. Very stiff, dry to moist, low plasticity. [EAST COAST BAYS FORMATION]							V=156 R=78	
27.40	0.40							SILT with some clay and fine sand; grey and orange. Very stiff, moist, low plasticity.								
27.0	1.0							CLAY with some silt; orange mottled light grey. Stiff, moist, high plasticity.							V=139 R=89	
26.5	1.5		1.50	80 - -	20										V=89 R=44	
26.0	2.0		1.95	80 - -	20	EAST COAST BAYS FORMATION		2.40m: Minor fine to medium sand.							0, 1 / 0, 1, 1, 1 Nc=3	
25.5	2.5														V=58 R=23	
25.0	3.0		3.00	88 - -	12										V=50 R=24	
24.5	3.40		3.45	100 - -	0			SILT with some clay and fine to medium sand; orange mottled light grey. Firm, wet, low plasticity.							0, 0 / 0, 0, 1, 1 Nc=2	
24.15	3.65							Fine sandy SILT; light grey mottled orange. Firm, wet, non-plastic.								
24.0	4.0							Silty fine SAND; light grey mottled orange. Loose, wet, non-plastic. 4.50m: Fine to coarse sand.								
23.50	4.30		4.50	100 - -	0			SILT with some clay and trace fine sand; orange mottled light grey. Firm, moist, low plasticity.							V=23 R=3	
23.10	4.70		4.95	75 - -	25			Clayey SILT; orange. Firm, moist, medium plasticity.							0, 0 / 0, 0, 1, 1 Nc=2	
23.0	5.0							Silty fine SAND; brown. Loose, moist, non-plastic.								
22.70	5.10															
22.55	5.25															
22.5																

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Backfill:
Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 53A Russell Road.
2. From 0.0m to 7.5mBGL, drilled open barrel.
3. From 7.5m to 15.0mBGL, drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	ProDill Ltd	FRASTE SLG		RS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH03

Client:	Start Date: 28 Nov 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK114

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748181.0, N 5949480.0	27.8 m	15.00	-90°	N/A	2 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run / Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
22.0	6.0	Rotary open hole	6.00	75 - -	25	EAST COAST BAYS FORMATION		Clayey SILT; dark grey. Very stiff, moist, medium plasticity.	RS CW HW MW SW UW	VSTF FB SFD MD LOOSE VLOOSE					V=67 R=18 6.0	
21.5				100 - -	0											
21.40	6.40		6.45					SILT with some clay; dark grey. Very stiff, moist, low plasticity. Interbedded with, Fine SAND; dark grey. Medium dense, moist. Bedding, very thin to moderately thin.							0, 0 / 1, 1, 1, 1 Nc=4 6.5	
21.0	7.0			100 - -	0										7.0	
20.5																
20.30	7.50		7.50	100 - -	0			Fine SAND with some silt; dark grey. Medium dense, moist, low plasticity. Bedding, thin to moderately thin.							7.5	
20.0	8.0	Rotary cored	7.95	90 - -	10										6, 6 / 8, 10, 10, 11 Nc=39 8.0	
19.5	8.5														8.5	
19.0	9.0		9.00	100 - -	0			9.00m: Becomes moderately thinly bedded fine sand with silt and clay laminations.							2, 3 / 3, 5, 6, 6 Nc=20 9.0	
18.5	9.5		9.45												9.5	
18.0	10.0			100 - -	0										10.0	
17.5	10.5		10.50	100 - -	0										4, 4 / 9, 12, 14, 15 for 50mm Nc=50+ 10.5	
17.0																

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Topsoil	Clay	Bentonite
Peat	Silt	Grout/concrete
Fill	Sand	Drill arisings
Core Loss	Gravel	Filter sand

Backfill:

Remarks:
1. 53A Russell Road.
2. From 0.0m to 7.5mBGL, drilled open barrel.
3. From 7.5m to 15.0mBGL, drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	ProDill Ltd	FRASTE SLG		RS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH03

Client:	Start Date: 28 Nov 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK114

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748181.0, N 5949480.0	27.8 m	15.00	-90°	N/A	3 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run (Box No.)	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
16.30	11.50	Rotary cored	10.93	89 - 0	11	EAST COAST BAYS FORMATION		[CONT] 9.00m: Becomes moderately thinly bedded fine sand with silt and clay laminations.								
			12.00		100			Slightly weathered, dark grey, SILTSTONE; weak. Interbedded with, Slightly weathered, dark grey, fine SANDSTONE; weak. Bedding, laminated to thinly bedded. Highly fractured, extremely closely to very closely spaced, sub-horizontal defects.							10, 40 for 45mm Nc=50+	
			12.12	60 - 0	40											
14.30	13.50		13.50		100			Slightly weathered, dark grey, SILTSTONE; weak. Interbedded with, Slightly weathered, dark grey, fine SANDSTONE; weak. Bedding, moderately widely spaced laminations. Very closely to closely spaced, sub-horizontal defects.							33, 17 for 15mm Nc=50+	
			13.59	87 - 39	13											
12.80	15.00		15.00					END OF HOLE: 15.00m (Target Depth)							17, 33 for 15mm Nc=50+	

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow
- Standard Penetration Test (SPT) — Filled = Solid cone (C); No Fill = Split spoon (S)
- Vane Shear Strength (kPa) — V = Peak, R = Residual; UTP = Unable to penetrate; PP = Pocket Penetrometer

Moisture: M = moist; W = wet; S = saturated

Backfill: Topsoil, Clay, Bentonite, Peat, Silt, Grout/concrete, Fill, Sand, Drill arisings, Core Loss, Gravel, Filter sand

Remarks:
1. 53A Russell Road.
2. From 0.0m to 7.5mBGL, drilled open barrel.
3. From 7.5m to 15.0mBGL, drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	ProDill Ltd	FRASTE SLG		RS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH04

Client:	Start Date: 12 Dec 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK114

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748202.0, N 5949394.0	30.4 m	15.00	-90°	N/A	1 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run (Box No.)	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
30.25	0.15	Rotary cored	0.00	66 - -	34	FILL		Organic SILT, with some sand and rootlets; brown. Firm; moist; low plasticity. [FILL]								
30.15	0.25							SILT, with minor clay and sand; light brown. Soft; moist; medium plasticity; trace rootlets. [FILL].								
30.0	0.5							CLAY, with some silt; light brownish orange. Firm; moist; high plasticity; [EAST COAST BAYS FORMATION].								
29.40	1.00						C/L	CORE LOSS							V=45 R=19	
29.0	1.0						C/L									
28.90	1.50						C/L									
28.5	1.5	In situ SPT test	1.50	100 - -	0			CLAY, with some silt; light brownish orange. Firm; moist; high plasticity.							0, 1 / 0, 1, 2, 2 N=5	
28.45	1.95						C/L	CORE LOSS.								
28.20	2.0 2.20		1.95				C/L									
28.0	2.45	Rotary cored		76 - -	24			CLAY, with some silt; light brownish orange. Firm; moist; high plasticity.								
27.95	2.5					EAST COAST BAYS FORMATION		Sandy SILT, with minor clay; brown streaked grey. Firm; moist; dilatant.								
27.5	3.0							2.80m - 2.90m: CLAY, with some silt; brown. Stiff; moist; high plasticity.								
27.10	3.30	In situ SPT test	3.00	100 - -	0										0, 1 / 2, 1, 3, 2 N=8	
27.0	3.5							Silty CLAY; grey. Firm; moist; high plasticity.								
26.55	3.85	Rotary cored	3.45	100 - -	0			Sandy SILT, with trace clay; brown streaked dark orange. Hard; moist; limonite staining along relic joint.								
26.5	4.0							Sandy SILT, with some clay; grey. Hard; moist; low plasticity.								
26.30	4.10															
26.0	4.5															
25.65	4.75	In situ SPT test	4.50	100 - -	0										1, 2 / 13, 21, 16 for 45mm N=50+	
25.5	5.0	Rotary cored	4.85	100 - 88	0			Slightly weathered; grey; SILTSTONE; very weak. Interbedded with, Slightly weathered; grey; SANDSTONE; very weak, well cemented; sand, fine.						5.35m - JT: 70°, Undulating, Smooth, Limonite stained		
25.0																

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Backfill: Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 55 Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Tharindu	CCUS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH04

Client:	Start Date: 12 Dec 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK114

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748202.0, N 5949394.0	30.4 m	15.00	-90°	N/A	2 of 3	FINAL

Elevation (m)	Depth (m)	Method	Run (Box No.)	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
24.5	6.0	Rotary cored		100 - 88	0	EAST COAST BAYS FORMATION		[CONT] Slightly weathered; grey; SILTSTONE; very weak. Interbedded with, Slightly weathered; grey; SANDSTONE; very weak, well cemented; sand, fine.							18, 32 Nc=50+ at 6.0	
		S P	6.00	0 - -	100											
24.0	6.5		6.15											6.27m - BP: 5°, Planar, Smooth, limonite stained 6.43m - BP: 5°, Planar, Smooth, limonite stained 6.58m - BP: 0°, Planar, Rough		
23.72	6.68	Rotary cored		103 - 97	3			Unweathered to slightly weathered; greenish grey; SILTSTONE; very weak. Interbedded with, Unweathered to slightly weathered; greenish grey; SANDSTONE; very weak, well cemented; sand, fine to medium.								
23.5	7.0															
23.0	7.5	In situ SPT test	7.50	0 - -	100										12, 17 / 32, 18 for 30mm Nc=50+ at 7.5	
22.5	8.0	Rotary cored	7.76	100 - 95	0			7.81m: Grades to unweathered SANDSTONE; sand, medium to coarse.						7.81m - BP: 0°, Planar, Smooth, no infill		
22.0	8.5							8.37m: Grades to Interbedded SILTSTONE and fine to medium SANDSTONE; extremely weak.						8.37m - BP: 0°, Planar, Smooth, no infill 8.59m - BP: 0°, Planar, Smooth, no infill		
21.46	8.94															
21.0	9.0		9.00					Unweathered, grey; sandy SILTSTONE; very weak.								
20.86	9.54			100 - 100	0			Unweathered, dark grey; SILTSTONE; weak. Interbedded with, Unweathered, dark grey; SANDSTONE; weak, sand, fine to coarse.								
20.52	9.88							Unweathered, dark grey; medium to coarse SANDSTONE; very weak to weak.								
20.5	10.0															
20.0	10.5	S P	10.50		100										21, 29 for 30mm Nc=50+ at 10.5	
19.79	10.61	Rotary cored	10.61	100 - 97	0			Unweathered, dark grey; coarse SANDSTONE; very weak; siltstone clasts up to 10mm diameter.								
19.5																

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Backfill:
Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 55 Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Tharindu	CCUS	SRO

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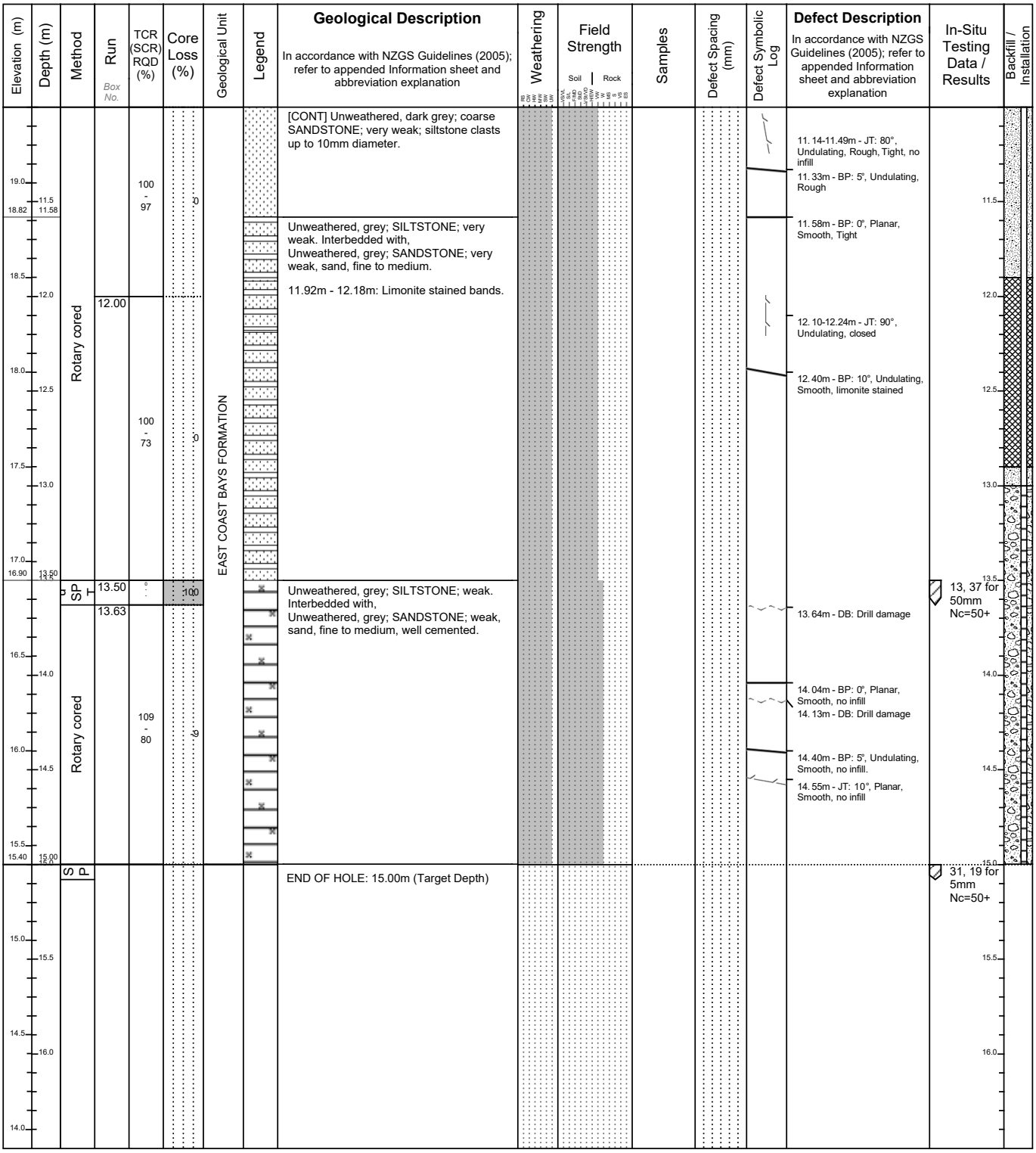
MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH04

Client:	Start Date: 12 Dec 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK114

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748202.0, N 5949394.0	30.4 m	15.00	-90°	N/A	3 of 3	FINAL



Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Topsoil	Clay	Bentonite
Peat	Silt	Grout/concrete
Fill	Sand	Drill arisings
Core Loss	Gravel	Filter sand

Backfill:

Remarks:
1. 55 Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Tharindu	CCUS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH05

Client:	Start Date: 28 Nov 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK113

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748023.0, N 5949438.0	29.3 m	9.10	-90°	N/A	1 of 2	FINAL

Elevation (m)	Depth (m)	Method	Run Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
29.25	0.05		0.00			TOPSOIL	TS	Topsoil; [TOPSOIL].								
29.10	0.20							SILT minor clay; brown. Firm, dry, low plasticity. Some rootlets [COLLUVIUM]								
29.0								SILT with trace clay; light brown mottled light grey. Firm, dry, low plasticity.								
28.70	0.60			80 - -	20	COLLUVIUM		Silty CLAY; orange mottled grey. Stiff, moist, high plasticity [HUKERENUI MUDSTONE]								
28.5	1.0															
28.0	1.5		1.50	77 - -	23										V=52 R=17	
27.40	1.90														0, 1 / 1, 1, 1, 2 Nc=5	
27.5	2.0		1.95					SILT with some clay and trace fine sand; light brown and orange. Stiff, moist, low plasticity. Lenses of dark orange oxidation.								
27.0	2.5	Rotary open hole		100 - -	0											
26.60	2.70							SILT with trace clay and fine sand; light brown mottled orange and pink. Stiff, dry, low plasticity.								
26.30	3.00		3.00					SILT with some clay and trace fine sand; orange mottled grey. Stiff, moist, low plasticity.							V=116 R=34	
26.0				100 - -	0											
25.90	3.40							SILT with minor to some clay and minor fine sand; light greenish grey. Very stiff, dry to moist, low plasticity. Some fine gravel sized clasts.							1, 1 / 1, 1, 1, 3 Nc=6	
25.5	3.5		3.45	100 - -	0	NORTHLAND ALLOCHTHON										
25.0	4.0		4.00					4.10m: Becomes green and grey.								
24.5	4.5			94 - -	6										UTP	
24.0	5.0		4.95					4.90m: Becomes light greenish grey.							1, 3 / 2, 4, 5, 9 Nc=20	
				100 - -	0											

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow
- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Moisture: M = moist W = wet S = saturated

Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel

Backfill: Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 53B Russell Road.
2. From 0.0m to 7.0mBGL, drilled open barrel.
3. From 7.0m to 9.1mBGL, drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	ProDill Ltd	FRASTE SLG		RS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH05

Client:	Start Date: 28 Nov 2024	Hole Location:
Vineway Ltd	End Date:	Refer to Riley Dwg 240065-SK113

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748023.0, N 5949438.0	29.3 m	9.10	-90°	N/A	2 of 2	FINAL

Elevation (m)	Depth (m)	Method	Run Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
23.5	6.0	Rotary open hole	6.00	100 - -	0	NORTHLAND ALLOCHTHON									UTP 6.0	
23.0	6.5		6.45	71 - -	29										2, 4 / 3, 5, 5, 6 Nc=19 6.5	
22.5	7.0			100 - -	0			7.10m: Steeply inclined relic joint, narrow aperture, undulating rough. 7.20m - 7.25m: Dark brownish grey clayey SILT lense. Soft, wet, moderate plasticity.								
22.0	7.5	Rotary cored	7.65	100 - -	0										7.5	
21.5	8.0		8.10												2, 4 / 4, 6, 6, 8 Nc=24 8.0	
20.80	8.50 8.5			100 - 50	0			Slightly weathered, dark grey, fine to medium SANDSTONE. Very weak. 8.80m: Gentle inclined joint, narrow aperture, steeped smooth.							8.5	
20.20	9.0 9.10		9.10	66 - -	34			END OF HOLE: 9.10m (Target Depth)							11, 21 / 24, 26 for 45mm Nc=50+	
20.0	9.5														9.5	
19.5	10.0														10.0	
19.0	10.5														10.5	
18.5																

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Backfill:
Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 53B Russell Road.
2. From 0.0m to 7.0mBGL, drilled open barrel.
3. From 7.0m to 9.1mBGL, drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	ProDill Ltd	FRASTE SLG		RS	SRO

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MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH06

Client:	Start Date: 16 Dec 2024	Hole Location:
Vineway Ltd	End Date: 17 Dec 2024	Refer to Riley Dwg 240065-SK112

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748347.0, N 5949567.0	55.2 m	19.50	-90°	N/A	1 of 4	FINAL

Elevation (m)	Depth (m)	Method	Run (Box No.)	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
55.10	0.10	Rotary cored	0.00	66 - -	34	TOPSOIL	TS	SILT, with some rootlets and sand; dark brown. Firm; moist; non-plastic; Silt, organic. [TOPSOIL].								
55.0							TS	Silty CLAY, with some rootlets; light brown mottled dark brown. Stiff; moist; high plasticity; Clay, organic. [TOPSOIL].								
54.85	0.35						TS	Clayey SILT, with trace sand; light brown. Stiff; moist; medium plasticity; [EAST COAST BAYS FORMATION].								
	0.5															
54.5																
54.30	0.90							Clayey SILT, with minor sand and gravel; light brown. Stiff; moist; medium plasticity; Gravel, extremely weak siltstone.								
54.20	1.00						C/L	CORE LOSS.								
54.0	1.0						C/L									
53.70	1.50						C/L									
53.5	1.5	In situ SPT test	1.50	100 - -	0			SILT, with some clay, with minor sand; light brown and grey. Stiff; moist; low plasticity.							0, 0 / 1, 1, 1, 1 N=4	
53.25	1.95						C/L	CORE LOSS.								
53.0	2.0	Rotary cored	1.95	76 - -	24		C/L									
53.00	2.20							Clayey SILT, with trace gravel; brown and grey. Stiff; moist; high plasticity; gravel, extremely weak siltstone.								
52.5	2.5															
52.30	2.90							Silty CLAY; light grey. Stiff; moist; high plasticity.							0, 1 / 2, 2, 2, 2 N=8 V=58 R=23	
	3.0	In situ SPT test	3.00	100 - -	0	EAST COAST BAYS FORMATION										
52.0							C/L	CORE LOSS.								
51.75	3.45	Rotary cored	3.45	57 - -	43			Silty CLAY; light grey. Stiff; moist; high plasticity.								
51.5	3.5							CLAY, with some silt; light brownish grey. Very stiff; moist; high plasticity. 4.35m: Grades to grey, stiff.							0, 2 / 1, 2, 3, 2 N=8 V=95 R=37	
51.30	3.90															
51.10	4.0															
51.0	4.10															
	4.5	In situ SPT test	4.50	100 - -	0											
50.5																
50.10	5.0	Rotary cored	4.95	100 - -	0			Silty CLAY; grey. Very stiff to hard; moist; high plasticity.								
50.0	5.10															

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow
- Standard Penetration Test (SPT) — Filled = Solid cone (C); No Fill = Split spoon (S)
- Vane Shear Strength (kPa) — V = Peak, R = Residual; UTP = Unable to penetrate; PP = Pocket Penetrometer

Moisture: M = moist; W = wet; S = saturated

Backfill: Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 55 Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Leon	CCUS	SRO

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E: www.rileychch.co.nz

4 Fred Thomas Drive
Takapuna
AUCKLAND 0622
Ph: 09.489.7872
E: www.riley.co.nz

MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH06

Client:	Start Date: 16 Dec 2024	Hole Location:
Vineway Ltd	End Date: 17 Dec 2024	Refer to Riley Dwg 240065-SK112

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748347.0, N 5949567.0	55.2 m	19.50	-90°	N/A	2 of 4	FINAL

Elevation (m)	Depth (m)	Method	Run Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
49.5	6.0	Rotary cored		100 - -	0	EAST COAST BAYS FORMATION		[CONT] Silty CLAY; grey. Very stiff to hard; moist; high plasticity.							1, 2 / 4, 5, 5, 7 N=21 V=201 R=42	
49.0	6.5	In situ SPT test	6.00	100 - -	0										3, 6 / 8, 11, 13, 18 N=50	
48.5	7.00	Rotary cored	6.45	100 - -	0			SILT, with some clay and sand; grey. Hard; moist; low plasticity.								
48.20	7.20							CLAY, with some silt; grey. Hard; moist; high plasticity.								
48.00	7.5	In situ SPT test	7.50	100 - -	0			Highly weathered; grey; SILTSTONE; extremely weak to very weak.							UTP	
47.50	7.70	Rotary cored	7.95	100 - 95	0			Slightly weathered; grey; fine to coarse; SANDSTONE; very weak, well cemented. Interbedded with, Slightly weathered; grey; SILTSTONE; very weak.						8.31m - BP: 30°, Planar, Smooth		
47.15	8.05							8.75m: Carbonaceous band 5mm thick, 10°.						8.55m - DB: Drilling Break		
47.0	8.5													8.74m - BP: 10°, Planar, Rough, no infill		
46.5	9.00	In situ SPT test	9.00					CORE LOSS.							8, 26 / 50 Nc=50+	
46.20	9.23	Rotary cored		121 - 80	21			Slightly weathered; grey; fine to coarse; SANDSTONE; very weak, well cemented. 200 to 500mm thick beds. Interbedded with, Slightly weathered; grey; SILTSTONE; very weak. 50mm to 200mm thick beds.						9.49m - BP: 5°, Planar, Rough, no infill		
45.5	9.5													9.70m - BP: 5°, Planar, Rough, no infill		
45.0	10.0							10.14m: Carbonaceous bands, 10mm thick, 5°.						9.98m - BP: 5°, Planar, Rough, no infill		
44.5	10.5	In situ SPT test	10.50	100 - 60	0			10.22m: Carbonaceous bands, 10mm thick, 10°.						10. 03m - BP: 15°, Planar, Smooth, no infill.	2, 14 / 50 for 45mm Nc=50+	
		Rotary cored												10. 15m - BP: 10°, Planar, Rough, no infill		
														10. 75m - BP: 0°, Planar, Smooth, no infill.		
														10. 92m - JT: 40°, Planar,		

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

- Topsoil
- Peat
- Fill
- Core Loss
- Clay
- Silt
- Sand
- Gravel

Backfill:
- Bentonite
- Grout/concrete
- Drill arisings
- Filter sand

Remarks:
1. 55 Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Leon	CCUS	SRO

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E: www.riley.co.nz

MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH06

Client:	Start Date: 16 Dec 2024	Hole Location:
Vineway Ltd	End Date: 17 Dec 2024	Refer to Riley Dwg 240065-SK112

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748347.0, N 5949567.0	55.2 m	19.50	-90°	N/A	3 of 4	FINAL

Elevation (m)	Depth (m)	Method	Run Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
44.0								[CONT] 10.22m: Carbonaceous bands, 10mm thick, 10°.						Rough, no infill		
	11.5	Rotary cored		100 - 60	0			11.28m: Includes laminated to very thin, 5mm to 10mm thick, gently inclined, 5°, Carbonaceous bands.						11.25m - JT: 35°, Planar, Smooth, no infill.		
43.5														11.41m - BP: 5°, Planar, Smooth, no infill.		
														11.46m - BP: 10°, Planar, Smooth, no infill.		
	12.0															
43.0		S P T	12.00												27, 23 for 25mm Nc=50+	
	12.5													12.35m - JT: 45°, Planar, Smooth, no infill.		
42.5				100 - 88	0									12.74m - BP: 10°, Planar, Smooth, no infill.		
42.25	12.95													12.95m - BP: 0°, Planar, Smooth, no infill.		
	13.0							Unweathered; grey; SILTSTONE; very weak to weak. 200mm to 400mm thick beds. Interbedded with, Unweathered; grey; SILTSTONE; grey; fine to medium SANDSTONE; 50mm to 200mm beds.								
42.0																
	13.5	Rotary cored	13.50			EAST COAST BAYS FORMATION								13.63m - BP: 0°, Planar, Smooth, no infill.		
41.5														13.65m - BP: 0°, Planar, Smooth, no infill.		
														13.87m - BP: 0°, Planar, Smooth, no infill.		
41.0	14.0			100 - 94	0									14.03m - BP: 0°, Planar, Smooth, no infill.		
														14.18m - BP: 0°, Planar, Smooth, no infill.		
	14.5													14.37m - BP: 0°, Planar, Smooth, no infill.		
40.5														14.51m - BP: 0°, Planar, Smooth, no infill.		
														14.52m - BP: 0°, Planar, Smooth, no infill.		
40.20	15.00													14.70m - BP: 0°, Planar, Smooth, no infill.		
	15.0													14.94m - BP: 0°, Planar, Smooth, no infill.		
40.0		S P T	15.00					Unweathered; grey; fine to coarse SANDSTONE; very weak to weak, moderately to well cemented, 100mm to 200mm thick beds. Interbedded with, Unweathered; grey; SILTSTONE; weak, 50mm to 150mm thick beds.								16, 34 for 45mm Nc=50+
														15.12m - BP: 0°, Planar, Rough, no infill.		
	15.5													15.30-15.35m - BP: x 10 at 0°, Planar, Rough, no infill.		
39.5		Rotary cored		100 - 76	0									15.55m - BP: 0°, Planar, Rough, no infill.		
														15.70m - BP: 0°, Planar, Rough, no infill.		
	16.0															
39.0														16.23m - BP: 5°, Planar, Smooth, no infill.		
														16.28m - BP: 5°, Undulating, Smooth, no infill.		

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) Filled = Solid cone (C) No Fill = Split spoon (S)
- Vane Shear Strength (kPa) V = Peak, R = Residual UTP = Unable to penetrate PP = Pocket Penetrometer

Backfill:
Topsoil, Peat, Fill, Core Loss, Clay, Silt, Sand, Gravel, Bentonite, Grout/concrete, Drill arisings, Filter sand

Remarks:
1. 55 Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Leon	CCUS	SRO

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E: www.riley.co.nz

MACHINE HOLE LOG

Project No.:	Project Name:	Project Location:	No.:
240065	Russell Road, Silverdale	Russell Road & Upper Orewa Road	MH06

Client:	Start Date: 16 Dec 2024	Hole Location:
Vineway Ltd	End Date: 17 Dec 2024	Refer to Riley Dwg 240065-SK112

Co-ordinates :	Ground Level (m):	Hole Depth (m):	Inclination:	Azimuth:	Sheet:	Status:
E 1748347.0, N 5949567.0	55.2 m	19.50	-90°	N/A	4 of 2	FINAL

Elevation (m)	Depth (m)	Method	Run Box No.	TCR (SCR) RQD (%)	Core Loss (%)	Geological Unit	Legend	Geological Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	Weathering	Field Strength (Soil | Rock)	Samples	Defect Spacing (mm)	Defect Symbolic Log	Defect Description (In accordance with NZGS Guidelines (2005); refer to appended Information sheet and abbreviation explanation)	In-Situ Testing Data / Results	Backfill / Installation
38.5	17.0	Rotary cored	16.50	100 - 87	0	EAST COAST BAYS FORMATION		[CONT] Unweathered; grey; fine to coarse SANDSTONE; very weak to weak, moderately to well cemented, 100mm to 200mm thick beds. Interbedded with, Unweathered; grey; SILTSTONE; weak, 50mm to 150mm thick beds.						16.56m - BP: 5°, Planar, Smooth, no infill. 16.79m - JT: 5°, Stepped, Smooth, no infill. 16.90m - JT: 10°, Planar, Rough, carbonaceous. 17.00m - JT: 70°, Undulating, Smooth, no infill. 17.18m - BP: 5°, Planar, Smooth, no infill. 17.24m - BP: 5°, Planar, Smooth, no infill. 17.52m - BP: 5°, Undulating, Smooth, no infill. 17.55m - BP: 5°, Planar, Smooth, no infill. 17.68m - BP: 0°, Planar, Smooth, no infill 17.72m - BP: 0°, Planar, Smooth, no infill 17.95m - DB: Drilling Break 18.25-18.29m - DB: x 10 Drill Breaks 18.52m - BP: 0°, Planar, Smooth, no infill. 18.73m - BP: 0°, Planar, Rough, no infill. 19.05m - BP: 0°, Planar, Smooth, no infill. 19.30-19.40m - DB: x 20 Drill Breaks		
38.0	17.5															
37.5	18.0	SP	18.00												23, 27 for 45mm Nc=50+	
37.0	18.5	Rotary cored		100 - 90	0											
36.5	19.0															
36.0																
35.70	19.50		19.50													
		SP						END OF HOLE: 19.50m (Target Depth)							25, 25 for 15mm Nc=50+	
35.5	20.0															
35.0	20.5															
34.5	21.0															
34.0	21.5															
33.5																

Explanations: *Refer to "Geological and Geotechnical Information" sheet for further details.*

- Initial Water Level
- Out flow
- In flow

Moisture:
M = moist
W = wet
S = saturated

- Standard Penetration Test (SPT) — Filled = Solid cone (C); No Fill = Split spoon (S)
- Vane Shear Strength (kPa) — V = Peak, R = Residual; UTP = Unable to penetrate; PP = Pocket Penetrometer

Topsoil	Clay	Bentonite
Peat	Silt	Grout/concrete
Fill	Sand	Drill arisings
Core Loss	Gravel	Filter sand

Backfill:

Remarks:
1. 55 Russell Road.
2. Hole was drilled with HQ core barrel.

All dimensions in metres NOT TO SCALE	Drilling Contractor:	Drilling Rig ID:	Driller:	Logged By:	Checked By:
	Drillforce		Leon	CCUS	SRO

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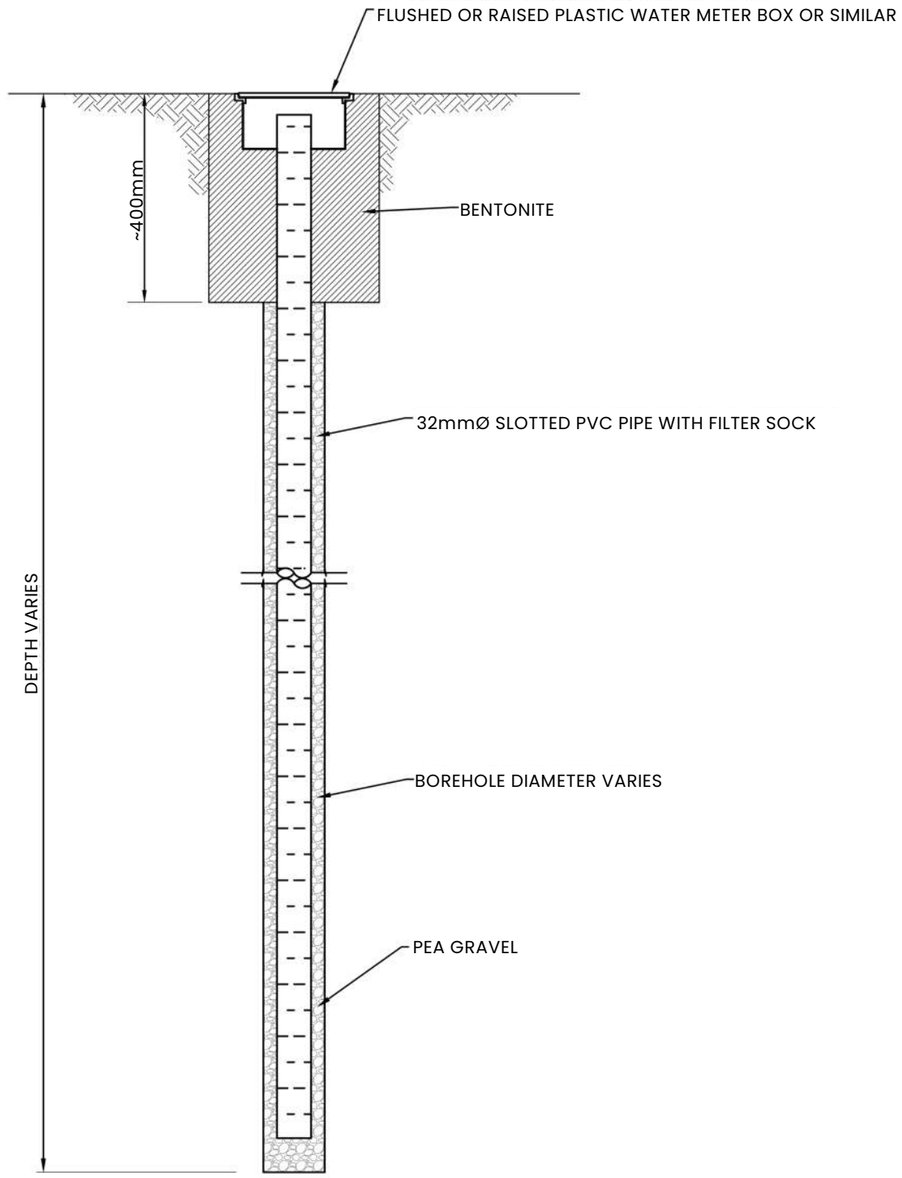
Appendix B

Typical Details - Piezometer Installation and Drainage

FOR INFORMATION/NOT FOR CONSTRUCTION



PIEZOMETER DETAIL
SCALE : N.T.S.

Note:
1. Do not scale from drawing
2. Refer to borehole logs in Riley report ref. 240065-F Appendix A for piezometer construction at specific locations

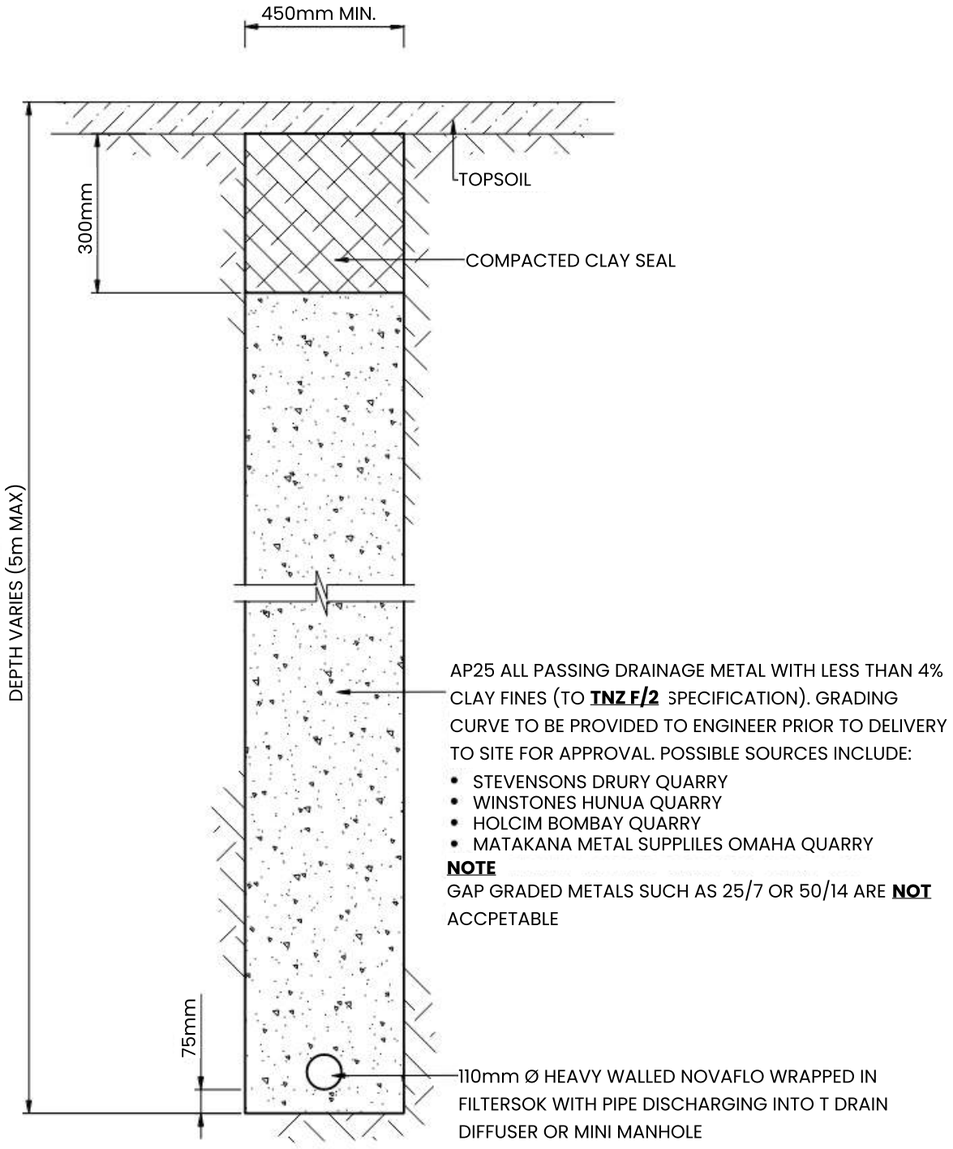
Project Number: 240065 | Drawn by jcels | Date printed: 31/01/2025 | Scale: 1:1

RILEY

Vineway Ltd
Russell Road, Wainui - Delmore
Typical Piezometer Detail

Sketch: 240065-SK201 (Rev A)
Drawn By AB | Checked By JLB
Approved By BB | 31/01/2025

FOR INFORMATION/NOT FOR CONSTRUCTION

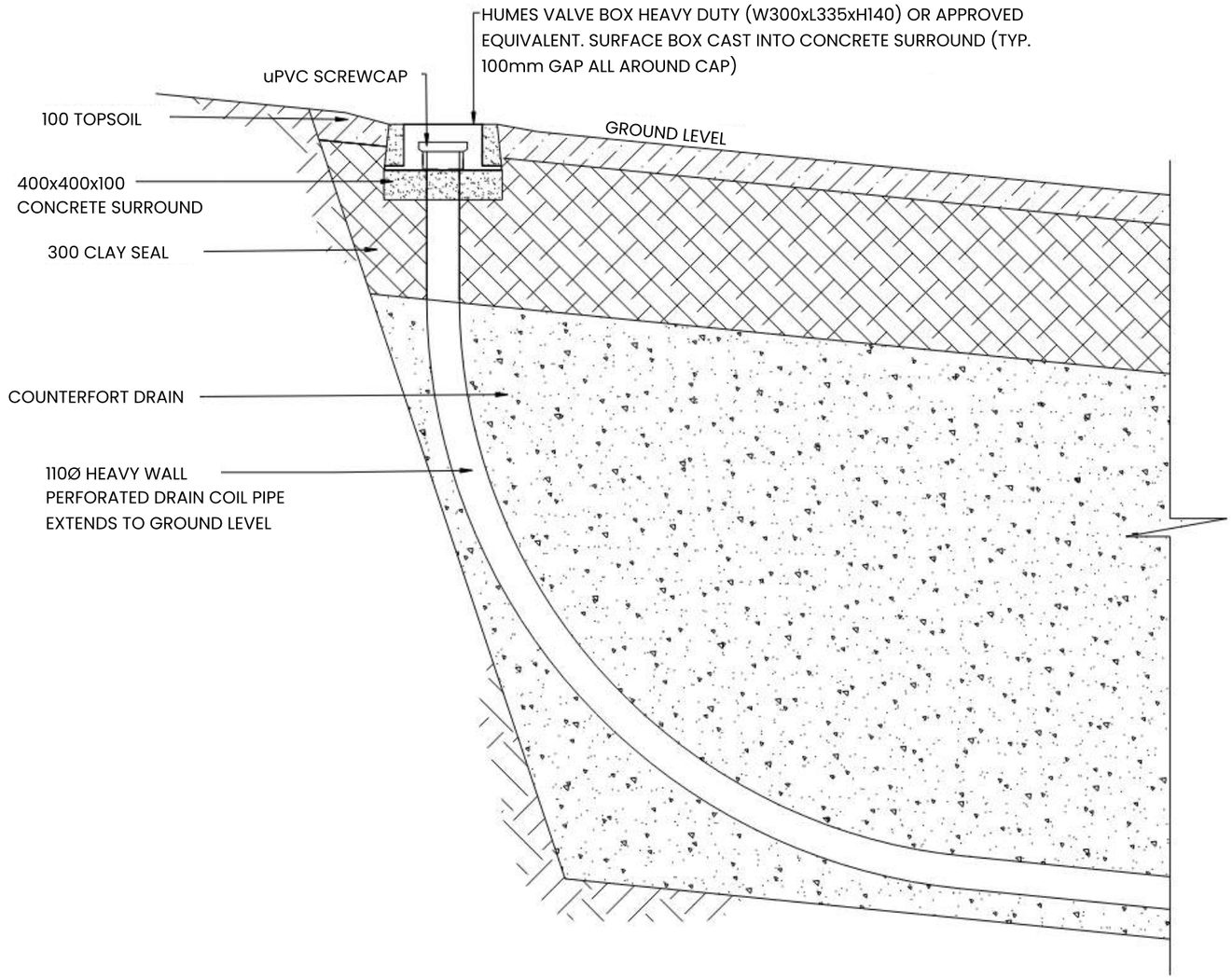


NOTES :

1. TRENCHES TO BE CONSTRUCTED IN LOCATIONS TO BE CONFIRMED. TYPICALLY 10-15m SPACING.
2. TRENCH DEPTH TO BE EXCAVATED TO DEPTHS SHOWN ON CROSS SECTION & PLAN.
3. TRENCH TO BE GRADED TO OUTLET SO NO PONDING CAN OCCUR. MIN. GRADIENT = 1 : 60

TYPICAL COUNTERFORT DRAIN DETAIL

SCALE 1 : 20



TYPICAL MAINTENANCE CONNECTION DETAIL

SCALE 1 : 20

Note:
1. Do not scale from drawing

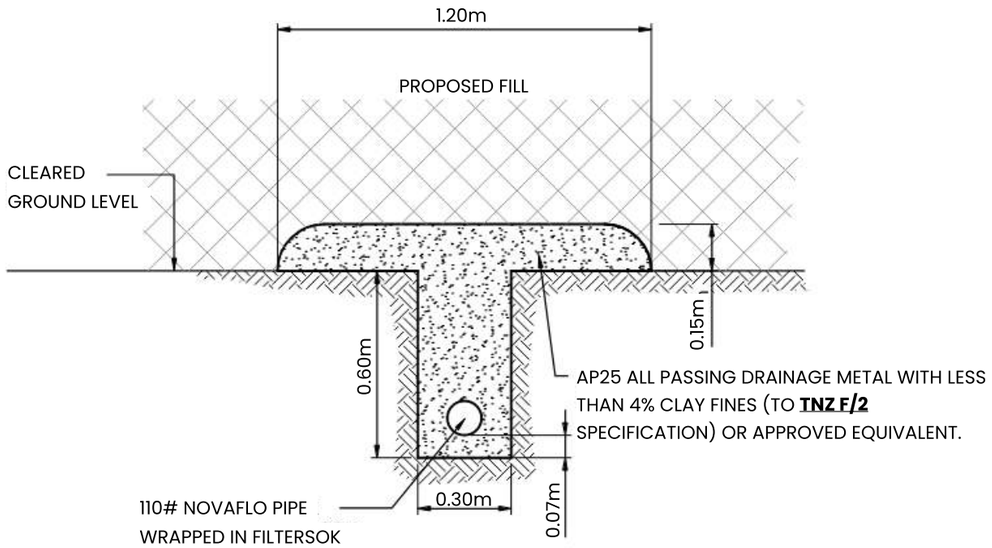
Project Number: 240065 | Drawn by jcels | Date printed: 31/01/2025 | Scale: 1:1

made with QGIS

RILEY

Vineway Ltd
Russell Road, Wainui - Delmore
Typical Counterfort Drain Detail

Sketch: 240065-SK202 (Rev A)
Drawn By AB | Checked By JLB
Approved By BB | 31/01/2025



TYPICAL SUBSOIL DRAIN DETAIL
NOT TO SCALE

Note:
1. Do not scale from drawing

Project Number: 240065 | Drawn by jcels | Date printed: 31/01/2025 | Scale: 1:1

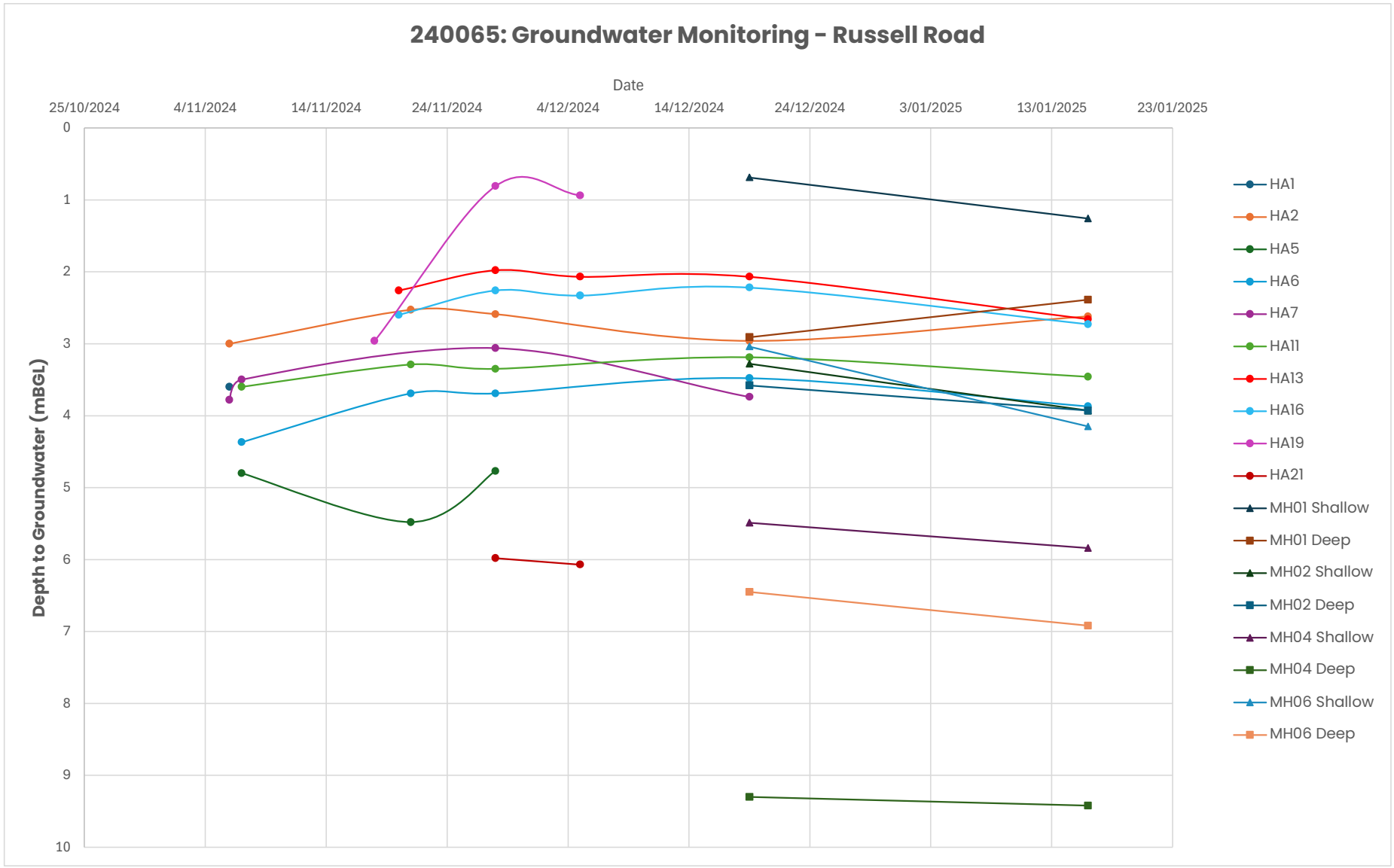
RILEY

Vineway Ltd
Russell Road, Wainui - Delmore
Typical Subsoil Drain Detail

Sketch: 240065-SK203 (Rev A)
Drawn By AB | Checked By JLB
Approved By BB | 31/01/2025

Appendix C

Groundwater Monitoring Results


240065: Groundwater Monitoring - Russell Road
Date
25/10/2024
4/11/2024
14/11/2024
24/11/2024
4/12/2024
14/12/2024
24/12/2024
3/01/2025
13/01/2025
23/01/2025
Depth to Groundwater (mBGL)
0
1
2
3
4
5
6
7
8
9
10
HA1
HA2
HA5
HA6
HA7
HA11
HA13
HA16
HA19
HA21
MH01 Shallow
MH01 Deep
MH02 Shallow
MH02 Deep
MH04 Shallow
MH04 Deep
MH06 Shallow
MH06 Deep

Appendix D

Laboratory Test Results

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Please reply to: W.E. Campton

Riley Consultants Ltd.
4 Fred Thomas Drive
Takapuna 0622
Auckland

Attention: [redacted]

Job Number: 63743#L
BGL Registration Number: 2848
Checked by: WEC

28th November 2024

ATTERBERG LIMITS TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA

Your Reference: 240065
Report Number: 63743#L/AL Russell Road

The following report presents the results of Atterberg Limits testing at BGL of bulk soil samples delivered to this laboratory on the 21st of November 2024. Test results are summarised below, with page 3 showing where the samples plot on the Unified Soil Classification System (Casagrande) Chart.

Test standards used were:

Water Content:	NZS4402: 1986: Test 2.1
Liquid Limit:	NZS4402: 1986: Test 2.2
Plastic Limit:	NZS4402: 1986: Test 2.3
Plasticity Index:	NZS4402: 1986: Test 2.4

Borehole Number	Sample Number	Depth (m)	Water Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
TP3	BULK	4.00 – 5.00	43.2	46	26	20
TP7	BULK	0.60 – 0.80	49.6	86	33	53
TP10	B	3.60 – 3.80	24.0	52 ◆	18 ◆	34 ◆
TP16	BULK	1.00 – 1.20	50.5	109	34	75

◆ = *The soil fraction passing a 425µm sieve was used for the liquid limit and plastic limit tests.*

[redacted]

The whole soils were used for the water content tests (the soils were in an unknown state), and for the liquid limit and plastic limit tests without a diamond beside them. The soil fractions passing a 0.425mm sieve were used for the liquid limit and plastic limit tests with a diamond (◆) beside them. The soils were wet up and dried where required for the liquid limit and plastic limit tests.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.2: liquid limit and test 2.3: plastic limit are reported to the nearest whole number.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory

ACCREDITED
IANZ
TESTING LABORATORY
№ 126

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

Babbage Geotechnical Laboratory	Job Number:	63743#L	Sheet 1 of 1	Page 3 of 3
	Registration Number:	2848		
	Report Number:	63743#L/AL Russell Road		
	Project:	RUSSELL ROAD, UPPER OREWA		

DETERMINATION OF THE LIQUID LIMIT, PLASTIC LIMIT & THE PLASTICITY INDEX

Test Methods: NZS4402: 1986: Test 2.2, Test 2.3 and Test 2.4

Tested By:	WEC / SG	November 2024			
Compiled By:	JF	28/11/2024			
Checked By:	JF	28/11/2024			
Version Number:	7	Version Date:	July 2022	Authorised By:	Wayne Campton

SUMMARY OF TESTING

Borehole Number	Sample Number	Depth (m)	Liquid Limit	Plastic Limit	Plasticity Index	Soil Classification Based on USCS Chart Below
TP3	BULK	4.00 - 5.00	46	26	20	CL
TP7	BULK	0.60 - 0.80	86	33	53	CH
TP10	B	3.60 - 3.80	52	18	34	CH
TP16	BULK	1.00 - 1.20	109	34	75	CH

The chart below & soil classification terminology is taken from ASTM D2487-17^{e1} "Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)", April 2020, & is based on the classification scheme developed by A. Casagrande in the 1940's (Casagrande, A., 1948: Classification and identification of soil. Transactions of the American Society of Civil Engineers, v. 113, p. 901-930). The chart below & the soil classification given in the table above are included for your information only, and are not included in the IANZ endorsement for this report.

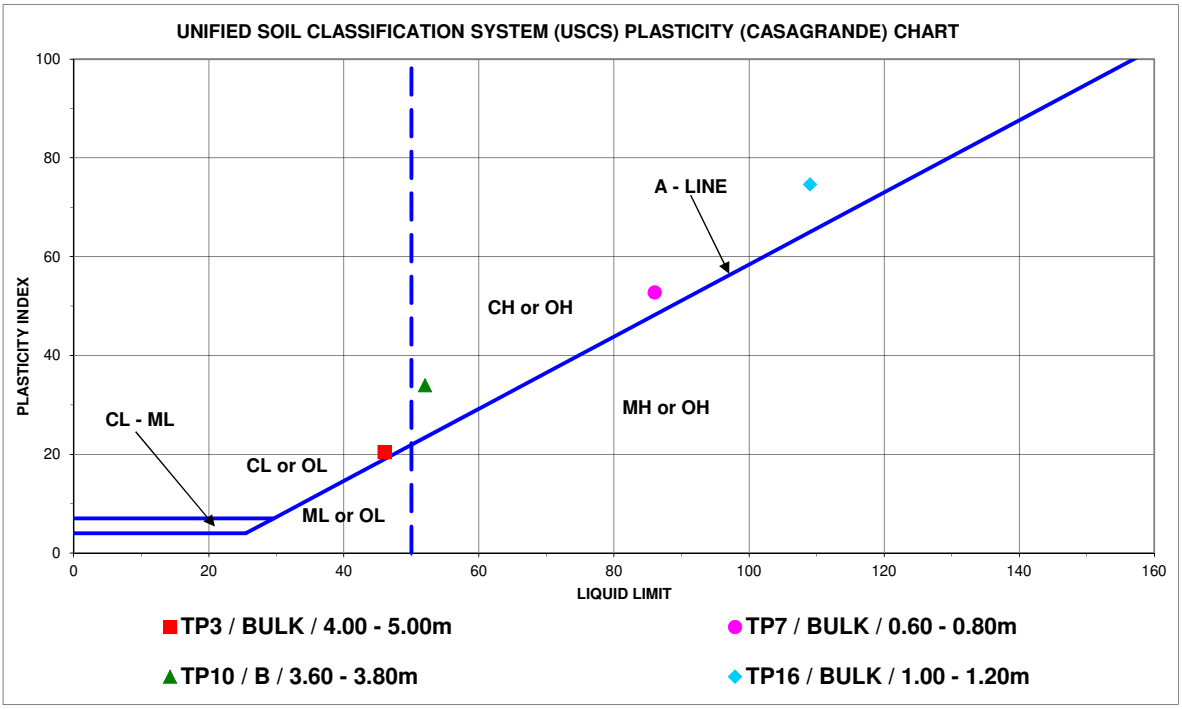

CHART LEGEND

CL = CLAY, low plasticity ('lean' clay)
OL = ORGANIC CLAY or ORGANIC SILT, low liquid limit
ML = SILT, low liquid limit
CL - ML = SILTY CLAY
CH = CLAY, high plasticity ('fat' clay)
OH = ORGANIC CLAY or ORGANIC SILT, high liquid limit
MH = SILT, high liquid limit ('elastic silt')

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Auckland 1010
Telephone
E-mail

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64-9-367 4954
wec@babbage.co.nz

Please reply to: W.E. Campton

Riley Consultants Ltd.
4 Fred Thomas Drive
Takapuna 0622
Auckland

Attention: [redacted]

Job Number: 63743#L
BGL Registration Number: 2848
Checked by: WEC

18th December 2024

ATTERBERG LIMITS TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA – STAGE 2

Your Reference: 240065 – Stage 2
Report Number: 63743#L/AL2 Russell Road

The following report presents the results of Atterberg Limits testing at BGL of bulk soil samples delivered to this laboratory on the 13th of December 2024. Test results are summarised below, with page 3 showing where the samples plot on the Unified Soil Classification System (Casagrande) Chart.

Test standards used were:

Water Content:	NZS4402: 1986: Test 2.1
Liquid Limit:	NZS4402: 1986: Test 2.2
Plastic Limit:	NZS4402: 1986: Test 2.3
Plasticity Index:	NZS4402: 1986: Test 2.4

Borehole Number	Sample Number	Depth (m)	Water Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
TP41	BULK	3.20 – 4.60	47.5	55	23	32
TP47	BULK	1.00 – 2.00	37.4	76	25	51

The whole soils were used for the water content tests (the soils were in an unknown state), and for the liquid limit and plastic limit tests. The soils were wet up and dried where required for the liquid limit and plastic limit tests.

[redacted]

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.2: liquid limit and test 2.3: plastic limit are reported to the nearest whole number.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory

ACCREDITED
IANZ
TESTING LABORATORY
№ 126

BGL Babbage Geotechnical Laboratory	Job Number:	63743#L	Sheet 1 of 1	Page 3 of 3	
	Registration Number:	2848			
	Report Number:	63743#L/AL2 Russell Road			
	Project:	RUSSELL ROAD, UPPER OREWA			

DETERMINATION OF THE LIQUID LIMIT, PLASTIC LIMIT & THE PLASTICITY INDEX

Test Methods: NZS4402: 1986: Test 2.2, Test 2.3 and Test 2.4

Tested By:	JL / SG	December 2024			
Compiled By:	JF	18/12/2024			
Checked By:	JF	18/12/2024			
Version Number:	7	Version Date:	July 2022	Authorised By:	Wayne Campton

SUMMARY OF TESTING

Borehole Number	Sample Number	Depth (m)	Liquid Limit	Plastic Limit	Plasticity Index	Soil Classification Based on USCS Chart Below
TP41	BULK	3.20 - 4.60	55	23	32	CH
TP47	BULK	1.00 - 2.00	76	25	51	CH

The chart below & soil classification terminology is taken from ASTM D2487-17^{e1} "Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)", April 2020, & is based on the classification scheme developed by A. Casagrande in the 1940's (Casagrande, A., 1948: Classification and identification of soil. Transactions of the American Society of Civil Engineers, v. 113, p. 901-930). The chart below & the soil classification given in the table above are included for your information only, and are not included in the IANZ endorsement for this report.

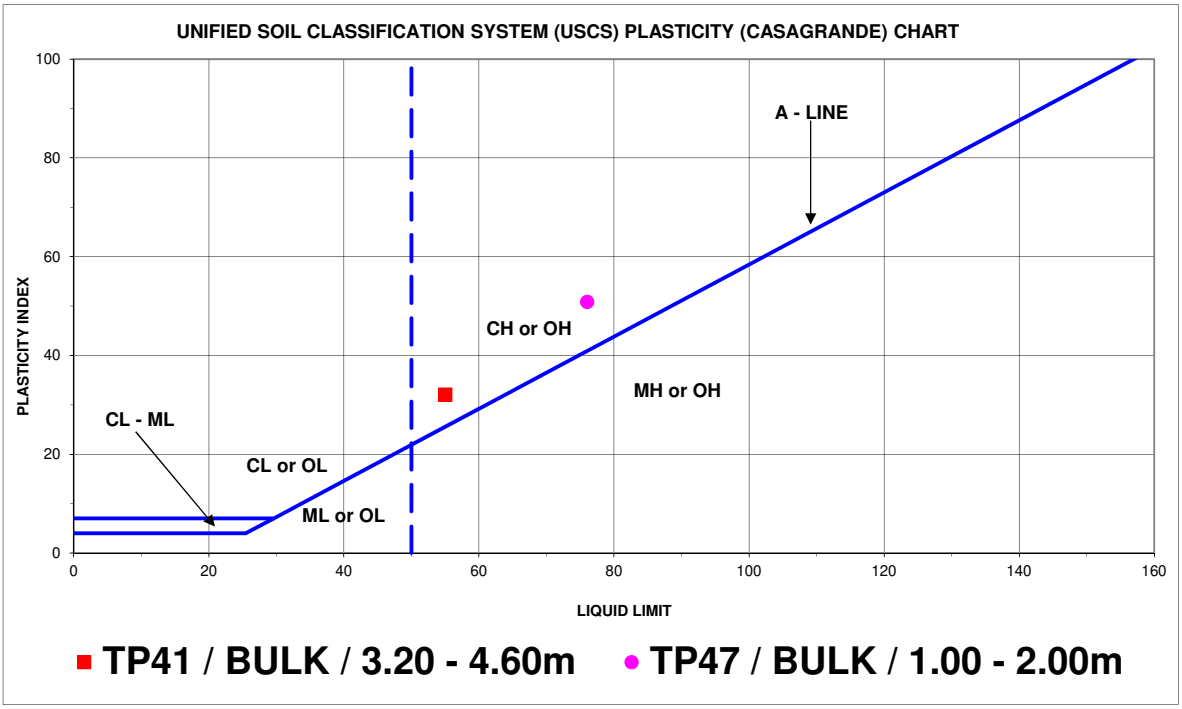

CHART LEGEND

CL = CLAY, low plasticity ('lean' clay)
OL = ORGANIC CLAY or ORGANIC SILT, low liquid limit
ML = SILT, low liquid limit
CL - ML = SILTY CLAY
CH = CLAY, high plasticity ('fat' clay)
OH = ORGANIC CLAY or ORGANIC SILT, high liquid limit
MH = SILT, high liquid limit ('elastic silt')

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Please reply to: W.E. Campton

Riley Consultants Ltd.
4 Fred Thomas Drive
Takapuna 0622
Auckland

Attention: [redacted]

Job Number: 63743#L
BGL Registration Number: 2848
Checked by: WEC

27th November 2024

HYDROMETER PARTICLE-SIZE DISTRIBUTION TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA

Your Reference: 240065
Report Number: 63743#L/HYD Russell Road

The following report presents the results of hydrometer particle-size distribution testing at BGL of bulk soil samples delivered to this laboratory on the 21st of November 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

Test standards used were:

Water Content:	NZS4402: 1986: Test 2.1
Wet Sieve Test:	NZS4402: 1986: Test 2.8.1
Hydrometer Test:	NZS4402: 1986: Test 2.8.4

Borehole Number	Sample Number	Depth (m)	Hydrometer Grading (% of Dry Mass)			
			GRAVEL (2 – <9.50mm)	SAND (0.06 – 2mm)	SILT FRACTION (0.002 – 0.06mm)	CLAY FRACTION (< 0.002mm)
TP10	A	2.40 – 2.70	1	58	23	18
TP10	B	3.60 – 3.80	0	13	63	24

The whole soils were used for these hydrometer tests. NZS4402:1986:Test 2.8.4 uses a 2.00mm sieve as the separation point for obtaining the hydrometer sample, therefore the use of the whole soils represents a departure from the test standard.

[redacted]

As the organic content of the soils tested was very low, peroxide pretreatment was not carried out. A solid density of 2.65t/m^3 was assumed for these hydrometer tests, and is not part of the IANZ endorsement for this report.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.8.1: wet sieve & Test 2.8.4: hydrometer, the 'percentages passing' and 'percentages finer than' are reported to nearest 1%.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory

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№ 126

BGL Babbage Geotechnical Laboratory	Job Number:	63743#L	Sheet 1 of 1	Page 3 of 4	
	Registration Number:	2848			
	Report Number:	63743#L/HYD Russell Road			
	Project:	RUSSELL ROAD, UPPER OREWA			

PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

Tested By:	WEC	26-Nov-24
Compiled By:	WEC	27-Nov-24
Checked By:	JF	27-Nov-24

Version Number:	7	Version Date:	July 2022	Authorised By:	W. Campton

Borehole No: **TP10** ***Sample No:*** **A** ***Depth:*** **2.40 - 2.70m**

Water Content (%): **35.7**

Sample History: ~~Natural / Air Dried / Oven Dried /~~ Unknown

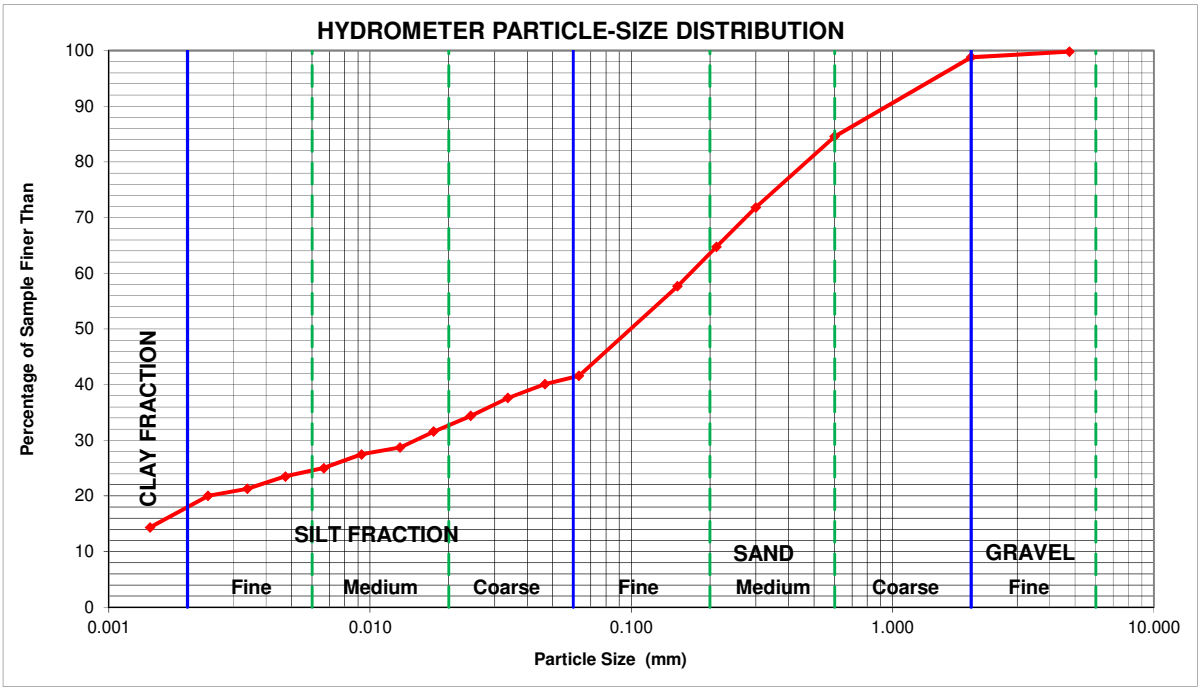
pH of sedimentation suspension: 8.0

Particle-size (mm)	% Finer Than
4.75	100
2.00	99
0.600	85
0.300	72
0.212	65
0.150	58
0.063	42
0.047	40
0.034	38
0.024	34
0.017	32
0.013	29
0.0093	27
0.0066	25
0.0047	23
0.0034	21
0.0024	20
0.0014	14

HYDROMETER ANALYSIS (% of dry mass)

				TOTAL	
GRAVEL	Medium	*< 9.5 - 6mm*	0		
	Fine	*6 - 2mm*	1	**1**	%
SAND	Coarse	*2.0 - 0.6mm*	14		
	Medium	*0.6 - 0.2mm*	21	**58**	%
	Fine	*0.2 - 0.06mm*	23		
SILT FRACTION	Coarse	*0.06 - 0.02mm*	8		
	Medium	*0.02 - 0.006mm*	9	**23**	%
	Fine	*0.006 - 0.002mm*	6		
CLAY FRACTION		*< 0.002mm*		**18**	%
				100%	

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / ~~SOIL FRACTION PASSING A 9.50mm SIEVE~~



BGL Babbage Geotechnical Laboratory	Job Number:	63743#L	Sheet 1 of 1	Page 4 of 4	
	Registration Number:	2848			
	Report Number:	63743#L/HYD Russell Road			
	Project:	RUSSELL ROAD, UPPER OREWA			

PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

Tested By:	WEC	26-Nov-24
Compiled By:	WEC	27-Nov-24
Checked By:	JF	27-Nov-24

Version Number:	7	Version Date:	July 2022	Authorised By:	W. Campton

Borehole No: **TP10** ***Sample No:*** **B** ***Depth:*** **3.60 - 3.80m**

Water Content (%): **24.1**

Sample History: ~~Natural / Air Dried / Oven Dried /~~ Unknown

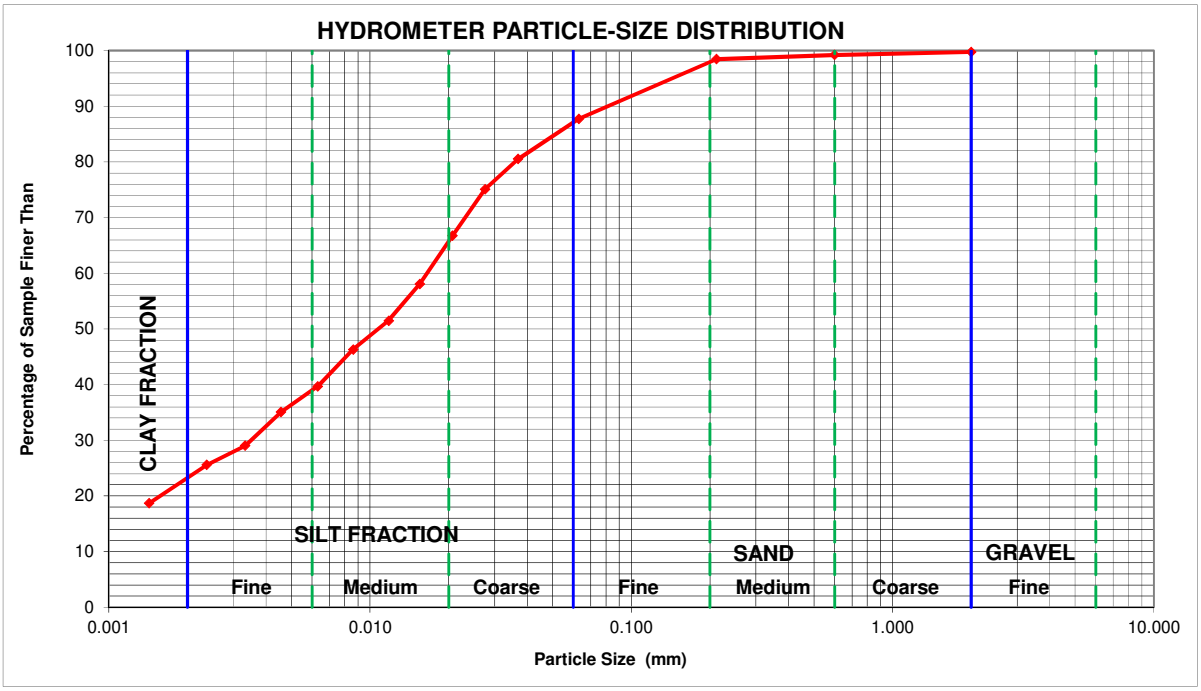
pH of sedimentation suspension: 8.5

Particle-size (mm)	% Finer Than
2.00	100
0.600	99
0.212	98
0.063	88
0.037	81
0.028	75
0.021	67
0.016	58
0.012	51
0.0086	46
0.0063	40
0.0046	35
0.0033	29
0.0024	26
0.0014	19

HYDROMETER ANALYSIS (% of dry mass)

				TOTAL	
GRAVEL	Medium	*< 9.5 - 6mm*	0		
	Fine	*6 - 2mm*	0	**0**	%
SAND	Coarse	*2.0 - 0.6mm*	1		
	Medium	*0.6 - 0.2mm*	1	**13**	%
	Fine	*0.2 - 0.06mm*	11		
SILT FRACTION	Coarse	*0.06 - 0.02mm*	21		
	Medium	*0.02 - 0.006mm*	27	**63**	%
	Fine	*0.006 - 0.002mm*	15		
CLAY FRACTION		*< 0.002mm*		**24**	%
				100%	

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / ~~SOIL FRACTION PASSING A 9.50mm SIEVE~~



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Please reply to: W.E. Campton

Riley Consultants Ltd.
4 Fred Thomas Drive
Takapuna 0622
Auckland

Attention: [redacted]

Job Number: 63743#L
BGL Registration Number: 2848
Checked by: WEC

18th December 2024

HYDROMETER PARTICLE-SIZE DISTRIBUTION TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA – STAGE 2

Your Reference: 240065 – Stage 2
Report Number: 63743#L/HYD2 Russell Road

The following report presents the results of hydrometer particle-size distribution testing at BGL of bulk soil samples delivered to this laboratory on the 13th of December 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

Test standards used were:

Water Content:	NZS4402: 1986: Test 2.1
Wet Sieve Test:	NZS4402: 1986: Test 2.8.1
Hydrometer Test:	NZS4402: 1986: Test 2.8.4

Borehole Number	Sample Number	Depth (m)	Hydrometer Grading (% of Dry Mass)			
			GRAVEL (2 – <9.50mm)	SAND (0.06 – 2mm)	SILT FRACTION (0.002 – 0.06mm)	CLAY FRACTION (< 0.002mm)
TP30	BULK	3.45 – 4.10	0	10	64	26
TP36	BULK	3.80 – 4.60	0	63	25	12
TP41	BULK	3.20 – 4.60	0	36	44	20

The whole soils were used for these hydrometer tests. As the organic content of the soils tested was very low, peroxide pretreatment was not carried out. A solid density of 2.65t/m^3 was assumed for these hydrometer tests, and is not part of the IANZ endorsement for this report.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. Test 2.8.1: wet sieve & Test 2.8.4: hydrometer, the 'percentages passing' and 'percentages finer than' are reported to nearest 1%.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
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№ 126

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BGL Babbage Geotechnical Laboratory	Job Number:	63743#L	Sheet 1 of 1	Page 3 of 5	
	Registration Number:	2848			
	Report Number:	63743#L/HYD2 Russell Road			
	Project:	RUSSELL ROAD, UPPER OREWA			

PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

Tested By:	JL	17-Dec-24
Compiled By:	JL	18-Dec-24
Checked By:	JF	18-Dec-24

Version Number:	7	Version Date:	July 2022	Authorised By:	W. Campton

Borehole No: **TP30** ***Sample No:*** **BULK** ***Depth:*** **3.45 - 4.10m**

Water Content (%): **50.8**

Sample History: ~~Natural / Air Dried / Oven Dried /~~ Unknown

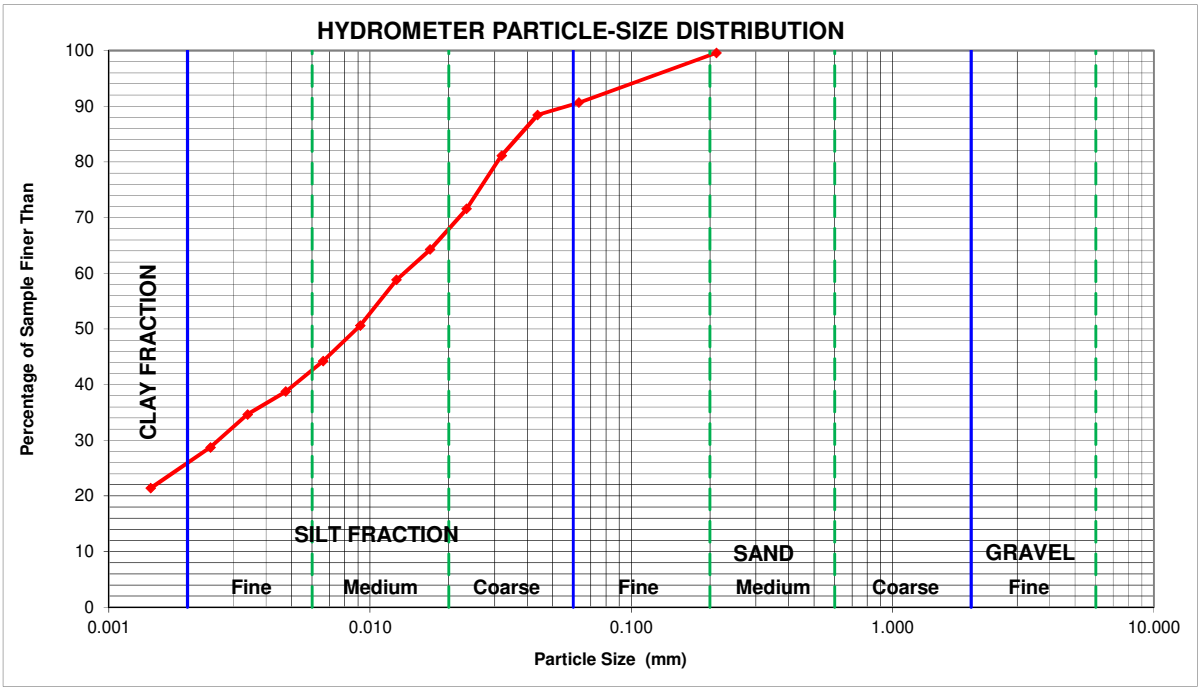
pH of sedimentation suspension: 8.5

Particle-size (mm)	% Finer Than
0.212	100
0.063	91
0.044	88
0.032	81
0.023	72
0.017	64
0.013	59
0.0092	51
0.0066	44
0.0048	39
0.0034	35
0.0024	29
0.0014	21

HYDROMETER ANALYSIS (% of dry mass)

				TOTAL	
GRAVEL	Medium	*< 9.5 - 6mm*	0		
	Fine	*6 - 2mm*	0	**0**	%
SAND	Coarse	*2.0 - 0.6mm*	0		
	Medium	*0.6 - 0.2mm*	1	**10**	%
	Fine	*0.2 - 0.06mm*	9		
SILT FRACTION	Coarse	*0.06 - 0.02mm*	22		
	Medium	*0.02 - 0.006mm*	25	**64**	%
	Fine	*0.006 - 0.002mm*	17		
CLAY FRACTION		*< 0.002mm*		**26**	%
				100%	

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / ~~SOIL FRACTION PASSING A 9.50mm SIEVE~~



BGL Babbage Geotechnical Laboratory	Job Number:	63743#L	Sheet 1 of 1	Page 4 of 5	
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	Report Number:	63743#L/HYD2 Russell Road			
	Project:	RUSSELL ROAD, UPPER OREWA			

PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

Tested By:	JL	17-Dec-24
Compiled By:	JL	18-Dec-24
Checked By:	JF	18-Dec-24

Version Number:	7	Version Date:	July 2022	Authorised By:	W. Campton

Borehole No: **TP36** ***Sample No:*** **BULK** ***Depth:*** **3.80 - 4.60m**

Water Content (%): **39.0**

Sample History: ~~Natural / Air Dried / Oven Dried /~~ Unknown

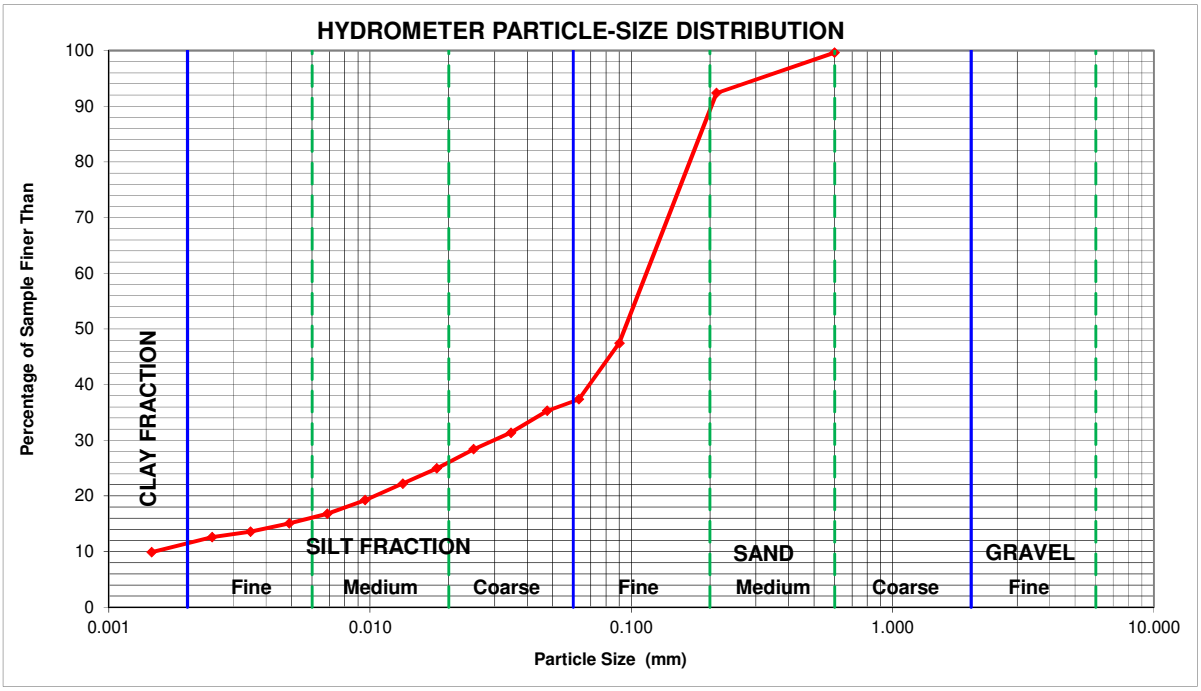
pH of sedimentation suspension: 8.0

Particle-size (mm)	% Finer Than
0.600	100
0.212	92
0.090	47
0.063	37
0.048	35
0.035	31
0.025	28
0.018	25
0.013	22
0.0096	19
0.0069	17
0.0049	15
0.0035	14
0.0025	13
0.0015	10

HYDROMETER ANALYSIS (% of dry mass)

				TOTAL	
GRAVEL	Medium	< 9.5 - 6mm	0		
	Fine	6 - 2mm	0	**0**	%
SAND	Coarse	2.0 - 0.6mm	0		
	Medium	0.6 - 0.2mm	11	**63**	%
	Fine	0.2 - 0.06mm	52		
SILT FRACTION	Coarse	0.06 - 0.02mm	11		
	Medium	0.02 - 0.006mm	10	**25**	%
	Fine	0.006 - 0.002mm	4		
CLAY FRACTION		< 0.002mm		**12**	%
				100%	

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / ~~SOIL FRACTION PASSING A 9.50mm SIEVE~~



BGL Babbage Geotechnical Laboratory	Job Number:	63743#L	Sheet 1 of 1	Page 5 of 5	
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	Project:	RUSSELL ROAD, UPPER OREWA			

PARTICLE-SIZE DISTRIBUTION BY HYDROMETER

Test Methods: NZS4402: 1986: Test 2.1, Test 2.8.1, Test 2.8.4

Tested By:	JL	17-Dec-24
Compiled By:	JL	18-Dec-24
Checked By:	JF	18-Dec-24

Version Number:	7	Version Date:	July 2022	Authorised By:	W. Campton

Borehole No: TP41 **Sample No:** BULK **Depth:** 3.20 - 4.60m

Water Content (%): **47.5**

Sample History: ~~Natural / Air Dried / Oven Dried /~~ Unknown

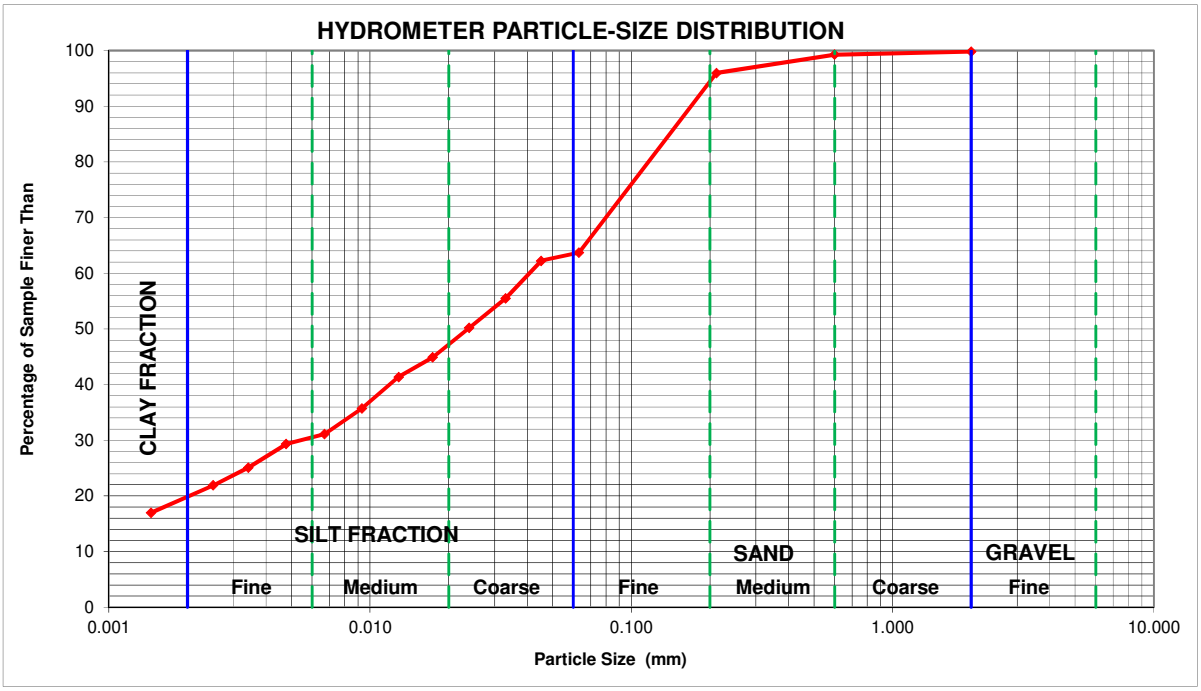
pH of sedimentation suspension: 8.0

Particle-size (mm)	% Finer Than
2.00	100
0.600	99
0.212	96
0.063	64
0.045	62
0.033	55
0.024	50
0.017	45
0.013	41
0.0093	36
0.0067	31
0.0048	29
0.0034	25
0.0025	22
0.0014	17

HYDROMETER ANALYSIS (% of dry mass)

				TOTAL	
GRAVEL	Medium	*< 9.5 - 6mm*	0		
	Fine	*6 - 2mm*	0	**0**	%
SAND	Coarse	*2.0 - 0.6mm*	1		
	Medium	*0.6 - 0.2mm*	5	**36**	%
	Fine	*0.2 - 0.06mm*	30		
SILT FRACTION	Coarse	*0.06 - 0.02mm*	17		
	Medium	*0.02 - 0.006mm*	16	**44**	%
	Fine	*0.006 - 0.002mm*	11		
CLAY FRACTION		*< 0.002mm*		**20**	%
				100%	

HYDROMETER TEST WAS CARRIED OUT ON THE WHOLE SOIL / ~~SOIL FRACTION PASSING A 9.50mm SIEVE~~



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Please reply to: W.E. Campton

Riley Consultants Ltd.
4 Fred Thomas Drive
Takapuna 0622
Auckland

Attention: [redacted]

Job Number: 63743#L
BGL Registration Number: 2848
Checked by: WEC

18th December 2024

SOAKED CALIFORNIA BEARING RATIO (CBR) TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA – STAGE 2

Your Reference: 240065 – Stage 2
Report Number: 63743#L/CBR Russell Road

The following report presents the results of soaked California Bearing Ratio testing at BGL of bulk soil samples delivered to this laboratory on the 13th of December 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

Test standards used were:

Water Content:	NZS4402: 1986: Test 2.1
NZ Standard Compaction:	NZS4402: 1986: Test 4.1.1
California Bearing Ratio (CBR) – Remoulded:	NZS4402: 1986: Test 6.1.1 (soaked)

The bulk samples were sieved through a 19.0mm sieve to remove any oversized material if present, and then through a 9.5mm aperture sieve to break up the soil (*which is a departure from the NZS4402 Standard which requires a 4.75mm sieve to be used*). Sample TP36 was too wet to be compacted at the as-received water content, so it was dried-back from 40.5% to 31.3% water content. The sieved bulk samples were then compacted into CBR moulds using the NZ Standard Compaction method. The compacted samples were then soaked for four days. The CBR values were then measured using a plunger penetration rate of 1mm per minute.

Sample Details	Water Content (%)		Dry Density (t/m^3)	CBR (soaked)	Swell (%)
	Initial (trimmings)	After Testing (under plunger)			
TP30 / BULK / 3.45 – 4.10m	**50.9**	**50.5**	**1.10**	**1**	**0.4**
	SILT, clayey, minor fine sand, moderately plastic, light brown, very moist.				

Note that sample descriptions are not part of BGL IANZ Accreditation.

[redacted]

Sample Details	Water Content (%)			Dry Density (t/m^3)	CBR (soaked)	Swell (%)
	As-received	Adjusted (before Compaction)	After Testing (under plunger)			
TP36 / BULK / 3.80 – 4.60m	**40.5**	**31.3**	**31.5**	**1.40**	**2**	**0.0**
	SAND, silty, non-plastic to slightly plastic, light brown & light grey, from completely weathered siltstone & sandstone that was easily broken up over a 9.50mm sieve.					

Note that sample descriptions are not part of BGL IANZ Accreditation.

Note that a solid density value of $2.65t/m^3$ was used in the calculation of the air voids for these compacted samples. This value is assumed, and is not part of the IANZ endorsement for this report.

As per the reporting requirements of NZS4402: 1986: Test 6.1.1, dry density is reported to the nearest $0.02t/m^3$, swell to the nearest 0.2%, CBR's > 20 to the nearest 5, CBR's between 5 and 20 to the nearest 1, and for CBR's < 5 to the nearest 0.5. As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

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Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory

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Babbage Geotechnical Laboratory

Job Number:	63743#L	Report Number:	
Registration Number:	2848	63743#L/CBR Russell Road	
PROJECT:	RUSSELL ROAD, UPPER OREWA		

CALIFORNIA BEARING RATIO TEST: REMOULDED SAMPLE, SOAKED

Test Methods: NZS4402: 1986: Test 6.1.1 - California Bearing Ratio / NZS4402: 1986: Test 2.1 - Water Content

	Initials	Date
Tested By:	WEC / SG / JL	17/12/2024
Compiled By:	SG	18/12/2024
Checked By:	JF	18/12/2024
Authorised By:	Wayne Campton	

Version Number:	4	Version Date:	September 2022

Sample Identification:	TP30 / BULK
Sample Depth (m):	3.45 - 4.10m
Sample History:	~~dried / wetted / lime added / cement added /~~ unknown ~~/ natural~~
Compaction Used:	NZ Standard Compaction / ~~NZ Heavy Compaction~~

Proving Ring Number:	1155-3-1320
Ring Calibration Factor:	1452.10
(dial divisions / kN: from calibration worksheet)	

SOAKED CBR

Soil Sieved Through:	19.0 & 9.5	mm sieves
Surcharge Used:	4.00	kg
Mould Number:	B11	

BULK DENSITY

Mass Mould + Base + Soil	10,611.00	(g)
Mass Mould + Base	6,761.30	(g)
Volume Mould (from calibration)	2,306.00	(ml)
Bulk Density	**1.67**	(t/m^3)

WATER CONTENT	Before (trimmings)	After (under plunger)
Mass Wet Soil + Tin (g)	459.298	343.097
Mass Dry Soil + Tin (g)	340.515	255.403
Mass Tin (g)	106.992	81.877
Water Content (%)	**50.9**	**50.5**
Dry Density (t/m^3)	**1.10**	

DETERMINATION OF SWELL

Initial Reading (mm)	14.31
Final Reading (mm)	14.84
Change in Height (mm)	0.53
Initial Height (mm)	127.14
Swell (%)	**0.4**

Air Voids:	2.0	%
Time of Soaking:	4	days
Plunger Penetration Rate:	1.0	mm / minute

DETERMINATION OF BEARING VALUE

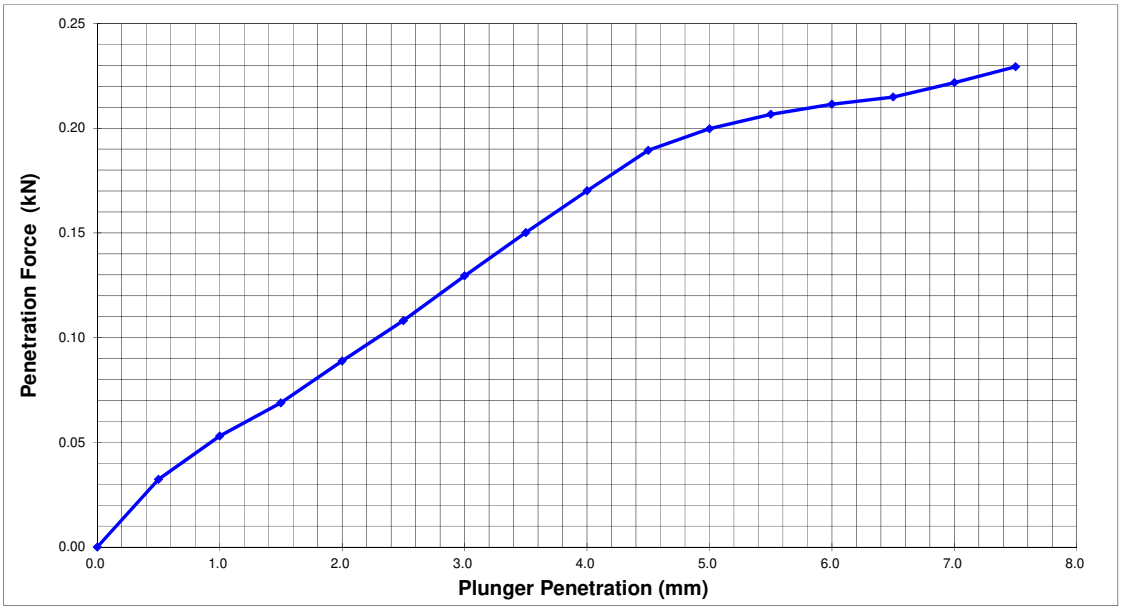
Plunger Penetration (mm)	Proving Ring Dial (divisions)	Force (kN)
0.0	0.0	0.00
0.5	47.0	0.03
1.0	77.0	0.05
1.5	100.0	0.07
2.0	129.0	0.09
2.5	157.0	0.11
3.0	188.0	0.13
3.5	218.0	0.15
4.0	247.0	0.17
4.5	275.0	0.19
5.0	290.0	0.20
5.5	300.0	0.21
6.0	307.0	0.21
6.5	312.0	0.21
7.0	322.0	0.22
7.5	333.0	0.23

2.5mm PENETRATION BEARING VALUE	
uncorrected	**0.8**
with curve shape correction (if needed)	**0.8**
5.0mm PENETRATION BEARING VALUE	
uncorrected	**1.0**
with curve shape correction (if needed)	**1.0**

FINAL CBR VALUE: 1

Lime Added:	0.0	%
Cement Added:	0.0	%

CBR FORCE-PENETRATION CURVE



Babbage Geotechnical Laboratory

Job Number:	63743#L	Report Number:	
Registration Number:	2848	63743#L/CBR Russell Road	
PROJECT:	RUSSELL ROAD, UPPER OREWA		

CALIFORNIA BEARING RATIO TEST: REMOULDED SAMPLE, SOAKED

Test Methods: NZS4402: 1986: Test 6.1.1 - California Bearing Ratio / NZS4402: 1986: Test 2.1 - Water Content

	Initials	Date
Tested By:	WEC / SG / JL	17/12/2024
Compiled By:	WEC	18/12/2024
Checked By:	JF	18/12/2024
Version Number: 4	Version Date: September 2022	Authorised By: Wayne Campton

Sample Identification:	TP36 / BULK
Sample Depth (m):	3.80 - 4.60m
Sample History:	~~dried / wetted / lime added / cement added /~~ unknown ~~/ natural~~
Compaction Used:	NZ Standard Compaction / ~~NZ Heavy Compaction~~

Proving Ring Number:	1155-3-1320
Ring Calibration Factor:	1452.10
(dial divisions / kN: from calibration worksheet)	

SOAKED CBR

Soil Sieved Through:	19.0 & 9.5	mm sieves
Surcharge Used:	4.00	kg
Mould Number:	B8	

BULK DENSITY

Mass Mould + Base + Soil	10,443.20	(g)
Mass Mould + Base	6,188.10	(g)
Volume Mould (from calibration)	2,310.00	(ml)
Bulk Density	**1.84**	(t/m^3)

WATER CONTENT

	Before (trimmings)	After (under plunger)
Mass Wet Soil + Tin (g)	480.675	514.368
Mass Dry Soil + Tin (g)	390.160	410.492
Mass Tin (g)	101.282	80.260
Water Content (%)	**31.3**	**31.5**
Dry Density (t/m^3)	**1.40**	

DETERMINATION OF SWELL

Initial Reading (mm)	12.32
Final Reading (mm)	12.23
Change in Height (mm)	-0.09
Initial Height (mm)	127.36
Swell (%)	**0.0**

Air Voids:	3.1	%
Time of Soaking:	4	days
Plunger Penetration Rate:	1.0	mm / minute

DETERMINATION OF BEARING VALUE

Plunger Penetration (mm)	Proving Ring Dial (divisions)	Force (kN)
0.0	0.0	0.00
0.5	34.0	0.02
1.0	76.0	0.05
1.5	118.0	0.08
2.0	160.0	0.11
2.5	**203.0**	**0.14**
3.0	252.0	0.17
3.5	303.0	0.21
4.0	355.0	0.24
4.5	410.0	0.28
5.0	**454.0**	**0.31**
5.5	483.0	0.33
6.0	504.0	0.35
6.5	529.0	0.36
7.0	561.0	0.39
7.5	597.0	0.41

2.5mm PENETRATION BEARING VALUE

uncorrected	**1.1**
with curve shape correction (if needed)	**1.1**

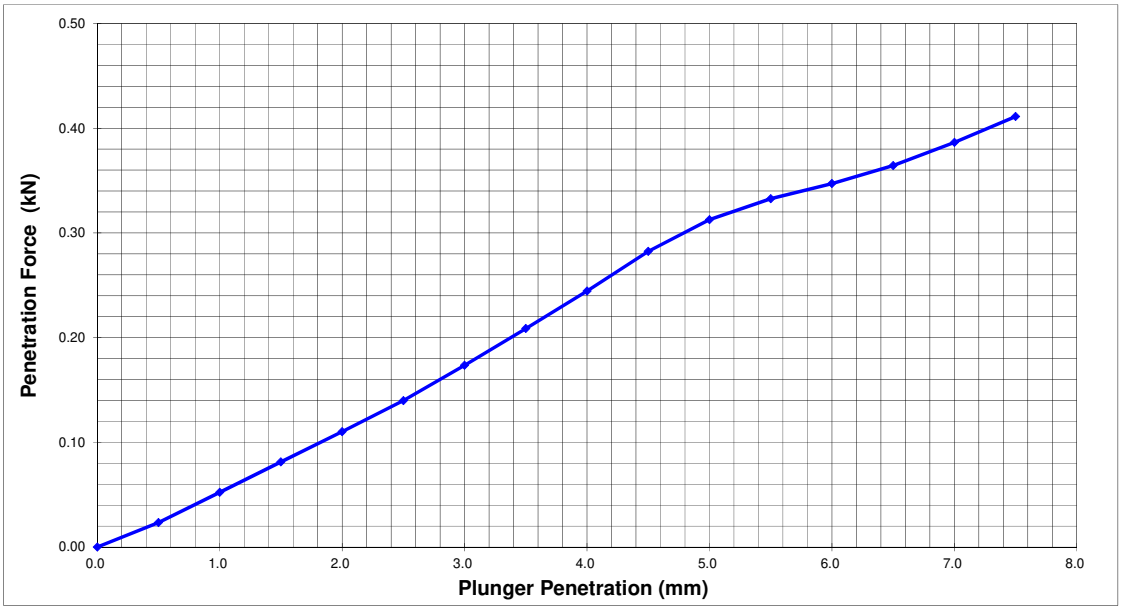
5.0mm PENETRATION BEARING VALUE

uncorrected	**1.6**
with curve shape correction (if needed)	**1.6**

FINAL CBR VALUE: 2

Lime Added:	0.0	%
Cement Added:	0.0	%

CBR FORCE-PENETRATION CURVE



Babbage Geotechnical Laboratory
Level 4
68 Beach Road
Auckland 1010
Telephone
E-mail

P O Box 2027
New Zealand
64-9-367 4954
wec@babbage.co.nz

Please reply to: W.E. Campton

Riley Consultants Ltd.
4 Fred Thomas Drive
Takapuna 0622
Auckland

Attention: [redacted]

Job Number: 63743#L
BGL Registration Number: 2848
Checked by: WEC

2nd December 2024

DRY DENSITY / WATER CONTENT RELATIONSHIP (COMPACTION CURVE) TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA

Your Reference: 240065
Report Number: 63743#L/CC Russell Road

The following report presents the results of compaction curve testing at BGL of bulk soil samples delivered to this laboratory on the 21st of November 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

A single shear vane test was carried out on each compacted sample while it was still in the proctor mould, and these results are included on the results tables and water content / density graphs. The shear vane results are included for your information only, and are not included in the IANZ endorsement for this report.

Test standards used were:

Water Content:	NZS4402: 1986: Test 2.1
NZ Standard Compaction:	NZS4402: 1986: Test 4.1.1
Vane Shear Strength:	NZ Geotechnical Society Guideline 2001

Sample Identification	Maximum Dry Density (t/m^3)	Optimum Water Content (%)	Natural Water Content (%)
TP3 / BULK / 4.00 – 5.00m	**1.54**	**20**	**42.4**
	SILT, fine sandy, slightly to moderately plastic, pink with orange & light grey mottles, wet.		
TP7 / BULK / 0.60 – 0.80m	**1.25**	**36**	**49.4**
	CLAY, silty, minor fine sand, moderately plastic, orange with light grey mottles, very moist.		

Note that sample descriptions are not part of BGL IANZ Accreditation.

[redacted]

Sample Identification	Maximum Dry Density (t/m^3)	Optimum Water Content (%)	Natural Water Content (%)
TP10 / A / 2.40 – 2.70m	**1.53**	**21**	**36.1**
	CLAY, silty, some fine to coarse sand, moderately plastic, white & orange, moist.		
TP10 / B / 3.60 – 3.80m	**1.60**	**20**	**23.4**
	SILT, fine sandy, non-plastic, grey, slightly moist, [WEATHERED SILTSTONE & SANDSTONE].		

Note that sample descriptions are not part of BGL IANZ Accreditation.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. As per the reporting requirements of NZS4402: 1986: Test 4.1.1: New Zealand Standard Compaction Test, maximum dry density is reported to the nearest $0.01t/m^3$, optimum water content is reported to the nearest 0.2% for values below 5%, to the nearest 0.5% for values from 5 to 10%, and to the nearest whole number for values greater than 10%.

For calculating the air voids percentages a solid density of $2.65t/m^3$ was assumed for sample TP3, a solid density of $2.64t/m^3$ was assumed for sample TP7, a solid density of $2.65t/m^3$ was assumed for sample TP10 / A, and a solid density of $2.64t/m^3$ was assumed for sample TP10 / B. Note that these assumed values are not part of the IANZ endorsement for this report.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory

ACCREDITED
IANZ
TESTING LABORATORY
№ 126

Babbage Geotechnical Laboratory	Job Number:	63743#L	Page 3 of 6
	Registration Number:	2848	
	Report Number:	63743#L/CC Russell Road	
	PROJECT:	RUSSELL ROAD, UPPER OREWA	

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Tested By:	JL	November 2024
Compiled By:	JL	29/11/2024
Checked By:	JF	2/12/2024

Version Number:	5	Version Date:	February 2023	Authorised By:	W. Campton

Sample ID: TP3 / BULK **Sample Depth:** 4.00 - 5.00m

Sample History:	Air-dried from natural water content
Compaction Used:	New Zealand Standard Compaction
Test Performed On:	Whole Soil / ~~Fraction Passing the 19mm Sieve~~
Solid Density of Soil Particles:	2.65 t/m^3 (~~measured~~ / assumed)

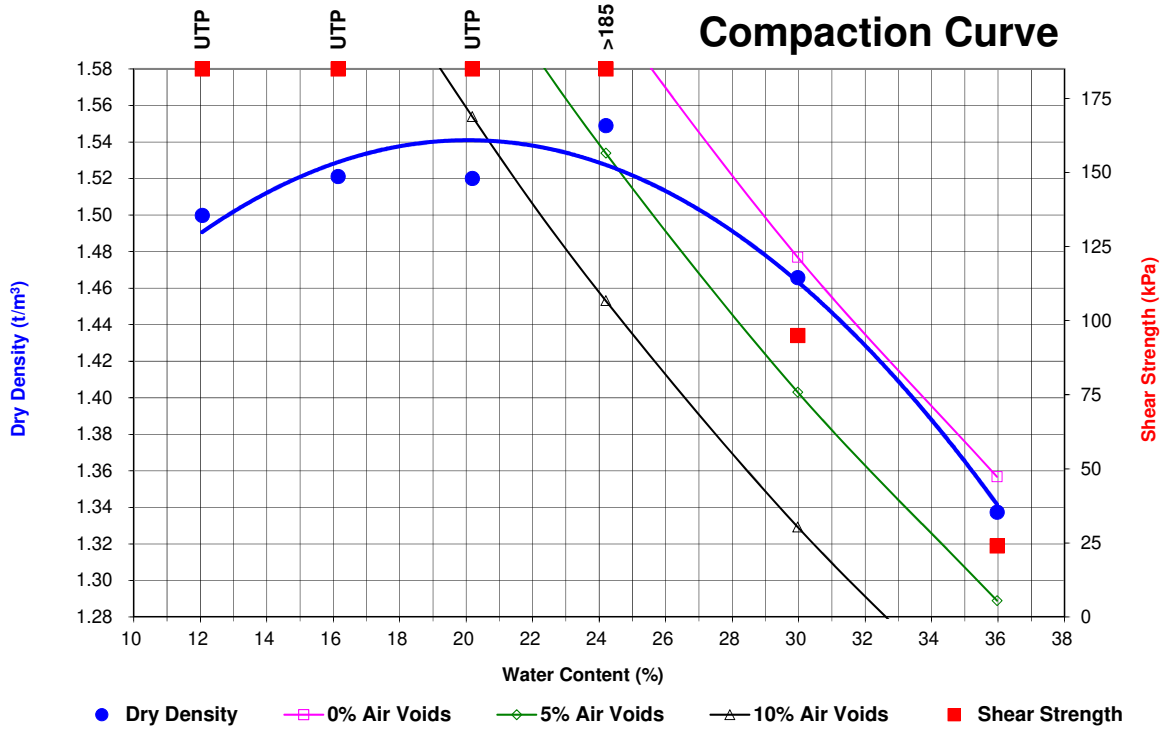
Natural Water Content (%): 42.4

TEST RESULTS

Water Content (%)	12.1	16.1	20.2	24.2	30.0	36.0
Bulk Density (t/m^3)	1.68	1.77	1.83	1.92	1.91	1.82
Dry Density (t/m^3)	1.50	1.52	1.52	1.55	1.47	1.34
Air Voids (%)	25.3	18.0	12.0	4.1	0.8	1.4
Shear Strength (kPa)	UTP*	UTP*	UTP*	>185	95	24

**UTP = unable to penetrate sample with the shear vane.*

Maximum Dry Density:	1.54 t/m^3	Optimum Water Content:	20 %



Babbage Geotechnical Laboratory

Job Number:	63743#L
Registration Number:	2848
Report Number:	63743#L/CC Russell Road

PROJECT: RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Tested By:	JL	November 2024
Compiled By:	JL	29/11/2024
Checked By:	JF	2/12/2024

Version Number:	5	Version Date:	February 2023	Authorised By:	W. Campton

Sample ID: TP7 / BULK **Sample Depth:** 0.60 - 0.80m

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / ~~Fraction Passing the 19mm Sieve~~

Solid Density of Soil Particles: 2.64 t/m^3 (~~measured~~ / assumed)

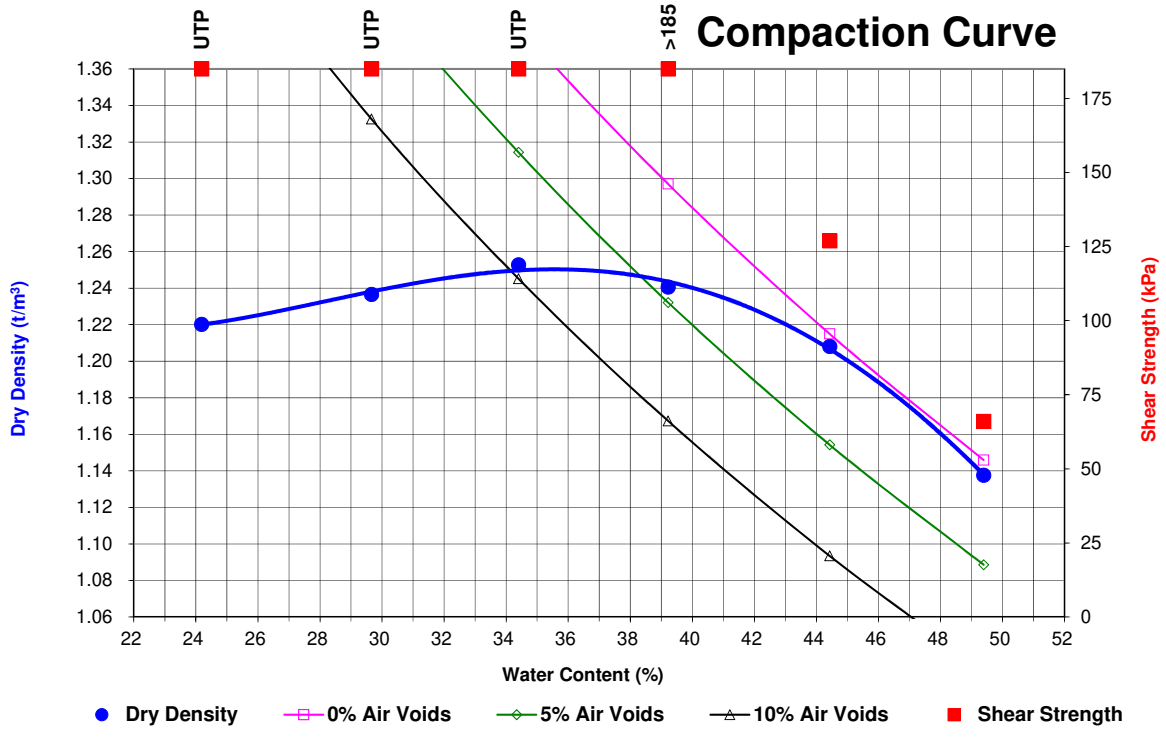
Natural Water Content (%): 49.4

TEST RESULTS

Water Content (%)	24.2	29.7	34.4	39.2	44.4	49.4
Bulk Density (t/m^3)	1.52	1.60	1.68	1.73	1.74	1.70
Dry Density (t/m^3)	1.22	1.24	1.25	1.24	1.21	1.14
Air Voids (%)	24.3	16.5	9.4	4.3	0.6	0.7
Shear Strength (kPa)	UTP*	UTP*	UTP*	>185	127	66

**UTP = unable to penetrate sample with the shear vane.*

Maximum Dry Density: 1.25 t/m^3 **Optimum Water Content:** 36 %



Babbage Geotechnical Laboratory

Job Number:	63743#L
Registration Number:	2848
Report Number:	63743#L/CC Russell Road

PROJECT: RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Tested By:	SG	November 2024
Compiled By:	SG	29/11/2024
Checked By:	JF	2/12/2024

Version Number:	5	Version Date:	February 2023	Authorised By:	W. Campton

Sample ID: TP10 / A **Sample Depth:** 2.40 - 2.70m

Sample History: Air-dried and wetted from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / ~~Fraction Passing the 19mm Sieve~~

Solid Density of Soil Particles: 2.65 t/m^3 (~~measured~~ / assumed)

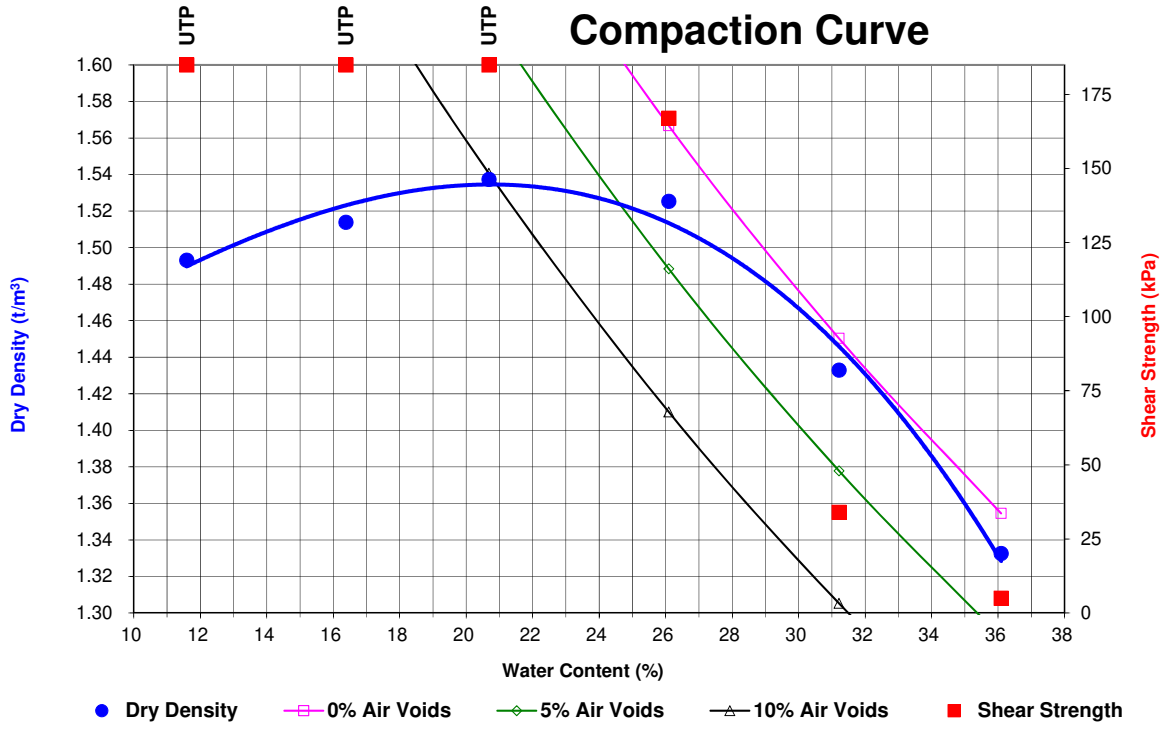
Natural Water Content (%): 36.1

TEST RESULTS

Water Content (%)	11.6	16.4	20.7	26.1	31.2	36.1
Bulk Density (t/m^3)	1.67	1.76	1.86	1.92	1.88	1.81
Dry Density (t/m^3)	1.49	1.51	1.54	1.53	1.43	1.33
Air Voids (%)	26.4	18.1	10.2	2.6	1.2	1.6
Shear Strength (kPa)	UTP*	UTP*	UTP*	167	34	5

**UTP = unable to penetrate sample with the shear vane.*

Maximum Dry Density: 1.53 t/m^3 **Optimum Water Content:** 21 %



Babbage Geotechnical Laboratory

Job Number:	63743#L
Registration Number:	2848
Report Number:	63743#L/CC Russell Road
PROJECT:	RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Tested By:	JL	November 2024
Compiled By:	JL	29/11/2024
Checked By:	JF	2/12/2024

Version Number:	5	Version Date:	February 2023	Authorised By:	W. Campton

Sample ID: TP10 / B **Sample Depth:** 3.60 - 3.80m

Sample History: Air-dried and wetted from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / ~~Fraction Passing the 19mm Sieve~~

Solid Density of Soil Particles: 2.64 t/m^3 (~~measured~~ / assumed)

Natural Water Content (%): 23.4

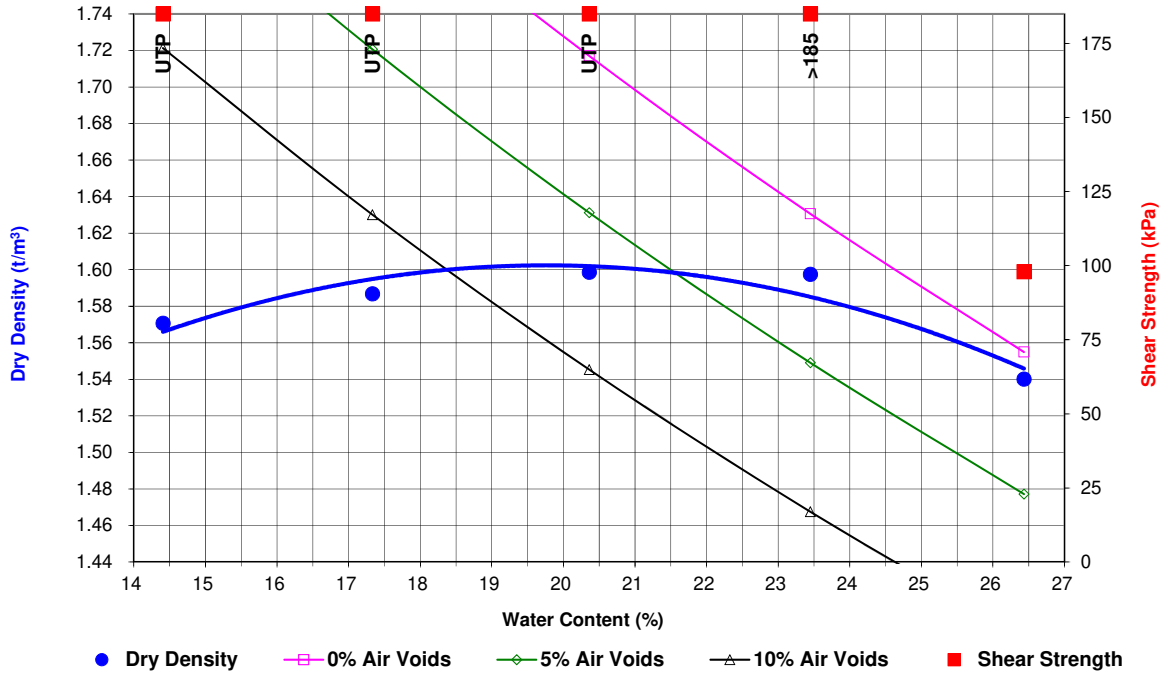
TEST RESULTS

Water Content (%)	14.4	17.3	20.4	23.4	26.4
Bulk Density (t/m^3)	1.80	1.86	1.92	1.97	1.95
Dry Density (t/m^3)	1.57	1.59	1.60	1.60	1.54
Air Voids (%)	17.9	12.4	6.9	2.0	0.9
Shear Strength (kPa)	UTP*	UTP*	UTP*	>185	98

**UTP = unable to penetrate sample with the shear vane.*

Maximum Dry Density: 1.60 t/m^3 **Optimum Water Content:** 20 %

Compaction Curve



Babbage Geotechnical Laboratory
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64-9-367 4954
wec@babbage.co.nz

Please reply to: W.E. Campton

Riley Consultants Ltd.
4 Fred Thomas Drive
Takapuna 0622
Auckland

Attention: [redacted]

Job Number: 63743#L
BGL Registration Number: 2848
Checked by: WEC

20th December 2024

DRY DENSITY / WATER CONTENT RELATIONSHIP (COMPACTION CURVE) TESTING

Dear Sir,

Re: RUSSELL ROAD, UPPER OREWA – STAGE 2

Your Reference: 240065 – Stage 2
Report Number: 63743#L/CC2 Russell Road

The following report presents the results of compaction curve testing at BGL of bulk soil samples delivered to this laboratory on the 13th of December 2024. Test results are summarised below, with the following pages showing graphs and detailed results.

A single shear vane test was carried out on each compacted sample while it was still in the proctor mould, and these results are included on the results tables and water content / density graphs. The shear vane results are included for your information only, and are not included in the IANZ endorsement for this report.

Test standards used were:

Water Content:	NZS4402: 1986: Test 2.1
NZ Standard Compaction:	NZS4402: 1986: Test 4.1.1
Vane Shear Strength:	NZ Geotechnical Society Guideline 2001

Sample Identification	Maximum Dry Density (t/m^3)	Optimum Water Content (%)	Natural Water Content (%)
TP25 / BULK / 4.00 – 5.50m	**1.52**	**21**	**33.5**
	SILT, fine sandy, moderately plastic, grey, moist (completely weathered siltstone & sandstone crushed under finger pressure).		
TP27 / BULK / 4.60 – 5.20m	**1.33**	**31**	**52.3**
	SILTSTONE, grey, saturated.		

Note that sample descriptions are not part of BGL IANZ Accreditation.

[redacted]

Sample Identification	Maximum Dry Density (t/m^3)	Optimum Water Content (%)	Natural Water Content (%)
TP41 / BULK / 3.20 – 4.60m	**1.43**	**25**	**48.1**
	SILT, clayey, fine sandy, slightly plastic, light grey & brown, very moist.		
TP47 / BULK / 1.00 – 2.00m	**1.42**	**29**	**37.2**
	CLAY, highly plastic, brownish orange with light grey mottles, moist.		

Note that sample descriptions are not part of BGL IANZ Accreditation.

As per the reporting requirements of NZS4402: 1986: Test 2.1: water content is reported to two significant figures for values below 10%, and to three significant figures for values of 10% or greater. As per the reporting requirements of NZS4402: 1986: Test 4.1.1: New Zealand Standard Compaction Test, maximum dry density is reported to the nearest $0.01t/m^3$, optimum water content is reported to the nearest 0.2% for values below 5%, to the nearest 0.5% for values from 5 to 10%, and to the nearest whole number for values greater than 10%.

For calculating the air voids percentages a solid density of $2.63t/m^3$ was assumed for sample TP25, a solid density of $2.68t/m^3$ was assumed for sample TP27, a solid density of $2.60t/m^3$ was assumed for sample TP41, and a solid density of $2.64t/m^3$ was assumed for sample TP47. Note that these assumed values are not part of the IANZ endorsement for this report.

Please note that the test results relate only to the samples as-received, and relate only to the samples under test.

Thank you for the opportunity to carry out this testing. If you have any queries regarding the content of this report please contact the person authorising this report below at your convenience.

Yours faithfully,

Justin Franklin
Key Technical Person
Assistant Laboratory Manager
Babbage Geotechnical Laboratory

ACCREDITED
IANZ
TESTING LABORATORY
№ 126

Babbage Geotechnical Laboratory	Job Number:	63743#L	Page 3 of 6
	Registration Number:	2848	
	Report Number:	63743#L/CC2 Russell Road	
	PROJECT:	RUSSELL ROAD, UPPER OREWA	

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Tested By:	JL	Dec 2024
Compiled By:	JL	18-Dec-24
Checked By:	WEC	18-Dec-24

Version Number:	5	Version Date:	February 2023	Authorised By:	W. Campton

Sample ID: TP25 / BULK **Sample Depth:** 4.00 - 5.50m

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / ~~Fraction Passing the 19mm Sieve~~

Solid Density of Soil Particles: 2.63 t/m^3 (~~measured~~ / assumed)

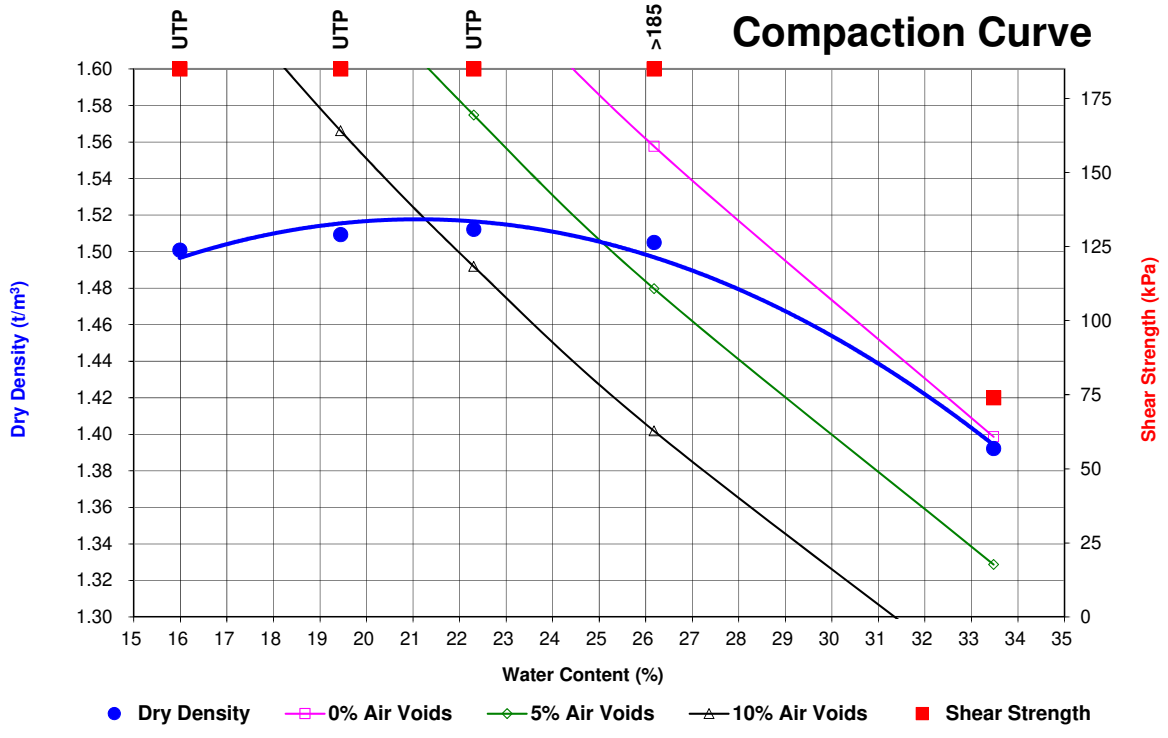
Natural Water Content (%): 33.5

TEST RESULTS

Water Content (%)	16.0	19.4	22.3	26.2	33.5
Bulk Density (t/m^3)	1.74	1.80	1.85	1.90	1.86
Dry Density (t/m^3)	1.50	1.51	1.51	1.51	1.39
Air Voids (%)	18.9	13.3	8.8	3.4	0.5
Shear Strength (kPa)	UTP*	UTP*	UTP*	>185	74

**UTP = unable to penetrate sample with the shear vane.*

Maximum Dry Density:	1.52 t/m^3	Optimum Water Content:	21 %



Babbage Geotechnical Laboratory

Job Number:	63743#L
Registration Number:	2848
Report Number:	63743#L/CC2 Russell Road

PROJECT: RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Tested By:	WEC / JL	Dec 2024
Compiled By:	JL	18/12/2024
Checked By:	JF	20/12/2024

Version Number:	5	Version Date:	February 2023	Authorised By:	W. Campton

Sample ID: TP27 / BULK **Sample Depth:** 4.60 - 5.20m

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / ~~Fraction Passing the 19mm Sieve~~

Solid Density of Soil Particles: 2.68 t/m^3 (~~measured~~ / assumed)

Natural Water Content (%): 52.3

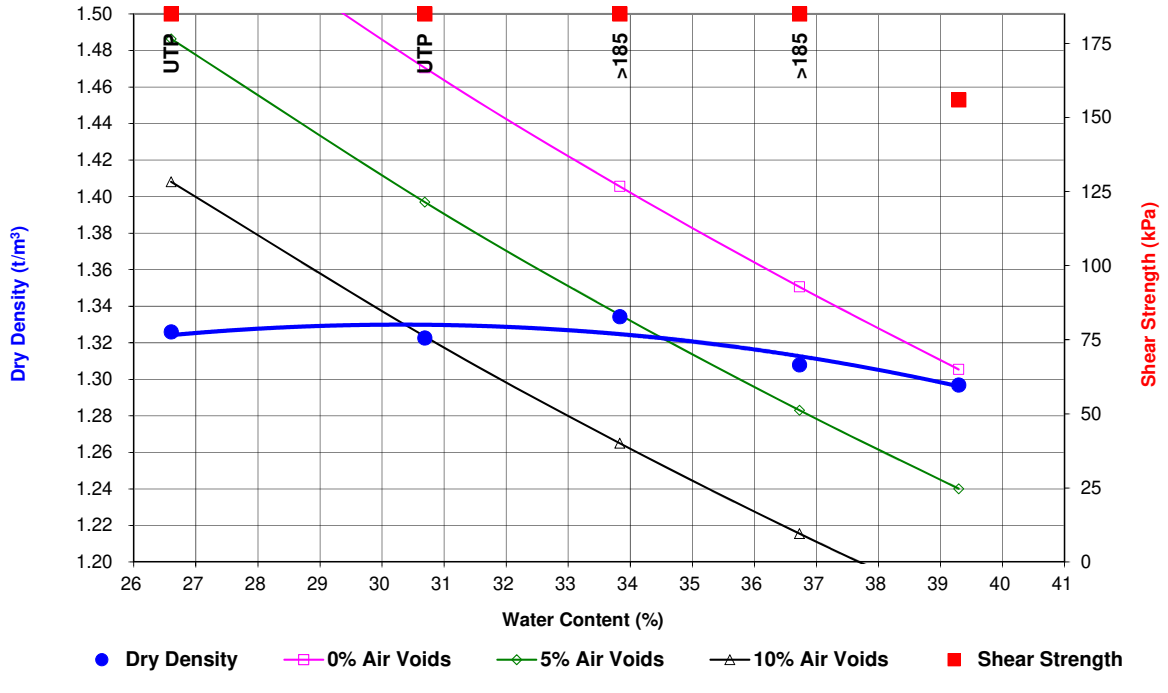
TEST RESULTS

Water Content (%)	26.6	30.7	33.8	36.7	39.3
Bulk Density (t/m^3)	1.68	1.73	1.79	1.79	1.81
Dry Density (t/m^3)	1.33	1.32	1.33	1.31	1.30
Air Voids (%)	15.3	10.1	5.1	3.2	0.7
Shear Strength (kPa)	UTP*	UTP*	>185	>185	156

**UTP = unable to penetrate sample with the shear vane.*

Maximum Dry Density:	1.33 t/m^3	Optimum Water Content:	31 %

Compaction Curve



Babbage Geotechnical Laboratory

Job Number:	63743#L
Registration Number:	2848
Report Number:	63743#L/CC2 Russell Road

PROJECT: RUSSELL ROAD, UPPER OREWA

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Tested By:	SG / WEC	Dec 2024
Compiled By:	SG	Dec 2024
Checked By:	JF	19/12/2024

Version Number:	5	Version Date:	February 2023	Authorised By:	W. Campton

Sample ID: TP41 / BULK **Sample Depth:** 3.20 - 4.60m

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / ~~Fraction Passing the 19mm Sieve~~

Solid Density of Soil Particles: 2.60 t/m^3 (~~measured~~ / assumed)

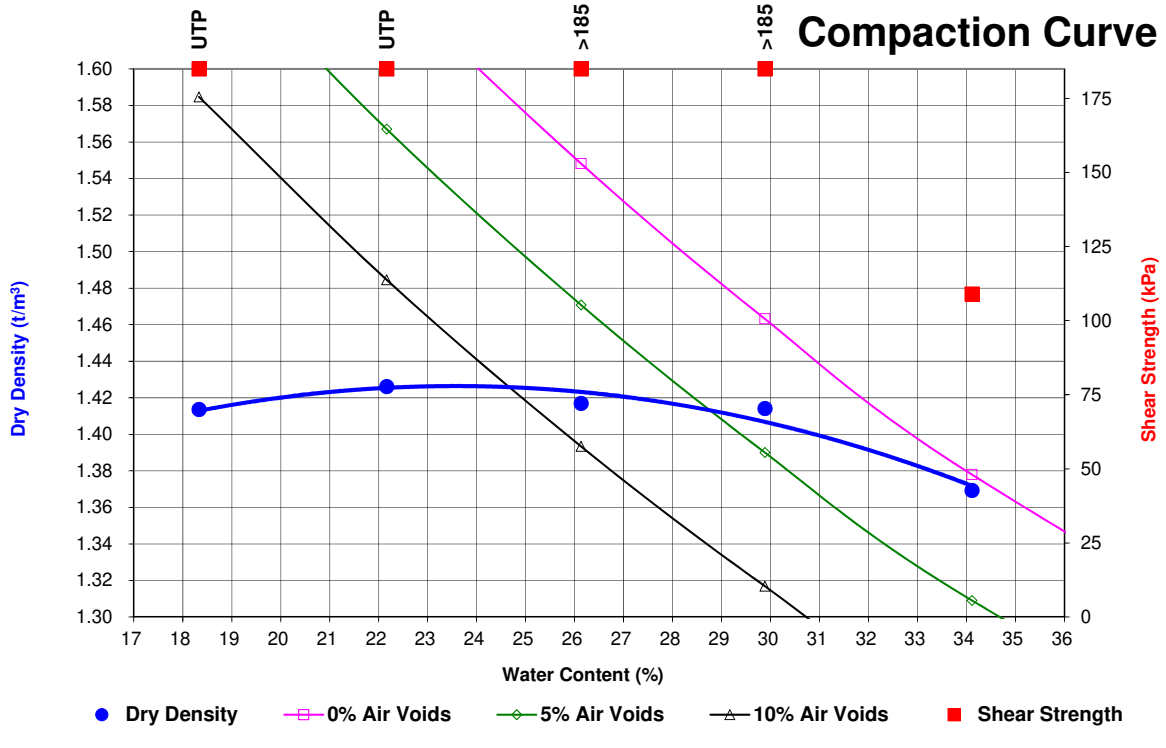
Natural Water Content (%): 48.1

TEST RESULTS

Water Content (%)	18.3	22.2	26.1	29.9	34.1	48.1
Bulk Density (t/m^3)	1.67	1.74	1.79	1.84	1.84	1.70
Dry Density (t/m^3)	1.41	1.43	1.42	1.41	1.37	1.15
Air Voids (%)	19.7	13.5	8.5	3.4	0.6	0.5
Shear Strength (kPa)	UTP*	UTP*	>185	>185	109	5

**UTP = unable to penetrate sample with the shear vane.*

Maximum Dry Density: 1.43 t/m^3 **Optimum Water Content:** 25 %



Babbage Geotechnical Laboratory	Job Number:	63743#L	Page 6 of 6
	Registration Number:	2848	
	Report Number:	63743#L/CC2 Russell Road	
	PROJECT:	RUSSELL ROAD, UPPER OREWA	

Determination of the Dry Density / Water Content Relationship by Standard Compaction

Test Method: NZS4402: 1986: Test 4.1.1

Tested By:	JL	Dec 2024	
Compiled By:	JL	18-Dec-24	
Checked By:	WEC	18-Dec-24	
Version Number:	5	Version Date:	February 2023
Authorised By:	W. Campton		

Sample ID: TP47 / BULK **Sample Depth: 1.00 - 2.00m**

Sample History: Air-dried from natural water content

Compaction Used: New Zealand Standard Compaction

Test Performed On: Whole Soil / ~~Fraction Passing the 19mm Sieve~~

Solid Density of Soil Particles: 2.64 t/m^3 (~~measured~~ / assumed)

Natural Water Content (%): 37.2

TEST RESULTS

Water Content (%)	23.0	26.4	29.9	33.3	37.2
Bulk Density (t/m^3)	1.69	1.76	1.86	1.86	1.81
Dry Density (t/m^3)	1.38	1.39	1.43	1.40	1.32
Air Voids (%)	16.3	10.7	3.2	0.6	0.7
Shear Strength (kPa)	UTP*	UTP*	>185	132	64

**UTP = unable to penetrate sample with the shear vane.*

Maximum Dry Density: 1.42 t/m^3 **Optimum Water Content: 29 %**