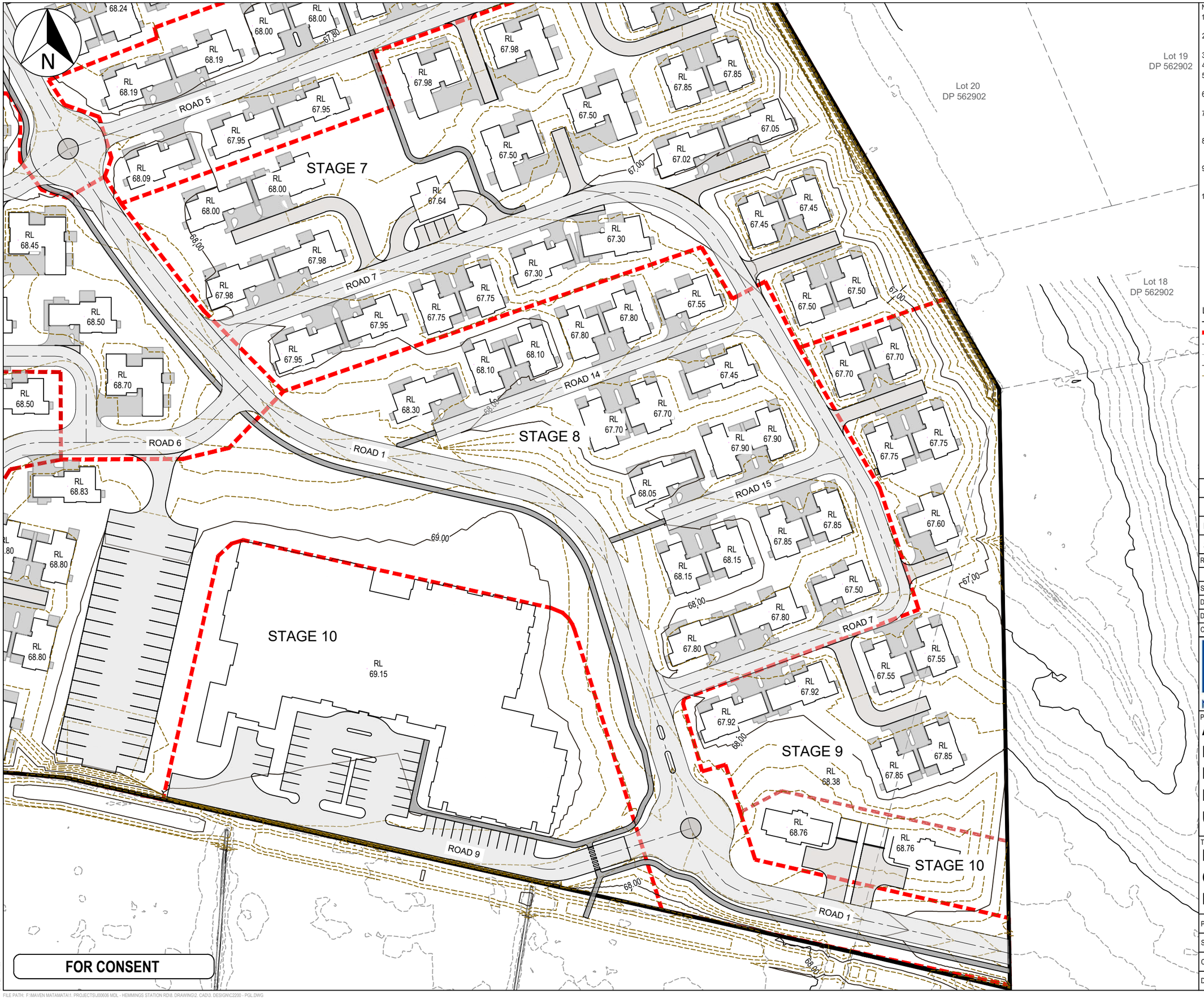
ORIGINAL SIZE: A3



Notes

1. All works to be in accordance with MPDC and RITS standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000.
3. Reduced Levels are in terms of NZVD 2016.
4. Contour interval Major 1m Minor 0.2m
5. It is the contractors responsibility to locate all services that may be affected by their operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.
10. Sediment control to comply with Waikato Regional Council Erosion and Sediment Control:guidelines for soil disturbing activities TR2009/02.

LEGEND

- EX BDY
- PR BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PR MAJOR CONTOUR
- PR MINOR CONTOUR

Rev	Description	By	Date
B	FOR CONSENT	KQ	04/25
A	FOR REVIEW	DP	01/25

	By	Date
Survey	MAVEN	10/2024
Design	KQ	04/2025
Drawn	DP	04/2025
Checked	SB	04/2025

Maven Matamata
matamatainfo@maven.co.nz
www.maven.co.nz
8 Tainui Street, Matamata
New Zealand

Project
ASHBOURNE RETIREMENT VILLAGE MATAMATA FOR UNITY DEVELOPMENT LTD

Title
PROPOSED CONTOUR PLAN(3 OF 4)

Project no.	J00606		
Scale	1:1000@A3		
Cad file	C2200 - PGL.DWG		
Drawing no.	C2203	Rev	B

DATE: 4/7/25

FILE PATH: F:\MAVEN MATAMATA\1. PROJECTS\J00606 MDL - HEMMINGS STATION RD\8. DRAWING\2. CAD\3. DESIGN\C2200 - PGL.DWG

ORIGINAL SIZE: A3

N

Part Lot 1
DP 21055

70.00
70.00
69.00
68.00
68.00
68.00
68.00
68.00
68.00
68.00
68.00
68.00
69.00
70.00
71.00
72.00
67.00
67.00
68.00
68.00
68.00
68.00

STORMWATER
POND 2

Notes

1. All works to be in accordance with MPDC and RITS standards.
2. Co-ordinates in terms of NZ Geodetic Datum Mt Eden 2000.
3. Reduced Levels are in terms of NZVD 2016.
4. Contour interval Major 1m Minor 0.2m
5. It is the contractors responsibility to locate all services that may be affected by their operations.
6. The contractor shall comply with all relevant Health and Safety requirements.
7. The contractor shall obtain all necessary approval from utility operators before commencing work under or near their services.
8. Sediment control shall be installed and operational before earthworks start onsite in accordance with council standards.
9. Contractor shall provide asbuilt of working sediment control devices and confirmation of pond/decent volumes to engineer.
10. Sediment control to comply with Waikato Regional Council Erosion and Sediment Control:guidelines for soil disturbing activities TR2009/02.

LEGEND

- EX BDY
- PROP BDY
- PR BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PR MAJOR CONTOUR
- PR MINOR CONTOUR

Rev	Description	By	Date
B	FOR CONSENT	KQ	04/25
A	FOR REVIEW	DP	01/25

	By	Date
Survey	MAVEN	10/2024
Design	KQ	04/2025
Drawn	DP	04/2025
Checked	SB	04/2025

Maven Matamata
matamatainfo@maven.co.nz
www.maven.co.nz
8 Tainui Street, Matamata
New Zealand

Project

ASHBOURNE RETIREMENT VILLAGE MATAMATA FOR UNITY DEVELOPMENT LTD

Title

PROPOSED CONTOUR PLAN (4 OF 4)

Project no.	J00606		
Scale	1:1000@A3		
Cad file	C2200 - PGL.DWG		
Drawing no.	C2204	Rev	B

FOR CONSENT

DATE: 4/7/25

FILE PATH: \\MAVEN.MAVENCONSULTING.CO.NZ\SHARE\CURRENT\MAVEN MATAMATA\1. PROJECTS\J00606 MDL - HEMMINGS STATION RD\8. DRAWING\2. CAD\3. DESIGN\C2200 - PGL.DWG

ORIGINAL SIZE: A3

N

BULK EARTH WORKS

CUT VOLUME	43500 m³
FILL VOLUME	77300 m³
NET FILL	33800 m³
TOPSOIL STRIPPED (200mm) =	42960 m³
EARTHWORKS AREA =	214800 m²

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES, VOLUMES AREA UNFACTORED AND IN SITU

Cut/Fill Table

Number #	Minimum Elevation	Maximum Elevation	Color
1	-3.000	-2.500	
2	-2.500	-2.000	
3	-2.000	-1.500	
4	-1.500	-1.000	
5	-1.000	-0.500	
6	-0.500	0.000	
7	0.000	0.500	
8	0.500	1.000	
9	1.000	1.500	
10	1.500	2.000	
11	2.000	2.500	

NOTES
1. Levels in terms of NZVD 2016.
2. Contour interval 0.5m.
3. All dust, sediment, erosion control and temporary stormwater discharge shall be undertaken in accordance with Waikato Regional Council's "Erosion and Sediment Control Guidelines for Land Disturbing Activities".
4. Contractor to locate the existing services prior to construction.
5. All excavation works are to be in accordance with work safe - "Excavation Safety Guidelines".
6. The contractor shall obtain all necessary approvals from utility operators before commencing work in close proximity to their services.
7. Permanent cut or fill batter to be formed maximum gradient of 1v:3h.

LEGEND
- EX BDY
- PROP BDY
- STAGGING BDY

Lot 1 DP 348214
Lot 5 DPS 74018
Lot 1 DP 305244
Lot 1 DP 491699
Lot 1 DP 567678
Lot 1 DPS 29613
STATION ROAD
Lot 32 DP 562902
Lot 33 DP 562902
Lot 34 DP 562902
Lot 29 DP 562902
Lot 28 DP 562902
OLIVE
Lot 27 DP 562902
Lot 25 DP 562902
Lot 26 DP 562902
Lot 21 DP 562902
Lot 20 DP 562902
Lot 19 DP 562902
Lot 18 DP 562902
Lot 2 DP 348214
Part Lot 1 DP 21055
Lot 3

STAGE 1
STAGE 2
STAGE 3
STAGE 4
STAGE 5
STAGE 6
STAGE 7
STAGE 8
STAGE 9
STAGE 10

FOR CONSENT

Rev	Description	By	Date
B	FOR CONSENT	KQ	04/25
A	FOR REVIEW	DP	12/24

	By	Date
Survey	MAVEN	10/2024
Design	KQ	04/2025
Drawn	DP	04/2025
Checked	SB	04/2025

Maven Matamata
matamatainfo@maven.co.nz
www.maven.co.nz
8 Tainui Street, Matamata
New Zealand

Project
ASHBOURNE RETIREMENT VILLAGE MATAMATA FOR UNITY DEVELOPMENT LTD

Title
PROPOSED CUT / FILL PLAN

Project no.	J00606		
Scale	1:3000@A3		
Cad file	C2200 - PGL.DWG		
Drawing no.	C2400	Rev	B

DATE: 4/7/25

FILE PATH: \\MAVEN.MAVENCONSULTING.CO.NZ\SHARE\CURRENT\MAVEN MATAMATA\1. PROJECTS\J00606 MDL - HEMMINGS STATION RD\8. DRAWING\2. CAD\3. DESIGN\C2200 - PGL.DWG

SHEET 1

SHEET 2

SHEET 3

LOT 3 DPS 66570

LOT 2 DPS 66570

LOT 26 DP 482144

LOT 3 DPS 54338

LOT 3 DPS 66570

LOT 1 DPS 567678

LOT 2 DPS 79253

LOT 2 DP 305244

LOT 2 DPS 70769

STATION ROAD

LEGEND

- 100YR INDICATIVE FLOODING EXTENTS
- POWER TRANSFORMER
- 78 x SOLAR PANEL STRING
- 52 x SOLAR PANEL STRING
- 26 x SOLAR PANEL STRING
- EX TELECOM
- EX POWER
- EX GAS
- EX FIBRE
- EX WATERMAIN

Rev	Description	By	Date
A	DRAFT	AJP	10/2024

	By	Date
Survey	MAVEN	05/2024
Design	TCH	10/2024
Drawn	TCH	10/2024
Checked	DJM	10/2024

Maven Waikato
07 242 0601
info@maven.co.nz
www.maven.co.nz
Level 1 286 Victoria Street, Hamilton
New Zealand

Project

ASHBOURNE SOLAR FARM A FOR MATAMATA DEVELOPMENTS LTD

Title

KEY PLAN

Project no.	289001
Scale	1:3000 @ A3
Cad file	C050-KEY PLAN.DWG
Drawing no.	C050 Rev A

DRAFT FOR REVIEW

DATE: 10/10/24 FILE PATH: F:\MAVEN HAMILTON\6 PROJECTS\289001 - STATION ROAD\7 DRAWINGS\1 ASHBOURNE SOLAR FARM\C050-KEY PLAN.DWG

N

C210 -1

C210 -2

C210 -3

LOT 3 DPS 66570

LOT 2 DPS 66570

LOT 26 DP 482144

LOT 3 DPS 54338

LOT 3 DPS 66570

LAYDOWN AREA

ROAD 2

ROAD 3

ROAD 6

ROAD 1

STATION ROAD

LOT 1 DPS 567678

LOT 2 DPS 79253

LOT 2 DP 305244

LOT 2 DPS 70769

DRAFT FOR REVIEW

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS 2018 AND SUBSEQUENT UPDATES.
2. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL GUIDELINES FOR SOIL DISTURBING ACTIVITIES 2009 AND SUBSEQUENT UPDATES.
3. COORDINATES IN TERMS OF MT EDEN 2000 CIRCUIT.
4. LEVELS IN TERMS OF NZVD16 VERTICAL DATUM.
5. ORIGIN OF LEVELS = BENCHMARK IT I DPS 29877 PUBLISHED RL=65.51, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
6. CONTRACTOR TO REINSTATE ANY DAMAGED INFRASTRUCTURE DURING THE WORKS AT THEIR OWN COST.
7. EXISTING SERVICES ARE FROM B4UDIG AND THEY ARE INDICATIVE ONLY. CONTRACTOR TO LOCATE THE EXISTING SERVICES PRIOR TO CONSTRUCTION.

LEGEND

- EX BDY
- PROP BDY
- PROP ROAD EXTENTS
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- PROP EXTENT WORK
- PROP LAYDOWN AREA
- 100YR INDICATIVE FLOODING EXTENTS
- POWER TRANSFORMER
- 78 x SOLAR PANEL STRING
- 52 x SOLAR PANEL STRING
- 26 x SOLAR PANEL STRING
- EX TELECOM
- EX POWER
- EX GAS
- EX FIBRE
- EX WATERMAIN

Rev	Description	By	Date
A	DRAFT	AJP	10/2024

	By	Date
Survey	MAVEN	05/2024
Design	TCH	10/2024
Drawn	TCH	10/2024
Checked	DJM	10/2024

Maven Waikato
07 242 0601
info@maven.co.nz
www.maven.co.nz
Level 1 286 Victoria Street, Hamilton
New Zealand

Project

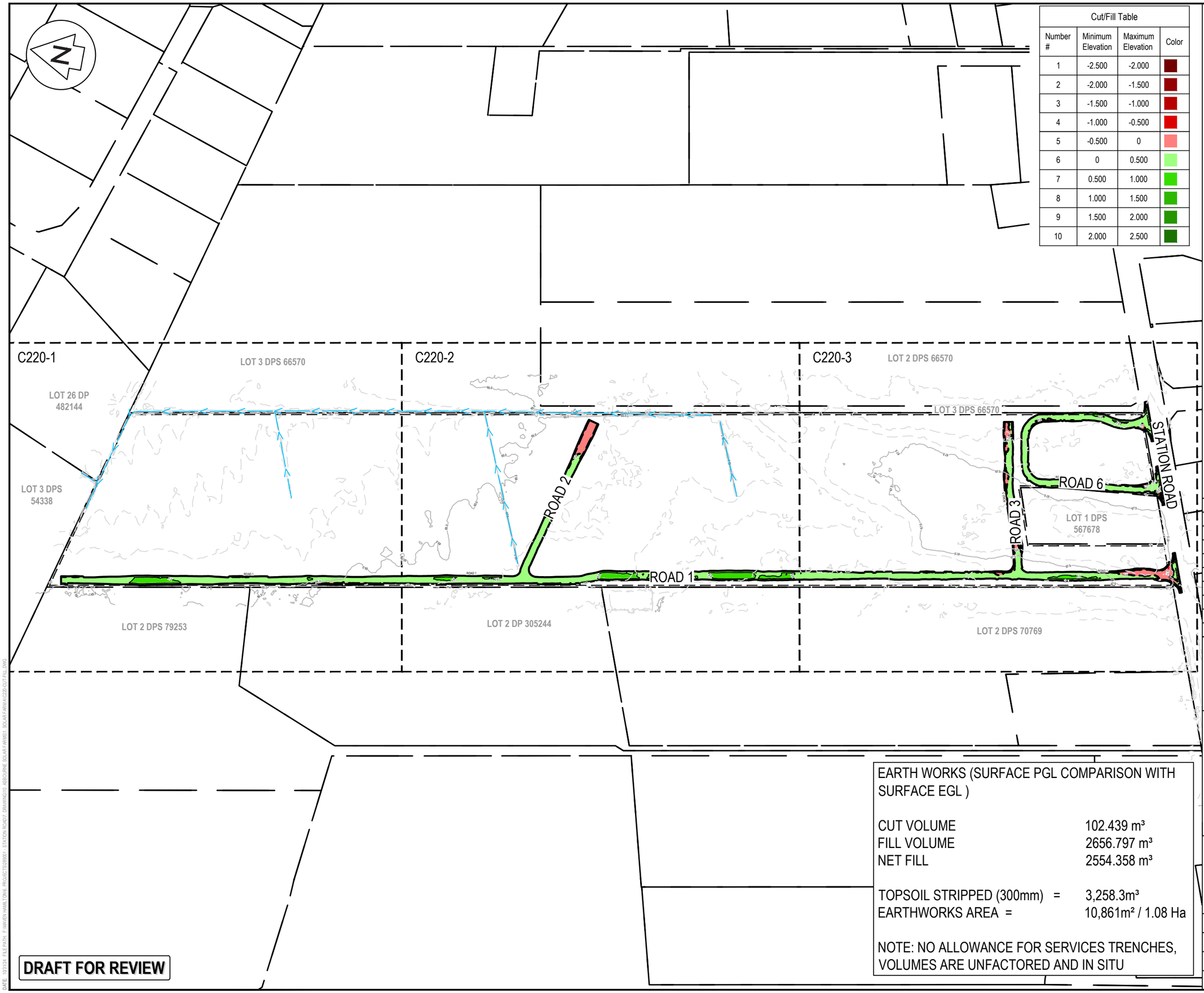
ASHBOURNE SOLAR FARM A FOR MATAMATA DEVELOPMENTS LTD

Title

PROPOSED CONTOURS KEY PLAN

Project no.	298001
Scale	1:3000 @ A3
Cad file	C210-PR-EW.DWG
Drawing no.	C210 Rev A

DATE: 10/10/24 FILE PATH: P:\MAVEN HAMILTON\6 PROJECTS\298001 - STATION ROAD\7 DRAWINGS\10 ASHBOURNE SOLAR FARM\1 SOLAR FARM A\C210-PR-EW.DWG



Cut/Fill Table			
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2	-2.000	-1.500	
3	-1.500	-1.000	
4	-1.000	-0.500	
5	-0.500	0	
6	0	0.500	
7	0.500	1.000	
8	1.000	1.500	
9	1.500	2.000	
10	2.000	2.500	

NOTES
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2. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL GUIDELINES FOR SOIL DISTURBING ACTIVITIES 2009 AND SUBSEQUENT UPDATES.
3. CO-ORDINATES IN TERMS OF MT EDEN 2000 CIRCUIT.
4. LEVELS IN TERMS OF NZVD16 VERTICAL DATUM.
5. ORIGIN OF LEVELS = BENCHMARK IT I DPS 29877 PUBLISHED RL = 65.51, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
6. EXISTING SERVICES ARE FROM B4UDIG AND THEY ARE INDICATIVE ONLY, CONTRACTOR TO LOCATE THE EXISTING SERVICES PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
8. SEDIMENT CONTROL SHALL BE INSTALLED AND OPERATIONAL BEFORE EARTHWORKS START ONSITE IN ACCORDANCE WITH COUNCIL STANDARDS.
9. DEPTH CONTOUR INTERVALS ARE AT 0.5m INTERVALS.

LEGEND
- EX BDY
- PROP BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PROP EXTENT WORK
- EX-WATER COURSE
- EX TELECOM
- EX POWER
- EX FIBRE
- EX WATERMAIN

EARTH WORKS (SURFACE PGL COMPARISON WITH SURFACE EGL)

CUT VOLUME	102.439 m³
FILL VOLUME	2656.797 m³
NET FILL	2554.358 m³
TOPSOIL STRIPPED (300mm) =	3,258.3m³
EARTHWORKS AREA =	10,861m² / 1.08 Ha

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES, VOLUMES ARE UNFACTORED AND IN SITU

DRAFT FOR REVIEW

Rev	Description	By	Date
A	DRAFT	AJP	10/2024

	By	Date
Survey	MAVEN	05/2024
Design	TCH	10/2024
Drawn	TCH	10/2024
Checked	DJM	10/2024

Maven Waikato
07 242 0601
info@maven.co.nz
www.maven.co.nz
Level 1 286 Victoria Street, Hamilton
New Zealand

Project
ASHBOURNE SOLAR FARM A FOR MATAMATA DEVELOPMENTS LTD

Title
PROPOSED CUT/FILL KEY PLAN

Project no.	289001		
Scale	1:3000 @ A3		
Cad file	C220-CUT-FILL.DWG		
Drawing no.	C220	Rev	A

DATE 10/24 FILEPATH F:\MAVEN HAMILTON\PROJECTS\289001 - STATION ROAD\7 DRAWINGS\ASHBOURNE SOLAR FARM\1 SOLAR FARM A\C220-CUT-FILL.DWG

STATION ROAD

HIGHGROVE AVENUE

FUTURE RETIREMENT VILLAGE

FUTURE RESIDENTIAL SUBDIVISION

FUTURE GREENWAY

SHEET 1

SHEET 2

SHEET 3

SHEET 4

SOLAR FARM B

ROAD 4

ROAD 5

WAITOA RIVER

LOT 3
DPS 463448

RESOURCE CONSENT

LEGEND

- EX BDY
- PROP BDY
- PROP FUTURE
- EX TELECOM
- EX POWER
- EX FIBRE
- EX WATER SUPPLY
- PR WATER SUPPLY
- PR FENCE
- 100YR INDICATIVE FLOODING EXTENTS
- POWER TRANSFORMER
- 66 x SOLAR PANEL STRING
- 44 x SOLAR PANEL STRING

Rev	Description	By	Date
A	DRAFT	WPJ	11/2024

	By	Date
Survey	MAVEN	05/2024
Design	TCH	10/2024
Drawn	TCH	10/2024
Checked	DJM	11/2024

Maven Waikato
07 242 0601
info@maven.co.nz
www.maven.co.nz
Level 1 286 Victoria Street, Hamilton
New Zealand

Project
ASHBOURNE SOLAR FARM B FOR MATAMATA DEVELOPMENTS LTD

Title
PROPOSED KEY PLAN

Project no.	289001		
Scale	1:4000 @ A3		
Cad file	C050-KEY PLAN.DWG		
Drawing no.	C050	Rev	A

DATE: 11/10/24 FILE PATH: F:\MAVEN HAMILTON\PROJECTS\289001 - STATION ROAD\7 DRAWINGS\01 ASHBOURNE SOLAR FARM\02 SOLAR FARM B\C050-KEY PLAN.DWG

STATION ROAD

FUTURE RETIREMENT VILLAGE

HIGHGROVE AVENUE

FUTURE RESIDENTIAL SUBDIVISION

C210-1

C210-2

C210-3

C210-4

WAITOA RIVER

LOT 3
DPS 463448

DRAFT FOR REVIEW

NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS 2018 AND SUBSEQUENT UPDATES.
2. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL GUIDELINES FOR SOIL DISTURBING ACTIVITIES 2009 AND SUBSEQUENT UPDATES.
3. COORDINATES IN TERMS OF MT EDEN 2000 CIRCUIT.
4. LEVELS IN TERMS OF NZVD16 VERTICAL DATUM.
5. ORIGIN OF LEVELS = BENCHMARK IT I DPS 29877 PUBLISHED RL=65.51, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
6. CONTRACTOR TO REINSTATE ANY DAMAGED INFRASTRUCTURE DURING THE WORKS AT THEIR OWN COST.
7. EXISTING SERVICES ARE FROM B4UDIG AND THEY ARE INDICATIVE ONLY. CONTRACTOR TO LOCATE THE EXISTING SERVICES PRIOR TO CONSTRUCTION.

LEGEND
- EX BDY
- PROP BDY
- PROP ROAD EXTENTS
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- PROP EXTENT WORK
- PROP FENCE
- POWER TRANSFORMER
- 66 x SOLAR PANEL STRING
- 44 x SOLAR PANEL STRING
- 100YR INDICATIVE FLOODING EXTENTS

Rev	Description	By	Date
A	DRAFT	AJP	11/2024

	By	Date
Survey	MAVEN	05/2024
Design	TCH	10/2024
Drawn	TCH	10/2024
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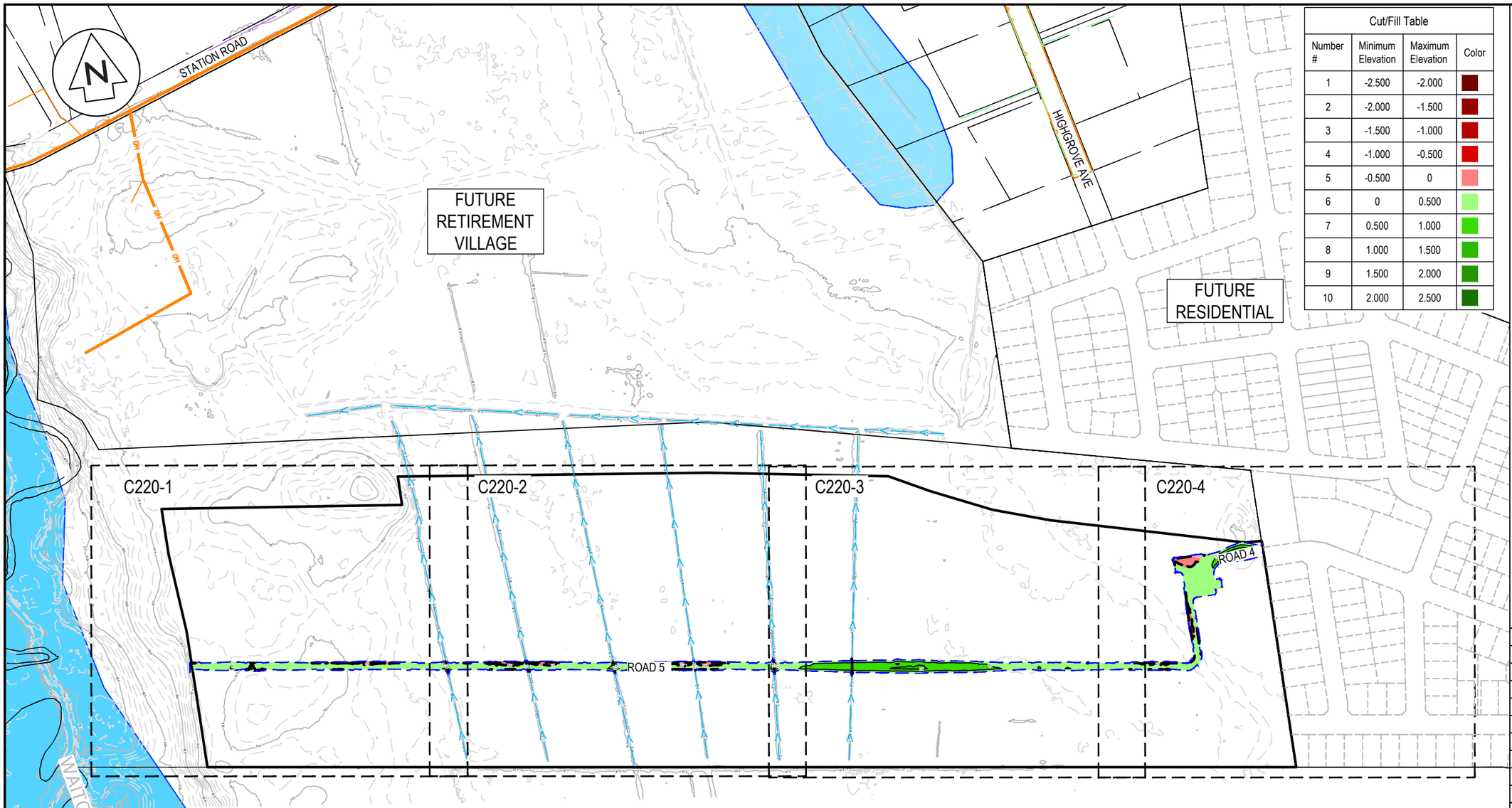
Maven Waikato
07 242 0601
info@maven.co.nz
www.maven.co.nz
Level 1 286 Victoria Street, Hamilton
New Zealand

Project
ASHBOURNE SOLAR FARM B FOR MATAMATA DEVELOPMENTS LTD

Title
PROPOSED CONTOURS KEY PLAN

Project no.	298001		
Scale	1:4000 @ A3		
Cad file	C210-PR-CONTOURS.DWG		
Drawing no.	C200	Rev	A

DATE: 11/10/24 FILE PATH: T:\MAVEN\HAMILTON\PROJECTS\298001 - STATION ROAD\7. DRAWINGS\01 ASHBURNE SOLAR FARMS\02 SOLAR FARM B\C210-PR-CONTOURS.DWG



Cut/Fill Table			
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3	-1.500	-1.000	
4	-1.000	-0.500	
5	-0.500	0	
6	0	0.500	
7	0.500	1.000	
8	1.000	1.500	
9	1.500	2.000	
10	2.000	2.500	

NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS 2018 AND SUBSEQUENT UPDATES.
2. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL GUIDELINES FOR SOIL DISTURBING ACTIVITIES 2009 AND SUBSEQUENT UPDATES.
3. CO-ORDINATES IN TERMS OF MT EDEN 2000 CIRCUIT.
4. LEVELS IN TERMS OF NZVD16 VERTICAL DATUM.
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6. EXISTING SERVICES ARE FROM B4UDIG AND THEY ARE INDICATIVE ONLY, CONTRACTOR TO LOCATE THE EXISTING SERVICES PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
8. SEDIMENT CONTROL SHALL BE INSTALLED AND OPERATIONAL BEFORE EARTHWORKS START ONSITE IN ACCORDANCE WITH COUNCIL STANDARDS.
9. DEPTH CONTOUR INTERVALS ARE AT 0.5m INTERVALS.

LEGEND
- EX BDY
- PROP BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PROP EXTENT WORK
- PROP EARTHWORK EXTENT
- PROP FUTURE
- EX-WATER COURSE
- EX TELECOM
- EX POWER
- EX FIBRE
- EX WATERMAIN

EARTH WORKS (PROPOSED SURFACE COMPARISON WITH EXISTING SURFACE)

CUT VOLUME	31.85 m³
FILL VOLUME	2795.05 m³
NET FILL	2763.20 m³
TOPSOIL STRIPPED (300mm) =	2693.7 m³
EARTHWORKS AREA =	8979m²

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES, VOLUMES ARE UNFACTORED AND IN SITU

DRAFT FOR REVIEW

Rev	Description	By	Date
A	DRAFT	WPJ	11/2024

	By	Date
Survey	MAVEN	05/2024
Design	TCH	10/2024
Drawn	TCH	10/2024
Checked	DJM	11/2024

Maven Waikato
07 242 0601
info@maven.co.nz
www.maven.co.nz
Level 1 286 Victoria Street, Hamilton
New Zealand

Project
ASHBOURNE SOLAR FARM B FOR MATAMATA DEVELOPMENTS LTD

Title
PROPOSED CUT/FILL KEY PLAN

Project no.	289001		
Scale	1:4000 @ A3		
Cad file	C220-CUT-FILL.DWG		
Drawing no.	C220	Rev	A

DATE: 11/24 FILE PATH: P:\MAVEN HAMILTON\PROJECTS\289001 - STATION ROAD\7. DRAWINGS\1. ASBOURNE SOLAR FARMS\2. SOLAR FARM B\C220-CUT-FILL.DWG

APPENDIX B: HISTORICAL SITE PHOTOGRAPHS

©Sourced from http://retrolens.nz and licensed by LINZ CC-BY 3.0

1943

SITE AREA

08753

F8 1" Matamata 66 13-6-43

17/569

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3434/15

1963

SITE AREA

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2426

5880

4404/5

TOKOROA 25000' 15-9-71

Ca 533
SAg 50
f=88,31

SITE AREA

1971

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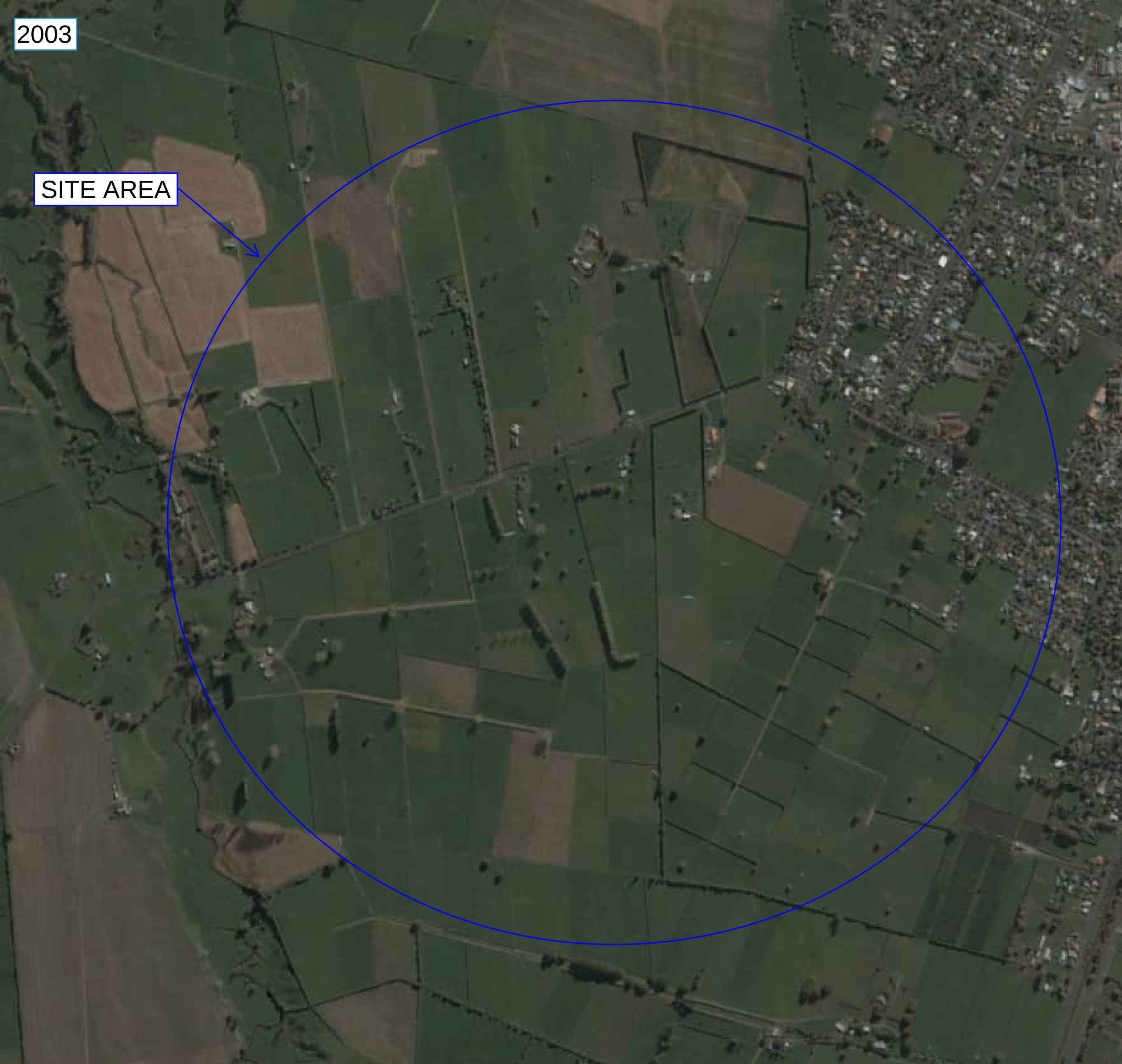
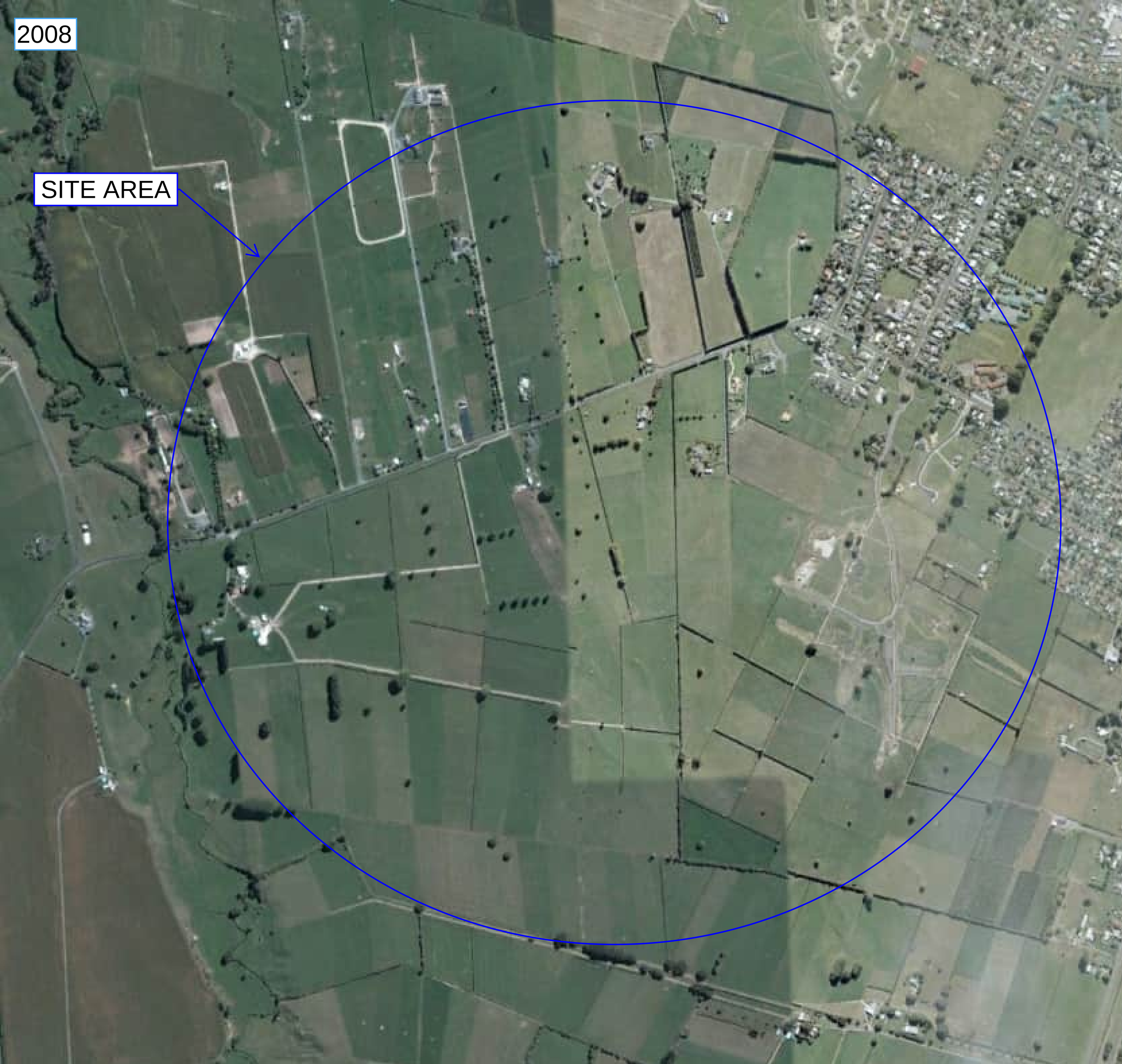

2003
SITE AREA


2008
SITE AREA

2024
SITE AREA

APPENDIX C: PREVIOUS INVESTIGATION DATA

HAND AUGER BOREHOLE LOG - HA23-01

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 24/11/2023
Borehole Location: Refer to site plan Logged by: PM Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 487470.3mE; 695089.2mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)			1 1 2
	0.4	Peak = 150kPa Residual = 31kPa				ML: SILT: light brown. Low plasticity, moderately sensitive to sensitive. (Hinuera Formation)	M	St to VSt	1 1 1
	0.7	Peak = 162kPa Residual = 38kPa				*... from 0.80m to 1.10m, Becoming brownish grey.*			2 2 2 2
	1.0	Peak = 98kPa Residual = 25kPa		1		SW: Fine to coarse SAND: grey. Well graded, sub rounded. (Hinuera Formation)	M to W	L to MD	4 5 3 3 2 3 3 2 2
24-11-2023				2		SW: Fine to coarse SAND: brown. Well graded, sub rounded. (Hinuera Formation)	W S		3 4 5 4 3 4 2 3 5 5 7
						Borehole terminated at 2.1 m			
				3					9 9 8 10 12 9 12 10 9 9
				4					15 20
				5					

Termination Reason: No retrieval
Shear Vane No: 3434 DCP No: 26
Remarks: Groundwater encountered at 2.0m.

HAND AUGER BOREHOLE LOG - HA23-02

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 24/11/2023
Borehole Location: Refer to site plan Logged by: PM Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 487585.2mE; 695012.4mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			3
									2
									2
									2
	0.5	Peak = 119kPa Residual = 30kPa				ML: SILT: light brown. Low plasticity, moderately sensitive. (Hinuera Formation)	D to M	St	1
									2
	0.7	Peak = 104kPa Residual = 30kPa							1
									1
									1
	1.0	Peak = 104kPa Residual = 30kPa		1					2
									3
									6
						SW: Fine to Coarse SAND: brown. Well graded, sub rounded. (Hinuera Formation)	M		6
									5
									4
									2
						... from 1.60m to 1.80m, becoming dark brown.	W	MD	3
									5
						... from 1.80m to 2.00m, becoming grey.	W to S		6
									6
				2		SM: Silty Fine to Coarse SAND: brown. Well graded, sub rounded. (Hinuera Formation)			5
									6
24-11-2023						*... at 2.20m, becoming fine, uniformly graded SAND. Becoming grey.*	S		6
						Borehole terminated at 2.3 m			6
									5
									6
									5
									5
									4
									5
				3					9
									7
									8
									8
									9
									11
									10
									10
									10
									1
				4					5
									10
									11
									9
									10
									10
									9
									10
									12
									10
				5					

Termination Reason: No retrieval
Shear Vane No: 2560 DCP No: 26
Remarks: Groundwater encountered at 2.2m.

HAND AUGER BOREHOLE LOG - HA23-03

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 23/11/2023
Borehole Location: Refer to site plan Logged by: PM Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487452.9mE; 694855.0mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)			1 2 1
	0.4	Peak = 60kPa Residual = 12kPa				ML: SILT: light brown. Low plasticity, moderately sensitive. (Hinuera Formation)	M	St	2 1 2 1 3
				1		SP: Silty fine to medium SAND: brownish grey. Well graded, sub rounded. (Hinuera Formation)		L to MD	3 3 5 2 2 2 3
						SW: Fine to coarse SAND: greyish brown. Well Graded, sub rounded. (Hinuera Formation)	M to W		4 4 4
						... at 1.80m, Becoming grey.	W	MD to D	4 3 4 5 8 4 5
23-11-2023	2.6	Peak = UTP		2		ML: SILT: grey. Low plasticity. (Hinuera Formation)	S	H	9 9
						SM: Sandy SILT: grey. Low plasticity. (Hinuera Formation)			10 6 7
						Borehole terminated at 2.7 m			
				3					9 10 8 8 7 9 8 8 8 8
				4					9 9 9 8 7 10 9 8 8
				5					

Termination Reason: No retrieval
Shear Vane No: 3434 DCP No: 26
Remarks: Groundwater encountered at 2.5m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA23-04

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 23/11/2023
Borehole Location: Refer to site plan Logged by: PM Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487677.3mE; 694633.7mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			1
	0.4	Peak = 138kPa Residual = 25kPa				ML: SILT: light brown. Low plasticity. Moderately sensitive to sensitive. (Hinuera Formation)			3 3 2
	0.7	Peak = 50kPa Residual = 19kPa						VSt	1 2 1 2
	1.0	Peak = 119kPa Residual = 25kPa		1			M		2 2
						SM: Silty Fine SAND: light brown. Uniformly graded. (Hinuera Formation)			3 4 3
						SW: Fine to coarse SAND: brown. Well graded, sub rounded. (Hinuera Formation)			2 2 3
						... at 1.80m, Becoming grey mottled orange.		L to MD	2 2
				2					2 3
						SM: Silty fine to medium SAND: light brown. Poorly graded, sub rounded. (Hinuera Formation)	W		3 4
	2.5	Peak = 81kPa Residual = 12kPa				ML: SILT: grey mottled orange. Low plasticity. Sensitive. (Hinuera Formation)			3 4 4 4 4 3
	3.1	Peak = UTP		3		*... from 3.00m to 3.80m, Becoming brownish grey.*			6 6 5 5
	3.5	Peak = UTP					M	VSt to H	7 10 1 5
						... from 3.80m to 4.00m, Becoming brownish orange.			11 11 11
	4.0	Peak = 175kPa		4		SM: Sandy SILT: brown. Low plasticity. (Hinuera Formation)			13 1 5 12 14
	4.5	Peak = UTP							18 1 5 12 13 13 13
	5.0	Peak = UTP		5		Borehole terminated at 5.0 m			

Termination Reason: Target Depth Reached
Shear Vane No: 3434 DCP No: 26
Remarks: Groundwater not encountered.

HAND AUGER BOREHOLE LOG - HA23-05

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 23/11/2023
Borehole Location: Refer to site plan Logged by: PM Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487596.8mE; 694539.0mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2
	0.4	Peak = 112kPa Residual = 25kPa				MH: Clayey SILT: brown. Moderate plasticity. Sensitive. (Hinuera Formation)			2
	0.7	Peak = 138kPa Residual = 31kPa							2
	1.0	Peak = 150kPa Residual = 25kPa		1			M	St to VSt	2
	1.5	Peak = 138kPa Residual = 25kPa							1
	2.1	Peak = 88kPa Residual = 12kPa		2		*... from 2.00m to 2.50m, with trace coarse sand.*			2
	2.6	Peak = UTP					D to M		2
	3.0	Peak = UTP		3		SM: Gravelly SILT: with minor sand; brown. Low plasticity. (Hinuera Formation)			2
	3.5	Peak = UTP						VSt to H	2
	4.0	Peak = UTP		4			M		2
	4.5	Peak = UTP							2
	5.0	Peak = UTP		5		Borehole terminated at 5.0 m			2
									2
									3
									3
									2
									3
									2
									3
									5
									4
									8
									8
									8
									8
									8
									7
									7
									8
									8
									11
									9
									11
									12
									10
									9
									8
									10
									10
									10
									1
									5
									1
									6

Termination Reason: Target Depth Reached
Shear Vane No: DCP No: 26
Remarks: Groundwater not encountered.

HAND AUGER BOREHOLE LOG - HA23-06

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 23/11/2023
Borehole Location: Refer to site plan Logged by: WD Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487461.0mE; 694509.9mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)	D to M		1
	0.3	Peak = 110kPa Residual = 24kPa				ML: SILT: dark orange brown. Low plasticity. Sensitive. (Hinuera Formation)			2 2 1
						... at 0.40m, becoming orange brown with some clay.		VSt to H	2 2 1 2 3
	0.6	Peak = 122kPa Residual = 27kPa							
	0.9	Peak = UTP							
				1		ML: Fine to coarse Sandy SILT: with minor fine to medium gravel; dark orange brown. Low plasticity. Gravel; pumiceous and rhyolitic. (Hinuera Formation)		St	4
						SW: Fine to coarse SAND: with some fine to medium gravel; dark grey with orange brown. Well graded. Subangular. Gravel; pumiceous and rhyolitic. (Hinuera Formation)	M		5 5 5 4
						SP: Fine to medium SAND: with minor fine gravel; dark grey. Poorly graded. Subangular. Gravel; pumiceous and rhyolitic. (Hinuera Formation)			4 4 4 3
						... at 1.40m, becoming fine to medium sand with minor fine gravel, dark grey.			1
						... at 1.75m, small light orange band.			1
						... at 1.80m, becoming brownish grey.			3
				2				L to MD	6 5 4 4 4 4 4 4 4 4
						... at 2.90m, becoming light brownish grey with trace fine gravel.			9
				3			M to W		6 7 6 7 8 8 8 7
								MD to D	7 7 8 8
				4		SW: Fine to coarse SAND: with trace fine gravel and trace silt; light brownish grey. Well graded. Subangular. Gravel; pumiceous and rhyolitic. (Hinuera Formation)	W		9 9 6
						... at 4.30m, becoming fine to coarse sand with trace silt.	S		9 5 7
						Borehole terminated at 4.8 m			5
				5					

23-11-2023

Termination Reason: Hole collapse
Shear Vane No: 2560 DCP No: 17
Remarks: Groundwater encountered at 4.5m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA23-07

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 23/11/2023
Borehole Location: Refer to site plan Logged by: PM Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 488002.9mE; 694367.9mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2 1 3
	0.4	Peak = 62kPa Residual = 19kPa				ML: SILT: brownish orange. Low plasticity. Insensitive. (Hinuera Formation)			2 1 1
	0.7	Peak = 50kPa Residual = 12kPa		1				F to St	1 2 2 5
						SP: Fine to medium SAND: with some silt; brown. Poorly graded, sub rounded. (Hinuera Formation)		MD	4 4 4 4 4
						SP: Fine SAND: brown. Uniformly, sub rounded. (Hinuera Formation)			3 4 3 3 4
				2					4 4 4
						... at 2.20m, Becoming grey.	M	L to MD	4 3 3 2
						SM: Silty fine to medium SAND: brown. Poorly graded. (Hinuera Formation)			6 6 6 6
						... from 2.60m to 3.00m, Becoming grey mottled orange.			
				3		SW: Fine to coarse SAND: brown. Well graded. (Hinuera Formation)			8 10 13 8 10 9 13 8 14 9
				4				D to VD	8 10 18 1 6 7 6 5 12 12 12 10
						... at 4.50m, Becoming orange.	M to W		
				5		Borehole terminated at 5.0 m			

Termination Reason: Target Depth Reached
Shear Vane No: 3434 DCP No: 26
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA23-08

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 23/11/2023
Borehole Location: Refer to site plan Logged by: PM Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487819.4mE; 694333.1mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			1 2 2
	0.4	Peak = 88kPa Residual = 38kPa				ML: SILT: brownish orange. Low plasticity. Moderately sensitive. (Hinuera Formation)	M	F to St	1 2 2
	0.6	Peak = 50kPa Residual = 19kPa							4 2
				1		SM: Silty fine SAND: light brown. Uniformly graded, sub rounded. (Hinuera Formation)	M to W	L to MD	2 2 2 4 3 4 2 3 3
	1.9	Peak = 138kPa Residual = 22kPa		2		ML: SILT: grey mottled orange. Low plasticity. Sensitive to highly sensitive. (Hinuera Formation)		VSt	4 4 4 6 6
	2.2	Peak = 162kPa Residual = 12kPa				SM: Silty fine to medium SAND: grey. Poorly graded, sub rounded (Hinuera Formation)	W	MD to D	8 7 7 8 8 11 8 8 9 10 9 8 8 8 7 8 9
				4		SW: Fine to coarse SAND: grey. Well graded, sub rounded. (Hinuera Formation)	S	D to VD	12 13 13
						Borehole terminated at 4.2 m			17 16 10 9 17 17 18

Termination Reason: No retrieval
Shear Vane No: 3434 DCP No: 26
Remarks: Groundwater encountered at 3.5m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA23-01

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 24/11/2023
Borehole Location: Refer to site plan Logged by: NK Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487486.9mE; 695150.0mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
24-11-2023				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2 1 2
						ML: Sandy SILT: light brown. Low plasticity. (Hinuera Formation)	M	F	2 2 2 2 3
						SM: Silty fine to coarse SAND: light grey. Well graded, sub rounded. (Hinuera Formation)	W	L	1 2
				1		Borehole terminated at 1.0 m			3 5 6 5 3 1 2 2 2 6
				2					4 6 8 5 3 5 6 6 4
				3					
				4					
				5					

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15

Termination Reason: Target Depth Reached
Shear Vane No: DCP No: 26
Remarks: Groundwater encountered at 1.0m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA23-02

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 23/11/2023
Borehole Location: Refer to site plan Logged by: WD Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487610.7mE; 694677.3mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)	D to M		1
						ML: SILT: dark orange brown. Low plasticity. Sensitive. (Hinuera Formation)			3 1
	0.3	Peak = 92kPa Residual = 21kPa							2
						... at 0.40m, becoming orange brown with minor clay.		St to VSt	1
						... at 0.50m, becoming light orange brown.			2
	0.6	Peak = 155kPa Residual = 30kPa							2
						... at 0.70m, with trace fine sand.	M		1
						SP: Fine to medium SAND: with trace silt; orange brown. Poorly graded. Subangular. (Hinuera Formation)			2 5
				1				L to MD	6 7 4
						SM: Silty Fine SAND: light brownish grey. Poorly graded. Subangular. (Hinuera Formation)	W	F	3
						ML: Fine Sandy SILT: light grey. Low plasticity. (Hinuera Formation)			2
	1.6	Peak = 74kPa Residual = 22kPa				ML: SILT: with minor clay; light grey streaked light orange. Low plasticity. Moderately sensitive. (Hinuera Formation)		St	3 3
						SM: Silty Fine SAND: grey. Poorly graded. Subangular. (Hinuera Formation)			4
						SP: Fine SAND: light brownish grey. Poorly graded. Subangular. (Hinuera Formation)	M to W		4
				2				MD	6 6
						... at 2.20m, thin orange brown band.			8 7
						Borehole terminated at 2.3 m			6
				3					5 5 4 3 3
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 2560 DCP No: 26
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA23-03

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 23/11/2023
Borehole Location: Refer to site plan Logged by: WD Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487474.6mE; 694589.9mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)	D to M		2 2
	0.3	Peak = 104kPa Residual = 18kPa				ML: SILT: dark orange brown. Low plasticity. Moderately sensitive to sensitive. (Hinuera Formation)			1
						... at 0.40m, becoming light orange brown with some clay and minor rootlets.	M	St to VSt	1 1
	0.6	Peak = 80kPa Residual = 30kPa				... at 0.60m, becoming light brownish grey.			0
						SM: Silty Fine SAND: light brownish grey. Poorly graded. Subangular. (Hinuera Formation)	M to W		1 1 2
				1		... at 1.00m, becoming light grey streaked light orange brown.	W	L	3 3 3 3
	1.5	Peak = 98kPa Residual = 39kPa				ML: SILT: with some clay; light grey streaked light orange. Low plasticity. Moderately sensitive. (Hinuera Formation)	M	St to VSt	2 3 3
	1.8	Peak = 134kPa Residual = 36kPa				... at 1.70m, small band of fine sand. ... from 1.80m to 1.85m, with some medium pumiceous gravel.			4 6
				2		ML: Fine Sandy SILT: light grey. Low plasticity. (Hinuera Formation)	M to W		5 8
						SP: Fine to medium SAND: grey. Poorly graded. Subangular. (Hinuera Formation) ... at 2.15m, becoming orange brown.	W to S	MD	6 5
						Borehole terminated at 2.3 m			6 4 5 5 5 4
				3					
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 2560 DCP No: 17
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA23-04

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 35-39 Peakedale Drive, Matamata, 3400
Project No.: HAM2023-0124
Date: 24/11/2023
Borehole Location: Refer to site plan Logged by: NK Checked by: AS Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487801.3mE; 694404.5mN Projection: Mt Eden 2000
Datum: Moturiki Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2 2 2
	0.4	Peak = 77kPa Residual = 24kPa				ML: Sandy SILT: light brown. Low plasticity, moderately sensitive. (Hinuera Formation)		St	1 2 2
	0.8	Peak = 179kPa Residual = 33kPa				ML: SILT: light brown. Low plasticity, sensitive. (Hinuera Formation)		VSt	3 2 2 3
	1.2	Peak = 208kPa Residual = 42kPa		1		ML: SILT: white. Low plasticity, sensitive. (Hinuera Formation)	M	H	3 4 4 4 6 6
	1.6	Peak = UTP				*... from 1.60m to 1.80m, No plasticity.*			7 10 11 12
				2		SM: Silty fine SAND: light grey. Poorly graded, sub rounded. (Hinuera Formation)		D to VD	11 12 12
						SP: Fine to coarse SAND: brownish orange. Poorly graded, sub rounded. Iron staining. (Hinuera Formation)			14 18
						Borehole terminated at 2.5 m			12 14 14 11
				3					
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 2560 DCP No: 26
Remarks: Groundwater not encountered..

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-09

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 05/06/2024
Borehole Location: Refer to site plan Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)	M		2, 2, 2, 3, 4
	0.6	Peak = UTP				ML: SILT: grey mottled orange. Low plasticity. (Hinuera Formation)		H	5, 4, 5, 6
				1		SM: Silty fine to medium SAND: light brownish grey. Poorly graded, sub rounded. (Hinuera Formation)	M to W	D	10, 9, 13
						SP: Fine SAND: light grey streaked orange. Poorly graded, sub rounded. (Hinuera Formation)		MD to D	5, 9, 13, 13, 12
05-06-2024						ML: SILT: grey. Low plasticity. (Hinuera Formation)	W	St	9
						SW: Fine to coarse SAND: grey. Well graded, sub rounded. (Hinuera Formation)	S	D	8, 8
						Borehole terminated at 1.9 m			
				2					7, 9, 8, 5, 8, 6, 7, 8, 7, 6
				3					6, 5, 4, 4, 7, 12, 10, 10, 13, 5
				4					4, 4, 10, 12, 10, 10, 14, 10, 12
				5					

Termination Reason: No retrieval.
Shear Vane No: 2087 DCP No: 25
Remarks: Groundwater encountered at 1.8m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-10

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 05/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)			1, 2, 2, 3
	0.6	Peak = 178kPa Residual = 39kPa				ML: Fine to medium Sandy SILT: light grey streaked orange brown. Low plasticity. Sensitive. (Hinuera Formation)			3, 3, 2
	0.9	Peak = 192kPa Residual = 36kPa		1		CH: Silty CLAY: with trace fine sand; light grey streaked dark orange brown. High plasticity. Moderately sensitive. (Hinuera Formation) ... at 1.00m, becoming light grey.	M	St to VSt	1, 1, 2, 5, 5, 4
	1.3	Peak = 92kPa Residual = 44kPa				SW: Fine to coarse SAND: with minor silt; light grey. Well graded. (Hinuera Formation)		MD	4, 4, 5
05-06-2024	1.8	Peak = 111kPa Residual = 42kPa				ML: SILT: with some fine to coarse sand; light grey. Low plasticity. Moderately sensitive. Dilatant. (Hinuera Formation)	W	VSt	4, 3, 4
				2		SW: Fine to coarse SAND: with some silt; grey. Well graded. (Hinuera Formation) ... at 2.20m, becoming greyish brown, poor retention. ... at 2.40m, becoming brown fine to medium sand.	S	MD to D	5, 10, 8, 7, 5
						Borehole terminated at 2.5 m			5, 3, 4, 4, 4
				3					5, 7, 5, 4, 4
				4					10, 8, 11, 10, 10
									12, 12, 13, 9, 8, 10, 9, 10, 12
				5					

Termination Reason: Hole collapse/no retrieval
Shear Vane No: 2560 DCP No: 34
Remarks: Groundwater encountered at 2.0m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-11

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 05/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: brown. No plasticity. (Topsoil)			2
						ML: SILT: orange brown. Low plasticity. Moderately sensitive to sensitive. (Hinuera Formation)			3
	0.3	Peak = 120kPa Residual = 25kPa							1
									3
									2
	0.6	Peak = 78kPa Residual = 17kPa					M	St to VSt	1
									2
									1
	0.9	Peak = 58kPa Residual = 19kPa							1
				1					2
									3
									3
						SM: Silty Fine to medium SAND: orange brown. Well graded. (Hinuera Formation)	M to W		4
						SW: Fine to coarse SAND: with trace fine gravel; greyish brown. Well graded. Gravel; subangular. (Hinuera Formation)			3
						... at 1.40m, thin lens of silty fine sand.			5
									6
									4
									3
									2
				2					6
									6
						... at 2.20m, becoming brownish grey.			5
									6
									8
									7
						... from 2.50m to 2.60m, mottled black.	M		8
									7
									7
						... at 2.80m, becoming dark orange brown.		MD to D	5
									5
				3					8
						... at 3.10m, becoming greyish brown with grey.			8
									8
									9
									9
									9
									13
									15
						... at 3.80m, with trace silt.			14
						... at 3.90m, becoming dark brown with brownish grey.			15
05-06-2024				4			W		20
						... at 4.40m, becoming dark reddish brown, with some silt.	S		
						Borehole terminated at 4.6 m			
				5					

Termination Reason: Hole collapse
Shear Vane No: 2560 DCP No: 34
Remarks: Groundwater encountered at 4.2m.

HAND AUGER BOREHOLE LOG - HA24-12

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 05/06/2024
Borehole Location: Refer site plan. Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: with some medium gravel; dark brown. No plasticity. (Topsoil)			4
						SW: Fine to coarse SAND: light brown. Well graded, sub angular. (Possible Fill)		MD	7, 7
	0.4	Peak = 129kPa Residual = 26kPa				ML: SILT: with minor fine sand; brownish orange. Low plasticity. Sensitive. (Hinuera Formation)			6, 2, 2
	0.7	Peak = 167kPa Residual = 29kPa					M	VSt to H	2, 2, 2, 2
	1.0	Peak = UTP		1					4
						SM: Silty fine to coarse SAND: light yellowish brown. Well graded, sub rounded. (Hinuera Formation)		MD	5, 7, 5, 5
									3, 3
	1.8	Peak = 205kPa				ML: SILT: grey mottled orange. Low plasticity. (Hinuera Formation)		H	3
						SW: Fine to coarse SAND: light brown mottled grey and streaked dark red. Well graded, sub rounded. (Hinuera Formation)			2, 3
				2		... at 2.10m, Becomes grey.	W	L to MD	2, 5, 5, 5, 4, 3
05-06-2024							S		3
						Borehole terminated at 2.7 m			4, 3, 4
				3					5, 5, 5, 6, 6, 8, 9, 9, 10, 12
				4					13, 13, 13, 10, 13, 10, 10, 9, 10
				5					

Termination Reason: Hole Collapse
Shear Vane No: 2087 DCP No: 25
Remarks: Groundwater encountered at 2.6m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-13

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 05/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: brown. No plasticity. (Topsoil)			2
	0.3	Peak = 167kPa Residual = 28kPa				ML: SILT: orange brown. Low plasticity. Moderately sensitive to sensitive. (Hinuera Formation)	D to M	VSt	2
	0.6	Peak = 133kPa Residual = 22kPa				... at 0.60m, becoming light orange brown.			2
	0.9	Peak = 111kPa Residual = 39kPa		1		SM: Silty Fine to medium SAND: with trace fine pumiceous gravel; light orange brown. Well graded. (Hinuera Formation)		MD	5
						... at 1.20m, becoming fine sand.			7
	1.4	Peak = 108kPa Residual = 53kPa				CH: Silty CLAY: light grey. High plasticity. Moderately sensitive. (Hinuera Formation)		VSt	4
						SM: Silty Fine SAND: grey. Poorly graded. (Hinuera Formation)	M		4
						SW: Fine to medium SAND: with some silt and minor fine gravel; brownish grey with grey. Well graded. Gravel; subangular. (Hinuera Formation)			4
				2		SW: Fine to coarse SAND: with some silt and trace fine gravel; grey. Well graded. Gravel; subangular. (Hinuera Formation)		MD	6
05-06-2024							W		4
						... at 2.60m, poor retention.	S		4
				3		Borehole terminated at 3.0 m			4
									5
				4					6
				5					7

Termination Reason: Hole collapse/no retrieval
Shear Vane No: 2560 DCP No: 34
Remarks: Groundwater encountered at 2.6m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-14

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 06/06/2024
Borehole Location: Refer to site plan Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
06-06-2024 ▼				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)			1
						SM: Silty fine to medium SAND: light grey mottled dark orange. Poorly graded, rub rounded. (Hinuera Formation)	M	L to MD	3, 2, 4, 7
						SM: Silty fine SAND: brownish orange mottled dark brown. Poorly graded, sub rounded. (Hinuera Formation)		MD	5, 3, 3, 3
				1		SW: Fine to medium SAND: grey. Well graded, sub rounded. (Hinuera Formation)	W	MD to D	4, 4, 5, 10, 11, 11, 8
						... at 1.50m, Becomes blueish grey.	S		3
						Borehole terminated at 1.7 m			3, 3, 4
				2					9, 8, 8, 9, 8, 6, 5, 2, 2, 5
				3					8, 8, 7, 7, 10, 11, 10, 9, 10, 10
				4					12, 11, 9, 12, 10, 10, 11, 9, 13
				5					

Termination Reason: Hole Collapse
Shear Vane No: DCP No: 34
Remarks: Groundwater encountered at 1.6m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-15

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 05/06/2024
Borehole Location: Refer to site plan Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2 2 1
	0.4	Peak = 59kPa Residual = 15kPa				ML: SILT: light brown. Low plasticity. Moderately sensitive to sensitive. (Hinuera Formation)			1 2 2
	0.7	Peak = 59kPa Residual = 15kPa					M	St to VSt	1 1 2
	1.0	Peak = 105kPa Residual = 15kPa		1		*... at 0.90m, Becoming a light greyish brown.*			1 2
						SM: Silty fine SAND: light brown. Poorly graded, sub rounded. Dilatant. (Hinuera Formation)			4 4 3
						... at 1.40m, Becoming a light grey streaked yellow.	W	MD	4 4 5 4 4 4
				2					4 5 6 10
	2.5	Peak = 167kPa Residual = 59kPa				ML: SILT: grey streaked yellow. Low plasticity. Moderately sensitive. (Hinuera Formation)	M to W	VSt	4
	2.7	Peak = UTP				ML: Clayey SILT: brown. Low plasticity. (Walton Subgroup)		H	9 10 12 17
	3.0	Peak = UTP		3		Borehole terminated at 3.0 m	M		20
				4					
				5					

Termination Reason: Refusal on hard material.
Shear Vane No: 2087 DCP No: 25
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-16

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 06/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			
	0.3	Peak = 100kPa Residual = 23kPa				ML: SILT: orange brown. Low plasticity. Sensitive. (Walton Subgroup)			
						... at 0.40m, becoming light orange brown, with some clay.			
	0.6	Peak = 160kPa Residual = 30kPa				CH: Silty CLAY: light orange brown. High plasticity. Sensitive. (Walton Subgroup)	M	VSt to H	
	0.9	Peak = 123kPa Residual = 28kPa		1		... at 1.00m, becoming light orange grey.			
	1.3	Peak = UTP				ML: SILT: light orange grey. Low plasticity. (Walton Subgroup)			
						SM: Silty Fine SAND: light brownish grey. Poorly graded. (Walton Subgroup)			
	1.6	Peak = 150kPa Residual = 28kPa				CH: Silty CLAY: light brownish grey. High plasticity. Sensitive. (Walton Subgroup)	W	St to VSt	
	1.9	Peak = 85kPa Residual = 20kPa		2		... at 2.00m, becoming light grey, with trace fine sand.			
						... at 2.10m, becoming light brown grey.			
						... at 2.20m, becoming light greyish brown.			
	2.3	Peak = UTP				ML: SILT: with some clay; greyish brown. Low plasticity. (Walton Subgroup)	D to M	VSt to H	
	2.6	Peak = 175+				CH: Silty CLAY: greyish brown. High plasticity. Moderately sensitive. (Walton Subgroup)	M		
	2.9	Peak = 160kPa Residual = 43kPa		3					
	3.3	Peak = 158kPa Residual = 45kPa							
	3.6	Peak = 125kPa Residual = 33kPa							
						... at 3.80m, becoming light orange brown.			
	3.9	Peak = 125kPa Residual = 35kPa		4			M to W		
	4.3	Peak = 175+				ML: Clayey SILT: orange brown mottled black. Low plasticity. (Walton Subgroup)			
	4.6	Peak = 50kPa Residual = 25kPa				CH: Silty CLAY: light greyish brown. High plasticity. Insensitive to moderately sensitive. (Walton Subgroup)		St	
	4.9	Peak = 60kPa Residual = 50kPa		5		Borehole terminated at 5.0 m			

Termination Reason: Target Depth Reached
Shear Vane No: 3434 DCP No:
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-17

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 06/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2, 2
	0.3	Peak = 63kPa Residual = 20kPa				ML: SILT: orange brown. Low plasticity. (Hinuera Formation)			1
	0.6	Peak = 108kPa Residual = 25kPa						St to VSt	2, 2, 2, 2
						... at 0.70m, with some clay.			1, 1
	0.9	Peak = 160kPa Residual = 35kPa							3
				1		... at 1.00m, with trace fine sand.			6
						SW: Fine to coarse SAND: minor fine gravel. orange brown. Well graded. Gravel; black, subangular. (Hinuera Formation)	M		8
						... at 1.30m, becoming dark orange brown.		D to VD	13
						... at 1.40m, becoming orange brown with yellow grey.			17
						... at 1.60m, becoming dark reddish brown, with some fine gravel; highly iron stained.			24, 22
				2		... at 2.00m, becoming brownish grey with grey.			
						... at 2.10m, becoming dark reddish brown.			
06-06-2024						... at 2.30m, becoming dark reddish dark brown, with trace medium gravel.	W		
						... at 2.70m, with some silt.			
	3.1	Peak = 158kPa Residual = 60kPa		3		ML: SILT: light grey. Low plasticity. Moderately sensitive. (Hinuera Formation)	S	VSt to H	
	3.7	Peak = UTP							
						Borehole terminated at 3.8 m			
				4					
				5					

Termination Reason: No retrieval
Shear Vane No: 3434 DCP No: 34
Remarks: Groundwater encountered at 2.6m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-18

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 06/06/2024
Borehole Location: Refer to site plan. Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)	M		2, 2
	0.3	Peak = 83kPa Residual = 19kPa				ML: Sandy SILT: greyish brown. Low plasticity. Moderately sensitive. (Hinuera Formation)	M to W	St	2, 2, 2, 2, 2, 3
	0.6	Peak = 97kPa Residual = 28kPa				ML: SILT: light grey streaked orange. Low plasticity. Moderately sensitive. (Hinuera Formation)			
				1		SM: Silty fine SAND: light grey streaked yellow. Poorly graded, sub rounded. (Hinuera Formation)		MD to D	5, 5, 7, 9, 7, 9
06-06-2024						SW: Fine to medium SAND: grey. Well graded, sub rounded. (Hinuera Formation)	W	D	7, 10
							S		7
						Borehole terminated at 1.7 m			7
				2					8, 7, 7, 8, 9, 8, 5, 7, 5, 4, 5, 7
				3					10, 10, 12, 12, 6, 5, 10, 9, 11, 10
				4					12, 12, 13, 15, 16, 12, 10, 11, 12
				5					

Termination Reason: Hole Collapse
Shear Vane No: 2560 DCP No: 34
Remarks: Groundwater encountered at 1.6m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-19

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 06/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)	M to W		1
						ML: SILT: with some clay; light brown. (Hinuera Formation)			2
						SM: Silty Fine SAND: light grey streaked light orange brown. Poorly graded. (Hinuera Formation)		MD	3
						ML: Fine SAndy SILT: light grey streaked light orange brown. Low plasticity. (Hinuera Formation)		St	3
						SM: Silty Fine SAND: light grey streaked light orange brown. Poorly graded. (Hinuera Formation)			4
						... at 0.90m, light yellowish grey with brown grey.	M to W		4
				1					3
									3
									5
								MD	4
									6
						... at 1.20m, becoming light grey.	W		5
									4
									5
									6
						ML: SILT: light grey. Low plasticity. Dilatant. (Hinuera Formation)		VSt	6
						SM: Silty Fine to medium SAND: light grey. Well graded. Pumiceous. (Hinuera Formation)			5
									6
								MD to D	5
									5
				2		... at 2.00m, poor retention.	S		8
									7
						ML: SILT: with some fine sand; light grey. Low plasticity. (Hinuera Formation)		H	14
						SM: Silty Fine SAND: light grey. Poorly graded. (Hinuera Formation)		D	9
						Borehole terminated at 2.4 m			13
									12
									6
									4
									5
				3					5
									6
									8
									8
									14
									17
									14
									13
									12
									14
									17
				4					14
									13
									17
									16
									20
									17
									17
									16
									15
				5					

06-06-2024

Termination Reason: No retrieval
Shear Vane No: DCP No: 34
Remarks: Groundwater encountered at 1.6m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-20

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 06/06/2024
Borehole Location: Refer to site plan Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2, 2, 2
	0.4	Peak = 97kPa Residual = 19kPa				ML: SILT: light brown. Low plasticity. Sensitive. (Hinuera Formation)			1, 1, 1
	0.7	Peak = 89kPa Residual = 19kPa					M		2, 2, 2
	1.0	Peak = 181kPa Residual = 28kPa		1				St to VSt	3, 4, 4, 2
						... at 1.30m, Becomes light greyish brown.			3, 3, 3, 3, 3
	1.5	Peak = 97kPa Residual = 36kPa					M to W		
						SM: Silty fine to coarse SAND: light greyish yellow. Well graded, sub rounded to sub angular. (Hinuera Formation)			3, 4, 4, 5
	2.3	Peak = UTP		2		CH: Sandy CLAY: brown. High plasticity. (Walton Subgroup)		H	6, 7, 7
						SW: Fiine to coarse SAND: with minor clay and trace fine gravel; Brownish orange mottled black and speckled grey. Well graded sub angular. (Walton Subgroup)	M	D	10, 13, 12, 12, 13, 14, 12, 16, 15
				3		Borehole terminated at 3.4 m			18, 13, 17, 20
				4					
				5					

Termination Reason: Hard Material.
Shear Vane No: 2560 DCP No: 34
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-21

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 06/06/2024
Borehole Location: Refer to site plan Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)	M		2, 2, 1, 1, 2, 1, 1
	0.8	Peak = 97kPa Residual = 14kPa				ML: Sandy SILT: light brownish grey. Low plasticity. Sensitive. (Hinuera Formation)	W	St	1, 2, 2, 2, 2, 3, 3, 4
06-06-2024				1			S		
						SM: Silty fine SAND: light grey. Poorly graded, sub rounded. (Hinuera Formation)		MD	3, 4, 4
						Borehole terminated at 1.8 m			3, 4, 4, 4, 6, 6, 4, 3, 3, 2, 2, 3, 3, 4, 4, 6, 8, 7, 8, 3, 3, 3, 3, 5, 5, 5, 4, 3, 3, 3, 3
				2					
				3					
				4					
				5					

Termination Reason: Hole collapse
Shear Vane No: 2560 DCP No: 34
Remarks: Groundwater encountered at 1.3m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-22

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 06/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)	M		1, 3
	0.3	Peak = 108kPa Residual = 20kPa				CH: Silty CLAY: brown. High plasticity. Sensitive. (Hinuera Formation)	M to W	St to VSt	1, 2
	0.6	Peak = 55kPa Residual = 13kPa							1, 2
									1, 1
	0.9	Peak = 110kPa Residual = 20kPa				ML: Clayey SILT: light brown. Low plasticity. Sensitive. (Hinuera Formation)			2, 2
06-06-2024				1		... at 1.00m, becoming light grey streaked orange brown.	W		6, 5, 8, 8, 9
						SM: Silty Fine SAND: light grey. Poorly graded. (Hinuera Formation)			6, 12, 16
						... at 1.60m, poor retention.		MD to D	15, 6, 4, 5, 7
				2					
						ML: SILT: with some organic silt; light grey with greyish brown. Low plasticity. Insensitive. Dilatant. (Hinuera Formation)		St	8, 16, 11
	2.5	Peak = 65kPa Residual = 38kPa				SM: Silty Fine SAND: light grey. Poorly graded. (Hinuera Formation)			8
						... at 2.60m, poor retention.		MD to D	9, 8, 5
						... at 2.70m, with trace fine sand.	S		
				3		OL: Organic SILT: with some silt; dark greyish brown with light grey. Low plasticity. Insensitive. (Hinuera Formation)			8, 6, 7, 7
	3.3	Peak = 50kPa Residual = 40kPa						F to St	10, 10, 8, 11, 12, 11
	4.0	Peak = 60kPa Residual = 33kPa		4		SM: Silty Fine to medium SAND: dark grey. Well graded. (Hinuera Formation)		D	10, 11, 10
						Borehole terminated at 4.3 m			13, 17, 20
				5					

Termination Reason: No retrieval
Shear Vane No: 3434 DCP No: 34
Remarks: Groundwater encountered at 1.3m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-23

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 06/06/2024
Borehole Location: Refer to site plan Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
06-06-2024	0.4	Peak = 153kPa Residual = 33kPa				OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2
									2
									2
						ML: SILT: light greyish brown. Low plasticity. Sensitive. (Hinuera Formation)			2
	0.7	Peak = 89kPa Residual = 19kPa						St to VSt	1
									1
									1
									1
							M		2
	1.0	Peak = 181kPa Residual = 28kPa		1		ML: Sandy SILT: light grey mottled black and streaked yellow. Low plasticity. Sensitive. (Hinuera Formation)			2
									2
								VSt	6
									4
						SW: Fine to coarse SAND: brown. Well graded, sub rounded. (Hinuera Formation)			4
									2
								L to MD	3
									2
						SM: Silty fine SAND: light brownish grey. Poorly graded, sub rounded. (Hinuera Formation)			3
									2
									3
				2		... from 2.00m to 2.05m, Silt.			4
									4
									4
									5
									4
							W		5
								MD	5
									5
						... from 2.80m to 2.90m, Silt			5
									4
				3					5
									4
									5
									5
									6
						SW: Fine to coarse SAND : light brown. Well graded, sub rounded. (Hinuera Formation)	S		6
						Borehole terminated at 3.6 m			5
									6
									6
									5
				4					6
									6
									7
									6
									6
									5
									7
									6
									6
				5					

Termination Reason: No Retrieval.
Shear Vane No: 2560 DCP No: 34
Remarks: Groundwater encountered at 3.5m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-24

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 04/06/2024
Borehole Location: Refer to site plan Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2, 1, 1
	0.4	Peak = 74kPa Residual = 18kPa				ML: SILT: brown. Low plasticity. Moderately sensitive. (Hinuera Formation)	M	St	1, 2
	0.6	Peak = UTP				ML: SILT: light brown streaked orange. Low plasticity. Sensitive. (Hinuera Formation)			2, 1, 1
	1.0	Peak = 133kPa Residual = 18kPa		1				VSt to H	2, 2, 2
	1.2	Peak = 166kPa Residual = 33kPa				*... at 1.10m, Becoming grey mottled orange.*	M to W		3, 3, 2, 4
						SP: Fine SAND: with some silt; grey mottled orange. Poorly graded, sub rounded. (Hinuera Formation)		L	2, 2
	1.8	Peak = 178kPa Residual = 33kPa				ML: SILT: light grey. Low plasticity. Sensitive. (Hinuera Formation)		VSt	3
				2		SM: Silty fine to medium SAND: grey. Poorly graded, sub rounded. (Hinuera Formation)	W	L to MD	2, 2, 4, 3, 2, 2, 4, 4, 4, 3
04-06-2024				3		SW: Fine to medium SAND: with minor silt; grey. Well graded, sub rounded. (Hinuera Formation)	W to S	MD	4, 5, 5, 5, 5, 5, 5, 6
						Borehole terminated at 3.6 m			6, 6, 6, 3
				4					7, 6, 8, 7, 8, 7, 7, 8, 8
				5					

Termination Reason: Hole Collapse.
Shear Vane No: 2955 DCP No: 34
Remarks: Groundwater encountered at 3.3m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-25

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 04/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)			2, 3
	0.3	Peak = 109kPa Residual = 25kPa				ML: Clayey SILT: orange brown. Low plasticity. Moderately sensitive to sensitive. (Hinuera Formation)			1, 1
						... at 0.50m, becoming light orange brown.		VSt	2, 1, 1
	0.6	Peak = 109kPa Residual = 31kPa				... at 0.70m, with some fine to coarse sand.			2
				1		SW: Fine to coarse SAND: with minor fine gravel; brownish grey. Well graded. Gravel; subangular, pumiceous and rhyolitic. (Hinuera Formation)			3, 6, 6, 6, 6, 5, 5, 6, 5, 4, 5, 5
						... at 1.80m, becoming light greyish brown.	M		
				2		... at 2.20m, becoming orange brown with trace silt.			7, 7, 5, 5
						... from 2.40m to 2.45m, thin band of grey silty fine sand.		MD to D	6, 7, 8, 5, 4, 5
						... at 2.50m, becoming greyish brown.			
				3		... from 3.20m to 3.40m, becoming grey with greyish brown.			6, 7, 6, 6
							M to W		5
04-06-2024							W		7, 5, 5
						... at 3.80m, becoming medium to coarse; grey with brownish grey.	S		4, 4
				4		Borehole terminated at 4.0 m			7, 5, 7, 5, 5, 5, 6, 5, 7
				5					

Termination Reason: Hole collapse/no retrieval
Shear Vane No: 2993 DCP No: 34
Remarks: Groundwater encountered at 3.8m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-05

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 31/05/2024
Borehole Location: Refer to site plan Logged by: NK Checked by: DM Scale: 1:25 Sheet 1 of 1

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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: dark brown. Low plasticity. (Topsoil)	M	MD	6
						SM: Silty fine SAND: light grey. Poorly graded. (Hinuera Formation)			7
									5
									5
									5
						SM: Silty fine to coarse SAND: with minor fine gravel; brownish grey. Well graded, subrounded. (Hinuera Formation)			4
									3
						... at 0.90m, thin band of iron staining fine sand.			5
				1		ML: SILT: light grey. Low plasticity. Dilatant. (Hinuera Formation)		F	3
									3
						SM: Silty fine SAND: light grey. Poorly graded. Dilatant. (Hinuera Formation)	M to W	MD	3
									3
						Borehole terminated at 1.4 m			4
									5
									4
									5
									3
									3
				2					6
									6
									3
									4
									4
									3
									5
									5
									5
				3					
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: DCP No: 34
Remarks: Groundwater encountered at 1.4m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-06

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 31/05/2024
Borehole Location: Refer to site plan Logged by: NK Checked by: DM Scale: 1:25 Sheet 1 of 1

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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. Low plasticity. (Topsoil)			2, 2
	0.3	Peak = 121kPa Residual = 41kPa				ML: SILT: brown. Low plasticity. Moderately sensitive to sensitive. (Hinuera Formation)			1, 1, 1, 1, 1, 1
	0.6	Peak = 148kPa Residual = 36kPa					M	VSt	
				1		SM: Silty fine to coarse SAND: with minor fine gravel; brown. Well graded, subrounded. (Hinuera Formation)			3, 3, 3, 3, 4
								MD	
						SM: Silty fine SAND: light grey. Poorly graded. Dilatant. (Hinuera Formation)	M to W	L to MD	3, 3, 4, 2
	1.8	Peak = UTP				ML: SILT: light grey. Low plasticity. (Hinuera Formation)		H	4, 4
				2		SW: Fine to coarse SAND: brown. Well graded, subrounded. (Hinuera Formation)	M	MD	6, 6, 5
							S		4
						Borehole terminated at 2.3 m			6, 4, 3, 2, 4, 4
				3					
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 2955 DCP No: 34
Remarks: Groundwater encountered at 2.2m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-07

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 31/05/2024
Borehole Location: Refer to site plan Logged by: NK Checked by: DM Scale: 1:25 Sheet 1 of 1

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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. Low plasticity. (Topsoil)	M		1, 1
	0.3	Peak = 193kPa Residual = 44kPa				ML: SILT: light brown mottled orange. Low plasticity. (Hinuera Formation)		VSt	1, 2, 2, 2, 2
						SM: Silty fine to medium SAND: light grey mottled orange. Well graded, subrounded. (Hinuera Formation)		L to MD	3
				1		SW: Fine to coarse SAND: with minor fine pumice gravel; light grey. Well graded, subrounded. (Hinuera Formation)		MD	3, 4, 3, 3, 3
							W to S		3, 4
						Borehole terminated at 1.5 m			3, 4, 4, 5, 3, 3, 4
				2					13, 8, 7, 9, 6, 8, 9
				3					
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 2955 DCP No: 34
Remarks: Groundwater encountered at 1.4m.

HAND AUGER BOREHOLE LOG - SOA24-08

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 31/05/2024
Borehole Location: Refer to site plan Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. No plasticity. (Topsoil)	M		
	0.4	Peak = 89kPa Residual = 30kPa				ML: SILT: with some clay; light brown. Low plasticity. Moderately sensitive. (Walton Subgroup)		St	
	0.6	Peak = 44kPa Residual = 21kPa				ML: SILT: with some fine to medium sand; greyish brown. Low plasticity. Moderately sensitive. (Walton Subgroup)		F	
	1.0	Peak = 133kPa Residual = 44kPa		1			M to W		
	1.5	Peak = 119kPa Residual = 44kPa						VSt	
	2.0	Peak = UTP		2		CH: Silty CLAY: dark brown. High plasticity. (Walton Subgroup) *... from 1.90m to 2.00m, Becomes mottled black.*			
	2.5	Peak = UTP					M	H	
	3.0	Peak = 208kPa		3		Borehole terminated at 3.0 m			
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 2993 DCP No:
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-09

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 31/05/2024
Borehole Location: Refer to site plan Logged by: NK Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown. Low plasticity. (Topsoil)			2, 1
	0.3	Peak = 89kPa Residual = 21kPa				ML: SILT: brown. Low plasticity. (Walton Subgroup)			1
	0.6	Peak = 160kPa Residual = 30kPa						VSt to St	1, 1, 1, 1, 1
	0.9	Peak = 121kPa Residual = 24kPa		1		ML: Sandy SILT: with trace fine pumice gravel. Low plasticity. (Walton Subgroup)			1, 1
	1.2	Peak = UTP						VSt to H	3, 6
						SM: Silty fine to coarse SAND: with trace fine gravel; reddish brown. Well graded, subrounded. (Walton Subgroup)	M		13, 18, 20
	1.6	Peak = 148kPa Residual = 33kPa				ML: Sandy SILT: light yellow mottled orange. Low plasticity. (Walton Subgroup)			
	2.0	Peak = 136kPa Residual = 24kPa		2		ML: SILT: light grey. Low plasticity. (Walton Subgroup)			
	2.3	Peak = 178kPa Residual = 24kPa							
	2.6	Peak = UTP				CH: Silty CLAY: brown. High plasticity. (Walton Subgroup)			
	3.0	Peak = 207kPa		3		Borehole terminated at 3.0 m			
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 2955 DCP No: 34
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-10

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 04/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: dark brown with dark orange brown. No plasticity. (Topsoil)			2, 2, 2
	0.3	Peak = 101kPa Residual = 15kPa				OH: Organic CLAY: dark brown. High plasticity. Sensitive. (Hinuera Formation)			1, 1
	0.6	Peak = 89kPa Residual = 21kPa				CH: Silty CLAY: dark brown. High plasticity. Sensitive. (Hinuera Formation)			1, 1
						... at 0.80m, becoming yellowish grey.	M	St to VSt	1, 3
	1.0	Peak = 127kPa Residual = 30kPa		1		*... from 1.20m to 1.25m, lens of silty fine sand.* *... from 1.25m to 1.30m, thin lens of silt.*			5, 4, 4
						SM: Silty Fine to medium SAND: light grey streaked orange brown. Well graded. (Hinuera Formation)			4, 5, 8
04-06-2024						SW: Fine to coarse SAND: with some silt and minor fine pumiceous gravel; light grey. Well graded. (Hinuera Formation) *... at 1.70m, becoming grey.*	W	MD to D	4, 6
						Borehole terminated at 1.8 m			5, 6
				2					3, 5, 3, 3, 3, 5, 5, 4, 5
				3					
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 2993 DCP No: 34
Remarks: Groundwater encountered at 1.8m.

HAND AUGER BOREHOLE LOG - SOA24-11

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 04/06/2024
Borehole Location: Refer to site plan Logged by: WD Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
04-06-2024 ▼				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)			1, 3, 2, 1
						CH: Silty CLAY: brown. High plasticity. (Hinuera Formation)	M	St	2, 1, 3, 2, 2, 2
						... at 0.60m, becoming light brownish grey.			
						... at 0.70m, becoming light grey streaked light orange brown.			
				1		SM: Silty Fine SAND: light grey. Poorly graded. Pumiceous. (Hinuera Formation)	W	MD to D	5, 7, 7, 5, 6, 8
						... from 1.20m to 1.30m, becoming fine to coarse with trace fine pumiceous gravel.	S		
						Borehole terminated at 1.6 m			6, 8, 9, 5
				2					3, 4, 5, 5, 7, 6, 5, 6, 7
				3					
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: DCP No: 34
Remarks: Groundwater encountered at 1.4m.

HAND AUGER BOREHOLE LOG - SOA24-12

Client: Maven Associates Ltd
Project: Station Road, Matamata
Site Location: 127-247A Station Road, Matamata, 3400
Project No.: HAM2023-0124
Date: 31/05/2024
Borehole Location: Refer to site plan Logged by: PM Checked by: DM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: Projection:
Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: dark brown. No plasticity. (Topsoil)	M		2
									2
	0.3	Peak = 104kPa Residual = 30kPa				ML: SILT: brown. Low plasticity. Moderately sensitive. (Hinuera Formation)		St to VSt	2
									2
									2
	0.6	Peak = 74kPa Residual = 44kPa							2
									2
						SW: Fine to coarse SAND: light brown. Well graded, sub rounded. (Hinuera Formation)		VL	1
									3
				1				MD to D	6
									8
									8
									10
									8
									8
									8
									8
									6
				2					6
									8
									10
									8
									11
									8
						... at 2.50m, Becoming light grey.	W		6
									6
									8
									7
				3		Borehole terminated at 3.0 m			
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 2993 DCP No: 34
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - HA24-26

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 28/11/2024
Borehole Location: Refer to Site Plan Logged by: WD Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487000.0mE; 695269.4mN Projection: Mt Eden 2000
Elevation: m Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: brown. No plasticity (Topsoil)			1
						ML: SILT: with minor fine sand. Light grey streaked orange brown. Low plasticity. Moderately sensitive (Hinuera Formation)	D	VSt	4
	0.3	Peak = 128kPa Residual = 41kPa				CH: Silty CLAY: light grey streaked orange brown. High plasticity. Moderately sensitive. (Hinuera Formation)			2
									2
						SW: Fine to coarse SAND: trace silt. Light grey. Well graded. Subangular. (Hinuera Formation)			3
						... at 0.50m, becoming light brown	M		5
									4
						SP: Silty Fine to medium SAND: light grey. Poorly graded. Subangular. (Hinuera Formation)		MD	5
				1					6
						... at 1.00m, becoming streaked yellowish brown.	W		6
28-11-2024									6
	1.2	Peak = 56kPa Residual = 25kPa							7
						ML: SILT: with trace fine sand. Grey. Low plasticity. Moderately sensitive. (Hinuera Formation)			4
								St	4
						OL: Organic SILT: with minor clay. Greyish brown. Low plasticity. (Hinuera Formation)			4
						SW: Fine to coarse SAND: dark grey. Well graded. Subangular. (Hinuera Formation)	S		6
								MD to D	8
									8
						Borehole terminated at 1.8 m			10
									10
				2					9
									13
									11
									8
									4
									6
									6
									10
									17
				3					13
									12
									12
									17
									16
									7
									9
									6
									6
									14
				4					17
									15
									14
									13
									9
									6
									6
									7
									7
				5					14

Termination Reason: Hole collapse/No retrieval.
Shear Vane No: 2993 DCP No: 17B
Remarks: Groundwater encountered at 1.3m. Piezometer installed.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

HAND AUGER BOREHOLE LOG - HA24-28

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 28/11/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487308.9mE; 694656.1mN Projection: Mt Eden 2000
Elevation: m Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			3
	0.3	Peak = 113kPa Residual = 15kPa				ML: SILT: with minor clay and trace fine sand. Orange brown. Low plasticity. Sensitive to extra sensitive. (Hinuera Formation)		VSt	2 2 2 2 2
	0.6	Peak = 113kPa Residual = 10kPa							1
						SW: Gravelly fine to coarse SAND: orange brown. Well graded. Gravel; fine, subrounded. (Hinuera Formation)			4 4 4
				1		... at 1.00m, sand becoming medium to coarse.			7 6 5 5
						... at 1.40m, becoming light yellowish brown and black.	M		6 5 4
						... at 1.70m, becoming fine to coarse sand with some fine gravels.			5 6 6
				2		... at 2.20m, becoming brown.		MD to D	7 6 5 5 6 7 4
						... at 2.70m, containing trace silt.			6 7 8
28-11-2024				3			W		9 8 6
							S		5 6
						Borehole terminated at 3.5 m			7 5 5 8 9 8 8 6 6 6 6 7 6 8
				4					
				5					

Termination Reason: Hole collapse/No retrievel.
Shear Vane No: 2560 DCP No: 17B
Remarks: Ground water encountered at 3.3m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

HAND AUGER BOREHOLE LOG - HA24-31

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 28/11/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487889.0mE; 694518.8mN Projection: Mt Eden 2000
Elevation: m Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: dark brown. Low plasticity. (Topsoil)			4, 4
	0.3	Peak = 133kPa Residual = 22kPa				ML: SILT: with minor clay. Brown. Low plasticity. Sensitive. (Hinuera Formation)		VSt	5, 4
	0.6	Peak = 43kPa Residual = 15kPa				... at 0.50m, becoming light brown.		F	2, 1, 2, 3
				1		SP: Silty fine SAND: light brown. Poorly graded. (Hinuera Formation)		MD	4, 4, 3, 5
	1.2	Peak = 113kPa Residual = 22kPa				ML: SILT: with some clay. Light grey. Low plasticity. Sensitive. (Hinuera Formation)		VSt	4, 6, 4, 5, 5, 8, 7
	1.5	Peak = 126kPa Residual = 24kPa							
	1.8	Peak = 154kPa Residual = 43kPa							
				2		SP: Fine to medium SAND: with some silt. Light yellowish grey. Poor graded. (Hinuera Formation)		MD	7, 5
	2.2	Peak = 143kPa Residual = 51kPa				ML: Fine sandy SILT : light grey. Low plasticity. Moderately sensitive. (Hinuera Formation)		VSt	7, 8, 8, 7, 8, 10
	2.5	Peak = UTP					M		
				3		SP: Fine SAND: with some silt. Light grey. Poorly graded. (Hinuera Formation)		D	8, 11, 11, 10, 10, 12, 14, 11, 11, 10, 11, 10, 10
				4		SP: Fine to medium SAND: with trace silt. Light yellowish grey and orange. Poorly graded. (Hinuera Formation)			11, 10, 8, 8, 10, 7, 8, 10, 12
						... at 4.15m, becoming light grey.			
						... at 4.30m, becoming with some silt			
	4.7	Peak = UTP				... from 4.60m to 4.80m, becoming fine sandy SILT.			
				5		Borehole terminated at 5.0 m			

Termination Reason: Target depth reached.
Shear Vane No: 2560 DCP No: 17B
Remarks: Groundwater not encountered. Nested piezometer installed.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

HAND AUGER BOREHOLE LOG - HA24-32A

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 03/12/2024
Borehole Location: Refer to Site Plan Logged by: WD Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487437.7mE; 695222.6mN Projection: Mt Eden 2000
Elevation: m Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: brown. No plasticity. (Topsoil)	D		1, 3, 2
	0.3	Peak = 153kPa Residual = 32kPa				ML: SILT: light brownish grey. Low plasticity. Sensitive. (Hinuera Formation)			1, 2
	0.6	Peak = UTP				... at 0.60m, streaked orange brown, with some fine gravel, moderately iron stained	M	VSt to H	1, 3, 3
				1		SW: Fine to coarse SAND: with some silt. Light brownish grey. Well graded. Subangular. (Hinuera Formation)			2, 3
						... at 1.10m, containing minor fine gravel, becoming light grey.		L to MD	4, 4, 4, 4
						SP: Silty Fine to medium SAND: light grey. Poorly graded. Subangular. Dilatant. (Hinuera Formation)	W		2, 3, 4
▼ 03-12-2024	1.8	Peak = 80kPa Residual = 18kPa				ML: SILT: light grey. Low plasticity. Sensitive. Dilatant. (Hinuera Formation)		St	4, 2
				2		... at 1.90m, becoming dark orange brown. Highly iron stained.	S	H	14
						Borehole terminated at 2.0 m			9, 9, 11, 10, 9, 8, 11, 9, 11, 15, 13, 9, 11, 13, 12, 13, 11, 12, 11, 13, 14, 14, 14, 10, 16, 20
				3					
				4					
				5					

Termination Reason: Refusal on hard ground.
Shear Vane No: 2955 DCP No: 27
Remarks: Groundwater encountered at 1.8m

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

HAND AUGER BOREHOLE LOG - HA24-32B

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 03/12/2024
Borehole Location: Refer to Site Plan Logged by: WD Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487418.9mE; 695204.1mN Projection: Mt Eden 2000
Elevation: m Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm) 5 10 15
				0		OL: Organic SILT: brown. No plasticity. (Topsoil)	D		
						SP: Silty Fine to medium SAND: light grey. Poorly graded. Subangular. (Hinuera Formation)	M		
						SP: Silty Fine SAND: light grey. Poorly graded. (Hinuera Formation) *... from 0.60m to 0.80m, becoming streaked orange brown, slightly iron stained.*			
				1		SW: Fine to coarse SAND: with some silt. Well graded. Subangular. (Hinuera Formation) *... at 1.30m, becoming orange brown. Slightly iron stained*	W		
03-12-2024						SP: Silty Fine SAND: light grey. Poorly graded. Dilatant. (Hinuera Formation)	S		
				2		Borehole terminated at 2.0 m			
				3					
				4					
				5					

Termination Reason: Refusal on hard ground.
Shear Vane No: DCP No:
Remarks: Groundwater encountered at 1.8m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

HAND AUGER BOREHOLE LOG - HA24-33

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 03/12/2024
Borehole Location: Refer to Site Plan Logged by: WD Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487567.1mE; 695357.5mN Projection: Mt Eden 2000
Elevation: m Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
						OL: Organic SILT: brown. No plasticity. (Topsoil)	D		1, 2, 3
	0.3	Peak = 80kPa Residual = 35kPa				ML: SILT: light brownish grey. Low plasticity. Moderately sensitive. (Hinuera Formation)		St	2, 2, 2
	0.6	Peak = UTP				CH: CLAY: light grey streaked orange brown. High plasticity. (Hinuera Formation)	M	H	3
						... from 0.60m to 0.65m, containing fine black angular gravel and becoming orange brown. Highly iron stained.			3
						SW: Fine to coarse SAND: brownish grey. Well graded. Subangular. (Hinuera Formation)			4, 2
				1		*... at 0.90m, becoming grey.*			3
						... at 1.00m, containing some silt.	W	L to MD	4, 4, 4, 4, 4, 4
						SP: Silty Fine to medium SAND: light grey. Poorly graded. Subangular. (Hinuera Formation)			3
						... at 1.60m, becoming silty fine sand.			5, 6, 6
						... at 1.80m, becoming thinly streaked orange brown.			
				2		ML: SILT: light grey streaked orange brown. Low plasticity. Insensitive. (Hinuera Formation)			5
	2.1	Peak = 44kPa Residual = 24kPa				OL: Organic SILT: black with dark brown. Low plasticity. (Hinuera Formation)		F	3, 3, 6
						SP: Silty Fine to medium SAND: with some fine pumiceous gravel. Grey. Poorly graded. Subangular. (Hinuera Formation)	S		8
						... at 2.70m, becoming grey mottled yellowish brown.		D	9, 12, 11, 11, 13
				3		*... at 3.00m, becoming grey mottled brown.*			11, 13, 15
						Borehole terminated at 3.3 m			13
									10, 10, 11, 14, 11, 9, 10, 12, 11, 10, 6, 11, 13, 15, 11
				4					
				5					

03-12-2024

Termination Reason: Hole collapse due to groundwater.
Shear Vane No: 2955 DCP No: 27
Remarks: Groundwater encountered at 1.6m

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

HAND AUGER BOREHOLE LOG - SOA24-13

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 03/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

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Position: 487407.5mE; 695226.2mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
03-12-2024				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			
						ML: Fine sandy SILT: light yellowish grey. No plasticity. (Hinuera Formation)	M		
				1		SW: Fine to coarse SAND: with some silt. Light yellowish grey. Well graded. (Hinuera Formation)	W		
							S		
						Borehole terminated at 1.5 m			
				2					
				3					
				4					
				5					

Dynamic Cone Penetrometer (Blows/100mm): 5, 10, 15

Termination Reason: Hole collapse due to groundwater.
Shear Vane No: DCP No:
Remarks: Groundwater encountered at 1.2m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-14

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 03/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

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Position: 487403.8mE; 695187.8mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
03-12-2024 ▼				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			
						SP: Fine to medium SAND: with some silt. Light grey. Poorly graded. (Hinuera Formation)	M		
				1		*... at 1.00m, becoming light grey streaked orange.*			
						SW: Fine to coarse SAND : with some silt. Grey. Well graded. (Hinuera Formation)	S		
				2		Borehole terminated at 2.1 m			
				3					
				4					
				5					

Dynamic Cone Penetrometer (Blows/100mm): 5, 10, 15

Termination Reason: Hole collapse due to groundwater.
Shear Vane No: DCP No:
Remarks: Groundwater encountered at 1.7m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-15

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 03/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487607.7mE; 695328.9mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
03-12-2024				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			1, 2, 2
						SP: Silty fine SAND: light grey. Poorly graded. (Hinuera Formation)	M	MD	6, 6, 3, 4, 5
						SP: Fine to medium SAND: with minor silt. Yellowish grey. Poorly graded. (Hinuera Formation)			6, 6
				1		SW: Fine to coarse SAND: with minor silt. Light grey. Well graded. (Hinuera Formation)			6, 5, 6, 4, 4, 4, 3, 3, 3, 5
				2		Borehole terminated at 2.0 m	W / S		5, 4, 4, 4, 4, 5, 8, 8, 8, 11, 10, 6, 6, 8, 8, 8, 8, 9, 9, 8, 6, 6, 7, 10, 10, 7, 7, 9, 15
				3					
				4					
				5					

Termination Reason: Hole collapse due to groundwater.
Shear Vane No: DCP No: 34
Remarks: Groundwater encountered at 1.5m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-16

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 03/12/2024
Borehole Location: Refer to Site Plan Logged by: WD Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
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Position: 487636.0mE; 695287.7mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
03-12-2024 ▼				0		OL: Organic SILT: brown. No plasticity. (Topsoil)	D		
						ML: SILT: with minor fine sand. Light grey. Low plasticity. (Hinuera Formation)	M		
						SP: Fine to medium SAND: with some silt. Light grey streaked orange brown. Poorly graded. Subangular. (Hinuera Formation)			
				1		... at 0.90m, becoming orange brown. Thin band of fine to coarse sand	W		
						SW: Fine to coarse SAND: with some silt. Grey with brownish grey. Well graded. Subangular. (Hinuera Formation)			
						... at 1.50m, becoming light grey, with small silt pockets.			
				2		SW: Silty Fine to coarse SAND: light grey. Well graded. Subangular. Dilatant. (Hinuera Formation)	S		
						... at 1.90m, containing pickets of silt: grey.			
	2.4	Peak = 44kPa Residual = 29kPa				OL: Organic SILT: with minor clay. Dark brown streaked light grey. Low plasticity. Insensitive. Amorphous. (Hinuera Formation)		F	
						... from 2.45m to 2.50m, band of light grey silt.			
						SP: Silty Fine to medium SAND: with minor fine pumiceous gravel. Grey. Poorly graded. Subangular. (Hinuera Formation)			
						... from 2.50m to 2.80m, containing interbedded layers of silt: grey.			
				3		... at 2.80m, becoming grey with yellowish brown, containing some pumiceous fine gravel.			
						Borehole terminated at 3.1 m			
				4					
				5					

Termination Reason: Hole collapse due to groundwater.
Shear Vane No: 2955 DCP No:
Remarks: Groundwater encountered at 1.5m

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-17

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 05/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 487339.2mE; 694655.7mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm) 5 10 15
				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			
						ML: SILT: with some clay. Orange. Low plasticity. (Hinuera Formation)			
				1		SW: Fine to coarse SAND : with minor fine gravels. Grey mottled black. Well graded. (Hinuera Formation)	M		
				2					
				3		Borehole terminated at 3.0 m			
				4					
				5					

Termination Reason: Target depth reached.
Shear Vane No: DCP No:
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-18

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 05/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 487256.1mE; 694625.7mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			
						ML: Clayey SILT: orange brown. Low plasticity. (Hinuera Formation)			
				1		SW: Fine to coarse SAND: with minor fine gravels. Orange grey and black. Well graded. (Hinuera Formation)	M		
				2		*... from 2.10m to 2.20m, becoming fine to medium sand.*			
						... from 2.20m to 2.30m, becoming dark orange.			
						... at 2.60m, becoming grey.	W		
				3		Borehole terminated at 3.0 m			
				4					
				5					

Dynamic Cone Penetrometer (Blows/100mm): 5, 10, 15

Termination Reason: Target depth reached.
Shear Vane No: DCP No:
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-19

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 05/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 487216.6mE; 694671.3mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm) 5 10 15
05-12-2024				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			
						ML: Clayey SILT: orange brown. Low plasticity. (Hinuera Formation)			
				1		SW: Fine to coarse SAND : with minor fine gravel. Orange brown. Well graded. (Hinuera Formation)			
						... at 1.30m, becoming light yellowish grey and black.	M		
				2		*... from 2.80m to 3.00m, becoming grey.*	W		
				3		Borehole terminated at 3.0 m			
				4					
				5					

Termination Reason: Target depth reached.
Shear Vane No: DCP No:
Remarks: Groundwater encountered at 3.0m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-20

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 05/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 487008.8mE; 695148.7mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
05-12-2024				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			
						ML: SILT: with some clay. Light brown. Low plasticity. (Hinuera Formation)			
						... at 0.60m, becoming light grey streaked orange.	M		
				1		SP: Silty fine to medium SAND: orange grey. Poorly graded. (Hinuera Formation)			
						SP: Fine to medium SAND: with some silt. Light yellowish grey. Poorly graded. (Hinuera Formation)	W		
						ML: Fine sandy SILT: light grey. Low plasticity. (Hinuera Formation)	S		
						Borehole terminated at 1.8 m			
				2					
				3					
				4					
				5					

Dynamic Cone Penetrometer (Blows/100mm): 5, 10, 15

Termination Reason: Hole collapse due to groundwater.
Shear Vane No: DCP No:
Remarks: Groundwater encountered at 1.5m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-21

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 05/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 486972.7mE; 695214.8mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
05-12-2024 ▼				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			
						ML: SILT: with some clay. Light brown. Low plasticity. (Hinuera Formation)			
						... at 0.60m, becoming light grey streaked orange.			
						SP: Silty fine to medium SAND: light yellowish grey mottled orange. Poorly graded. (Hinuera Formation)	M		
				1		ML: Silty fine SAND: light grey. Poorly graded. (Hinuera Formation)			
						ML: SILT: with minor clay and trace fine sand. Light bluish grey. Low plasticity (Hinuera Formation)			
						... at 1.80m, containing tree root 1cm diameter.			
						... from 1.90m to 2.20m, becoming grey streaked brown with some black rootlets.	S		
				2		SW: Fine to coarse SAND: with some silt. Grey mottled brown. Well graded. (Hinuera Formation)			
						Borehole terminated at 2.3 m			
				3					
				4					
				5					

Dynamic Cone Penetrometer (Blows/100mm): 5, 10, 15

Termination Reason: Hope collapse due to groundwater.
Shear Vane No: DCP No:
Remarks: Groundwater encountered at 1.6m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-22

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 05/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 486954.6mE; 695278.2mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm) 5 10 15
05-12-2024 ▼				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			
						ML: SILT: with some clay. Light brown streaked orange. Low plasticity. (Hinuera Formation)			
						... at 0.50m, with some fine sand.	M		
				1		SP: Silty fine to medium SAND: light grey mottled orange. Poorly graded. (Hinuera Formation)			
						SP: Fine SAND: with minor silt. Light bluish grey. Poorly graded. (Hinuera Formation)			
						ML: SILT: with minor fine sand. Light bluish grey. Low plasticity. (Hinuera Formation)	S		
						... at 1.80m, becoming light grey and with trace rootlets.			
				2		SW: Fine to coarse SAND: with trace silt. Brownish grey. Well graded. (Hinuera Formation)			
						Borehole terminated at 2.1 m			
				3					
				4					
				5					

Termination Reason: Hole collapse due to groundwater.
Shear Vane No: DCP No:
Remarks: Groundwater encountered at 1.4m.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-23

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 05/12/2024
Borehole Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 487897.7mE; 694612.8mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm) 5 10 15
				0		OL: Organic SILT: brown. Low plasticity. (Topsoil)			
						ML: SILT: with trace clay and fine sand. light brown. Low plasticity. (Hinuera Formation)			
				1		CL: Silty CLAY: with trace sand. Brown. Low plasticity. (Hinuera Formation)			
						ML: Clayey SILT: with minor fine sand. Light brownish grey. Low plasticity. (Hinuera Formation)	M		
				2		ML: Fine sandy SILT: light yellowish grey. Low plasticity. (Hinuera Formation) *... from 2.20m to 2.70m, becoming clayey silt.*			
				3		SP: Fine SAND: with minor silt. Light grey. Poorly graded. (Hinuera Formation) *... at 3.20m, sand becoming fine to medium.*			
						Borehole terminated at 3.6 m			
				4					
				5					

Termination Reason: Target depth reached.
Shear Vane No: DCP No:
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

HAND AUGER BOREHOLE LOG - SOA24-24

Client: Maven Associates Ltd
Project: Station Road
Site Location: Station Road, Matamata
Project No.: HAM2023-0124
Date: 05/12/2024
Borehole Location: Refer to Site Plan Logged by: LA Checked by: MM Scale: 1:25 Sheet 1 of 1

CMW Geosciences
Great People | Practical Solutions

Position: 487944.3mE; 694488.3mN Projection: Mt Eden 2000
Datum: Moturiki 1953 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm) 5 10 15
				0		OL: Organic SILT: black. No plasticity. (Topsoil)			
						ML: SILT: orange brown. Low plasticity. (Hinuera Formation)			
				1		ML: fine sandy SILT.: light orange brown. Low plasticity (Hinuera Formation)			
						... at 1.40m, becoming light brownish grey			
				2		SP: Silty fine SAND: light brownish grey mottled light orange brown. Poorly graded, subrounded. (Hinuera Formation)	M		
				3		Borehole terminated at 3.5 m			
				4					
				5					

Termination Reason: Target depth
Shear Vane No: DCP No:
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 4 - April 2023.

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	NK
	PROJECT: **Station Road, Matamata**	CHECKED:	AS
		REVISION:	1
	TITLE: **SOA23-01 Falling Head Permeability Test**	DATE:	24/11/2023
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	0.8	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

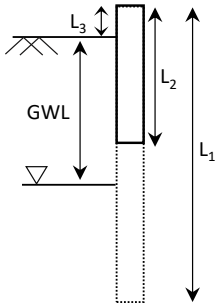
Ground Conditions

GWL: 1 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 0.80 m BGL



Hydraulic Conductivity (k)

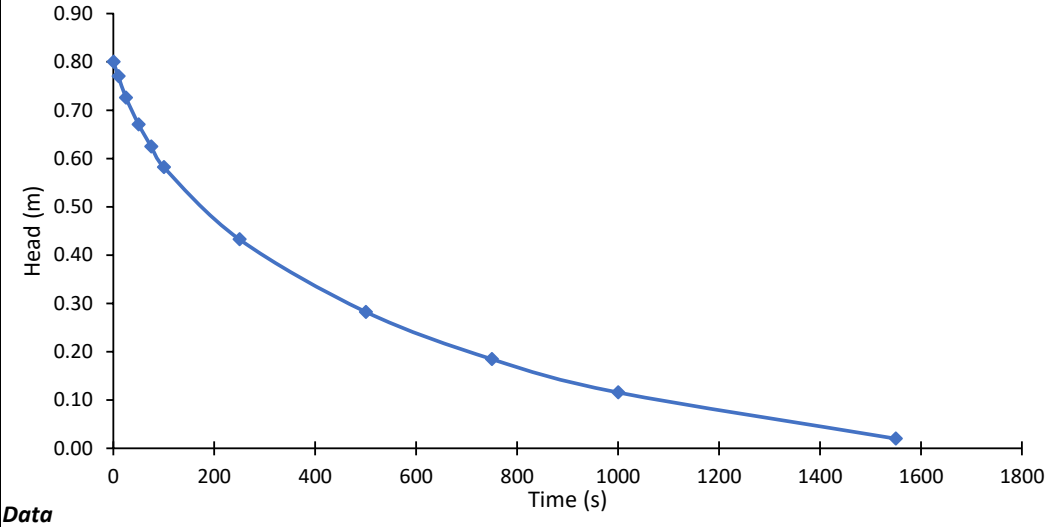
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 4.74E-05 ms^{-1} = 4.10 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 1.47E-05 ms^{-1} = 1.27 m/day



STRATIGRAPHIC LOG

Silt

Sand

EOH @ 1m

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	0.800				
10	0.030	0.770	0.785		1.41E-05	7.04E-05
25	0.074	0.726	0.748		1.49E-05	7.23E-05
50	0.129	0.671	0.698		1.26E-05	5.83E-05
75	0.175	0.625	0.648		1.19E-05	5.20E-05
100	0.218	0.582	0.603		1.24E-05	5.18E-05
250	0.368	0.433	0.507		9.59E-06	3.59E-05
500	0.518	0.283	0.358		1.01E-05	3.03E-05
750	0.616	0.184	0.234		1.24E-05	2.86E-05
1000	0.684	0.116	0.150		1.62E-05	2.88E-05
1550	0.780	0.020	0.068		3.31E-05	4.55E-05

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	NK
	PROJECT: **Station Road, Matamata**	CHECKED:	AS
		REVISION:	1
	TITLE: **SOA23-02 Falling Head Permeability Test**	DATE:	24/11/2023
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	2	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

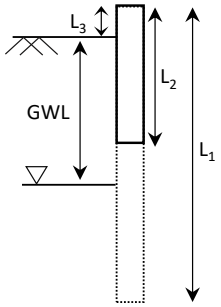
Ground Conditions

GWL: 2 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 2.00 m BGL



Hydraulic Conductivity (k)

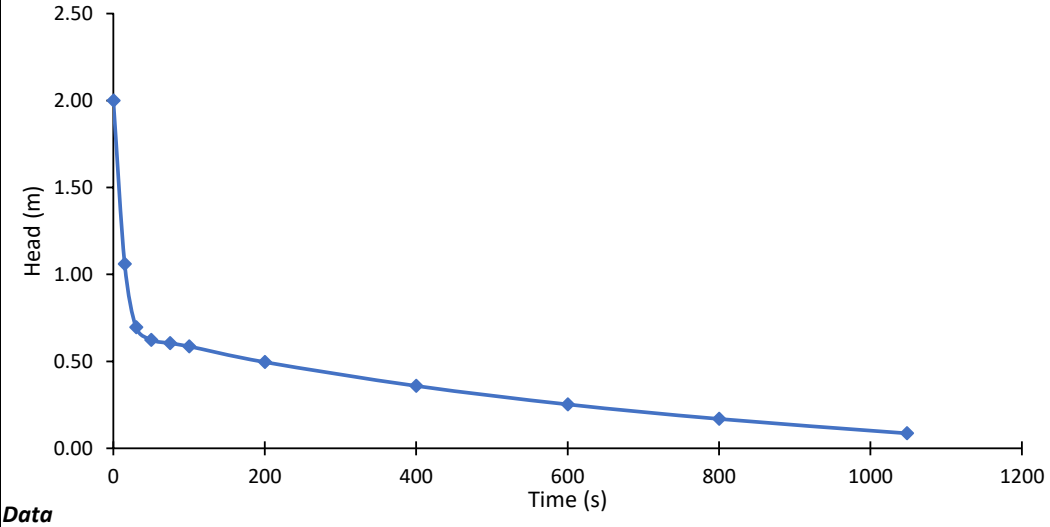
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

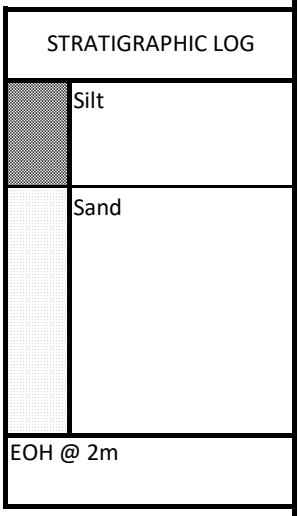
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 1.70E-04 ms^{-1} = 14.70 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 2.96E-05 ms^{-1} = 2.56 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	2.000				
15	0.941	1.060	1.530		9.89E-05	8.57E-04
30	1.305	0.695	0.878		9.63E-05	5.36E-04
50	1.376	0.624	0.660		2.25E-05	1.00E-04
75	1.396	0.604	0.614		5.52E-06	2.33E-05
100	1.414	0.586	0.595		5.24E-06	2.16E-05
200	1.504	0.496	0.541		7.82E-06	3.04E-05
400	1.641	0.359	0.427		8.67E-06	2.90E-05
600	1.747	0.253	0.306		1.13E-05	3.04E-05
800	1.831	0.169	0.211		1.53E-05	3.30E-05
1048	1.914	0.086	0.128		2.47E-05	4.10E-05

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	NK
	PROJECT: **Station Road, Matamata**	CHECKED:	AS
		REVISION:	1
	TITLE: **SOA23-03 Falling Head Permeability Test**	DATE:	24/11/2023
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	2	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

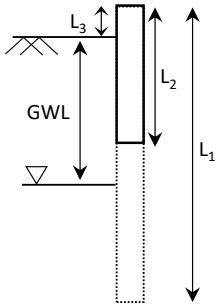
Ground Conditions

GWL: 2 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 2.00 m BGL



Hydraulic Conductivity (k)

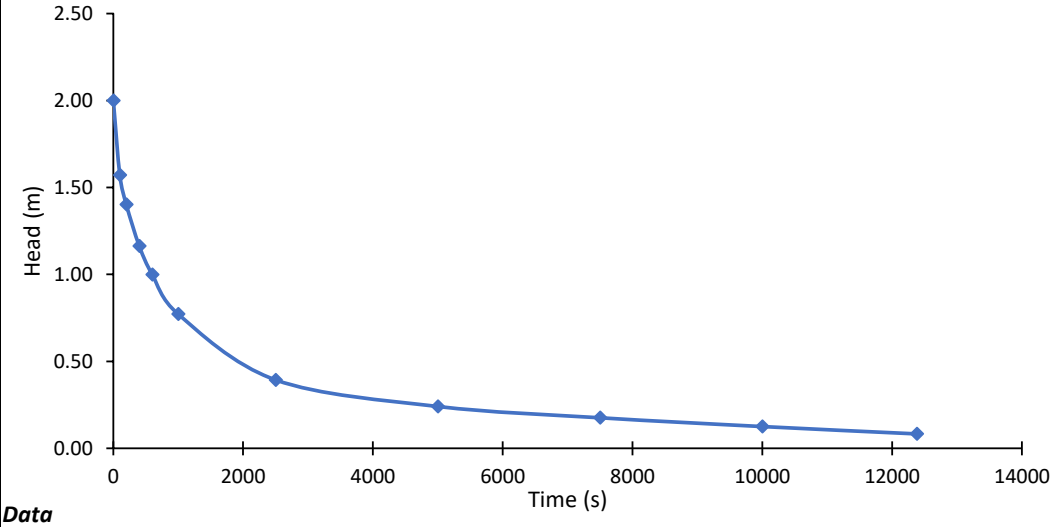
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d}\right).\frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 1.31E-05 ms^{-1} = 1.13 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2\, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1}\right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 2.17E-06 ms^{-1} = 0.19 m/day



STRATIGRAPHIC LOG

Silt

Sand

EOH @ 2m

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	2.000				
100	0.429	1.571	1.785		5.04E-06	4.65E-05
200	0.599	1.401	1.486		2.72E-06	2.17E-05
400	0.837	1.163	1.282		2.47E-06	1.77E-05
600	1.001	0.999	1.081		2.26E-06	1.43E-05
1000	1.229	0.771	0.885		2.21E-06	1.22E-05
2500	1.607	0.393	0.582		2.00E-06	8.70E-06
5000	1.759	0.241	0.317		1.24E-06	3.48E-06
7500	1.824	0.176	0.208		9.65E-07	2.05E-06
10000	1.875	0.125	0.150		1.17E-06	2.06E-06
12380	1.917	0.083	0.104		1.67E-06	2.41E-06

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	NK
	PROJECT: **Station Road, Matamata**	CHECKED:	AS
		REVISION:	1
	TITLE: **SOA23-04 Falling Head Permeability Test**	DATE:	24/11/2023
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	0.8	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

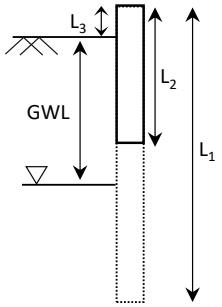
Ground Conditions

GWL: 1 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 1.00 m BGL



Hydraulic Conductivity (k)

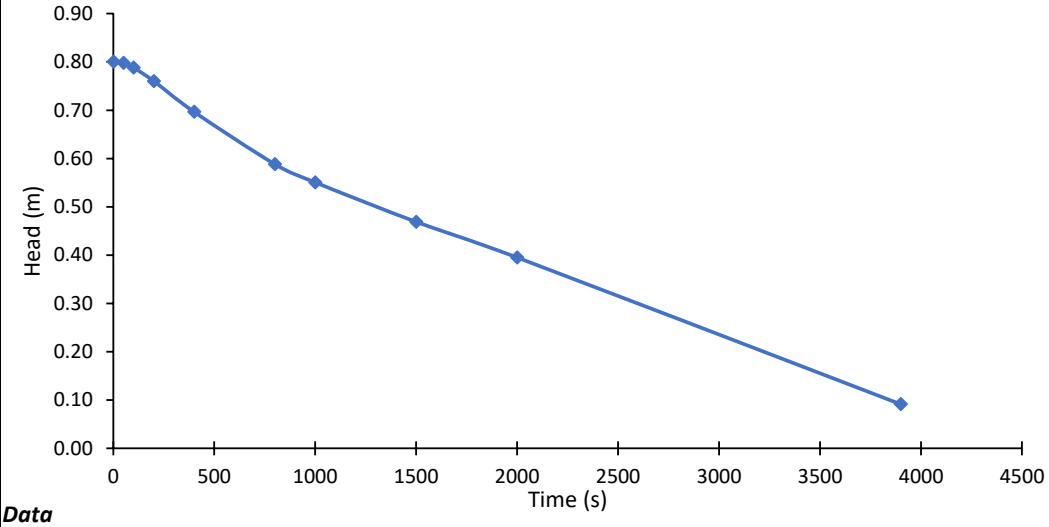
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 5.73E-06 ms^{-1} = 0.50 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 1.35E-06 ms^{-1} = 0.12 m/day



STRATIGRAPHIC LOG

Silt

Sand

EOH @ 3m

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	0.800				
50	0.002	0.798	0.799		1.83E-07	9.26E-07
100	0.012	0.788	0.793		9.06E-07	4.57E-06
200	0.040	0.760	0.774		1.35E-06	6.68E-06
400	0.104	0.697	0.728		1.70E-06	8.06E-06
800	0.212	0.588	0.642		1.77E-06	7.75E-06
1000	0.250	0.550	0.569		1.50E-06	6.00E-06
1500	0.331	0.469	0.510		1.56E-06	5.80E-06
2000	0.405	0.395	0.432		1.82E-06	6.08E-06
3000						
3900	0.709	0.091				

CMW Geosciences	CLIENT:	DESIGNER:	NK
	PROJECT: **124 Station Road, Matamata**	CHECKED:	DM
		REVISION:	0
	TITLE: **HAS24-05 Falling Head Permeability Test**	DATE:	10/06/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	1.4	m
Diameter:	90	mm
Non-Perm L_2:	0.5	m
Above Gnd L_3:	0	m

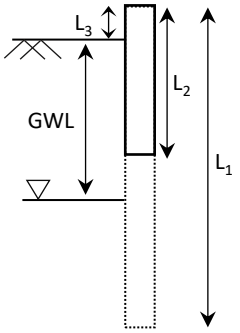
Ground Conditions

GWL: 1.4 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 1.40 m BGL



Hydraulic Conductivity (k)

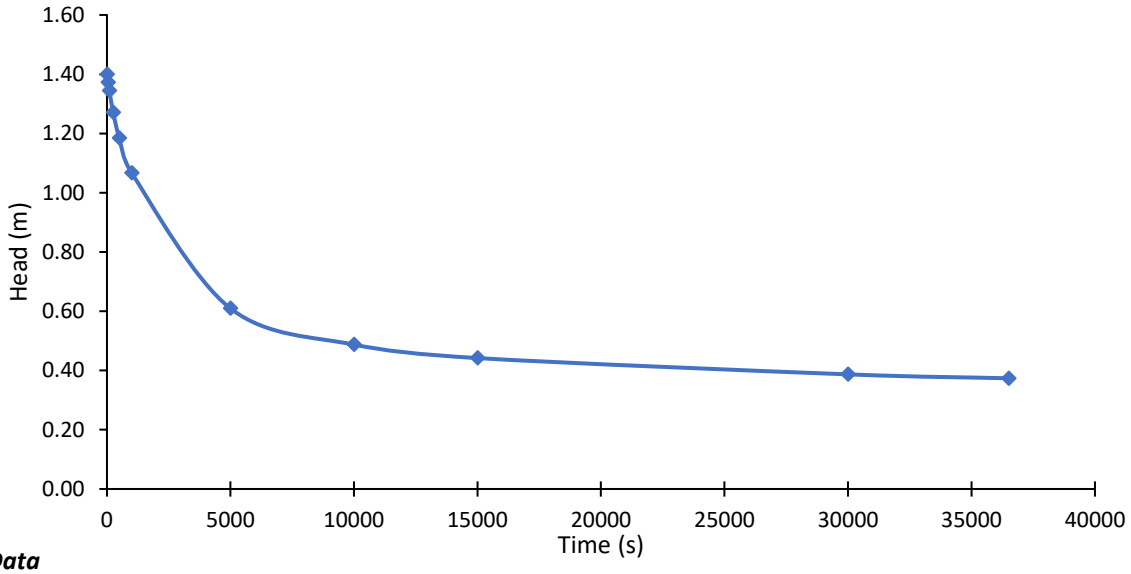
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

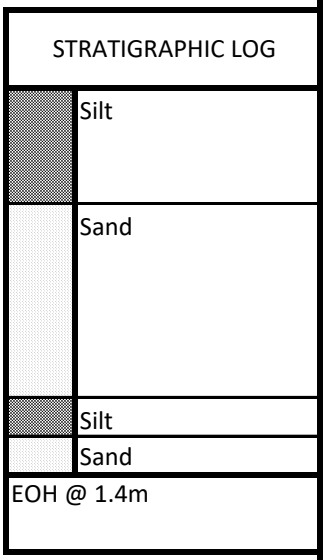
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 3.58E-06 ms^{-1} = 0.31 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 6.54E-07 ms^{-1} = 0.06 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.400				
50	0.027	1.373	0.900		1.32E-06	7.40E-06
100	0.056	1.344	0.900		1.42E-06	7.97E-06
250	0.129	1.271	0.900		1.26E-06	7.04E-06
500	0.216	1.184	0.900		9.56E-07	5.35E-06
1000	0.333	1.067	0.900		7.05E-07	3.93E-06
5000	0.791	0.609	0.838		4.95E-07	2.72E-06
10000	0.913	0.487	0.548		2.07E-07	8.13E-07
15000	0.958	0.442	0.465		9.99E-08	3.49E-07
30000	1.013	0.387	0.414		4.83E-08	1.57E-07
36510	1.026	0.374	0.380		3.07E-08	9.39E-08

CMW Geosciences	CLIENT:	DESIGNER:	NK
	PROJECT: **124 Station Road, Matamata**	CHECKED:	DM
		REVISION:	0
	TITLE: **HAS24-06 Falling Head Permeability Test**	DATE:	10/06/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	2.3	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

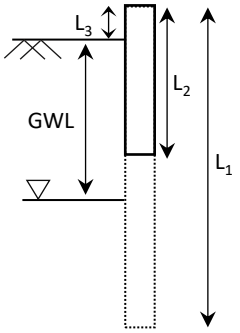
Ground Conditions

GWL: 2.2 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 2.30 m BGL



Hydraulic Conductivity (k)

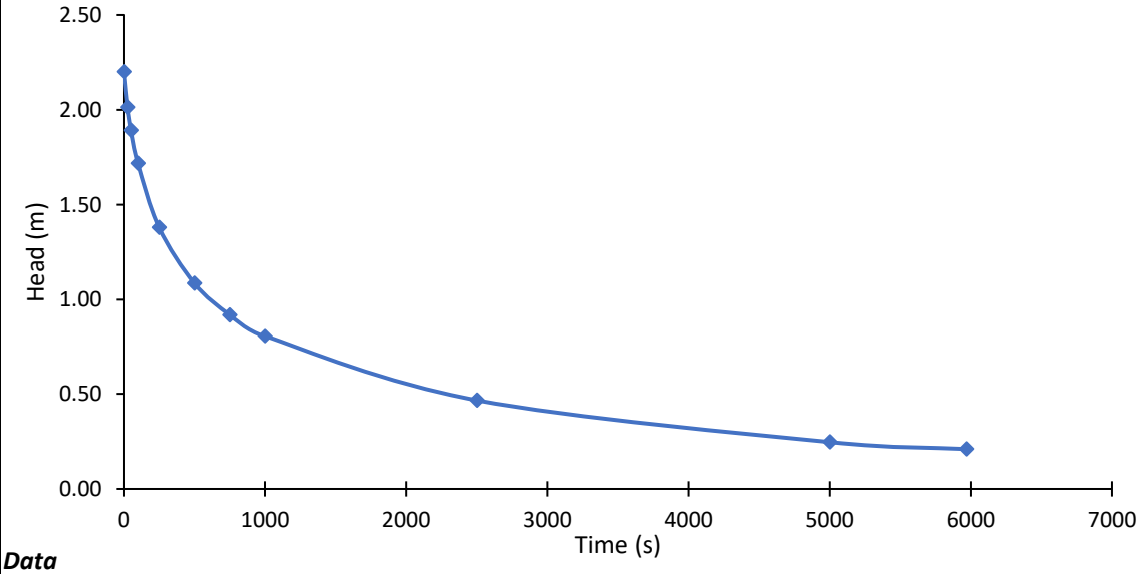
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

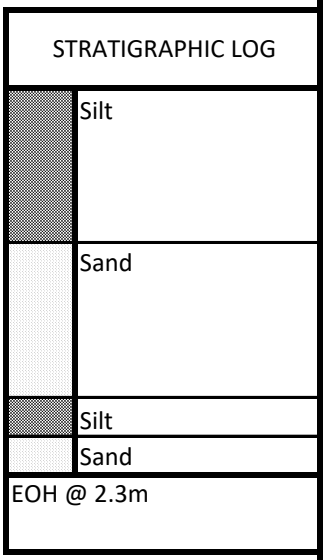
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 2.35E-05 ms^{-1} = 2.03 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 2.80E-06 ms^{-1} = 0.24 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	2.200				
25	0.186	2.014	2.207		6.32E-06	6.78E-05
50	0.308	1.892	2.053		4.71E-06	4.77E-05
100	0.483	1.718	1.905		3.85E-06	3.69E-05
250	0.820	1.380	1.649		3.23E-06	2.80E-05
500	1.114	1.086	1.333		2.46E-06	1.82E-05
750	1.280	0.920	1.103		1.96E-06	1.25E-05
1000	1.395	0.805	0.963		1.71E-06	9.90E-06
2500	1.734	0.466	0.736		1.40E-06	6.95E-06
5000	1.954	0.246	0.456		1.32E-06	4.68E-06
5970	1.990	0.210	0.328		1.03E-06	2.72E-06

CMW Geosciences	CLIENT:	DESIGNER:	NK
	PROJECT: **124 Station Road, Matamata**	CHECKED:	DM
		REVISION:	0
	TITLE: **HAS24-07 Falling Head Permeability Test**	DATE:	10/06/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	1.5	m
Diameter:	90	mm
Non-Perm L_2:	0.5	m
Above Gnd L_3:	0	m

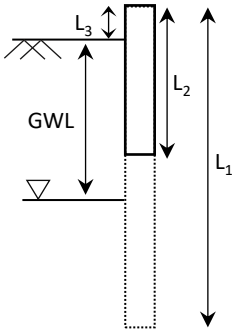
Ground Conditions

GWL: 1.4 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 1.50 m BGL



Hydraulic Conductivity (k)

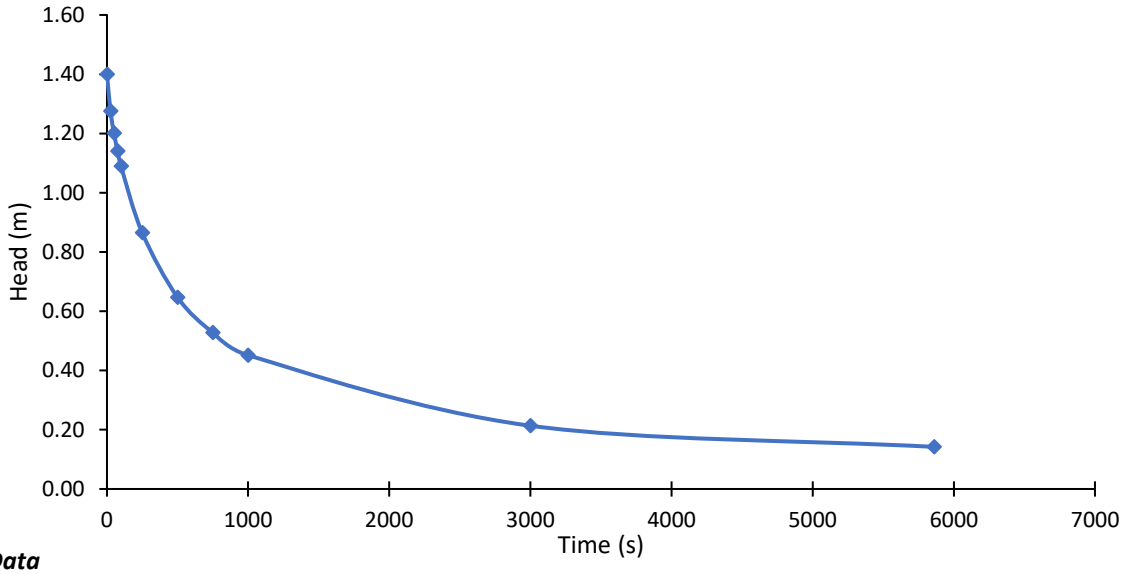
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 2.76E-05 ms^{-1} = 2.38 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 4.94E-06 ms^{-1} = 0.43 m/day



STRATIGRAPHIC LOG

Silt

Sand

EOH @ 1.5m

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.400				
25	0.125	1.275	1.000		1.17E-05	7.07E-05
50	0.199	1.201	1.000		7.58E-06	4.55E-05
75	0.260	1.140	1.000		6.49E-06	3.89E-05
100	0.311	1.089	1.000		5.79E-06	3.46E-05
250	0.535	0.865	1.000		4.83E-06	2.90E-05
500	0.753	0.647	0.856		4.04E-06	2.17E-05
750	0.873	0.527	0.687		3.29E-06	1.49E-05
1000	0.949	0.451	0.589		2.76E-06	1.12E-05
3000	1.187	0.213	0.432		1.99E-06	6.94E-06
5860	1.258	0.142	0.278		9.56E-07	2.26E-06

CMW Geosciences	CLIENT:	DESIGNER:	NK
	PROJECT: **124 Station Road, Matamata**	CHECKED:	DM
		REVISION:	0
	TITLE: **HAS24-08 Falling Head Permeability Test**	DATE:	10/06/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	3	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

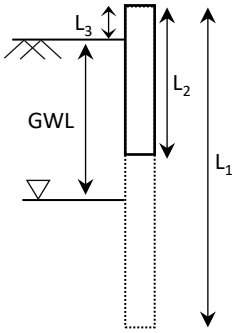
Ground Conditions

GWL: 3 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 3.00 m BGL



Hydraulic Conductivity (k)

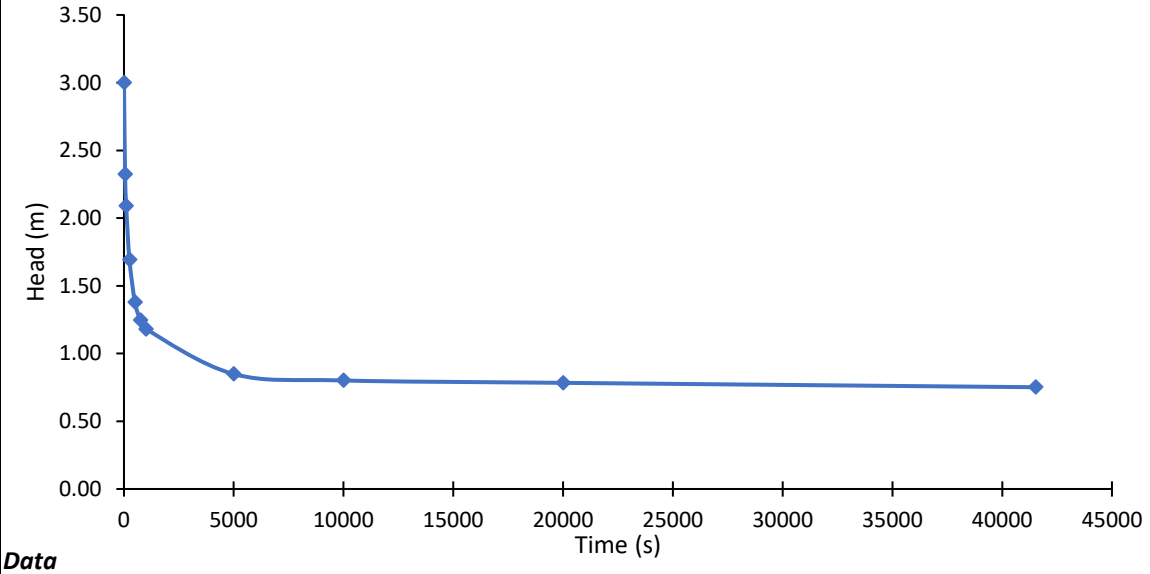
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

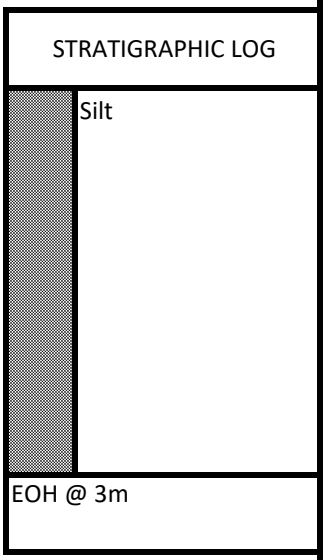
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 1.96E-05 ms^{-1} = 1.69 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 1.84E-06 ms^{-1} = 0.16 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	3.000				
50	0.676	2.325	2.662		7.92E-06	9.91E-05
100	0.909	2.091	2.208		3.78E-06	4.06E-05
250	1.307	1.693	1.892		2.82E-06	2.71E-05
500	1.621	1.379	1.536		1.91E-06	1.57E-05
750	1.754	1.246	1.312		1.06E-06	7.70E-06
1000	1.819	1.181	1.213		5.84E-07	4.00E-06
5000	2.151	0.849	1.015		2.57E-07	1.57E-06
10000	2.199	0.801	0.825		4.12E-08	2.14E-07
20000	2.216	0.784	0.792		8.10E-09	4.08E-08
41530	2.249	0.751	0.768		7.32E-09	3.61E-08

CMW Geosciences	CLIENT:	DESIGNER:	NK
	PROJECT: **124 Station Road, Matamata**	CHECKED:	DM
		REVISION:	0
	TITLE: **HAS24-09 Falling Head Permeability Test**	DATE:	10/06/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	3	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

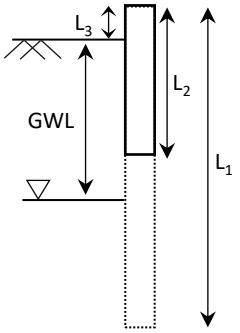
Ground Conditions

GWL: 3 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 3.00 m BGL



Hydraulic Conductivity (k)

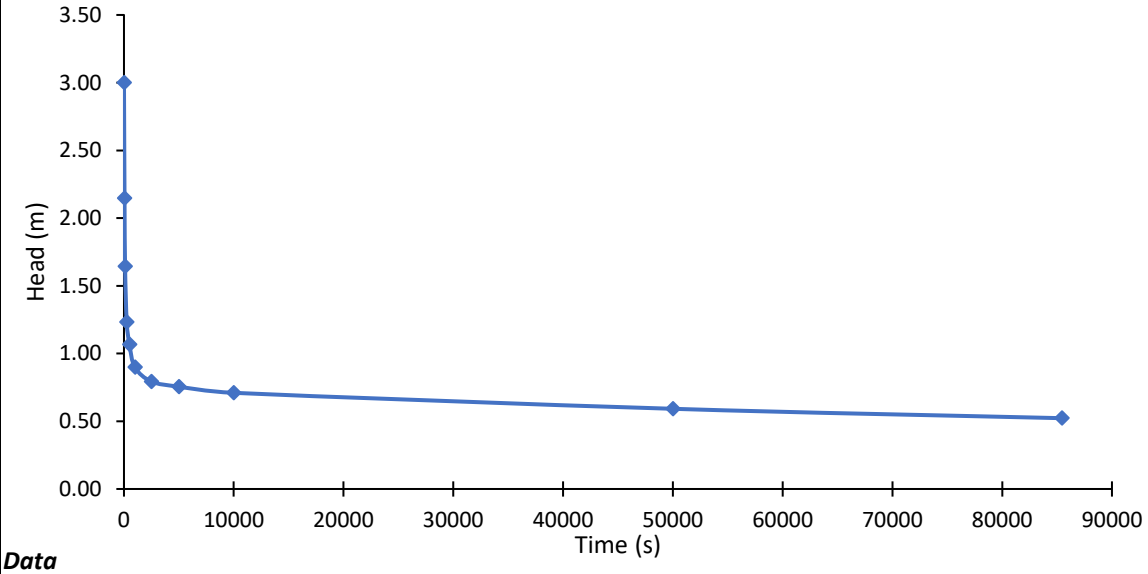
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

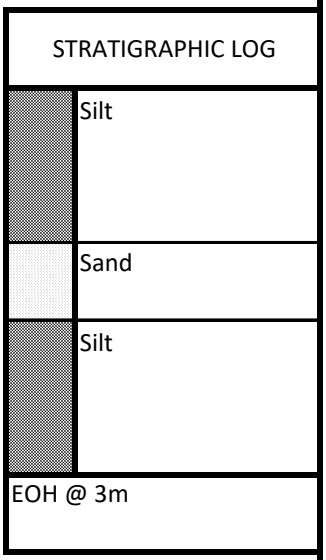
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 2.91E-05 ms^{-1} = 2.51 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 2.92E-06 ms^{-1} = 0.25 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	3.000				
50	0.853	2.147	2.573		1.07E-05	1.31E-04
100	1.357	1.644	1.895		1.07E-05	1.03E-04
250	1.767	1.233	1.438		4.68E-06	3.68E-05
500	1.934	1.066	1.149		1.66E-06	1.10E-05
1000	2.102	0.898	0.982		1.09E-06	6.43E-06
2500	2.207	0.793	0.846		2.91E-07	1.54E-06
5000	2.245	0.756	0.774		7.29E-08	3.62E-07
10000	2.290	0.710	0.733		4.80E-08	2.29E-07
50000	2.408	0.592	0.651		1.89E-08	8.35E-08
85440	2.477	0.523	0.557		1.61E-08	6.38E-08

CMW Geosciences	CLIENT:	DESIGNER:	NK
	PROJECT: **124 Station Road, Matamata**	CHECKED:	DM
		REVISION:	0
	TITLE: **HAS24-10 Falling Head Permeability Test**	DATE:	10/06/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	1.8	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

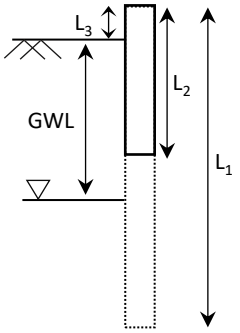
Ground Conditions

GWL: 1.8 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 1.80 m BGL



Hydraulic Conductivity (k)

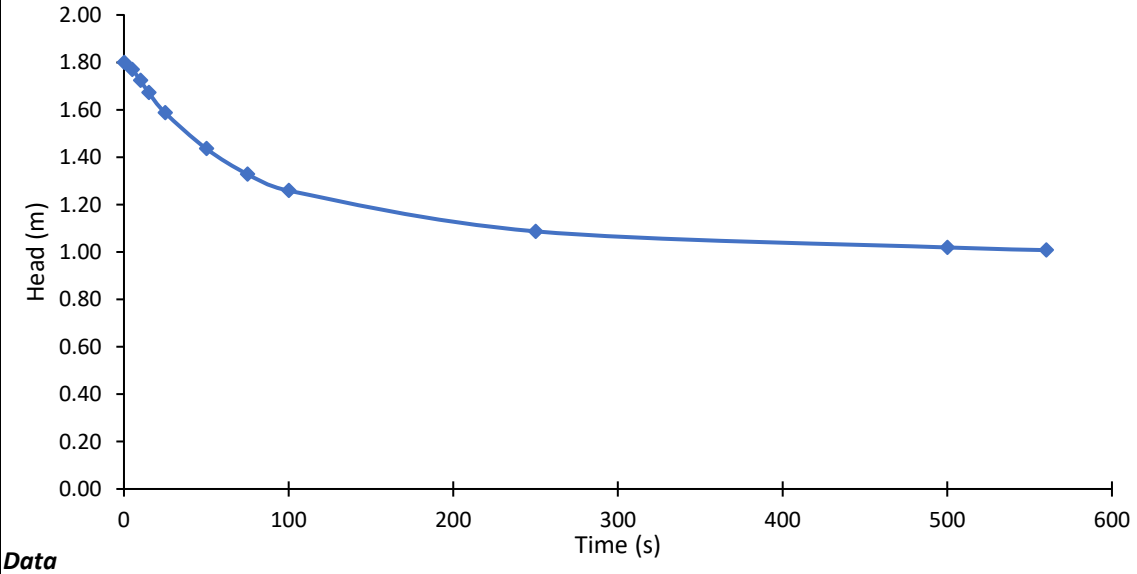
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 5.82E-05 ms^{-1} = 5.03 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 7.00E-06 ms^{-1} = 0.60 m/day



STRATIGRAPHIC LOG	
	Silt
	Sand
EOH @ 1.8m	

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.800				
5	0.031	1.769	1.785		7.19E-06	6.56E-05
10	0.077	1.723	1.746		1.12E-05	1.00E-04
15	0.127	1.673	1.698		1.30E-05	1.14E-04
25	0.213	1.587	1.630		1.17E-05	9.97E-05
50	0.364	1.436	1.511		9.45E-06	7.63E-05
75	0.472	1.328	1.382		7.81E-06	5.89E-05
100	0.541	1.259	1.293		5.67E-06	4.07E-05
250	0.713	1.087	1.173		2.75E-06	1.85E-05
500	0.781	1.019	1.053		7.83E-07	4.84E-06
560	0.792	1.008	1.013		5.74E-07	3.45E-06

CMW Geosciences	CLIENT:	DESIGNER:	NK
	PROJECT: **124 Station Road, Matamata**	CHECKED:	DM
		REVISION:	0
	TITLE: **HAS24-11 Falling Head Permeability Test**	DATE:	10/06/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	1.6	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

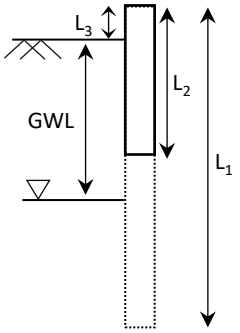
Ground Conditions

GWL: 1.4 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 1.60 m BGL



Hydraulic Conductivity (k)

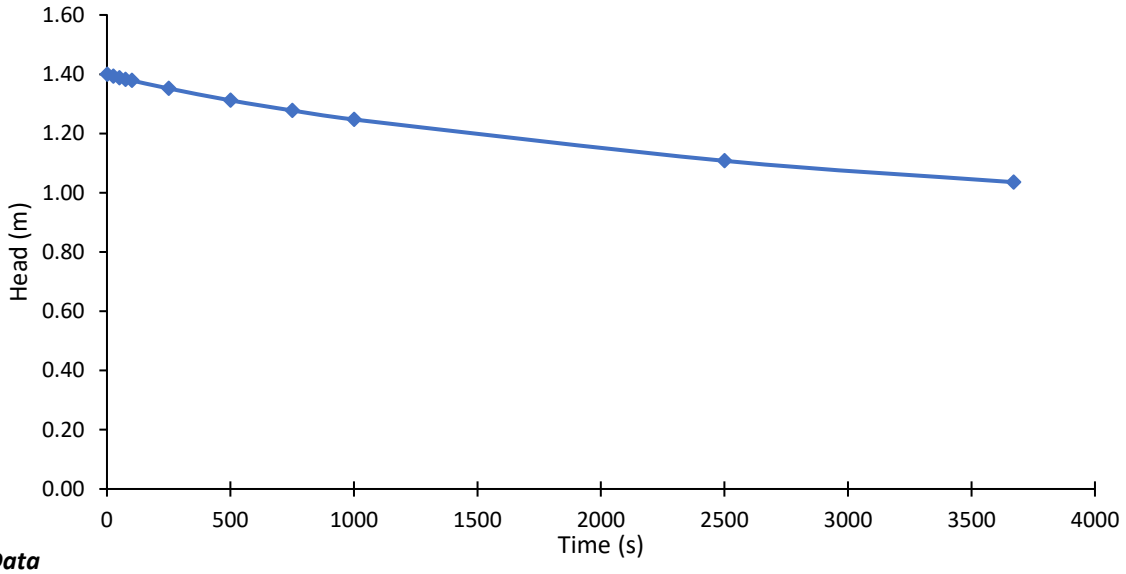
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 2.27E-06 ms^{-1} = 0.20 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 2.80E-07 ms^{-1} = 0.02 m/day



STRATIGRAPHIC LOG

Sand

EOH @ 1.6m

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.400				
25	0.007	1.393	1.597		4.41E-07	3.69E-06
50	0.013	1.387	1.590		3.99E-07	3.32E-06
75	0.018	1.383	1.585		3.02E-07	2.52E-06
100	0.021	1.379	1.581		2.44E-07	2.03E-06
250	0.048	1.352	1.565		3.03E-07	2.49E-06
500	0.088	1.312	1.532		2.82E-07	2.28E-06
750	0.122	1.278	1.495		2.49E-07	1.98E-06
1000	0.153	1.247	1.462		2.32E-07	1.82E-06
2500	0.292	1.108	1.377		1.99E-07	1.49E-06
3670	0.364	1.036	1.272		1.53E-07	1.08E-06

CMW Geosciences	CLIENT:	DESIGNER:	NK
	PROJECT: **124 Station Road, Matamata**	CHECKED:	DM
		REVISION:	0
	TITLE: **HAS24-12 Falling Head Permeability Test**	DATE:	10/06/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	3	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

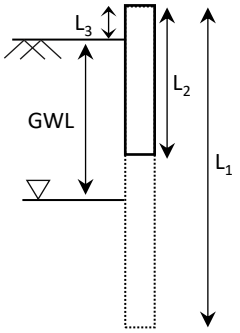
Ground Conditions

GWL: 3 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 3.00 m BGL



Hydraulic Conductivity (k)

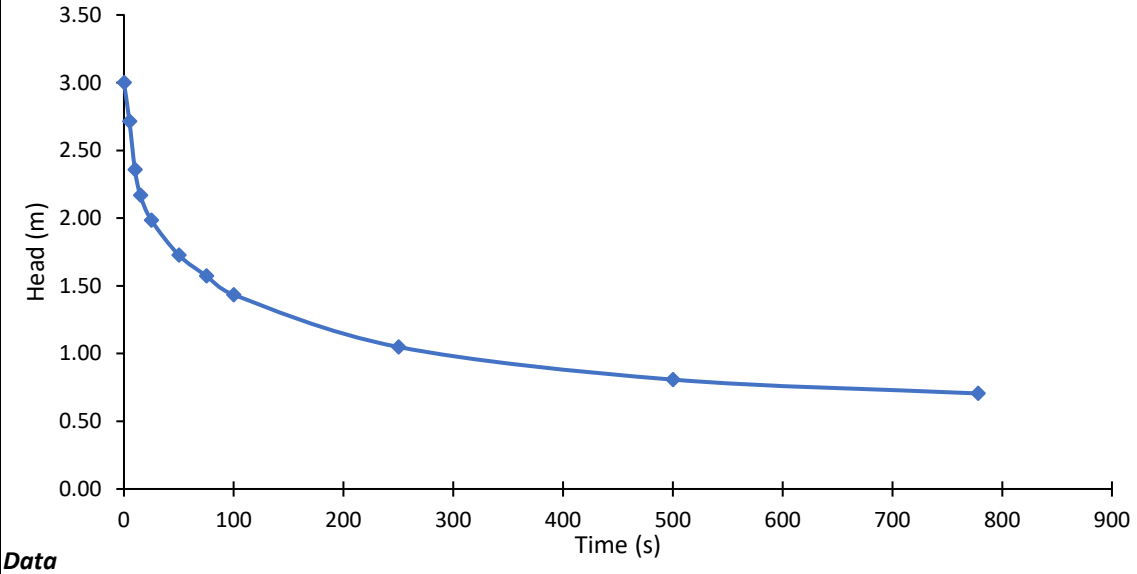
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d} \right) . \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 1.74E-04 ms^{-1} = 15.00 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{8L(t_2 - t_1)} ln\frac{H_1}{H_2} =$$ 1.60E-05 ms^{-1} = 1.38 m/day



STRATIGRAPHIC LOG

Silt

Sand

EOH @ 3m

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	3.000				
5	0.287	2.713	2.857		2.96E-05	3.87E-04
10	0.643	2.357	2.535		4.53E-05	5.42E-04
15	0.832	2.168	2.262		2.93E-05	3.21E-04
25	1.016	1.984	2.076		1.65E-05	1.70E-04
50	1.273	1.727	1.855		1.13E-05	1.06E-04
75	1.427	1.574	1.650		8.22E-06	7.08E-05
100	1.566	1.434	1.504		8.78E-06	7.06E-05
250	1.951	1.049	1.241		5.65E-06	4.00E-05
500	2.193	0.807	0.928		3.45E-06	1.97E-05
778	2.295	0.705	0.756		1.84E-06	9.01E-06

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO13 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	1.5	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

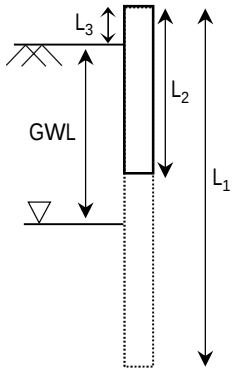
Ground Conditions

GWL: 1.2 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 1.50 m BGL



Hydraulic Conductivity (k)

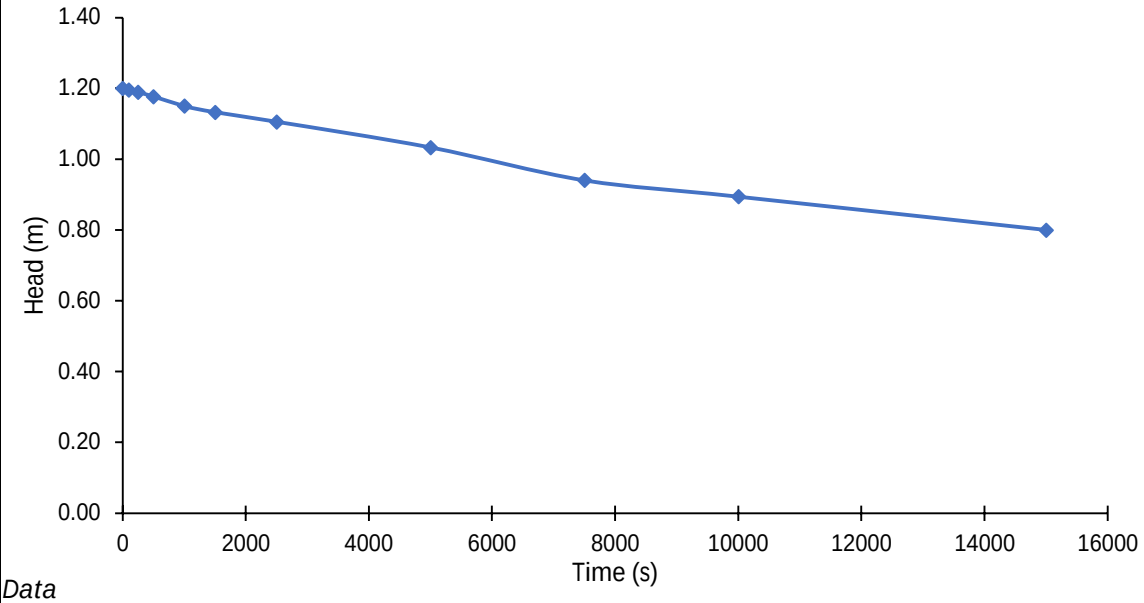
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d}\right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 6.00E-07 ms^{-1} = 0.05 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1}\right)}{2L} ln\frac{H_1}{\quad} =$$ 7.97E-08 ms^{-1} = 0.01 m/day



STRATIGRAPHIC LOG

Sandy Silt

Sand

EOH @ 1.5m

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.200				
100	0.004	1.196	1.498		7.52E-08	5.97E-07
250	0.011	1.189	1.493		9.03E-08	7.16E-07
500	0.023	1.177	1.483		1.00E-07	7.89E-07
1000	0.050	1.151	1.464		1.10E-07	8.57E-07
1500	0.067	1.133	1.442		7.51E-08	5.80E-07
2500	0.094	1.106	1.419		5.99E-08	4.57E-07
5000	0.167	1.033	1.369		6.85E-08	5.09E-07
7500	0.259	0.941	1.287		9.90E-08	7.02E-07
10000	0.306	0.894	1.218		5.55E-08	3.77E-07
15000	0.400	0.800	1.147		6.37E-08	4.14E-07

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO14 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	2.1	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

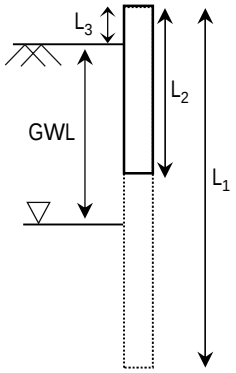
Ground Conditions

GWL: 1.7 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 2.10 m BGL



Hydraulic Conductivity (k)

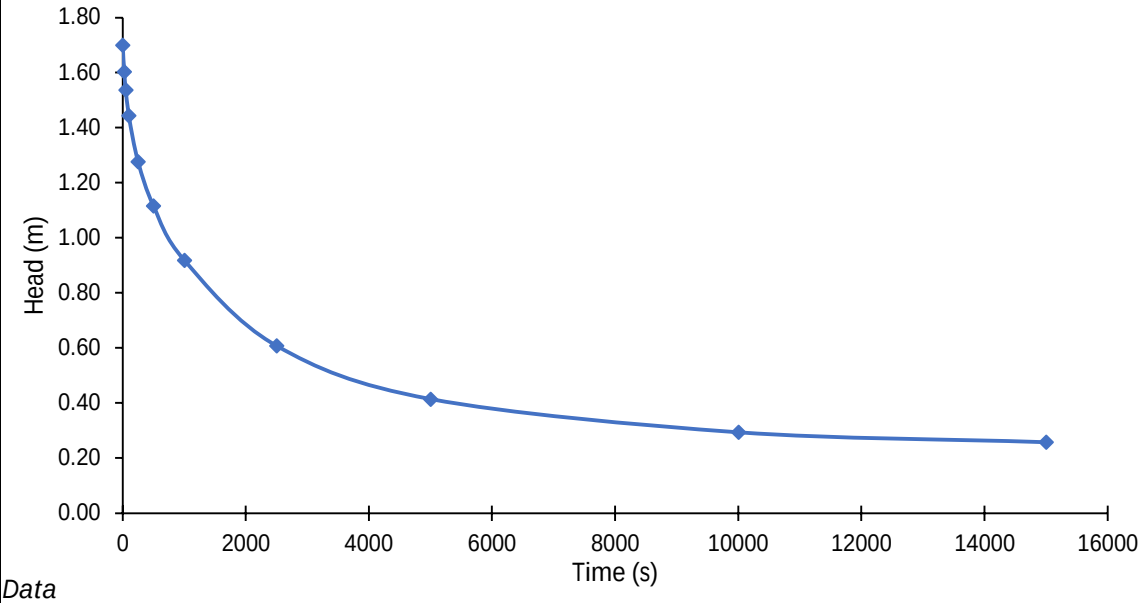
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

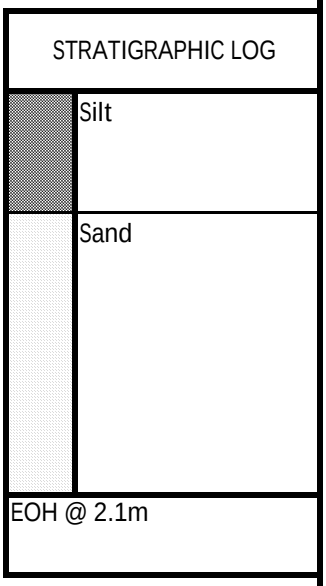
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d}\right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 1.43E-05 ms^{-1} = 1.23 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1}\right)}{2L \ln\frac{H_1}{H_2}} =$$ 1.57E-06 ms^{-1} = 0.14 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.700				
25	0.097	1.603	2.052		4.41E-06	4.45E-05
50	0.162	1.538	1.971		3.25E-06	3.18E-05
100	0.256	1.444	1.891		2.51E-06	2.38E-05
250	0.423	1.277	1.761		1.73E-06	1.56E-05
500	0.583	1.117	1.597		1.21E-06	1.01E-05
1000	0.781	0.919	1.418		9.58E-07	7.32E-06
2500	1.092	0.608	1.164		7.80E-07	5.22E-06
5000	1.285	0.415	0.911		5.12E-07	2.81E-06
10000	1.406	0.295	0.755		2.59E-07	1.21E-06
15000	1.442	0.259	0.677		1.06E-07	4.39E-07

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO15 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	3.1	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

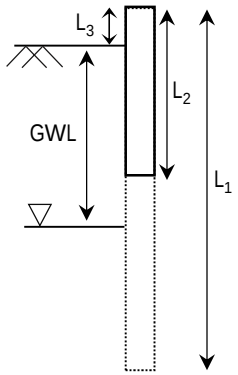
Ground Conditions

GWL: 1.5 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 2.10 m BGL



Hydraulic Conductivity (k)

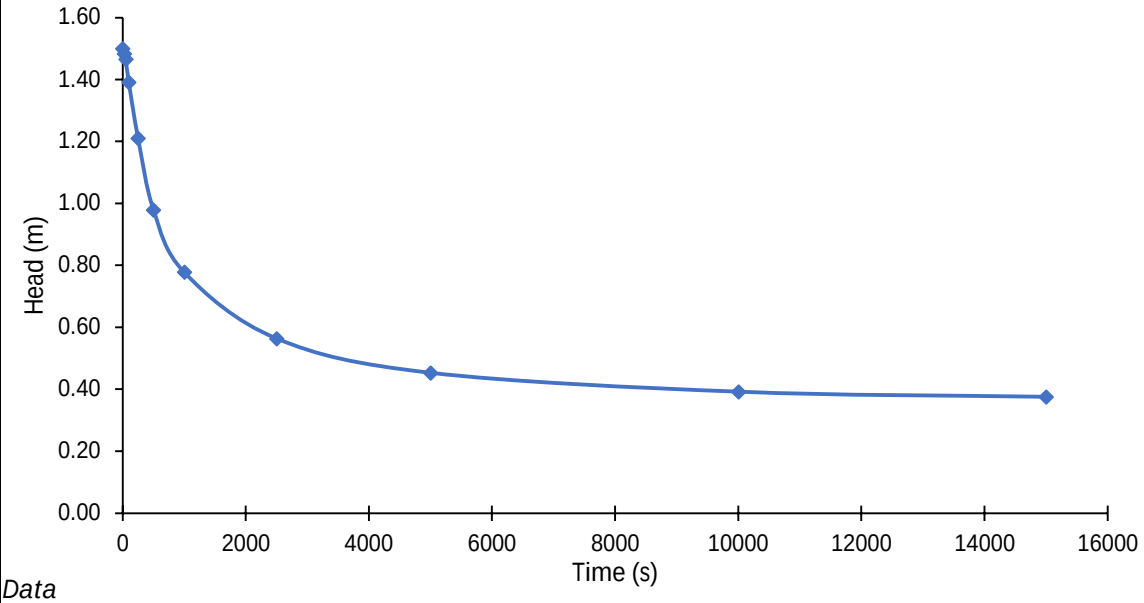
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

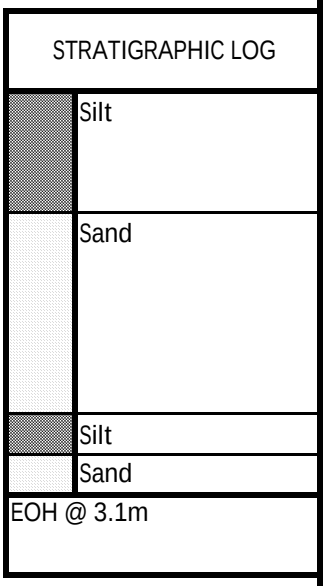
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d}\right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 8.57E-06 ms^{-1} = 0.74 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1}\right)}{2L \ln\frac{H_1}{H_2}} =$$ 6.76E-07 ms^{-1} = 0.06 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.500				
25	0.016	1.484	3.092		6.05E-07	8.29E-06
50	0.034	1.466	3.075		6.79E-07	9.26E-06
100	0.108	1.392	3.029		1.46E-06	1.96E-05
250	0.290	1.210	2.901		1.35E-06	1.76E-05
500	0.521	0.979	2.695		1.30E-06	1.60E-05
1000	0.722	0.778	2.479		7.52E-07	8.61E-06
2500	0.936	0.564	2.271		3.76E-07	4.00E-06
5000	1.046	0.454	2.109		1.61E-07	1.57E-06
10000	1.108	0.393	2.023		5.51E-08	5.13E-07
15000	1.124	0.376	1.984		1.69E-08	1.53E-07

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO16 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	3.3	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

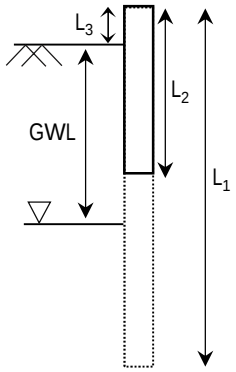
Ground Conditions

GWL: 1 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 3.30 m BGL



Hydraulic Conductivity (k)

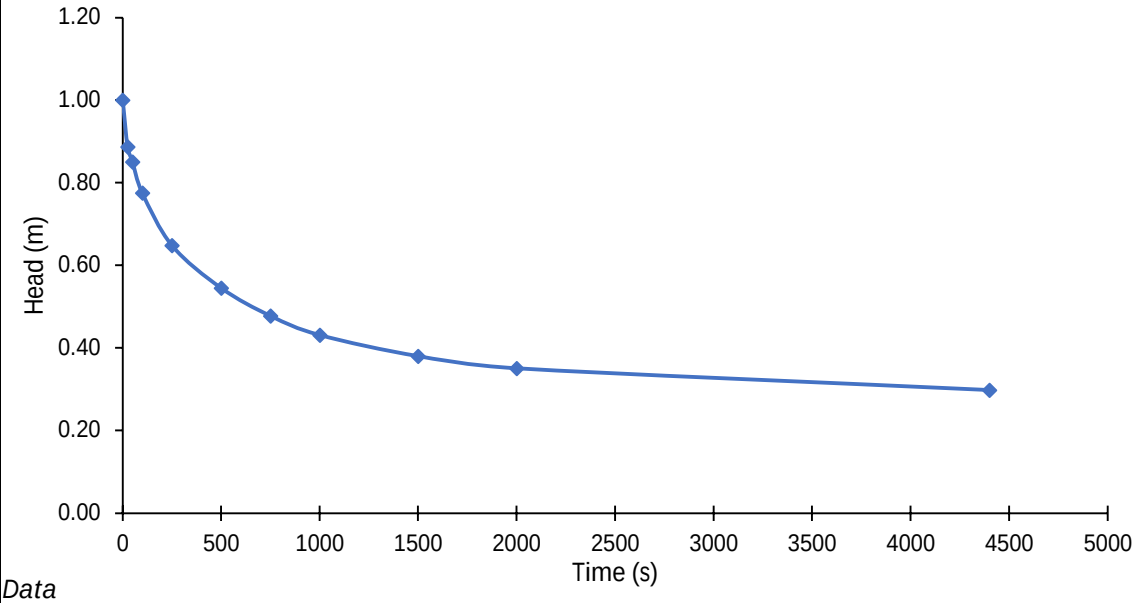
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log \frac{h_1}{h_2} - log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 2.15E-05 ms^{-1} = 1.86 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{2L} ln \frac{H_1}{H_2} =$$ 1.61E-06 ms^{-1} = 0.14 m/day



STRATIGRAPHIC LOG

- Silt
- Sand
- Silt
- Sand

EOH @ 3.3m

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.000				
25	0.113	0.887	3.244		6.41E-06	8.97E-05
50	0.149	0.851	3.169		2.26E-06	3.09E-05
100	0.225	0.775	3.113		2.57E-06	3.46E-05
250	0.352	0.648	3.012		1.69E-06	2.21E-05
500	0.455	0.545	2.897		1.01E-06	1.26E-05
750	0.522	0.478	2.812		7.83E-07	9.47E-06
1000	0.569	0.431	2.755		6.22E-07	7.32E-06
1500	0.620	0.380	2.706		3.87E-07	4.45E-06
2000	0.649	0.351	2.666		2.48E-07	2.78E-06
4400	0.702	0.298	2.625		1.07E-07	1.17E-06

CMW Geosciences	CLIENT: **Maven Associates Ltd'**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO17 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	1.5	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	-1.5	m

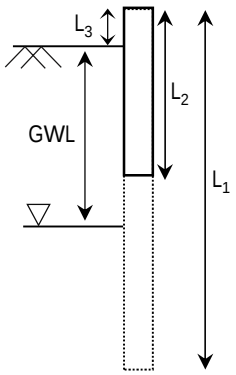
Ground Conditions

GWL: m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 3.00 m BGL



Hydraulic Conductivity (k)

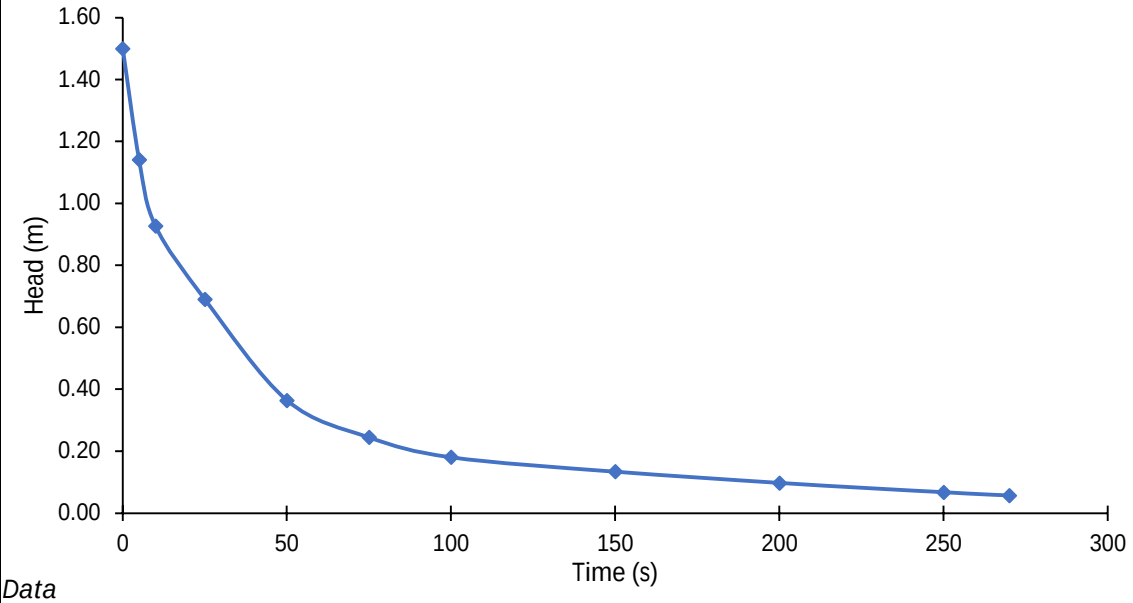
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

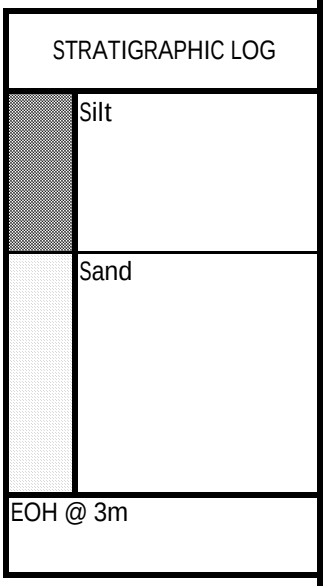
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log \frac{h_1}{h_2} - log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 3.53E-04 ms^{-1} = 30.49 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{2L \, ln \frac{H_1}{\ldots}} =$$ 9.26E-05 ms^{-1} = 8.00 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.500				
5	0.359	1.142	1.321		1.42E-04	1.04E-03
10	0.573	0.928	1.035		1.27E-04	7.83E-04
25	0.809	0.691	0.809		7.10E-05	3.68E-04
50	1.136	0.364	0.528		1.21E-04	4.89E-04
75	1.255	0.245	0.305		1.02E-04	2.76E-04
100	1.319	0.181	0.213		9.19E-05	1.98E-04
150	1.366	0.134	0.158		5.07E-05	9.14E-05
200	1.402	0.098	0.116		5.89E-05	8.96E-05
250	1.432	0.068	0.083		7.47E-05	9.51E-05
270	1.443	0.057	0.063		8.66E-05	9.40E-05

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO18 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	1.5	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	-1.5	m

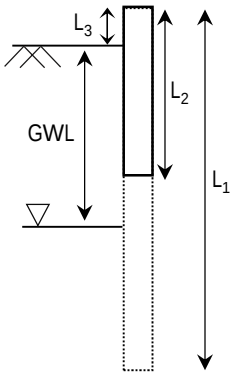
Ground Conditions

GWL: m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 3.00 m BGL



Hydraulic Conductivity (k)

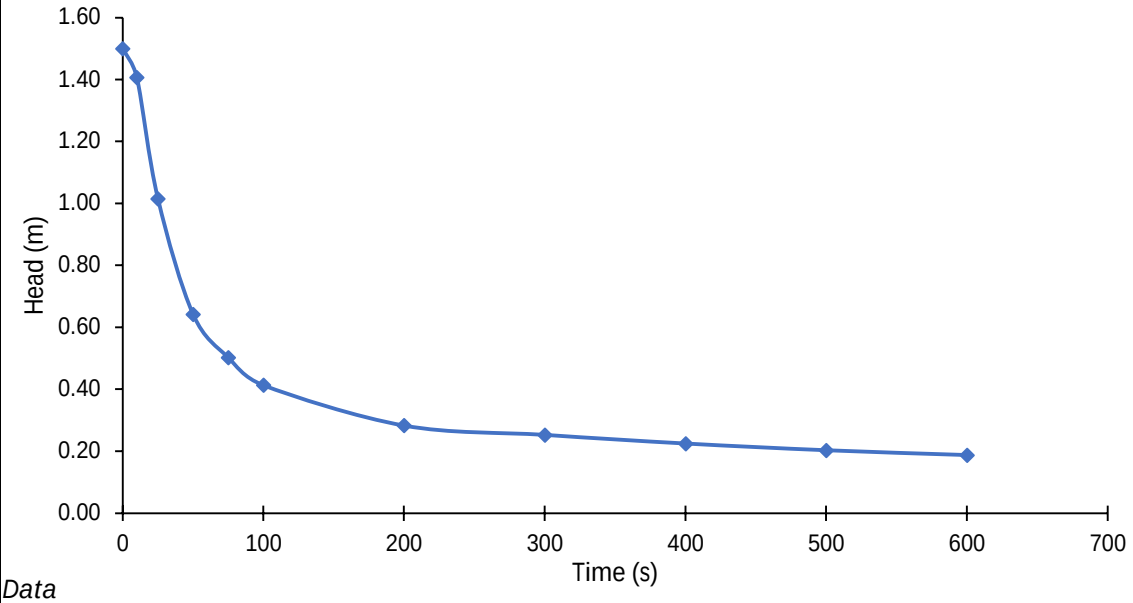
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

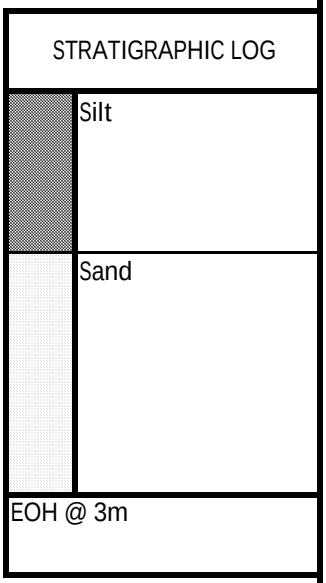
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d}\right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 1.34E-04 ms^{-1} = 11.59 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1}\right)}{2L \ln\frac{H_1}{H_2}} =$$ 2.78E-05 ms^{-1} = 2.40 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.500				
10	0.093	1.407	1.454		1.55E-05	1.21E-04
25	0.485	1.015	1.211		5.99E-05	4.17E-04
50	0.858	0.642	0.829		6.53E-05	3.51E-04
75	0.997	0.503	0.573		4.40E-05	1.78E-04
100	1.086	0.414	0.458		4.03E-05	1.40E-04
200	1.217	0.283	0.349		2.27E-05	6.67E-05
300	1.247	0.253	0.268		7.82E-06	1.92E-05
400	1.275	0.225	0.239		8.34E-06	1.90E-05
500	1.297	0.203	0.214		7.74E-06	1.65E-05
600	1.312	0.188	0.196		6.23E-06	1.26E-05

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO19 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	2	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	-1	m

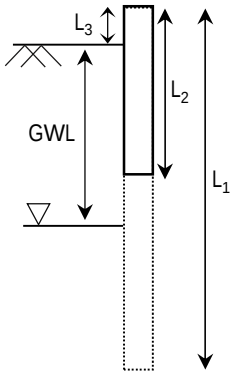
Ground Conditions

GWL: 3 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 3.00 m BGL



Hydraulic Conductivity (k)

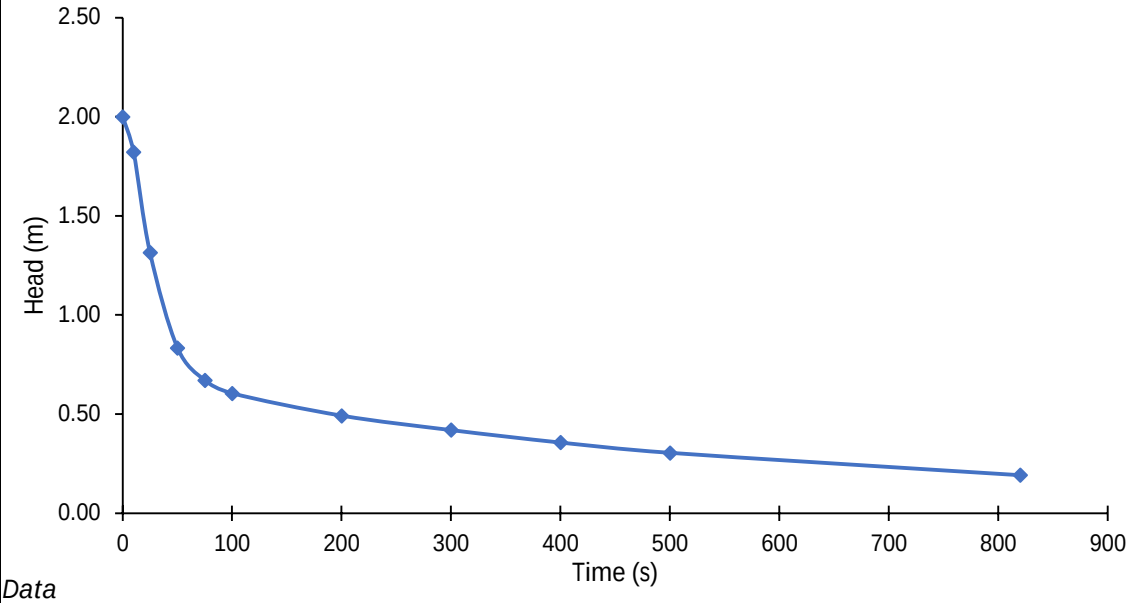
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

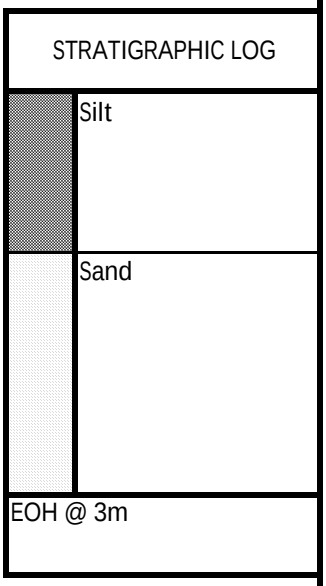
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log \frac{h_1}{h_2} - log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 1.33E-04 ms^{-1} = 11.53 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{2L} ln \frac{H_1}{\quad} =$$ 2.20E-05 ms^{-1} = 1.90 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	2.000				
10	0.178	1.822	1.911		1.85E-05	1.78E-04
25	0.685	1.315	1.568		4.98E-05	4.20E-04
50	1.166	0.834	1.075		5.45E-05	3.53E-04
75	1.329	0.671	0.753		3.30E-05	1.62E-04
100	1.395	0.605	0.638		1.74E-05	7.56E-05
200	1.508	0.492	0.549		9.58E-06	3.76E-05
300	1.580	0.420	0.456		8.15E-06	2.82E-05
400	1.643	0.357	0.389		9.21E-06	2.87E-05
500	1.695	0.305	0.331		9.78E-06	2.74E-05
820	1.808	0.192	0.248		1.02E-05	2.44E-05

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO20 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	1.8	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

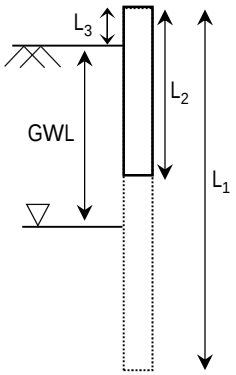
Ground Conditions

GWL: 1.5 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 1.80 m BGL



Hydraulic Conductivity (k)

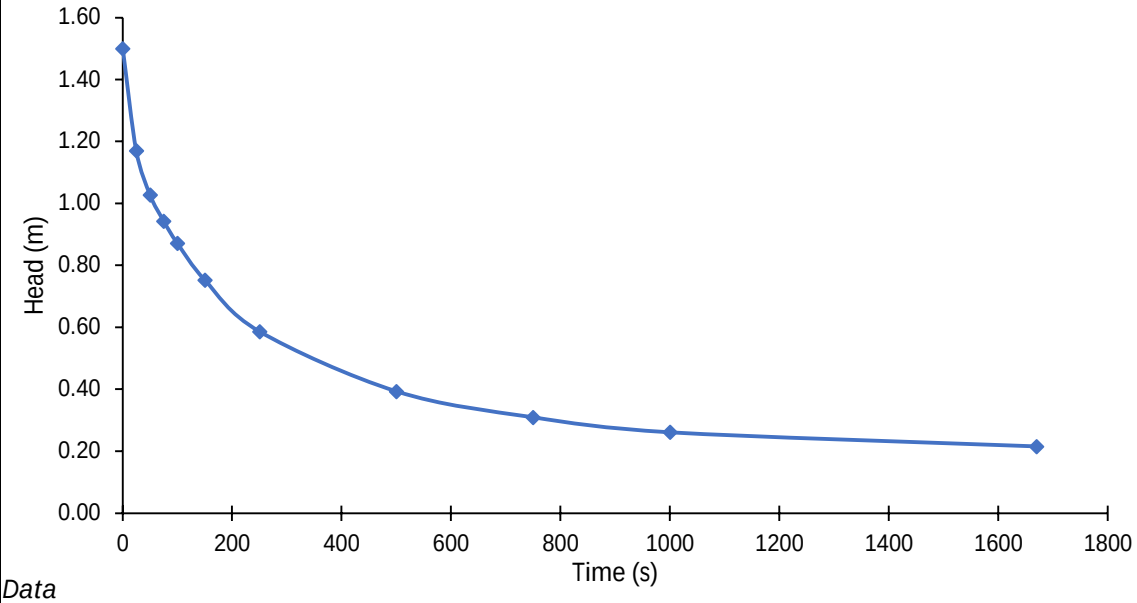
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

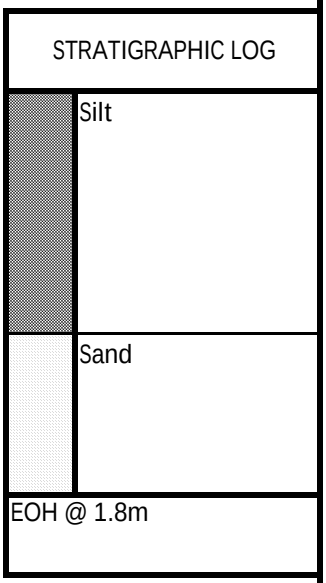
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log \frac{h_1}{h_2} - log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 5.73E-05 ms^{-1} = 4.95 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{2L} ln \frac{H_1}{\quad} =$$ 8.36E-06 ms^{-1} = 0.72 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.500				
25	0.330	1.170	1.635		2.21E-05	1.90E-04
50	0.472	1.028	1.399		1.29E-05	9.76E-05
75	0.557	0.943	1.286		9.10E-06	6.44E-05
100	0.629	0.871	1.207		8.72E-06	5.89E-05
150	0.747	0.753	1.112		8.51E-06	5.42E-05
250	0.913	0.587	0.970		8.02E-06	4.62E-05
500	1.106	0.394	0.790		5.87E-06	2.92E-05
750	1.190	0.310	0.652		3.98E-06	1.67E-05
1000	1.238	0.262	0.586		3.01E-06	1.15E-05
1670	1.284	0.216	0.539		1.35E-06	4.77E-06

CMW Geosciences	CLIENT: **Maven Associates Ltd'**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO21 Presoak Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	2.3	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

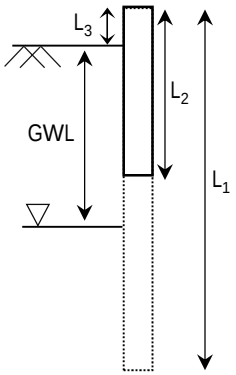
Ground Conditions

GWL: 1.6 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 2.30 m BGL



Hydraulic Conductivity (k)

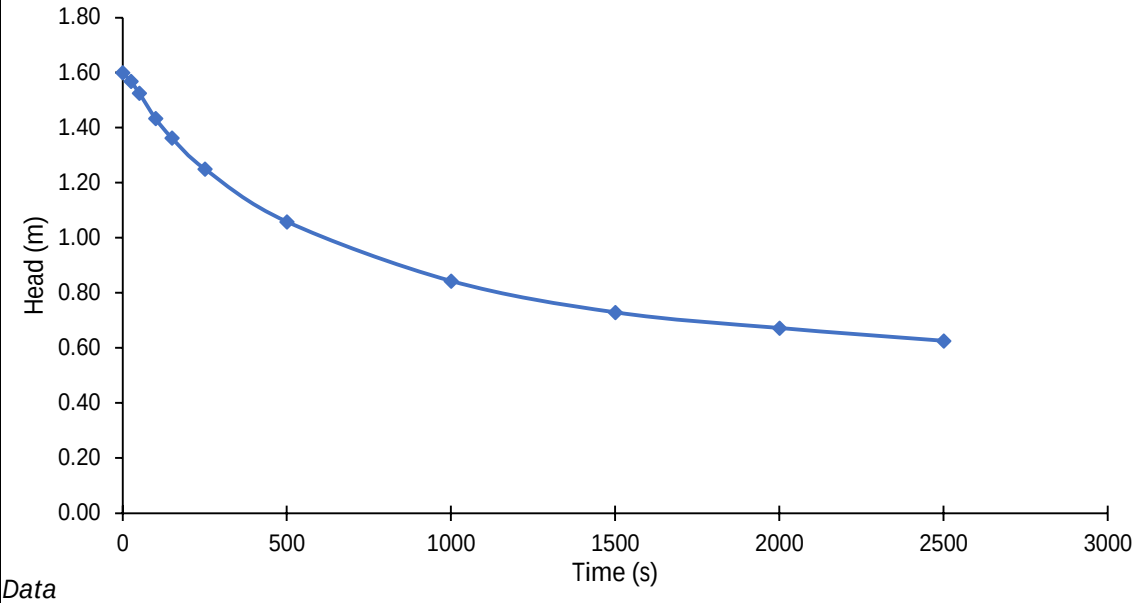
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

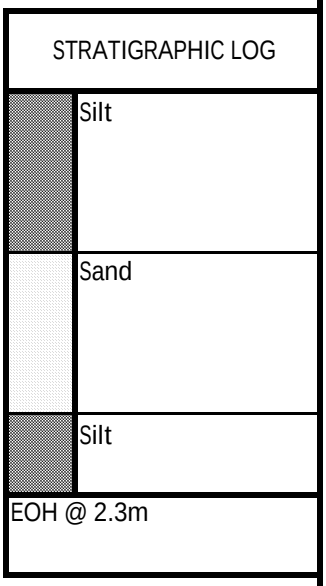
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d}\right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 1.27E-05 ms^{-1} = 1.10 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1}\right)}{2L} \ln\frac{H_1}{\ldots} =$$ 1.29E-06 ms^{-1} = 0.11 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.600				
25	0.032	1.568	2.284		1.39E-06	1.52E-05
50	0.074	1.526	2.247		1.91E-06	2.06E-05
100	0.166	1.434	2.180		2.24E-06	2.36E-05
150	0.237	1.363	2.099		1.90E-06	1.94E-05
250	0.350	1.250	2.007		1.65E-06	1.63E-05
500	0.541	1.059	1.854		1.35E-06	1.26E-05
1000	0.756	0.844	1.651		1.00E-06	8.53E-06
1500	0.870	0.730	1.487		6.92E-07	5.38E-06
2000	0.927	0.673	1.401		4.06E-07	3.00E-06
2500	0.974	0.626	1.350		3.63E-07	2.60E-06

CMW Geosciences	CLIENT: **Maven Associates Ltd'**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO21 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	2.3	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

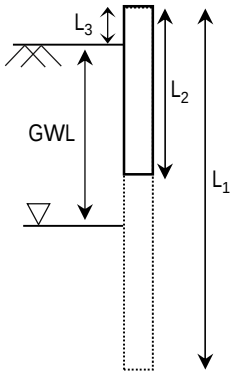
Ground Conditions

GWL: 1.6 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 2.30 m BGL



Hydraulic Conductivity (k)

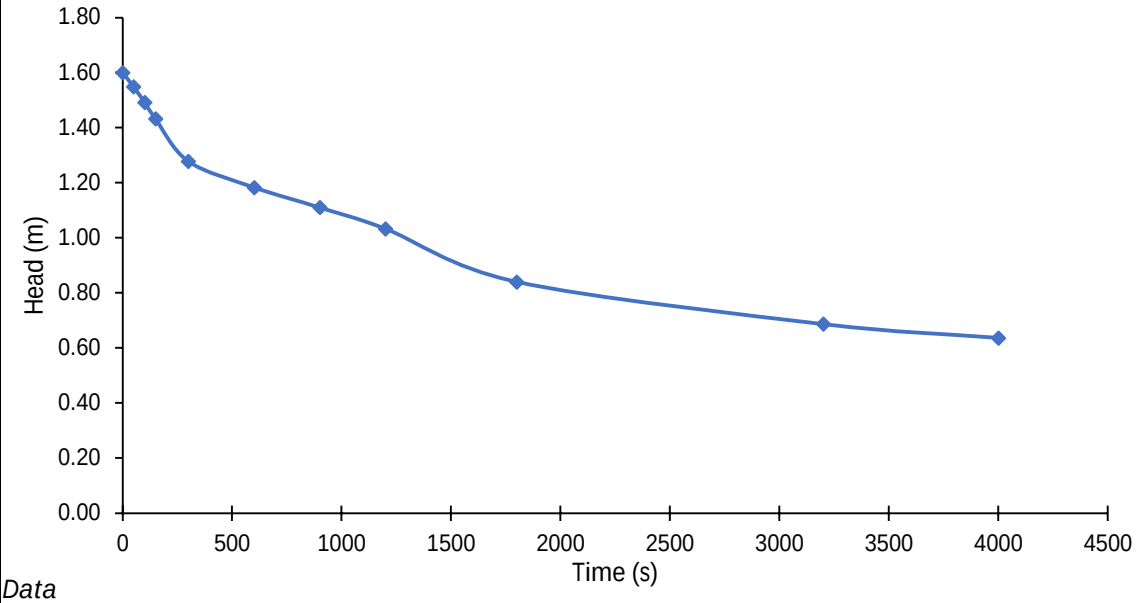
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

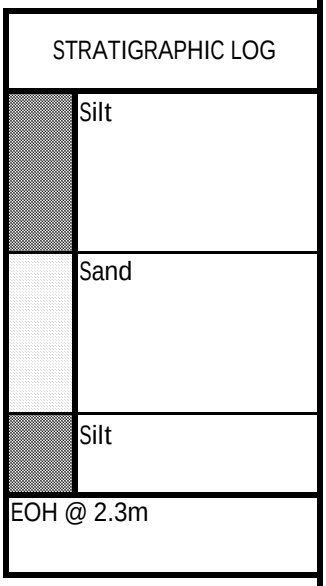
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d}\right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 8.06E-06 ms^{-1} = 0.70 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1}\right)}{2L \ln\frac{H_1}{H_2}} =$$ 8.17E-07 ms^{-1} = 0.07 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.600				
50	0.051	1.549	2.274		1.14E-06	1.24E-05
100	0.108	1.493	2.221		1.31E-06	1.40E-05
150	0.167	1.433	2.163		1.49E-06	1.55E-05
300	0.322	1.278	2.055		1.43E-06	1.44E-05
600	0.417	1.183	1.931		5.06E-07	4.84E-06
900	0.490	1.110	1.847		4.32E-07	3.99E-06
1200	0.567	1.034	1.772		5.02E-07	4.48E-06
1800	0.760	0.840	1.637		7.66E-07	6.47E-06
3200	0.913	0.688	1.464		3.46E-07	2.66E-06
4000	0.963	0.637	1.362		2.43E-07	1.76E-06

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO22 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	2.1	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

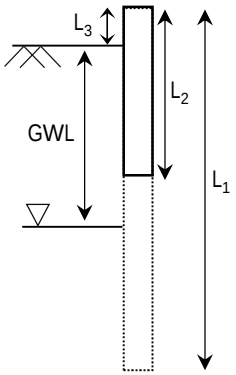
Ground Conditions

GWL: 1.4 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 2.10 m BGL



Hydraulic Conductivity (k)

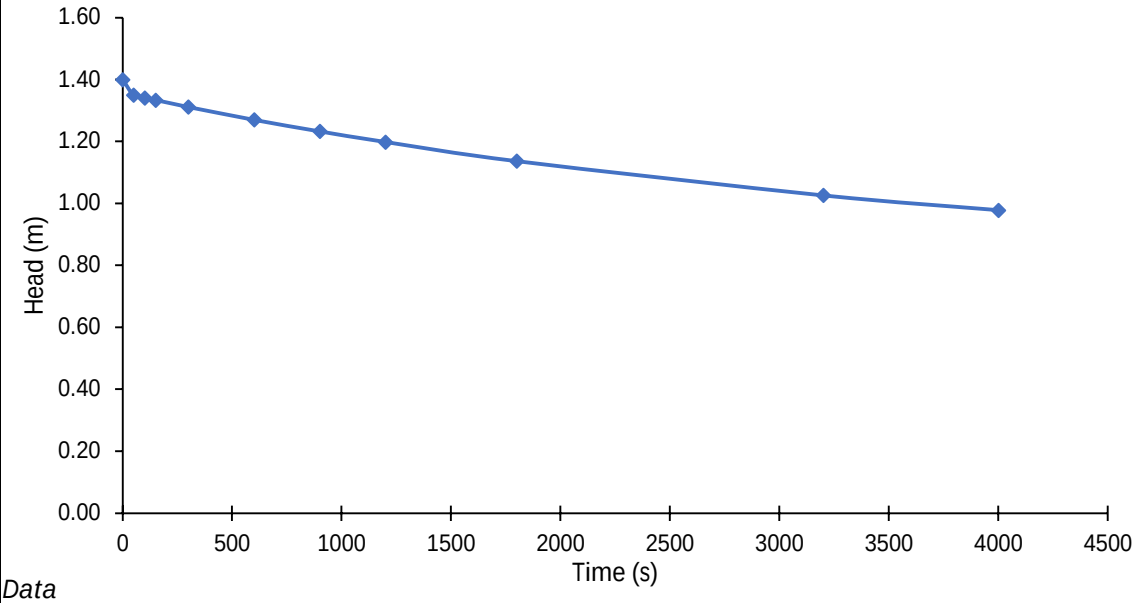
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

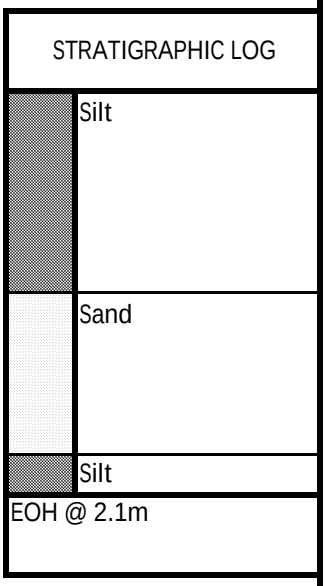
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d}\right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 3.03E-06 ms^{-1} = 0.26 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1}\right)}{2L} ln\frac{H_1}{\quad} =$$ 3.08E-07 ms^{-1} = 0.03 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.400				
50	0.050	1.350	2.075		1.35E-06	1.37E-05
100	0.059	1.341	2.046		2.53E-07	2.53E-06
150	0.066	1.334	2.038		2.13E-07	2.12E-06
300	0.088	1.312	2.023		2.13E-07	2.11E-06
600	0.130	1.270	1.991		2.07E-07	2.02E-06
900	0.167	1.233	1.952		1.93E-07	1.86E-06
1200	0.202	1.198	1.916		1.89E-07	1.80E-06
1800	0.263	1.137	1.868		1.77E-07	1.65E-06
3200	0.374	1.027	1.782		1.52E-07	1.37E-06
4000	0.422	0.979	1.703		1.29E-07	1.12E-06

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO23 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	3.5	m
Diameter:	90	mm
Non-Perm L_2:	3	m
Above Gnd L_3:	0	m

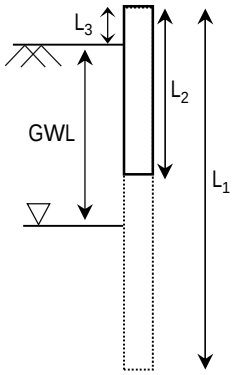
Ground Conditions

GWL: m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 3.50 m BGL



Hydraulic Conductivity (k)

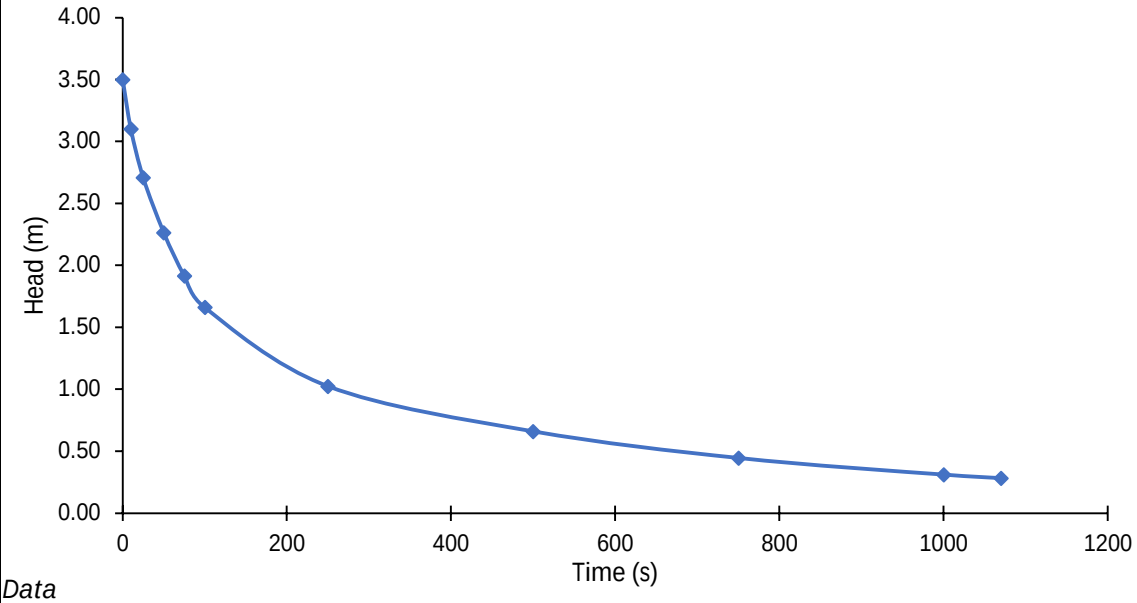
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

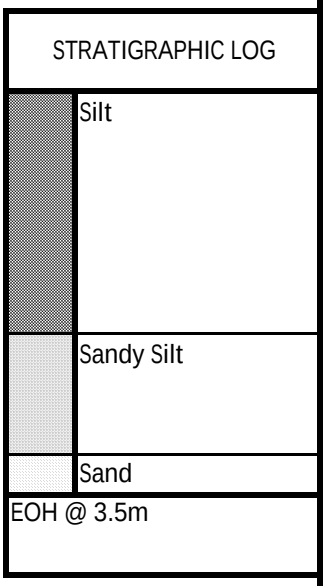
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log \frac{h_1}{h_2} - log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 9.58E-05 ms^{-1} = 8.28 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{2L} \ln \frac{H_1}{\quad} =$$ 2.48E-05 ms^{-1} = 2.14 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	3.500				
10	0.398	3.102	0.500		5.91E-05	2.33E-04
25	0.792	2.708	0.500		4.43E-05	1.75E-04
50	1.236	2.264	0.500		3.50E-05	1.38E-04
75	1.583	1.917	0.500		3.26E-05	1.28E-04
100	1.839	1.661	0.500		2.80E-05	1.10E-04
250	2.475	1.025	0.500		1.58E-05	6.32E-05
500	2.839	0.661	0.500		8.57E-06	3.35E-05
750	3.053	0.447	0.500		7.68E-06	2.90E-05
1000	3.188	0.312	0.379		8.24E-06	2.56E-05
1070	3.216	0.284	0.298		8.71E-06	2.28E-05

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO24 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	3.5	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

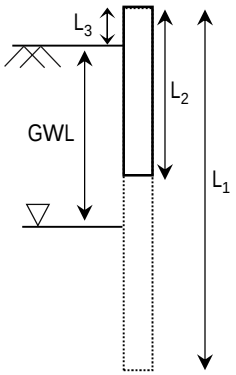
Ground Conditions

GWL: m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 3.50 m BGL



Hydraulic Conductivity (k)

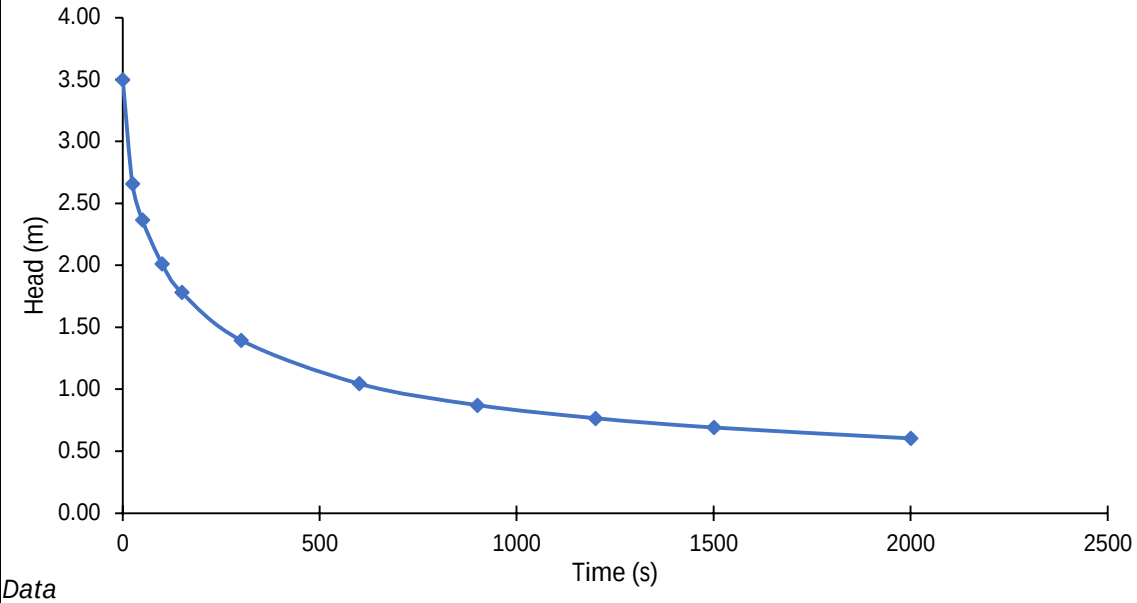
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log\frac{h_1}{h_2} - log\frac{2h_1 + d}{2h_2 + d}\right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 4.93E-05 ms^{-1} = 4.26 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1}\right)}{2L \ln\frac{H_1}{H_2}} =$$ 4.58E-06 ms^{-1} = 0.40 m/day



STRATIGRAPHIC LOG

- Silt
- Sandy Silt
- Sand

EOH @ 3.5m

Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	3.500				
25	0.839	2.661	3.080		1.52E-05	2.14E-04
50	1.133	2.367	2.514		7.58E-06	9.00E-05
100	1.487	2.013	2.190		5.82E-06	6.23E-05
150	1.717	1.783	1.898		4.86E-06	4.65E-05
300	2.103	1.397	1.590		3.69E-06	3.12E-05
600	2.453	1.047	1.222		2.63E-06	1.84E-05
900	2.627	0.873	0.960		1.95E-06	1.14E-05
1200	2.733	0.767	0.820		1.55E-06	8.03E-06
1500	2.807	0.693	0.730		1.32E-06	6.27E-06
2000	2.895	0.605	0.649		1.13E-06	4.97E-06

CMW Geosciences	CLIENT: **Maven Associates Ltd**	DESIGNER:	LA
	PROJECT: **Station Road**	CHECKED:	NK
		REVISION:	0
	TITLE: **SO20 Falling Head Permeability Test**	DATE:	9/12/2024
		PROJECT:	HAM2023-0124

Specifications - Open-Ended Tube

Length L_1:	1.8	m
Diameter:	90	mm
Non-Perm L_2:	0	m
Above Gnd L_3:	0	m

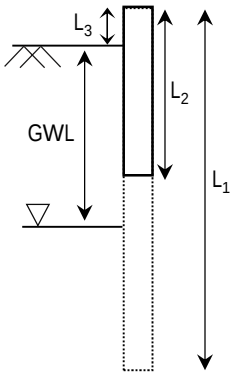
Ground Conditions

GWL: 1.5 m BGL (Blank = Bottom of hole)

Permeability Anisotropy

m: 1 $m = \sqrt{k_h / k_v}$

Bottom of Test Hole: 1.80 m BGL



Hydraulic Conductivity (k)

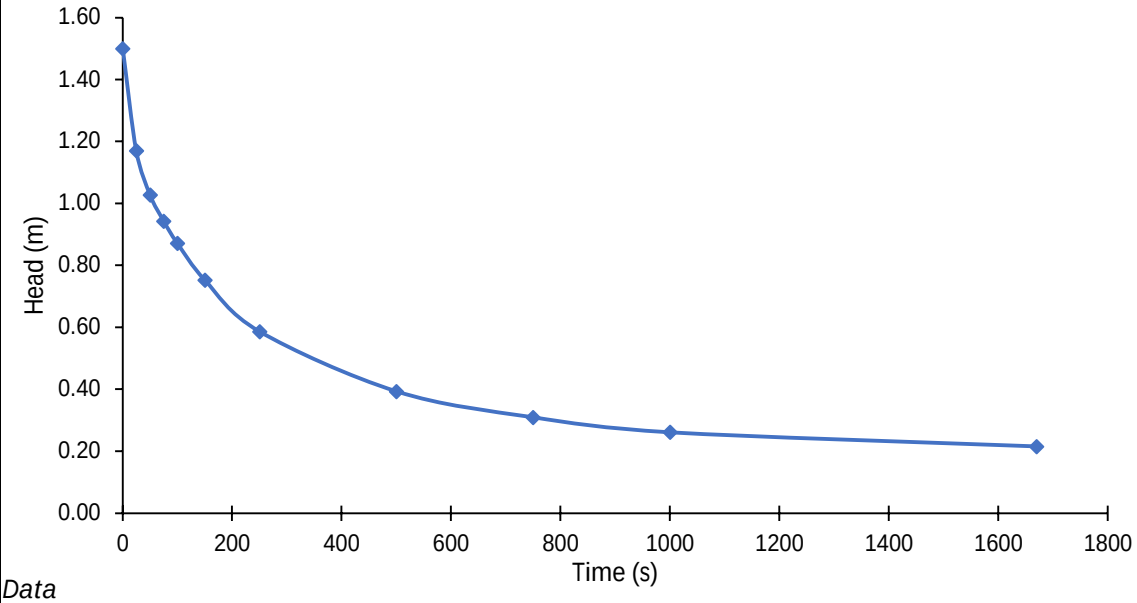
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

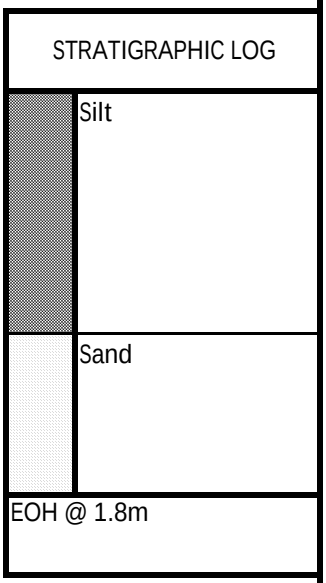
CIRIA 113: Somerville (1986), *Control of groundwater for temporary works,* CIRIA Report 113, Appendix 4

$$k = \left(log \frac{h_1}{h_2} - log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} =$$ 5.73E-05 ms^{-1} = 4.95 m/day

Hvorslev: Hvorslev (1951) *Time Lag and Soil Permeability in Ground-Water Observations* , Fig 18, p49

$$k = \frac{d^2 \, ln\left(\frac{mL}{d} + \sqrt{\left(\frac{mL}{d}\right)^2 + 1} \right)}{2L} ln \frac{H_1}{\quad} =$$ 8.36E-06 ms^{-1} = 0.72 m/day





Data

Time (s)	Tape Avg (m)	Head (m)	Perm. Length (m)		Hvorslev 'k' Case G (ms^{-1})	CIRIA 113 'k' (ms^{-1})
0	0.000	1.500				
25	0.330	1.170	1.635		2.21E-05	1.90E-04
50	0.472	1.028	1.399		1.29E-05	9.76E-05
75	0.557	0.943	1.286		9.10E-06	6.44E-05
100	0.629	0.871	1.207		8.72E-06	5.89E-05
150	0.747	0.753	1.112		8.51E-06	5.42E-05
250	0.913	0.587	0.970		8.02E-06	4.62E-05
500	1.106	0.394	0.790		5.87E-06	2.92E-05
750	1.190	0.310	0.652		3.98E-06	1.67E-05
1000	1.238	0.262	0.586		3.01E-06	1.15E-05
1670	1.284	0.216	0.539		1.35E-06	4.77E-06

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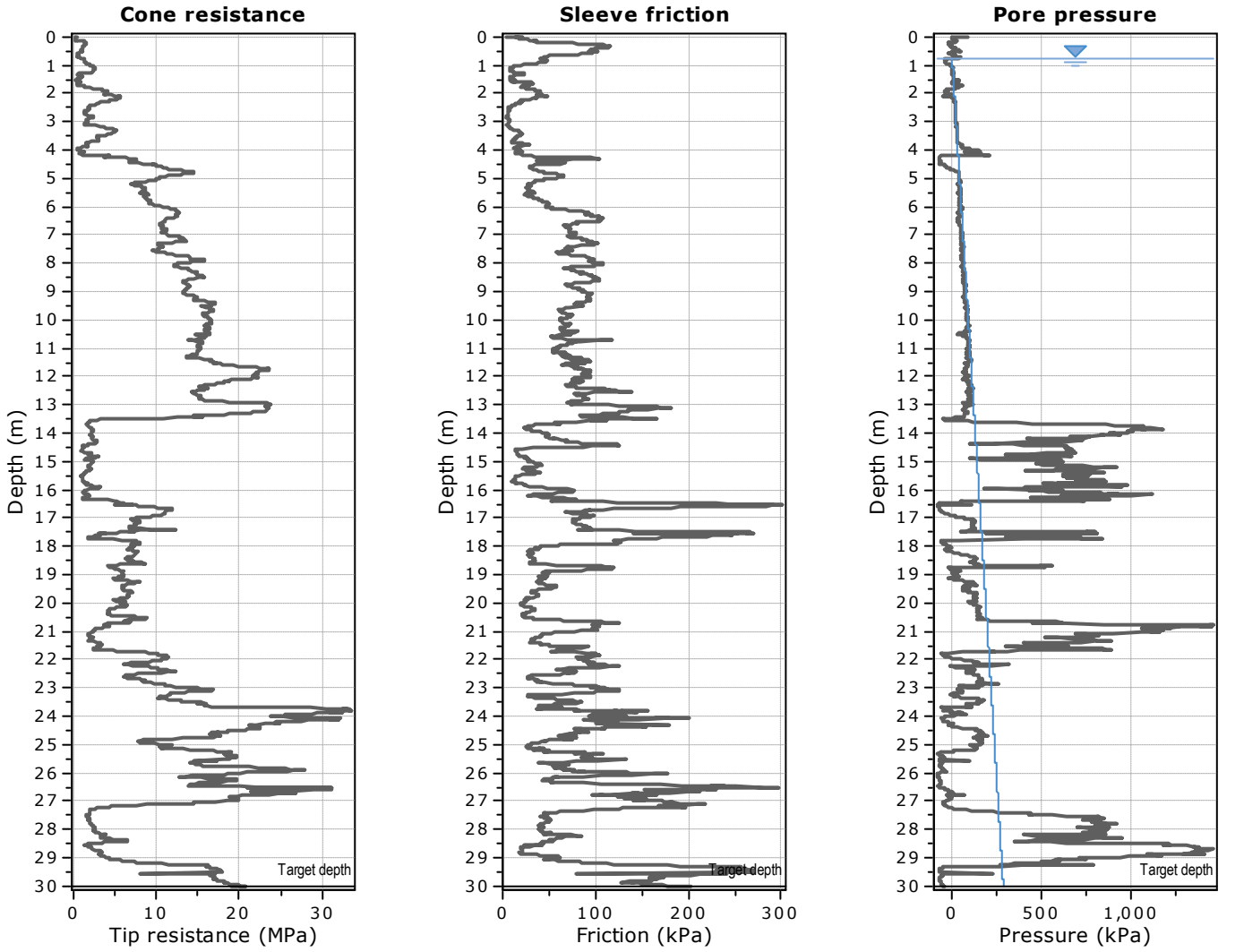
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

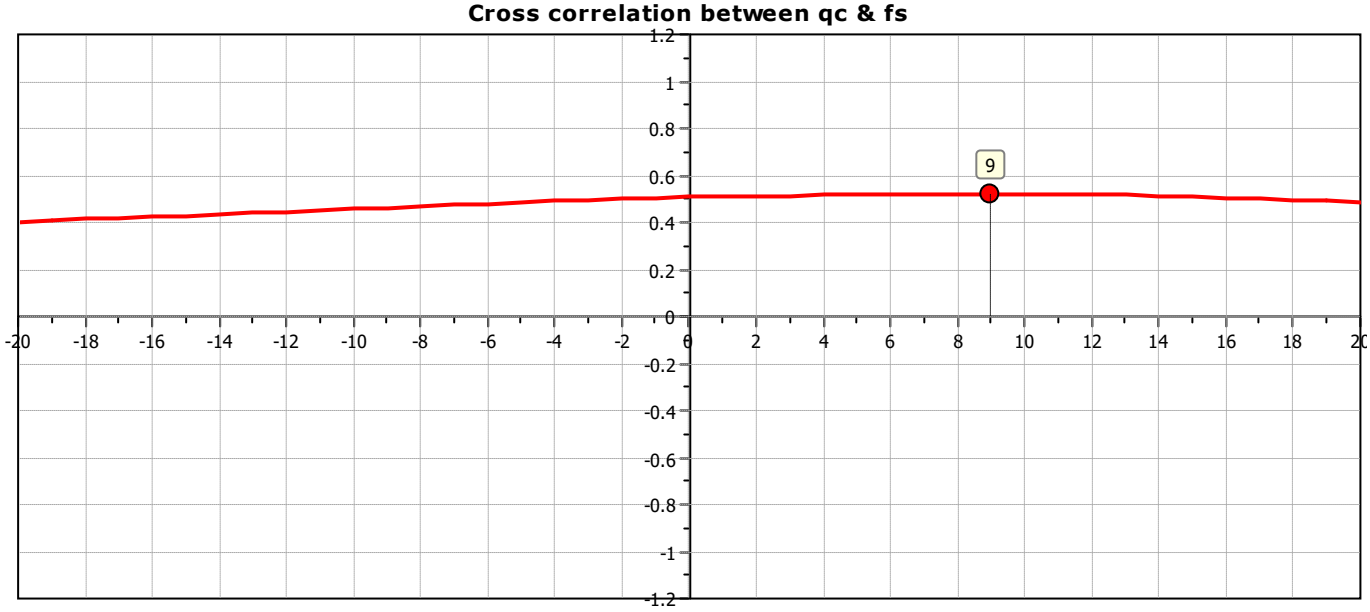
CPT: 23-01

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Total depth: 30.01 m, Date: 24/11/2023

Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**
Coords: lat -37.820381° lon 175.759032°



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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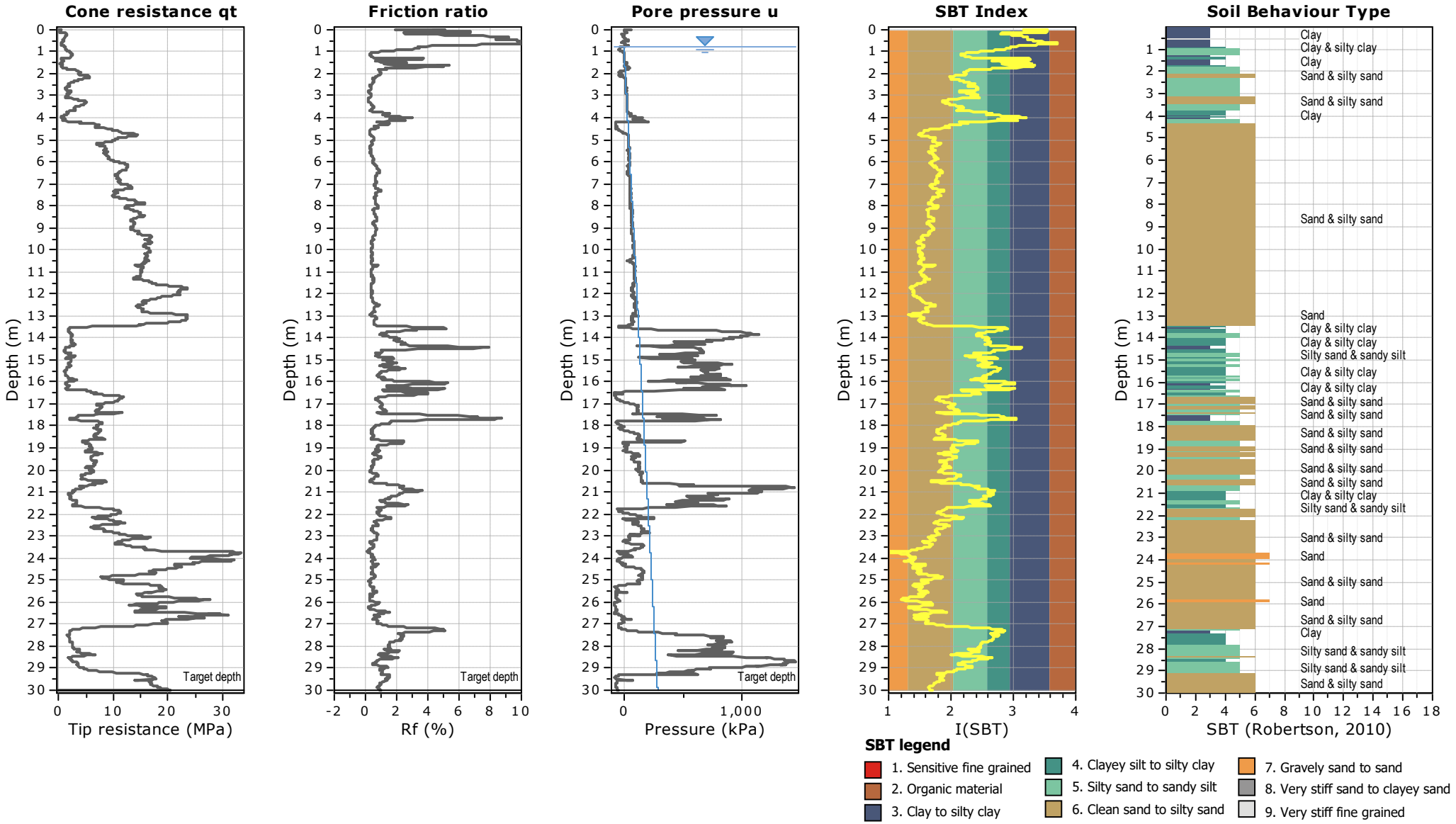
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 23-01

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**

Total depth: 30.01 m, Date: 24/11/2023
Coords: lat -37.820381° lon 175.759032°

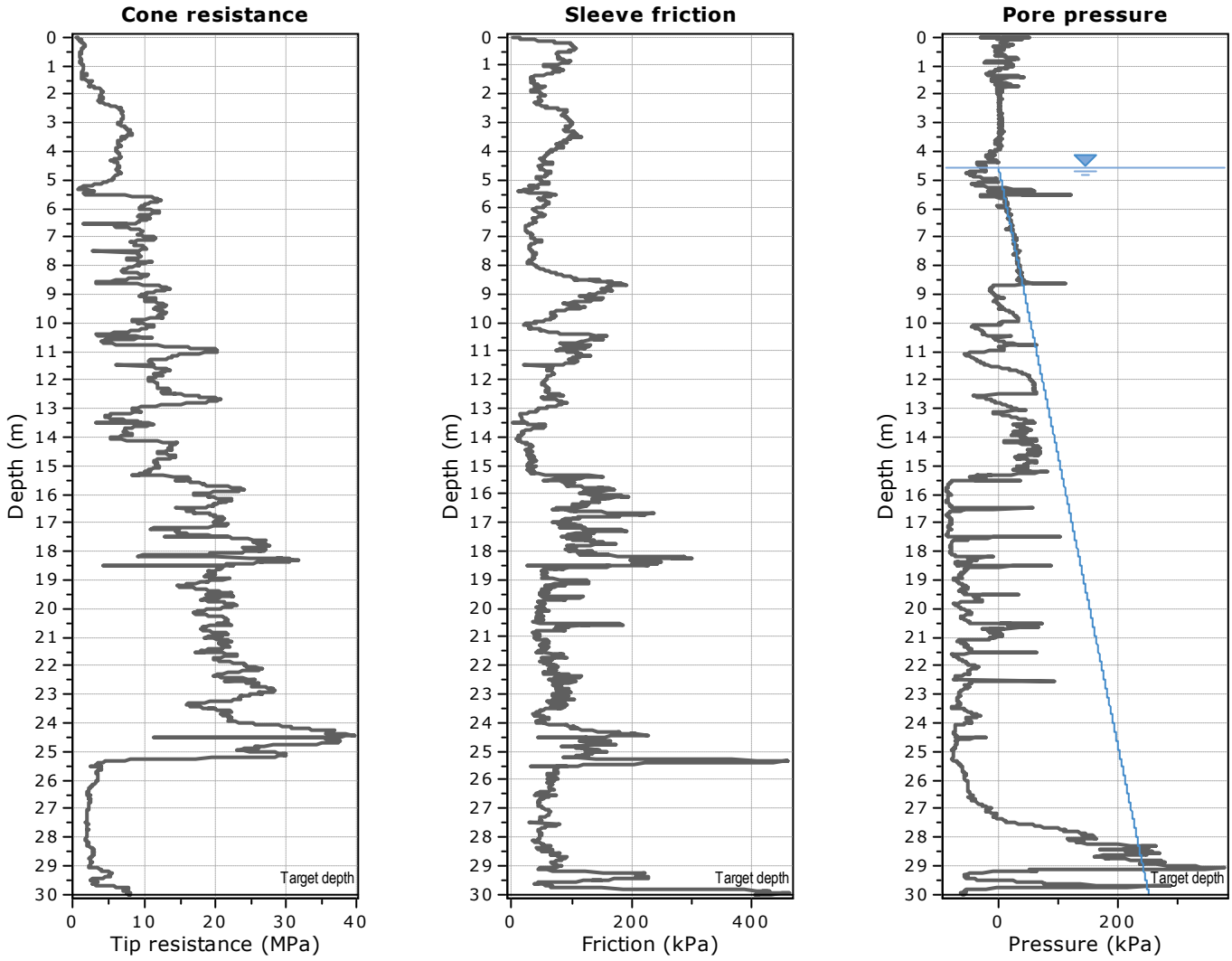


Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

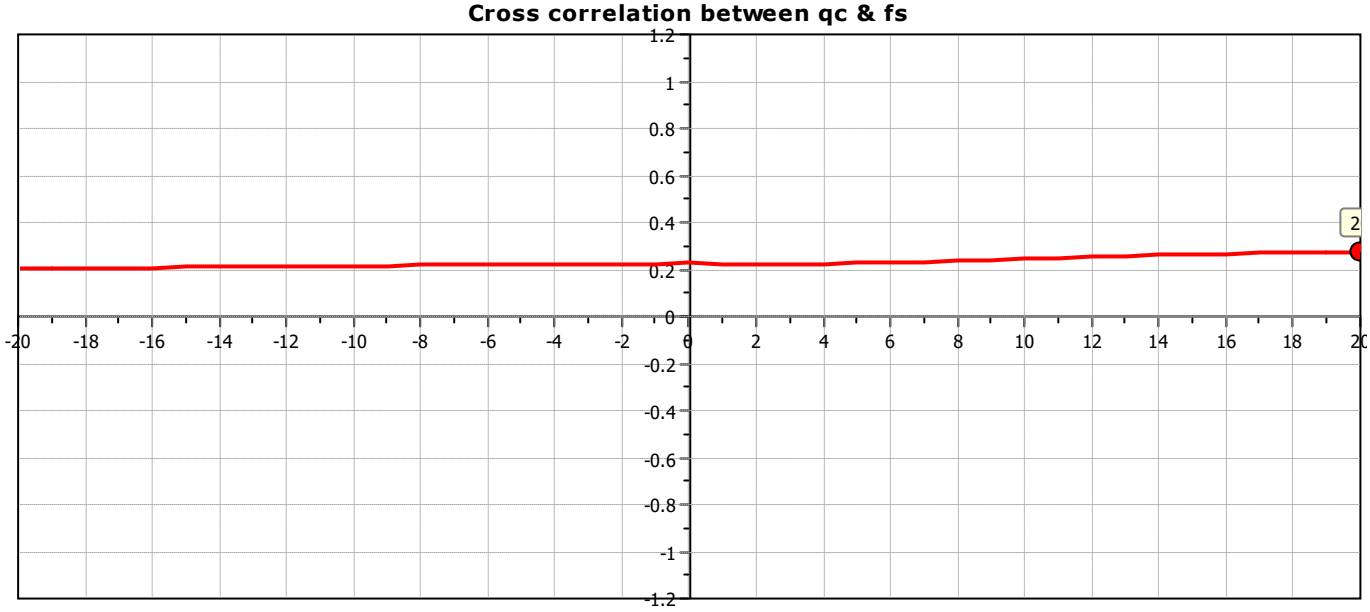
CPT: 23-02

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Total depth: 30.02 m, Date: 24/11/2023

Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**
Coords: lat -37.825563° lon 175.762228°



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).

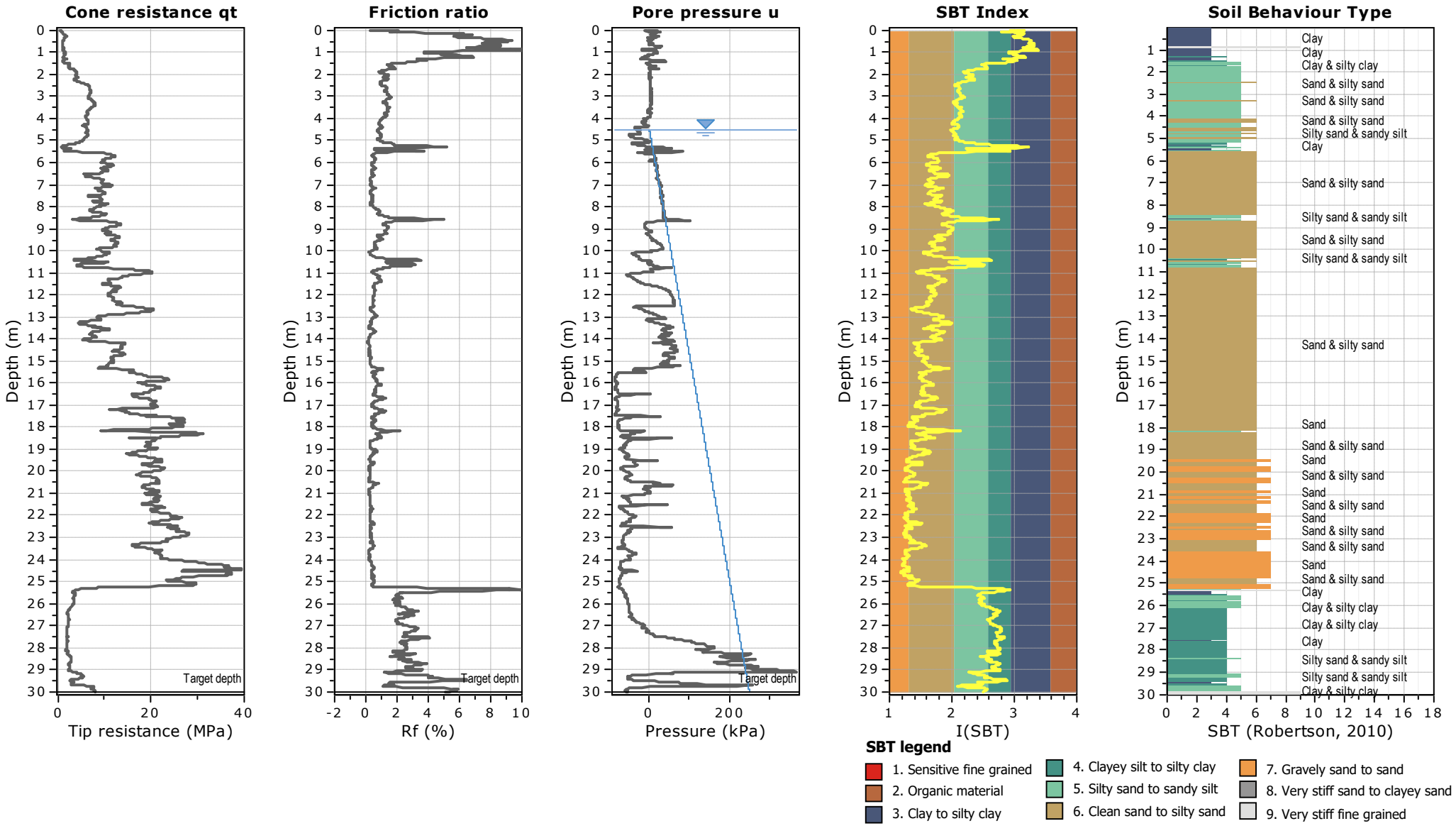


Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 23-02

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Total depth: 30.02 m, Date: 24/11/2023

Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**
Coords: lat -37.825563° lon 175.762228°



Geo Data Solutions (GDS) NZ Ltd.
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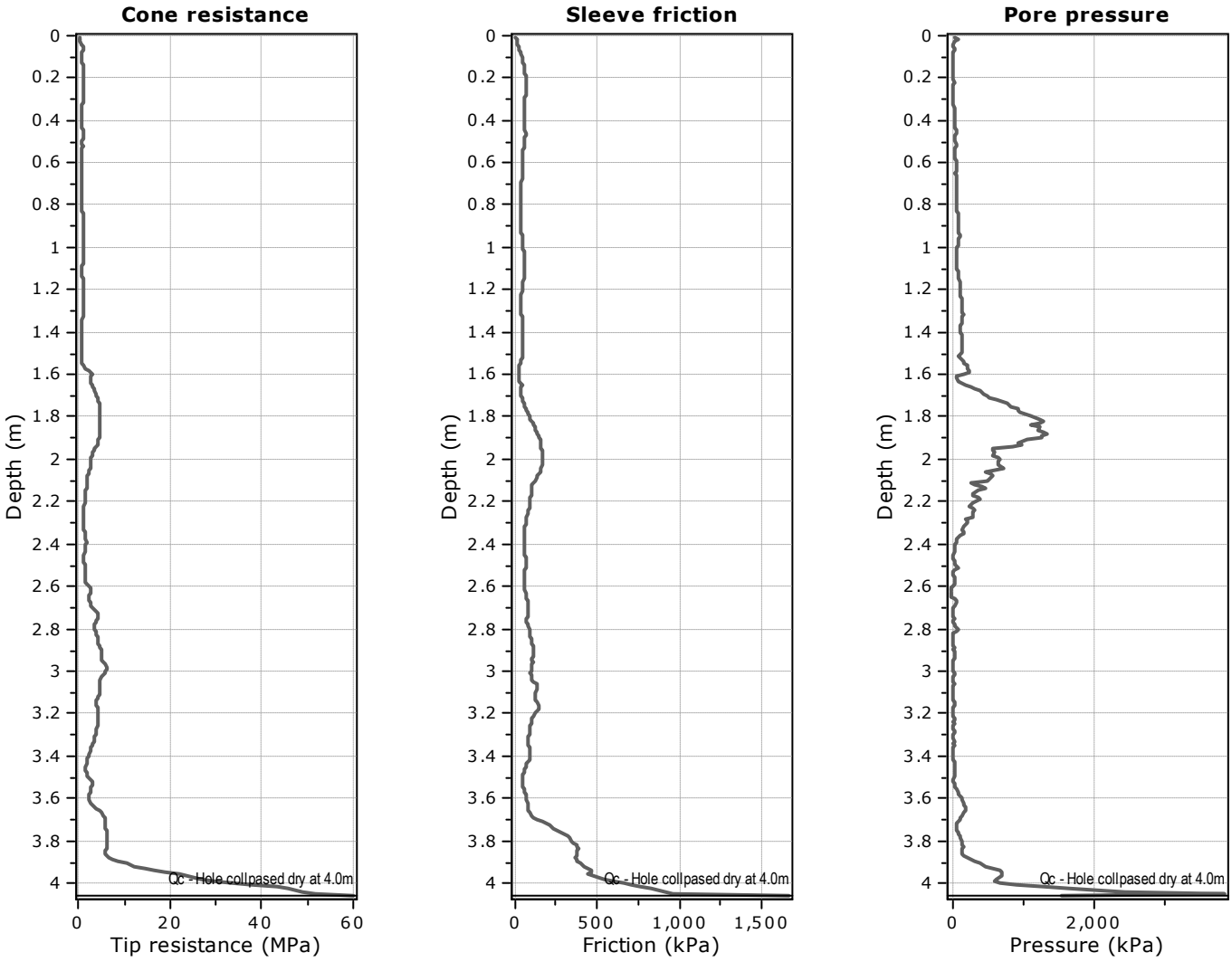
www.gdsnz.co.nz

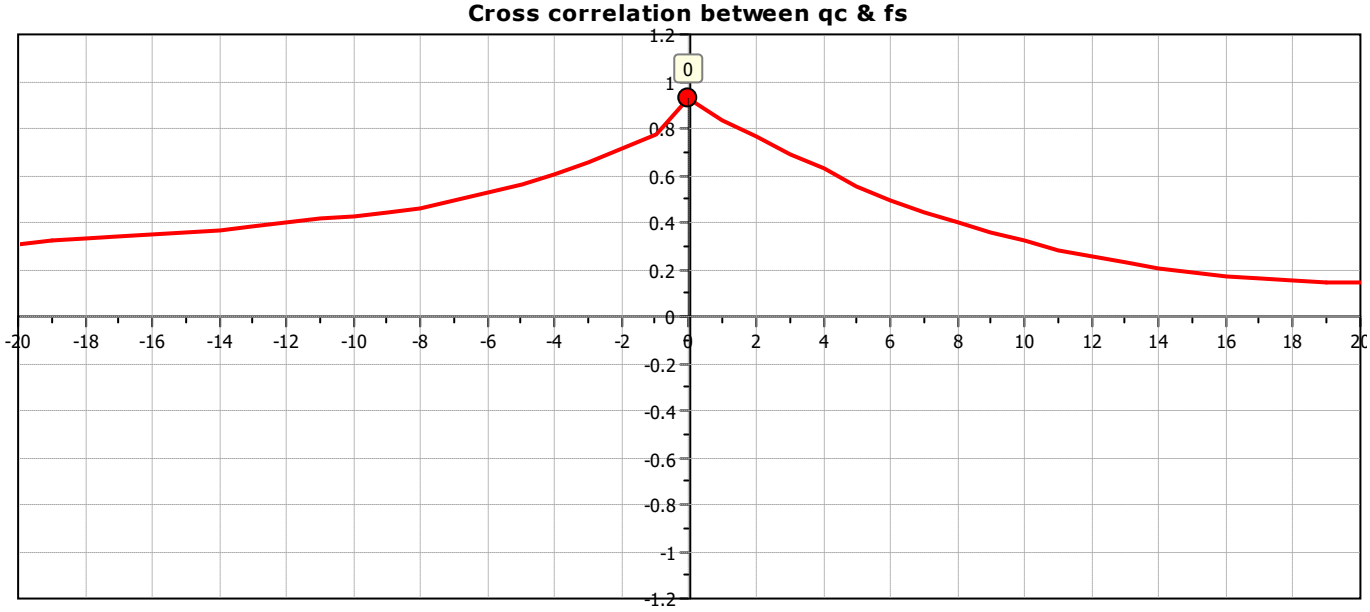
CPT: 23-03

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**

Total depth: 4.06 m, Date: 24/11/2023
Coords: lat -37.826393° lon 175.75937°



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).

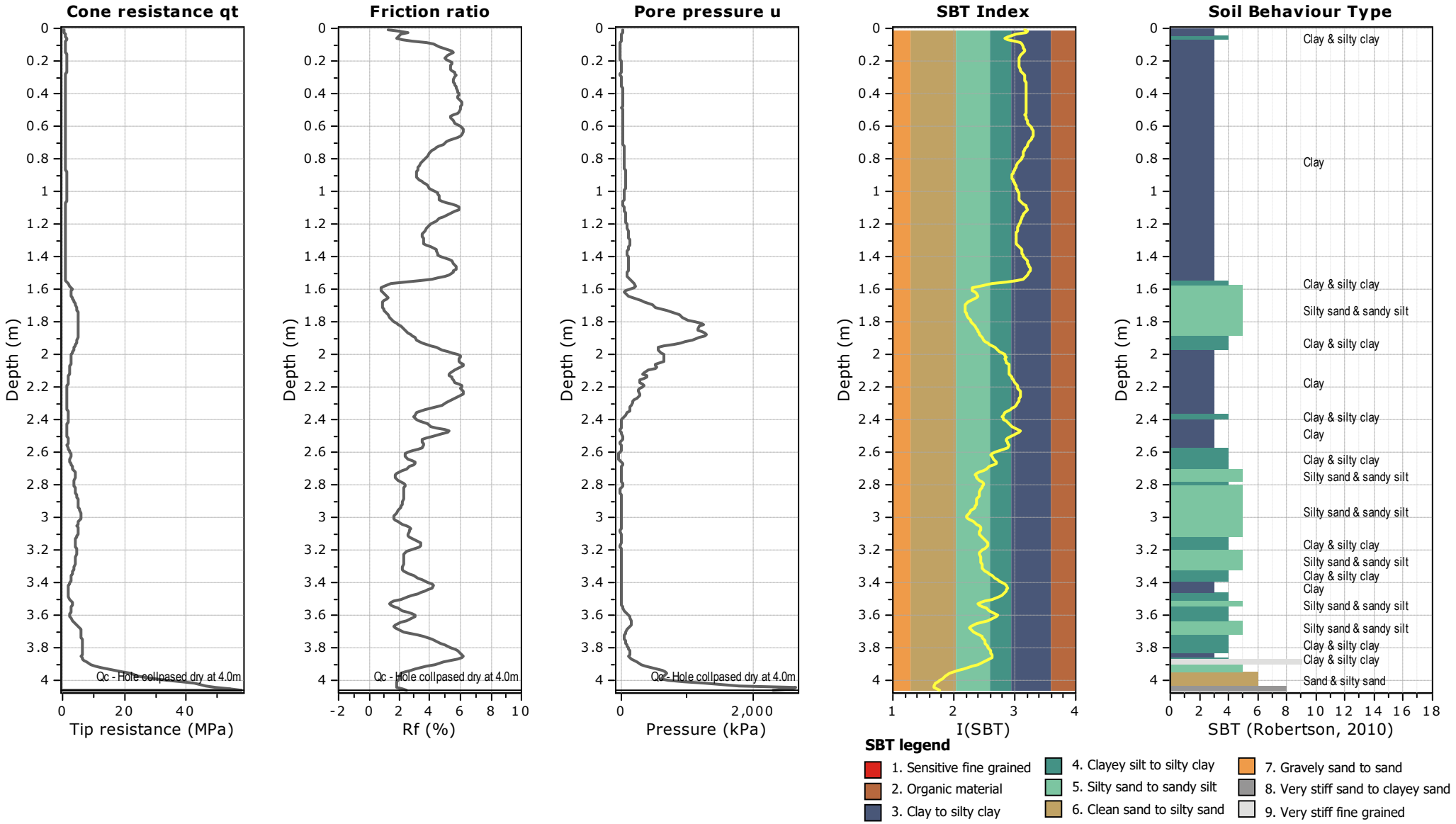


Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 23-03

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Total depth: 4.06 m, Date: 24/11/2023

Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**
Coords: lat -37.826393° lon 175.75937°



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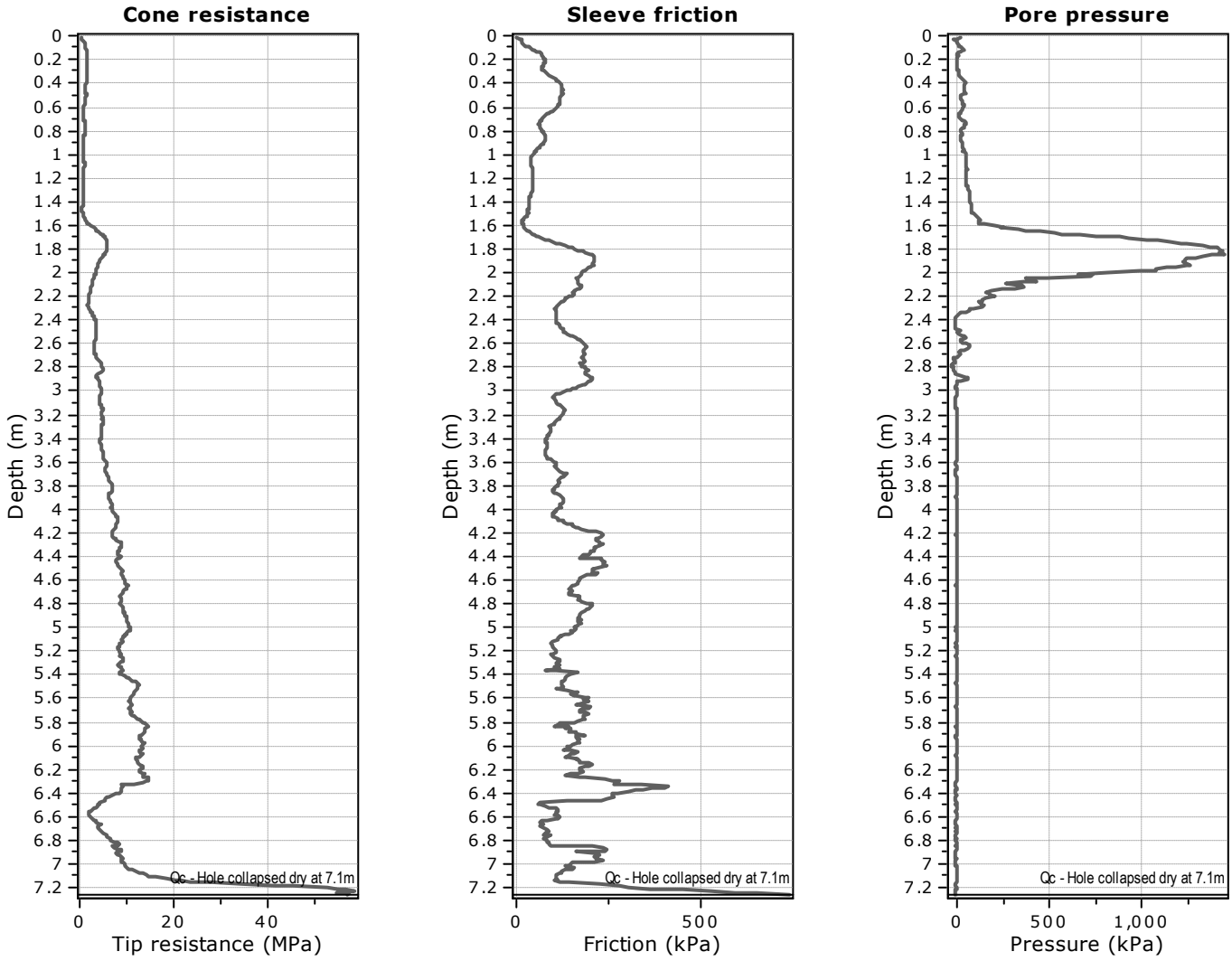
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

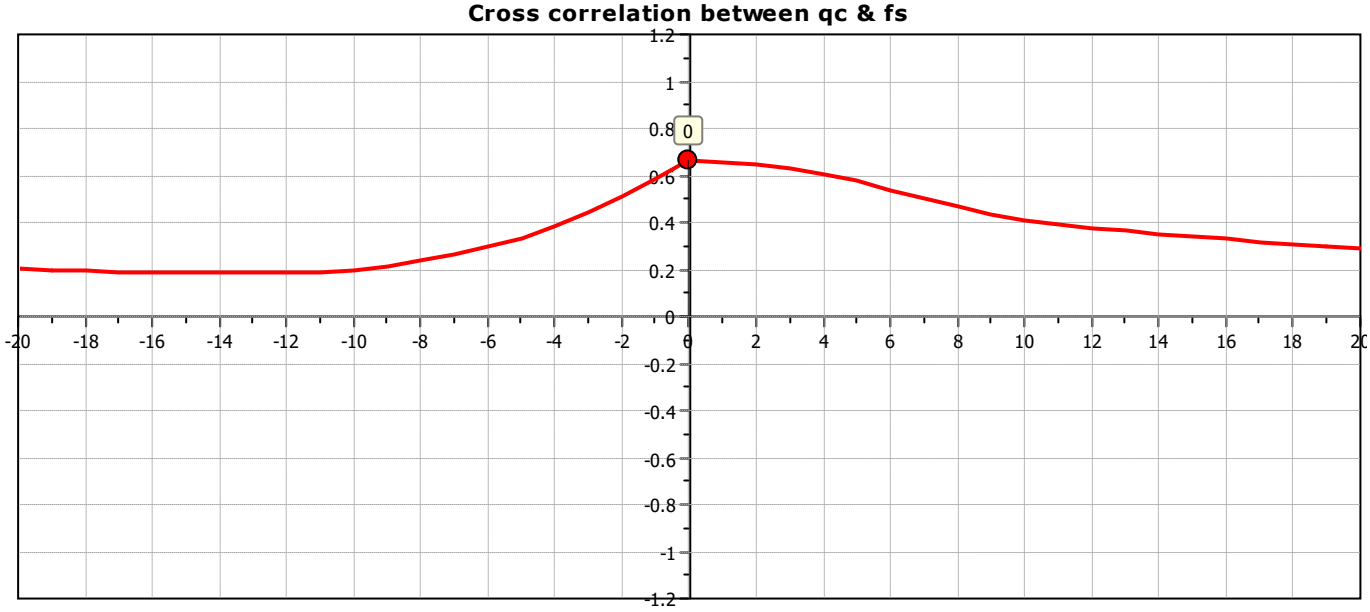
CPT: 23-03a

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Total depth: 7.26 m, Date: 24/11/2023

Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**
Coords: lat -37.826395° lon 175.759397°



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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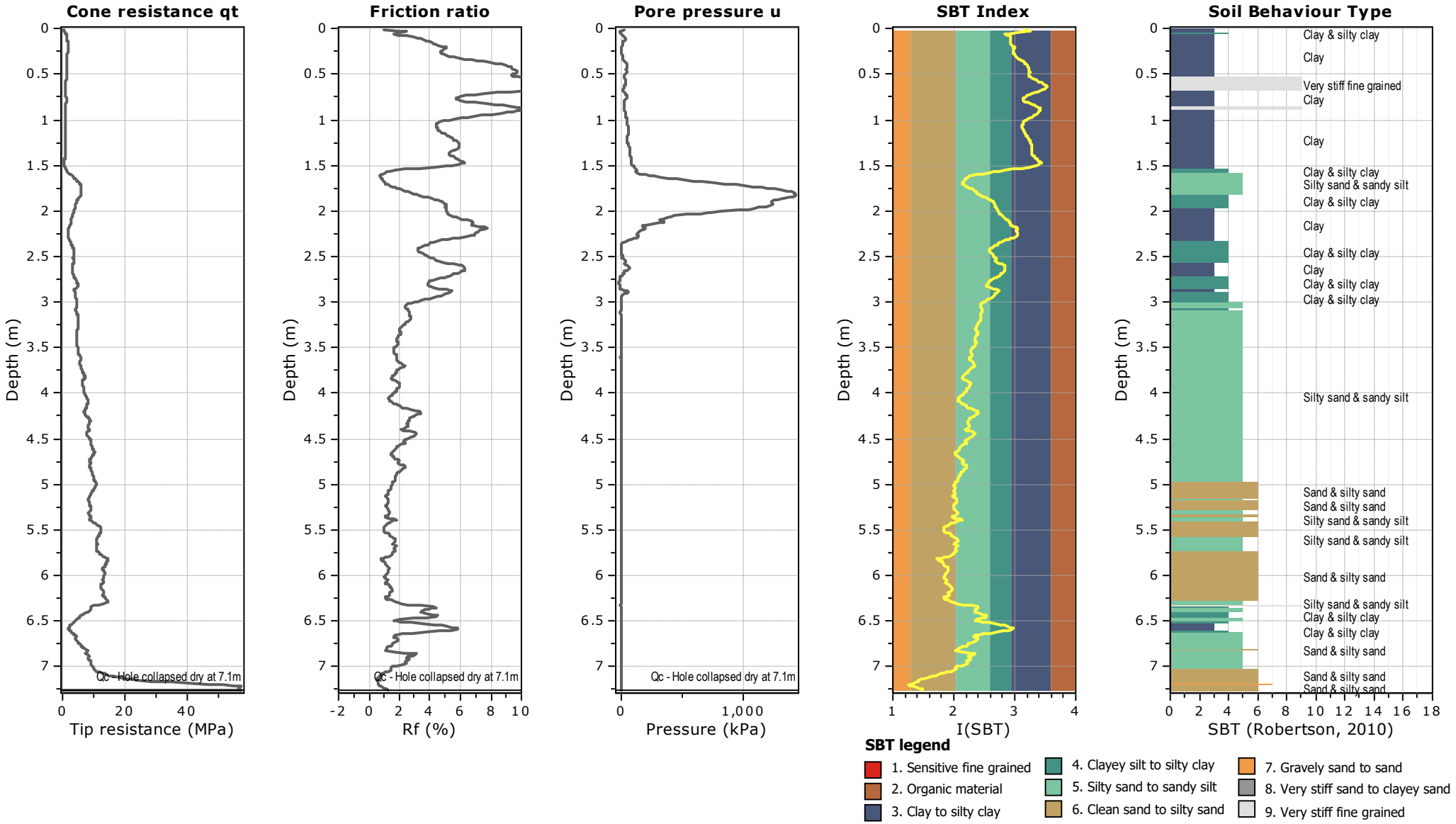
www.gdsnz.co.nz

CPT: 23-03a

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**

Total depth: 7.26 m, Date: 24/11/2023
Coords: lat -37.826395° lon 175.759397°



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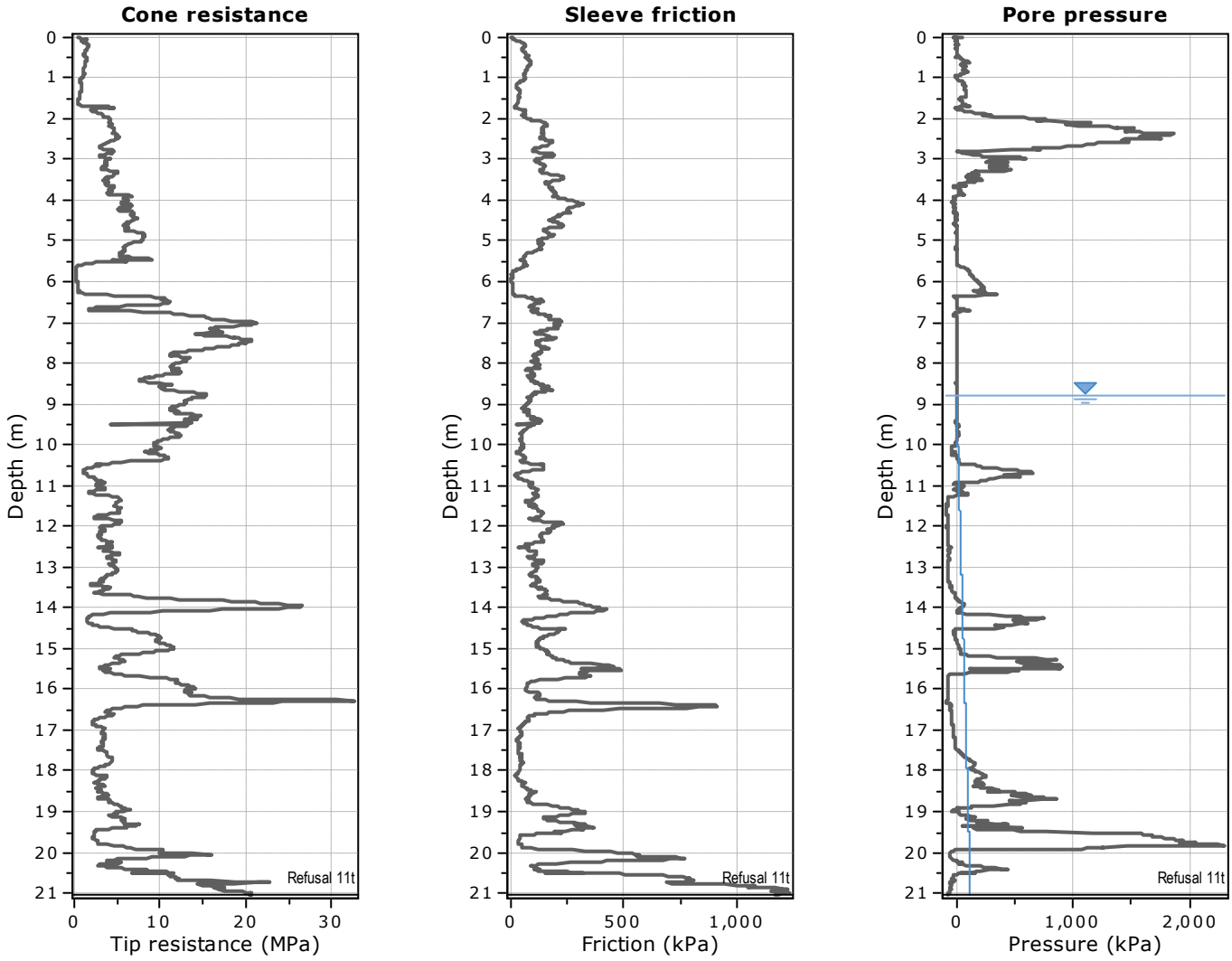
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

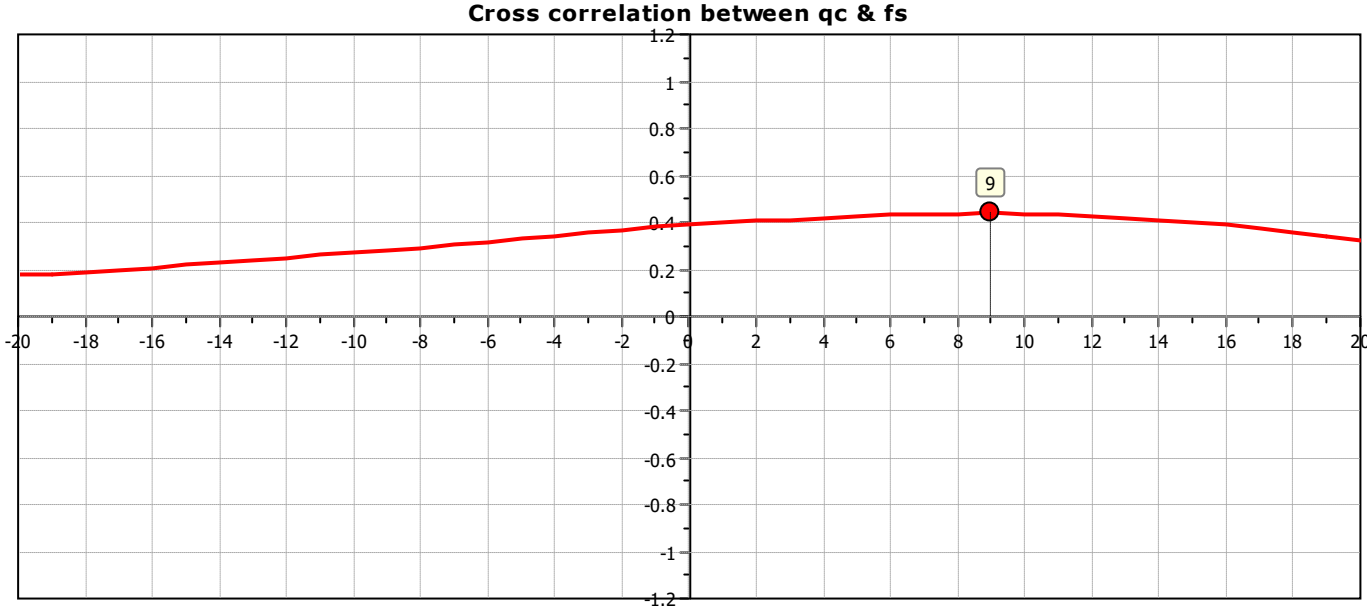
CPT: 23-03b

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**

Total depth: 21.04 m, Date: 24/11/2023
Coords: lat -37.825805° lon 175.759309°



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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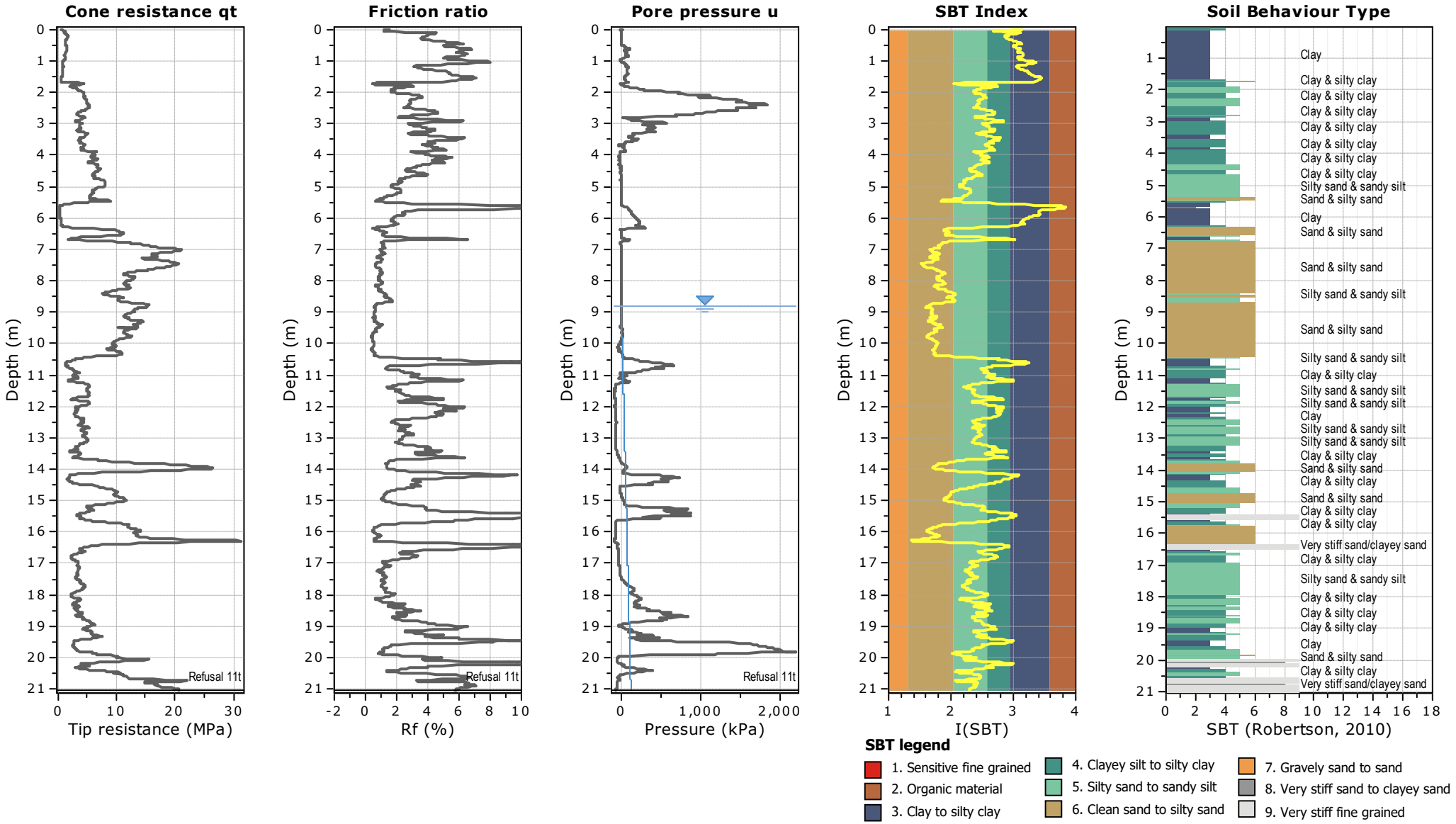
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 23-03b

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **Peakdale Dr - Matamata | Holes dipped onsite using Dipmeter**

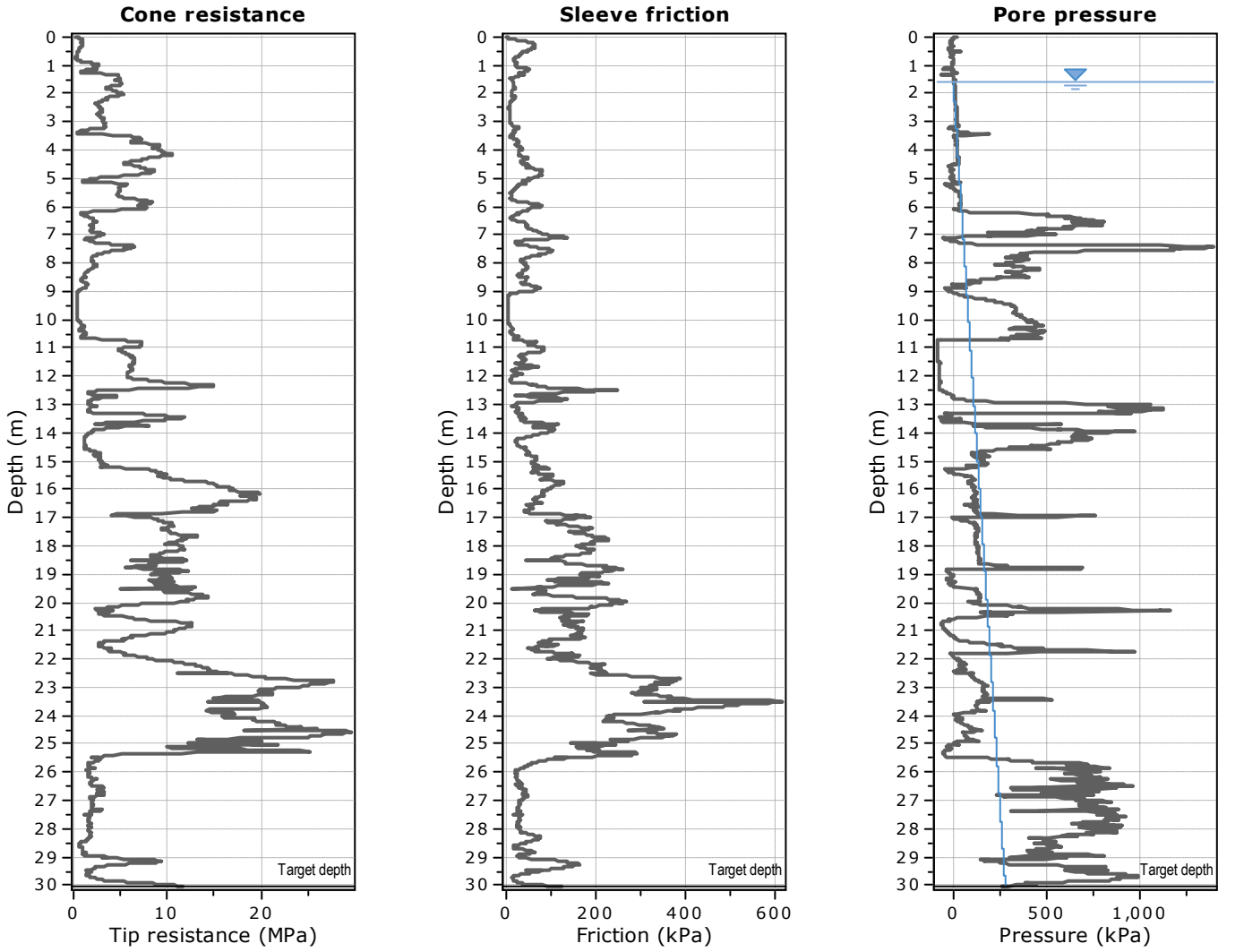
Total depth: 21.04 m, Date: 24/11/2023
Coords: lat -37.825805° lon 175.759309°



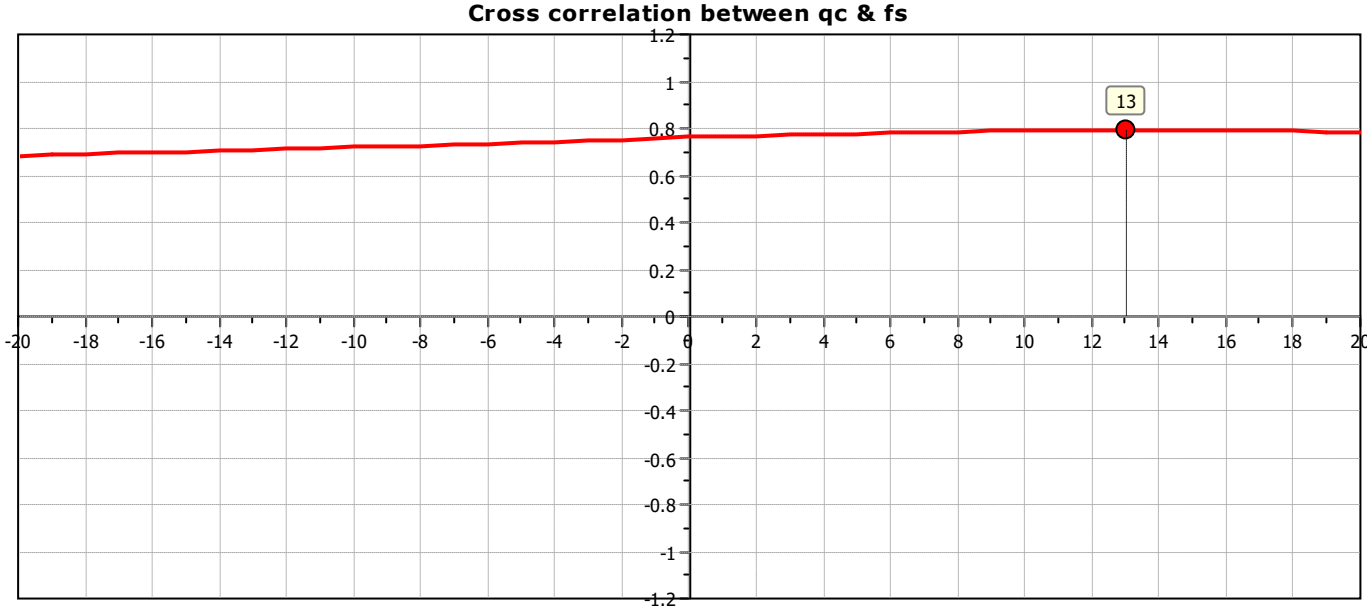
Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 24-04
Total depth: 30.04 m, Date: 4/06/2024
Coords: lat -37.812787° lon 175.751857°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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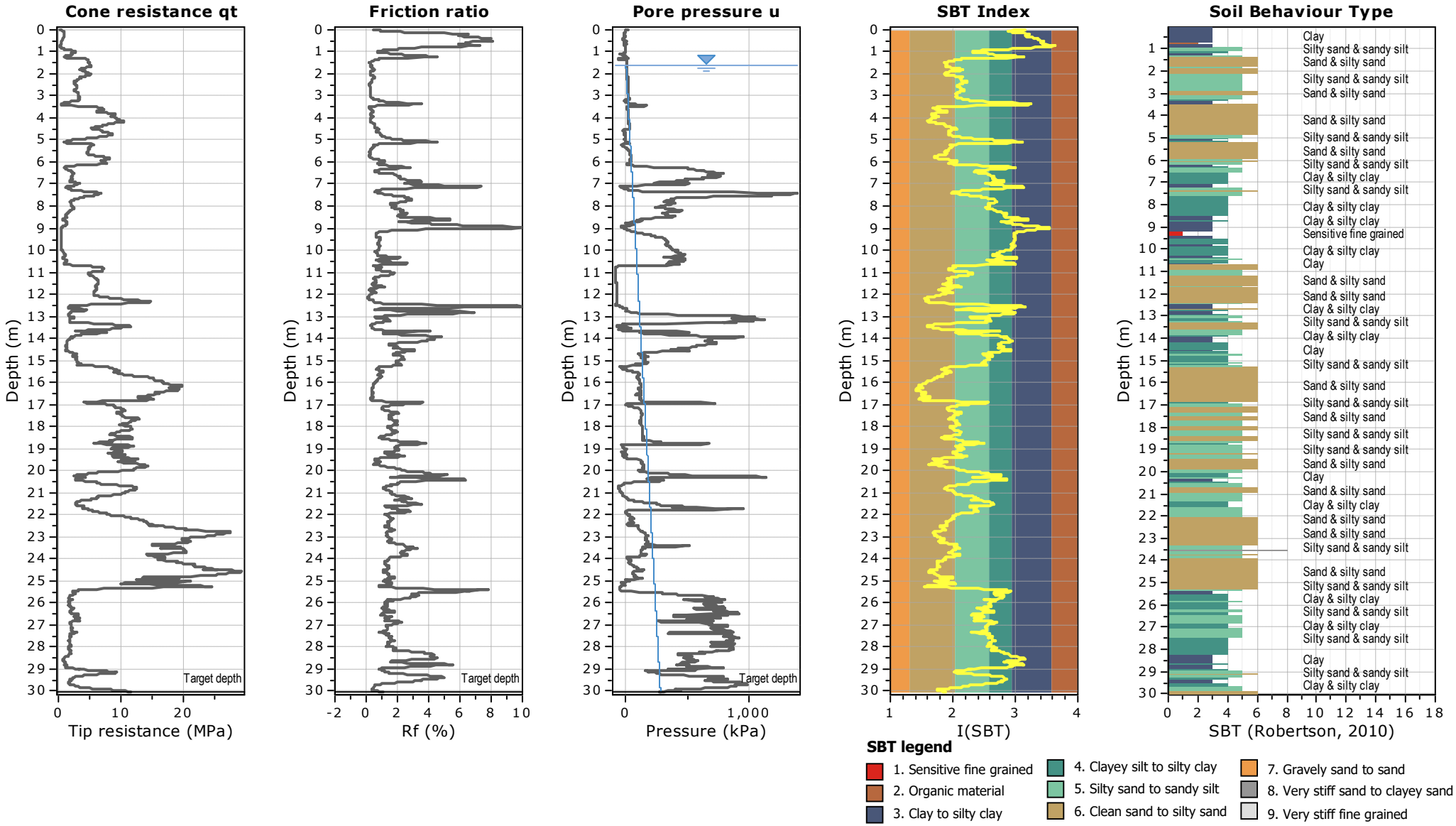
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 24-04
Total depth: 30.04 m, Date: 4/06/2024
Coords: lat -37.812787° lon 175.751857°
Cone Type: DC10

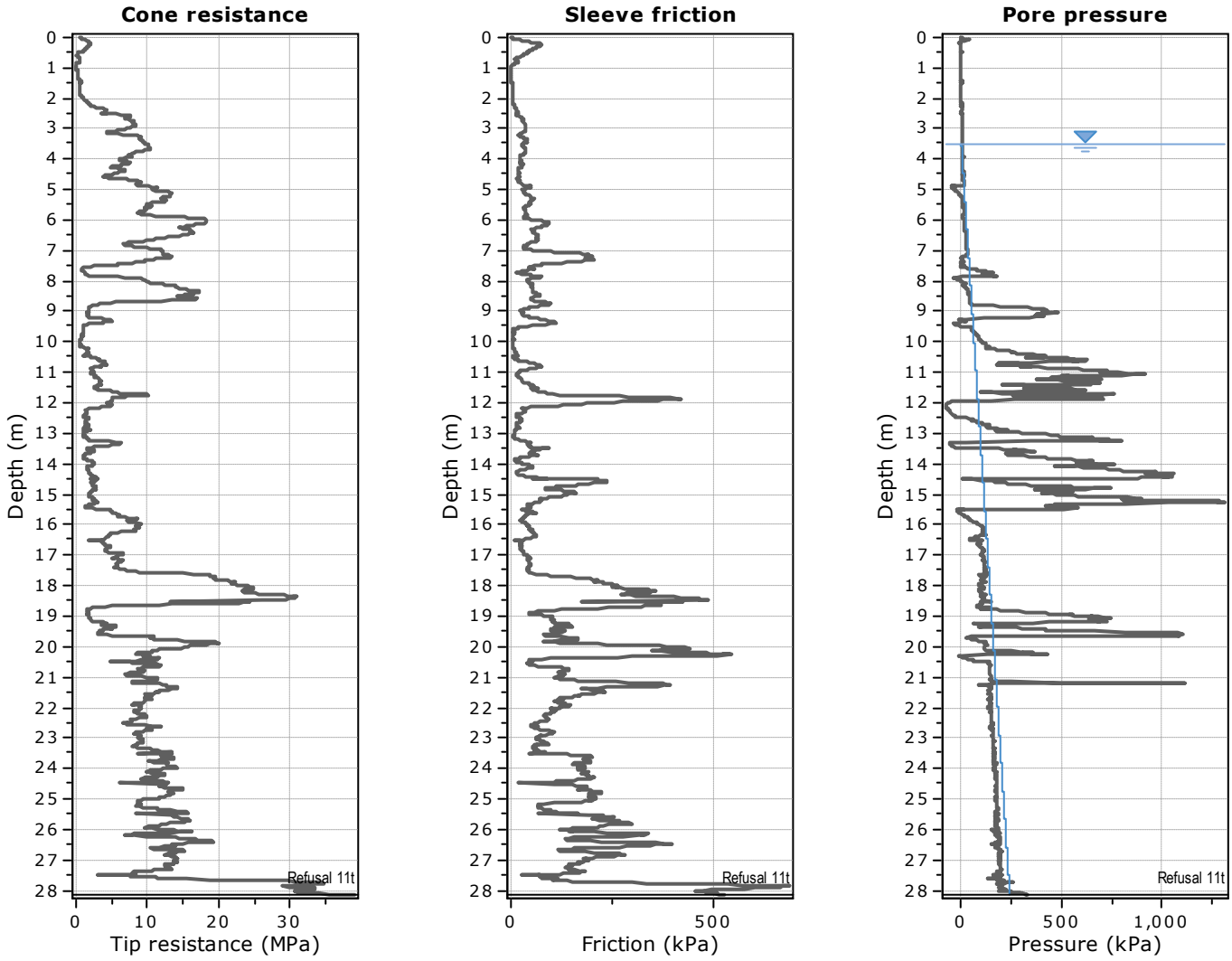
Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 24-05
Total depth: 28.14 m, Date: 4/06/2024
Coords: lat -37.815987° lon 175.753168°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



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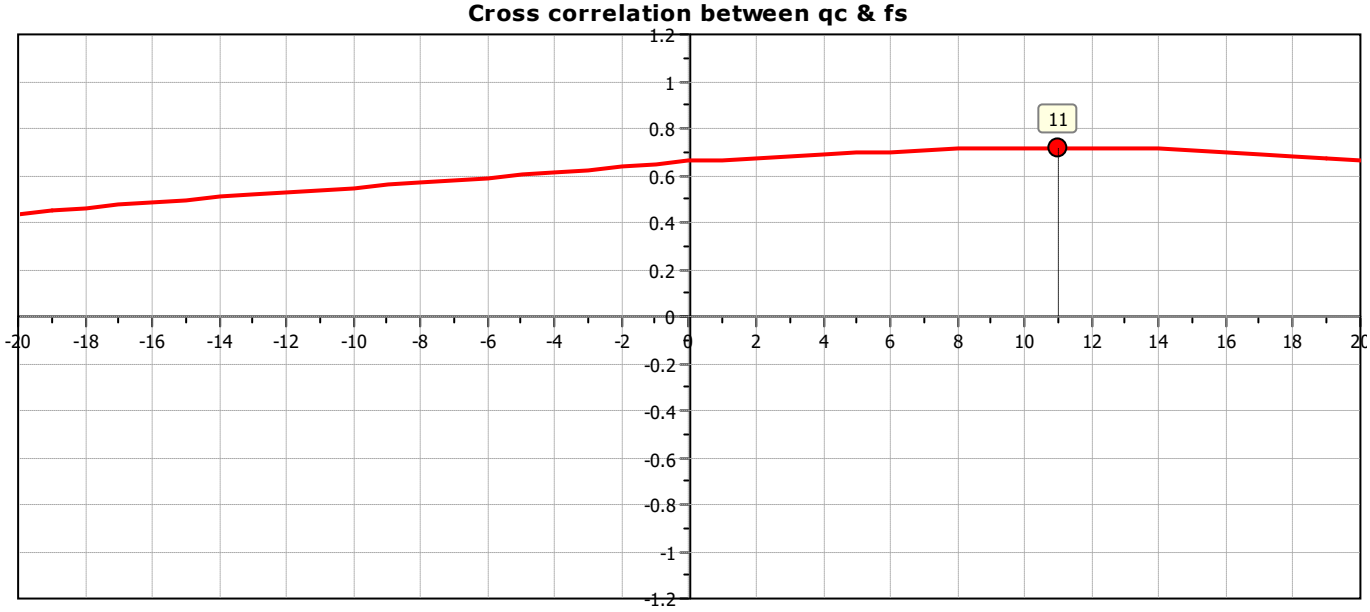

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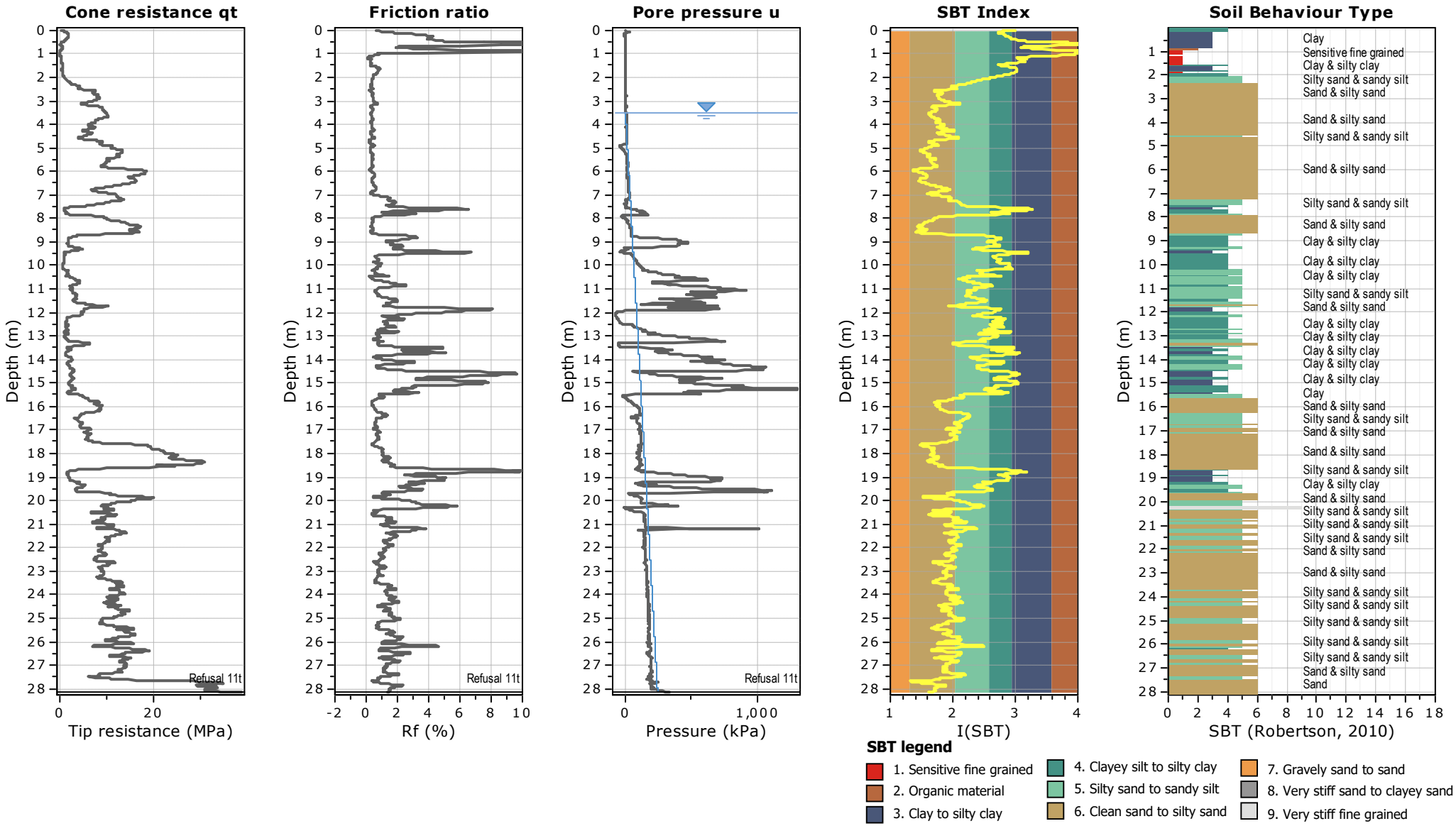
CPT: 24-05
Total depth: 28.14 m, Date: 4/06/2024
Coords: lat -37.815987° lon 175.753168°
Cone Type: DC10

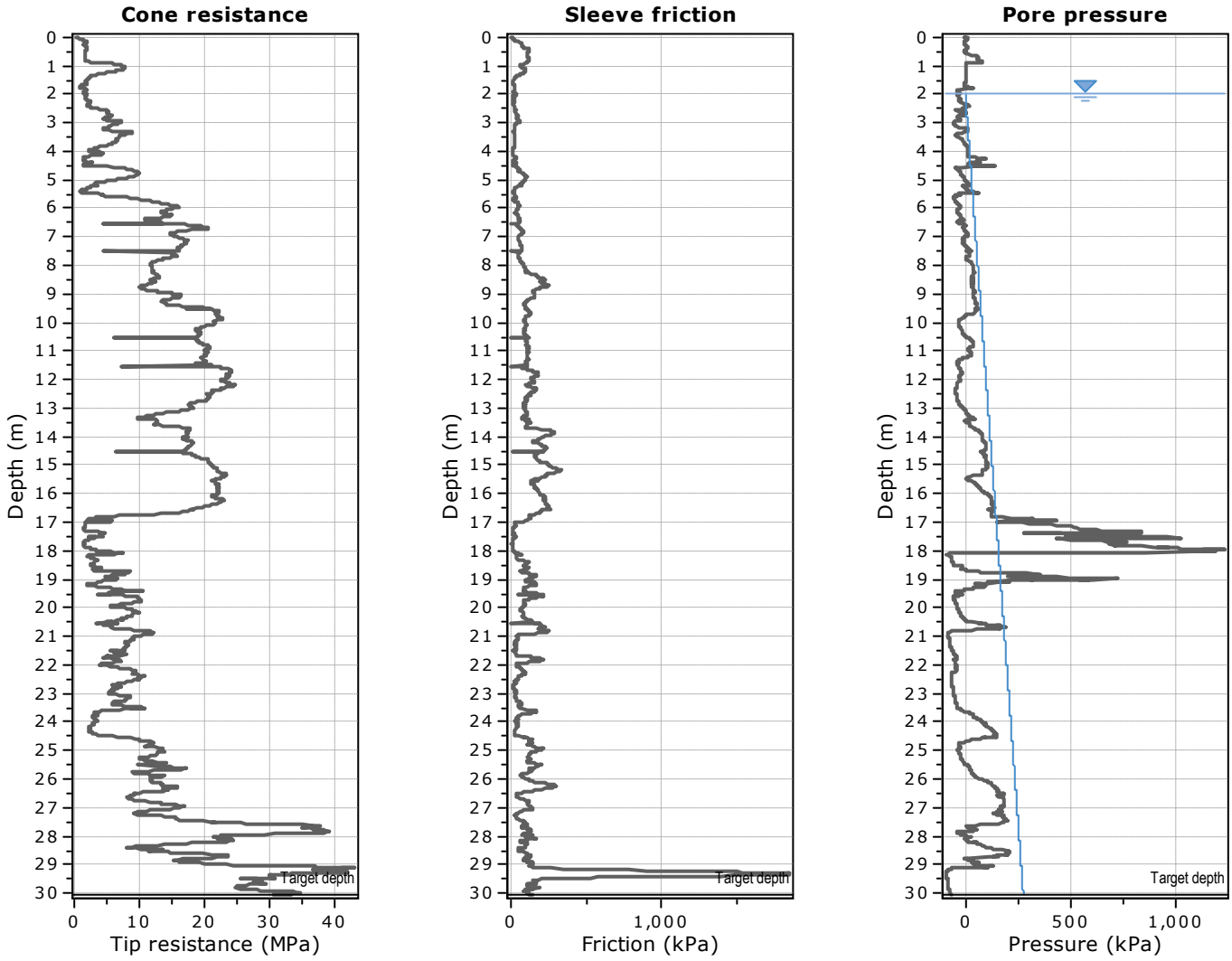
Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



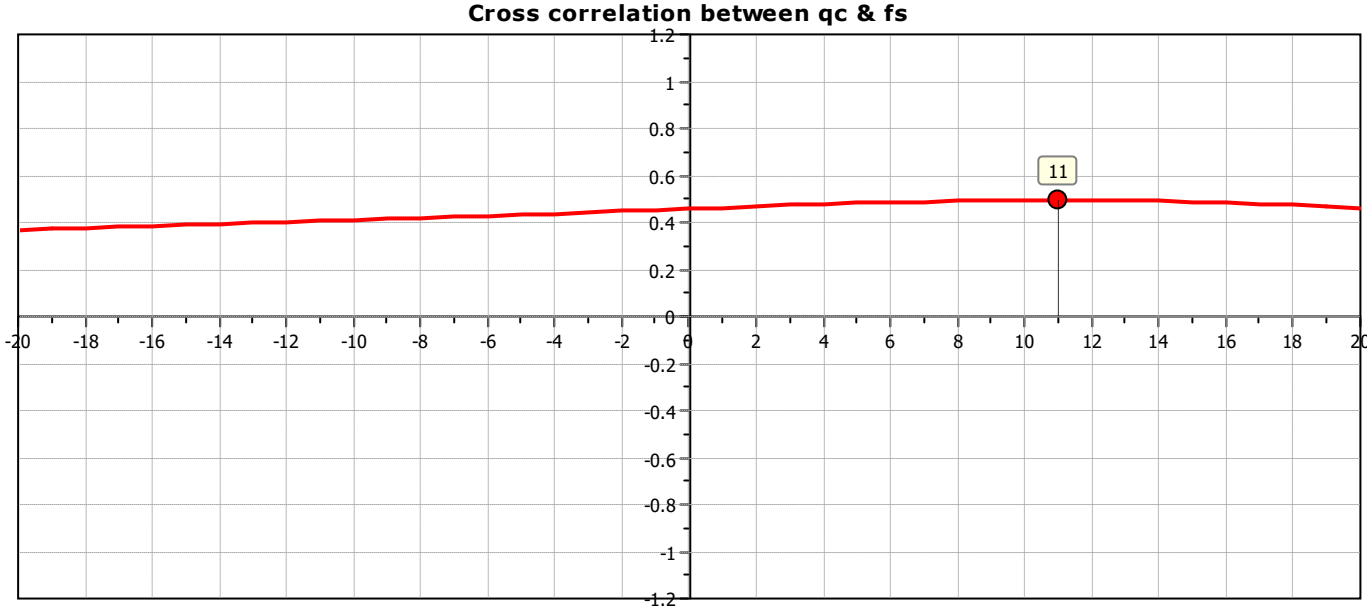
Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 24-06
Total depth: 30.06 m, Date: 4/06/2024
Coords: lat -37.820042° lon 175.759802°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



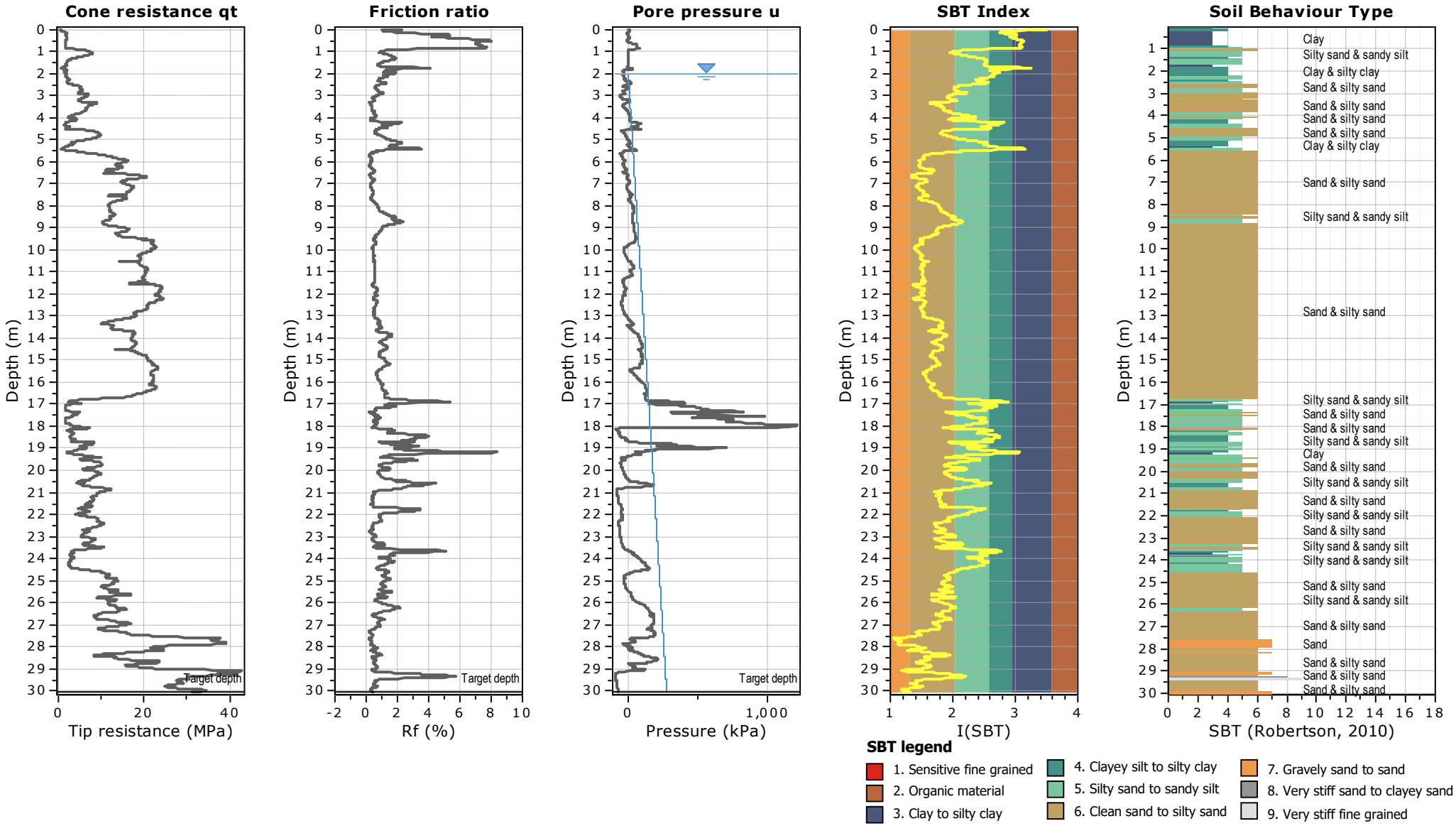
The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 24-06
Total depth: 30.06 m, Date: 4/06/2024
Coords: lat -37.820042° lon 175.759802°
Cone Type: DC10

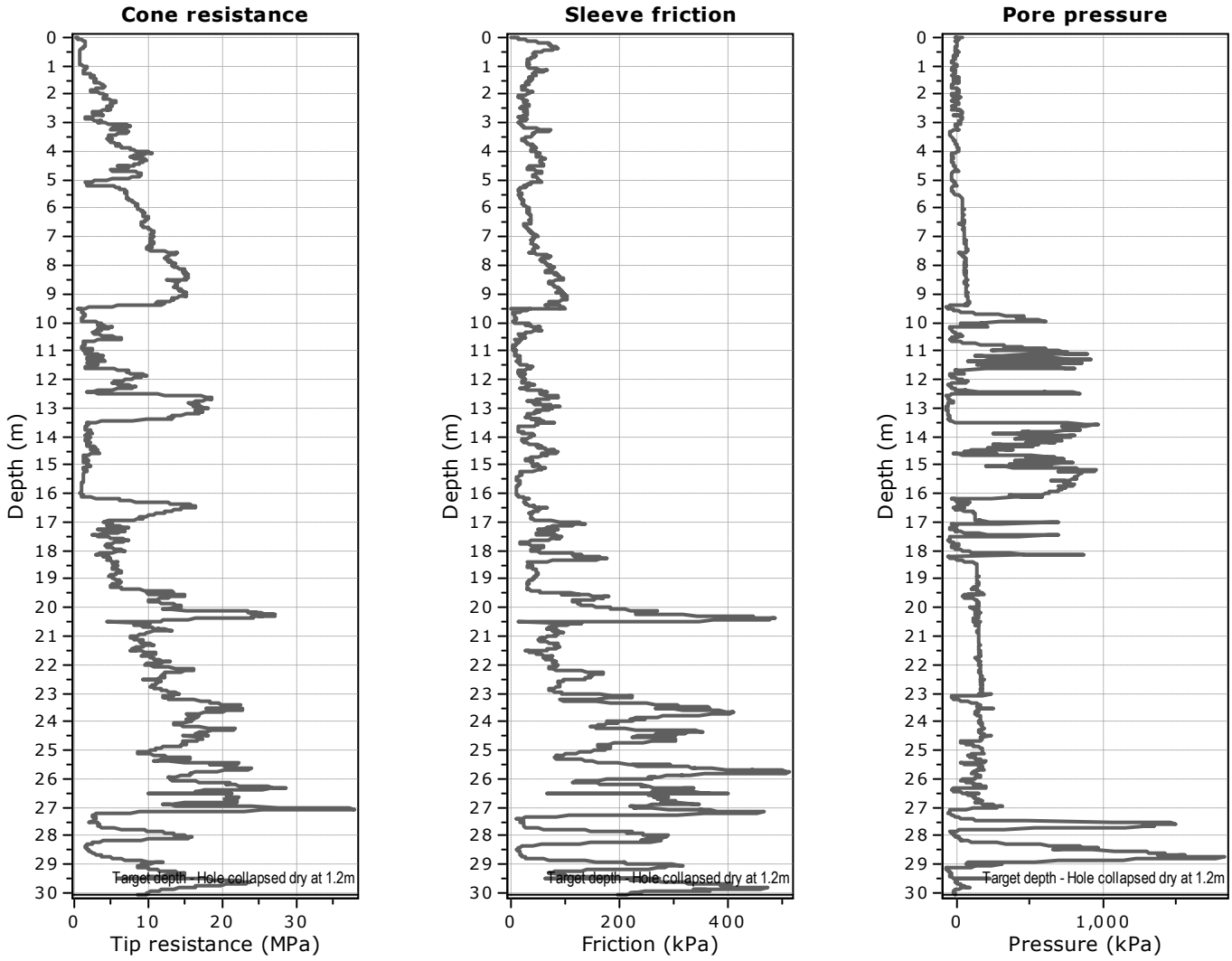
Project: CMW Geosciences | HAM2023-0124 | GDS NZ Ltd
Location: 127 Station Road, Matamata | Holes dipped onsite using Dipmeter



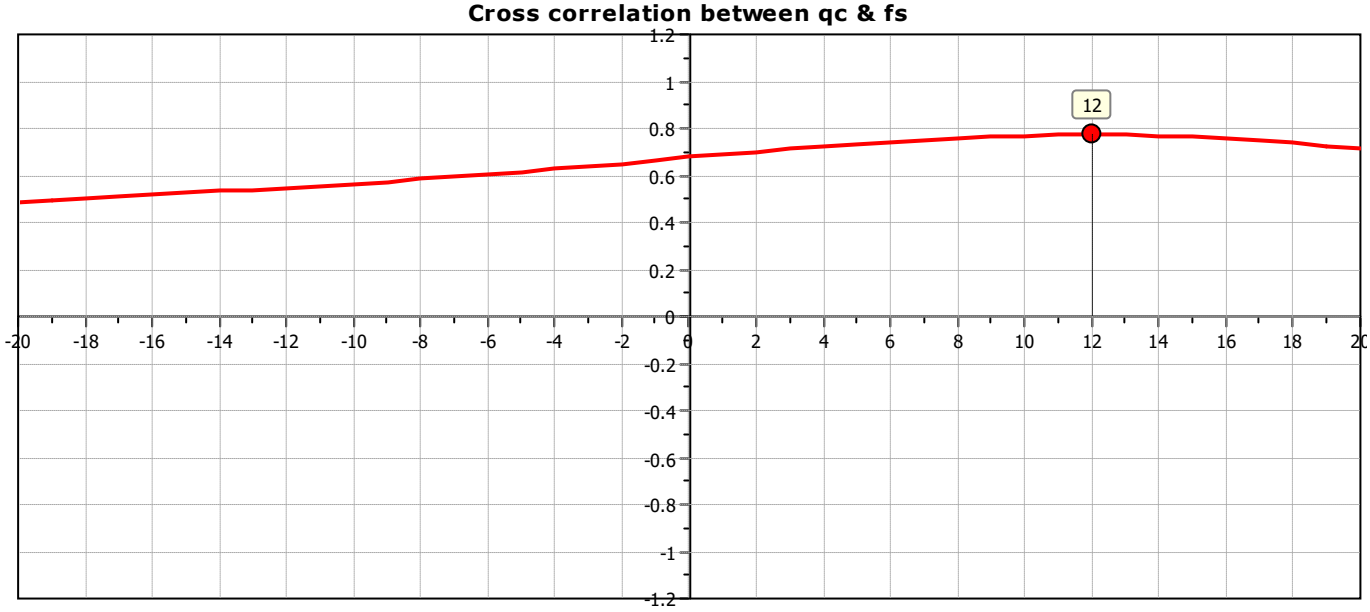
Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 24-07
Total depth: 30.07 m, Date: 4/06/2024
Coords: lat -37.82305° lon 175.750916°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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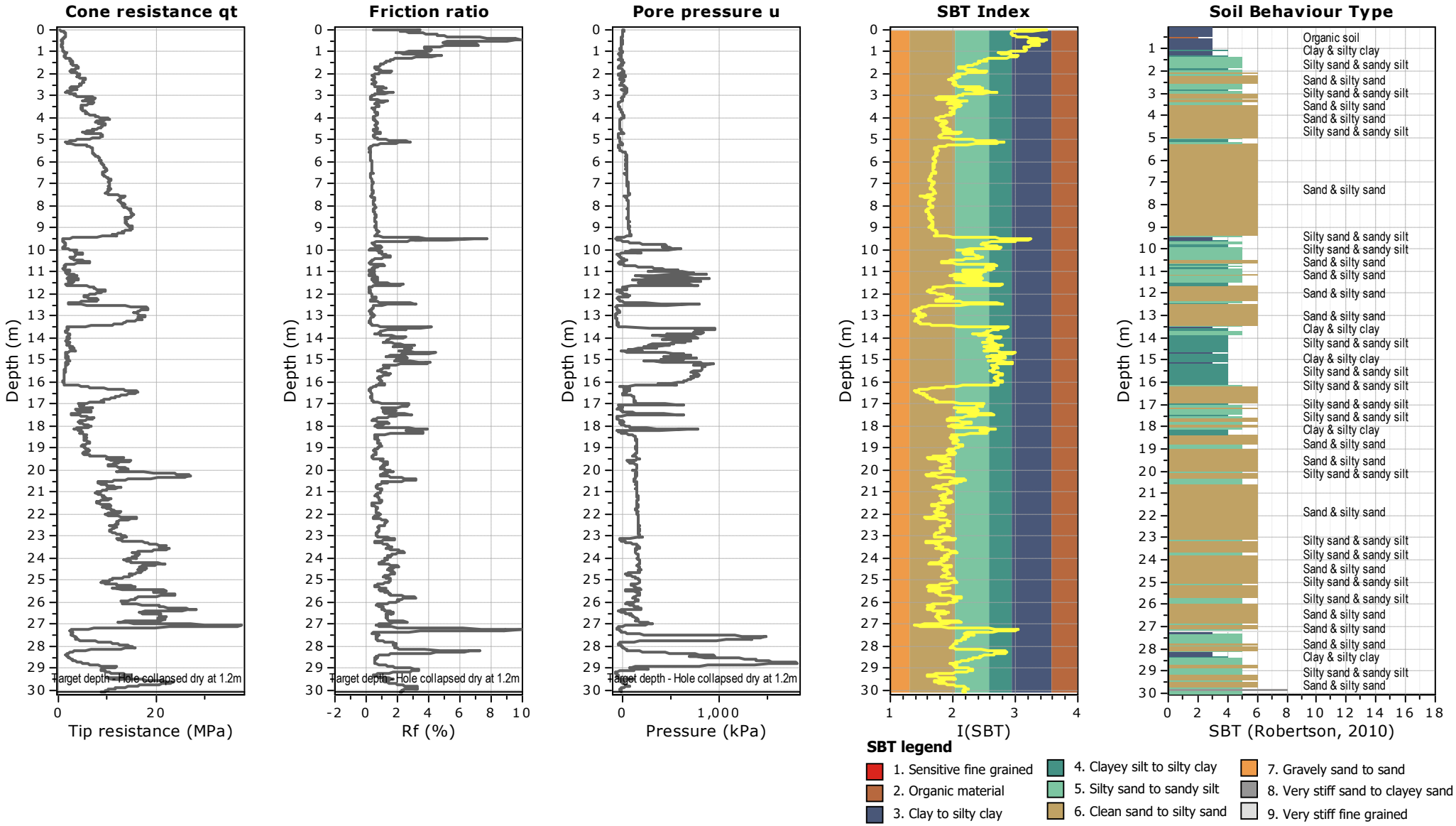
CPT: 24-07
Total depth: 30.07 m, Date: 4/06/2024
Coords: lat -37.82305° lon 175.750916°
Cone Type: DC10

Project: CMW Geosciences | HAM2023-0124 | GDS NZ Ltd
Location: 127 Station Road, Matamata | Holes dipped onsite using Dipmeter



Geo Data Solutions (GDS) NZ Ltd.
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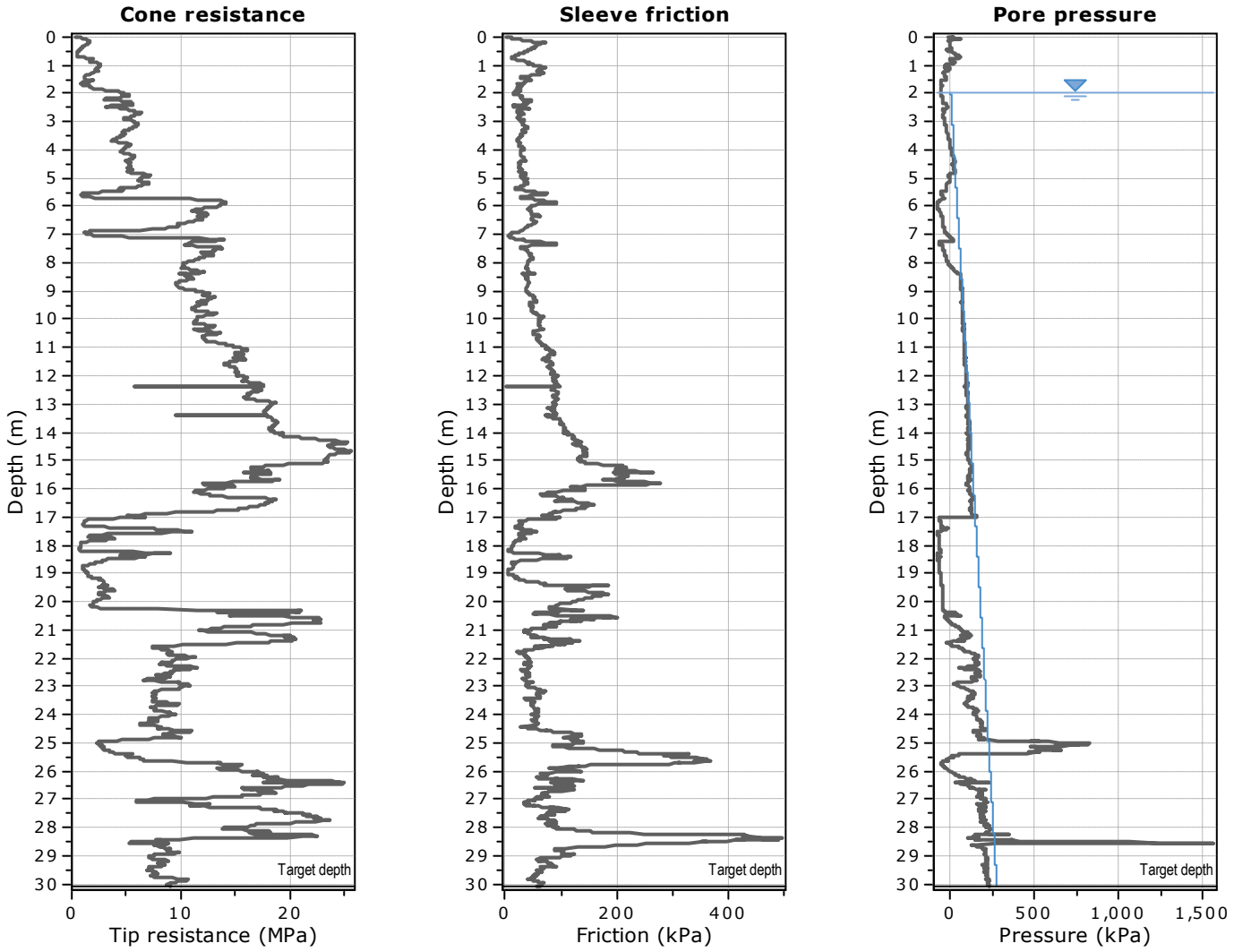
CPT: 24-08
Total depth: 30.08 m, Date: 4/06/2024
Coords: lat -37.82359° lon 175.754635°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



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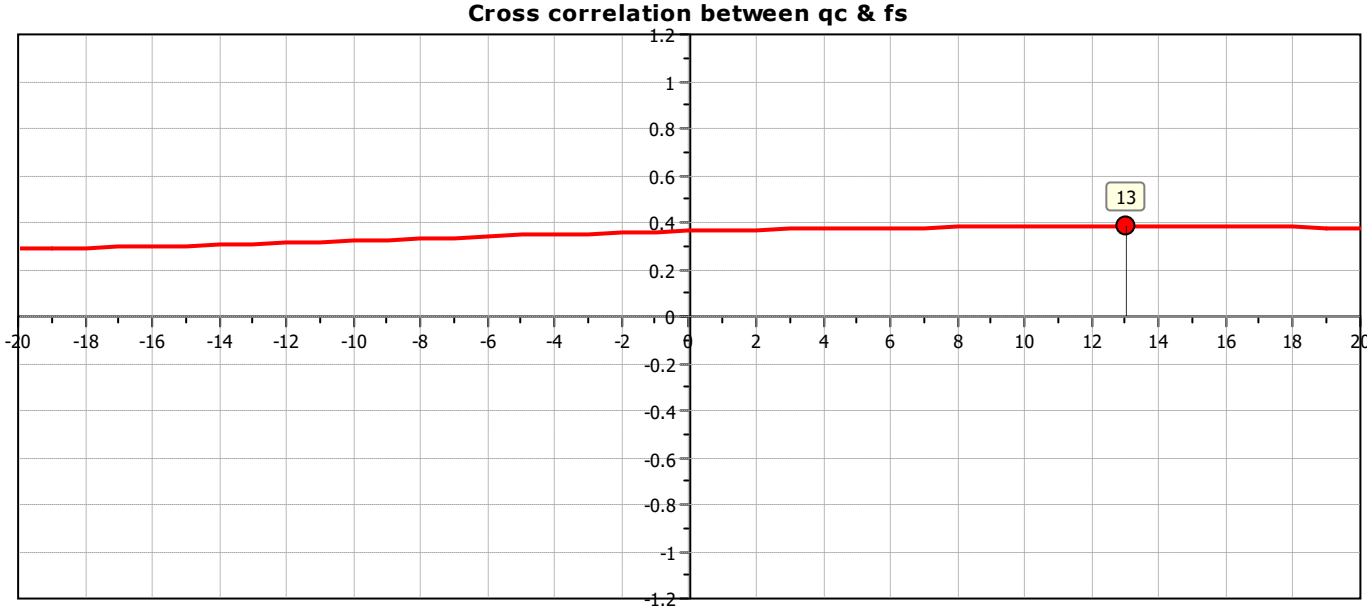

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Coords: lat -37.82359° lon 175.754635°
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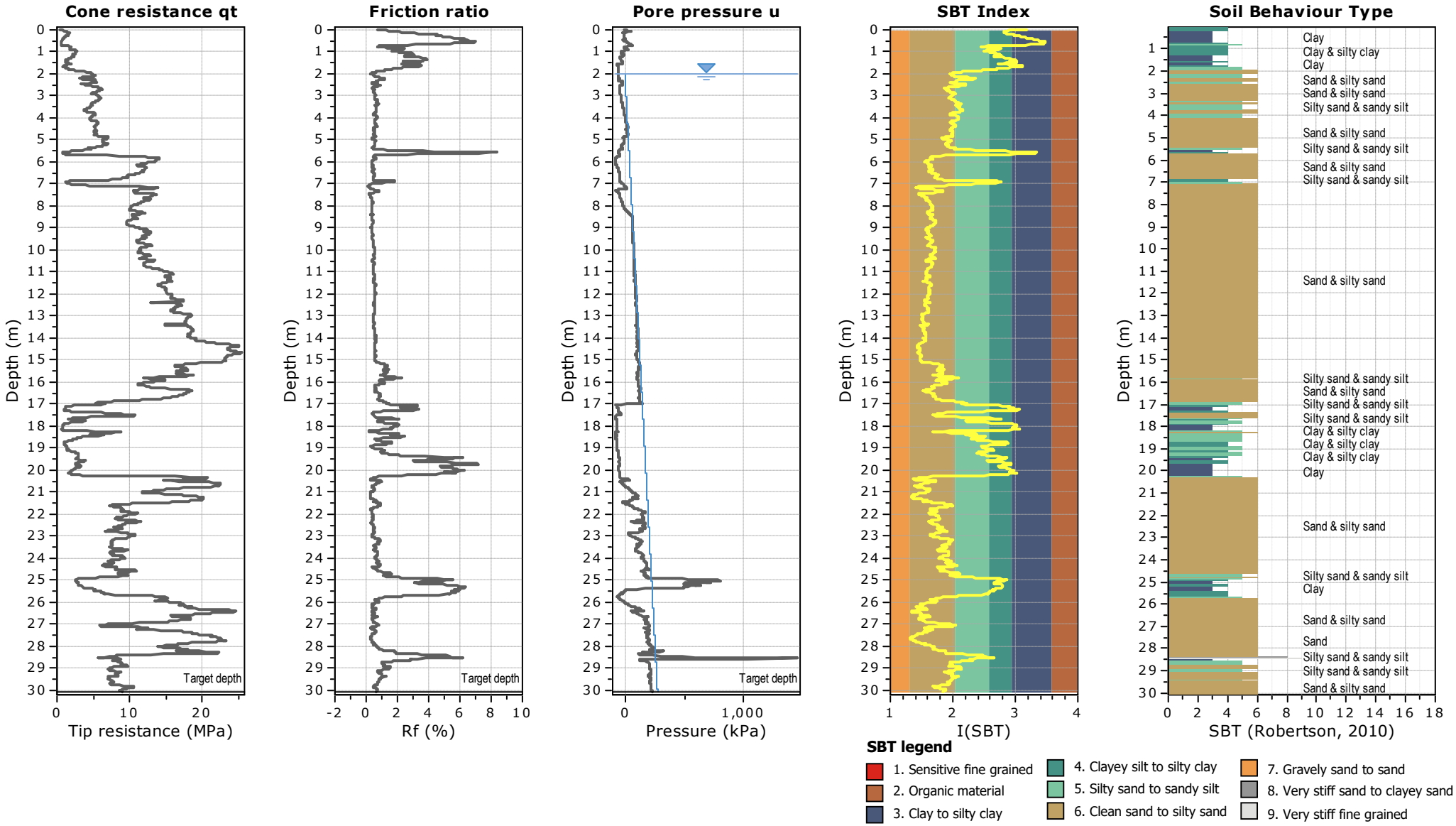
Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



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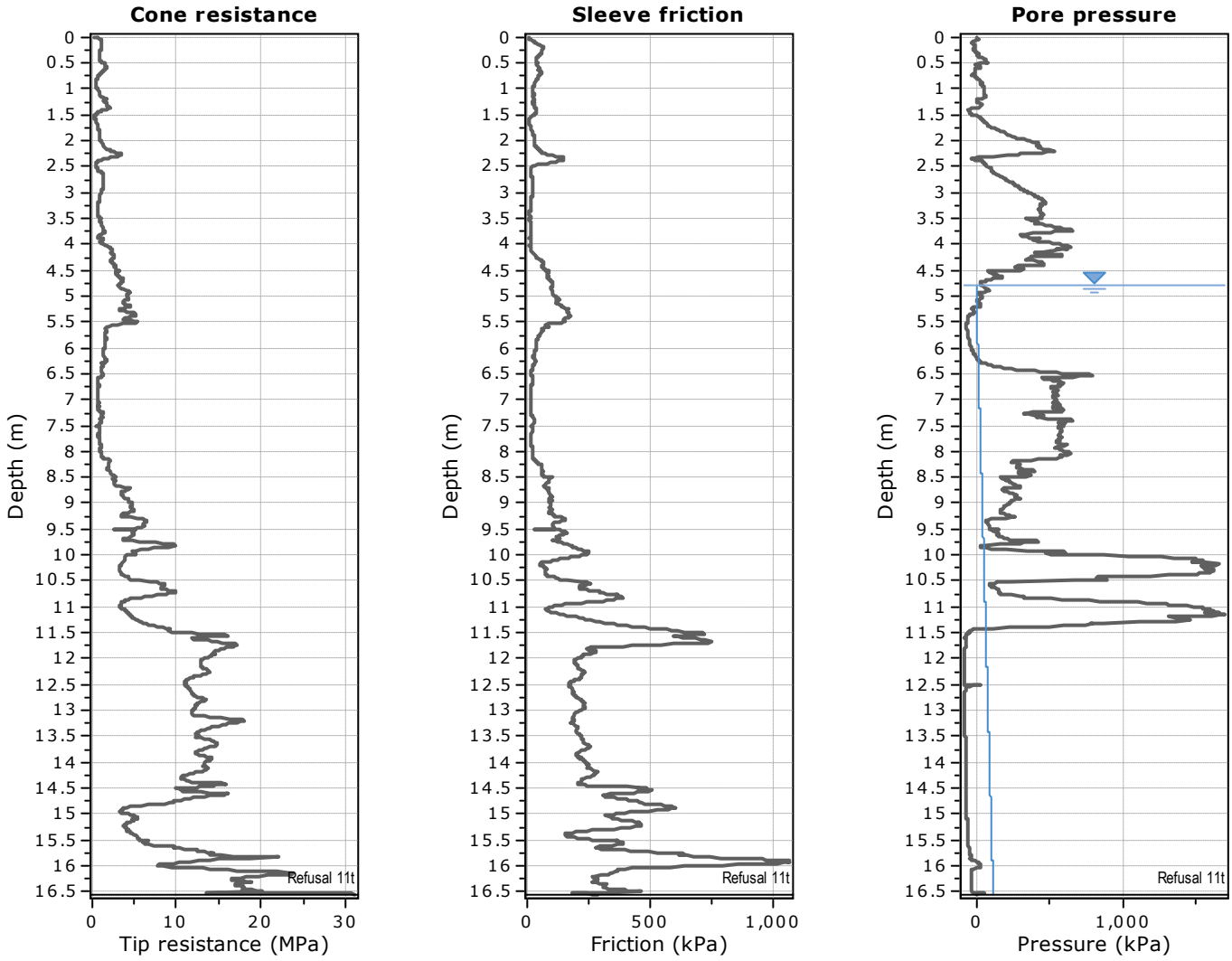
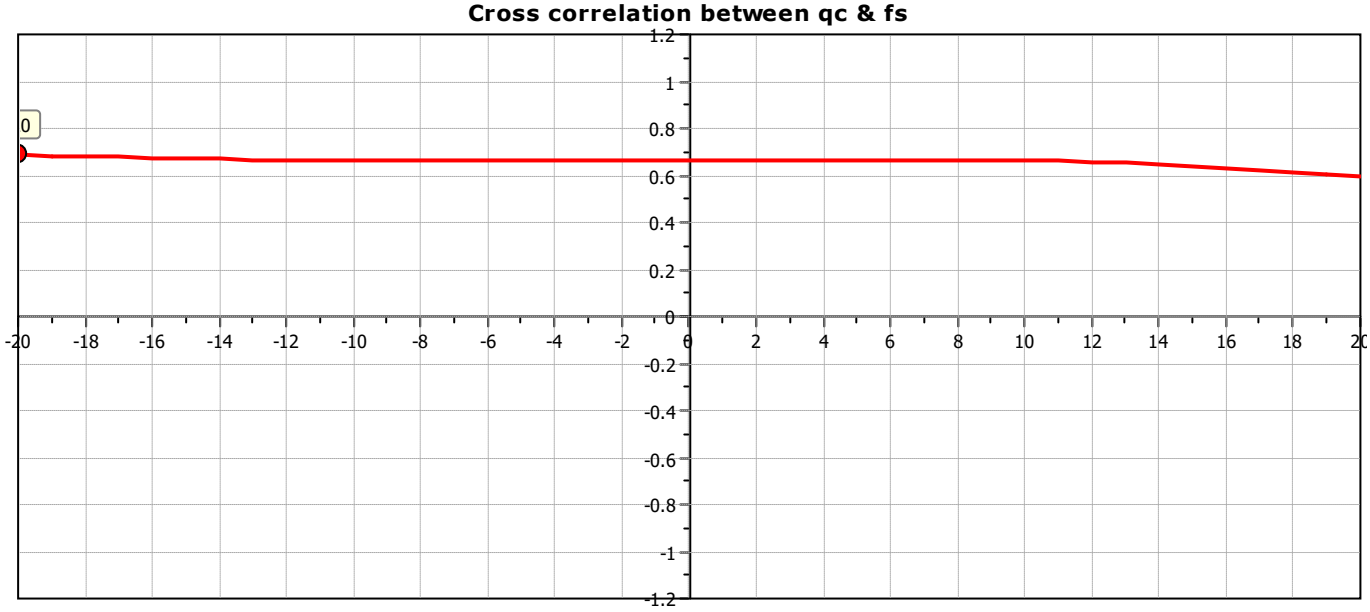
www.gdsnz.co.nz

CPT: 24-09
Total depth: 16.56 m, Date: 4/06/2024
Coords: lat -37.824685° lon 175.748286°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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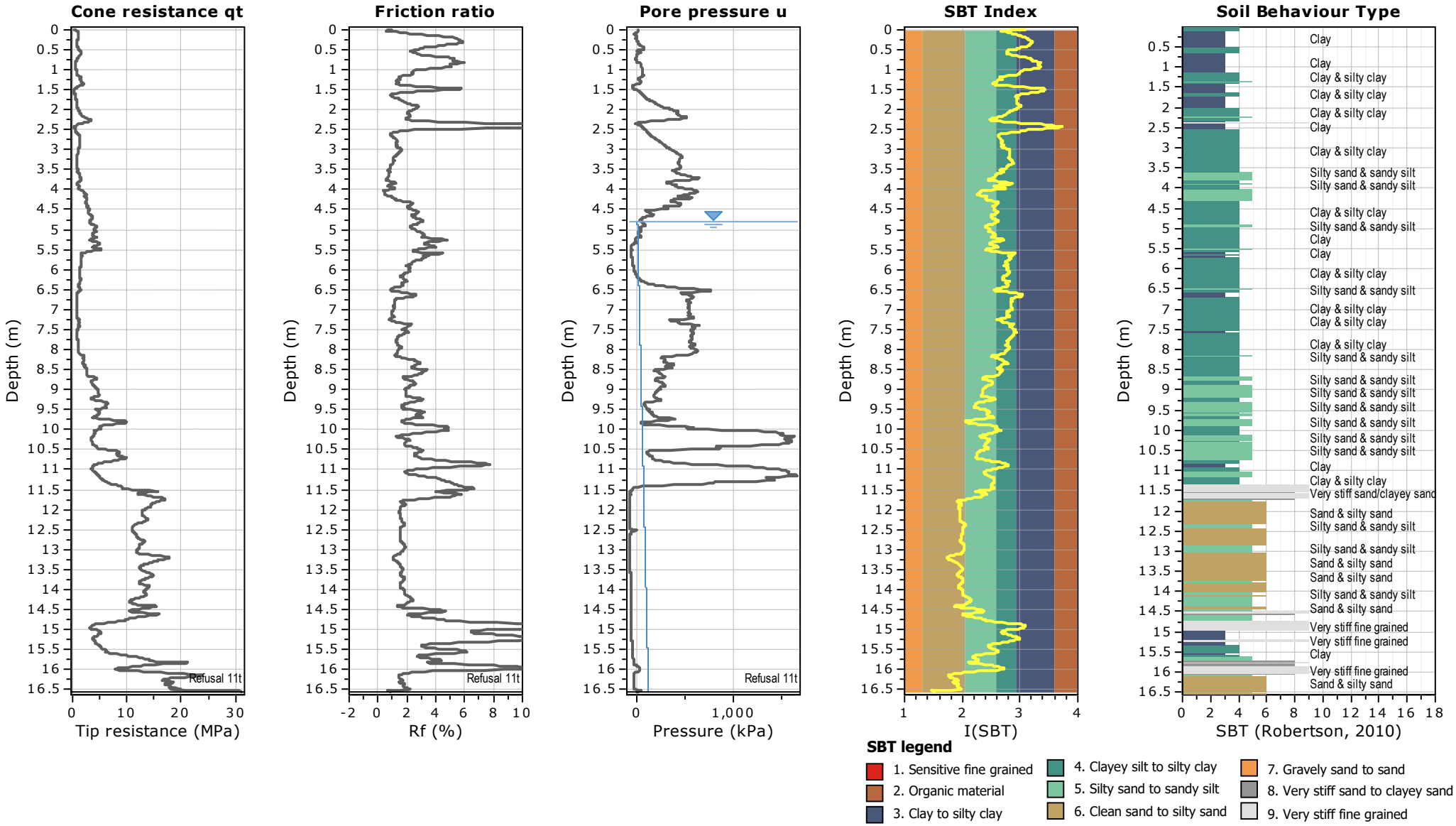
CPT: 24-09
Total depth: 16.56 m, Date: 4/06/2024
Coords: lat -37.824685° lon 175.748286°
Cone Type: DC10

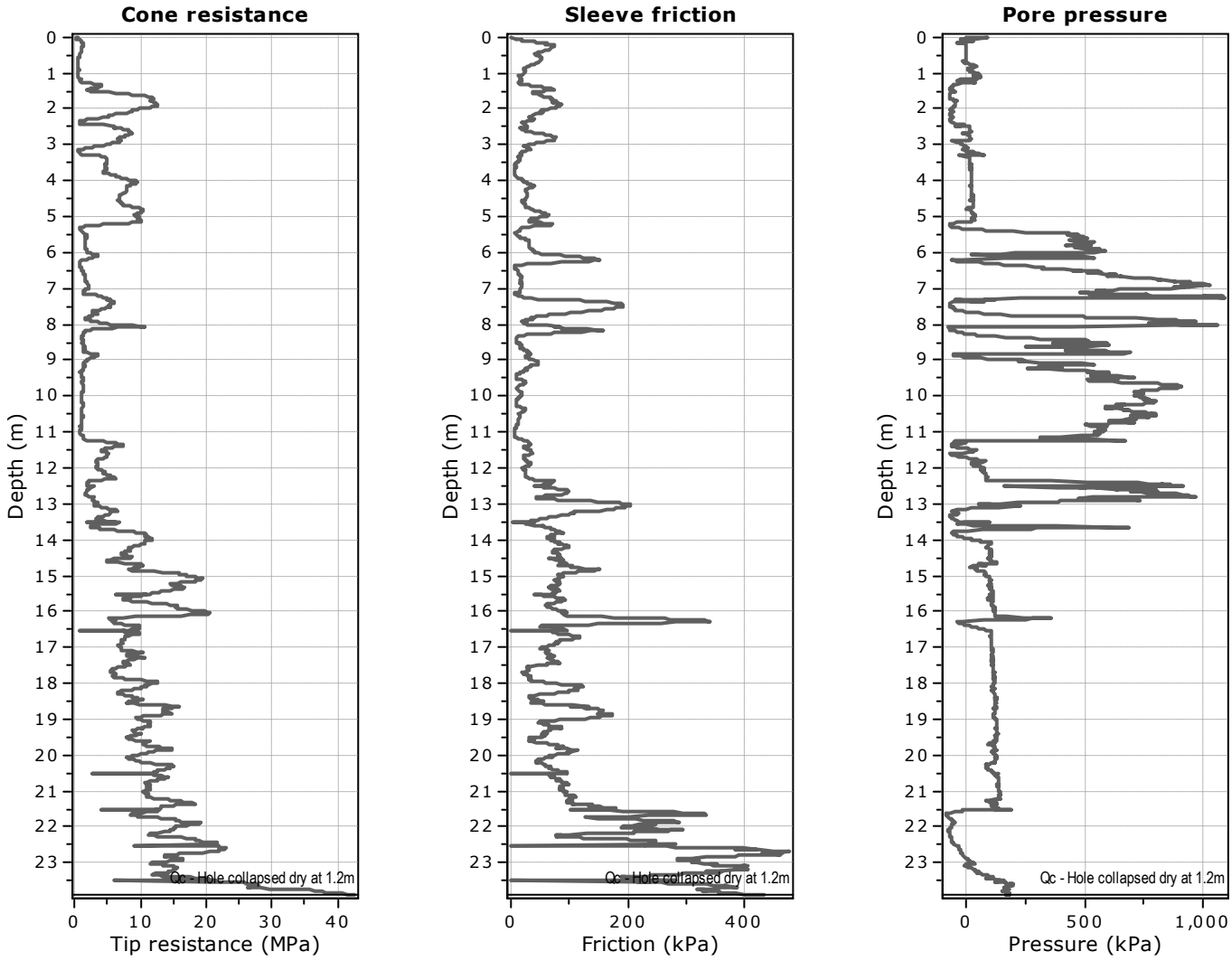
Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 24-10
Total depth: 23.89 m, Date: 4/06/2024
Coords: lat -37.82614° lon 175.752408°
Cone Type: DC10

Project: CMW Geosciences | HAM2023-0124 | GDS NZ Ltd
Location: 127 Station Road, Matamata | Holes dipped onsite using Dipmeter



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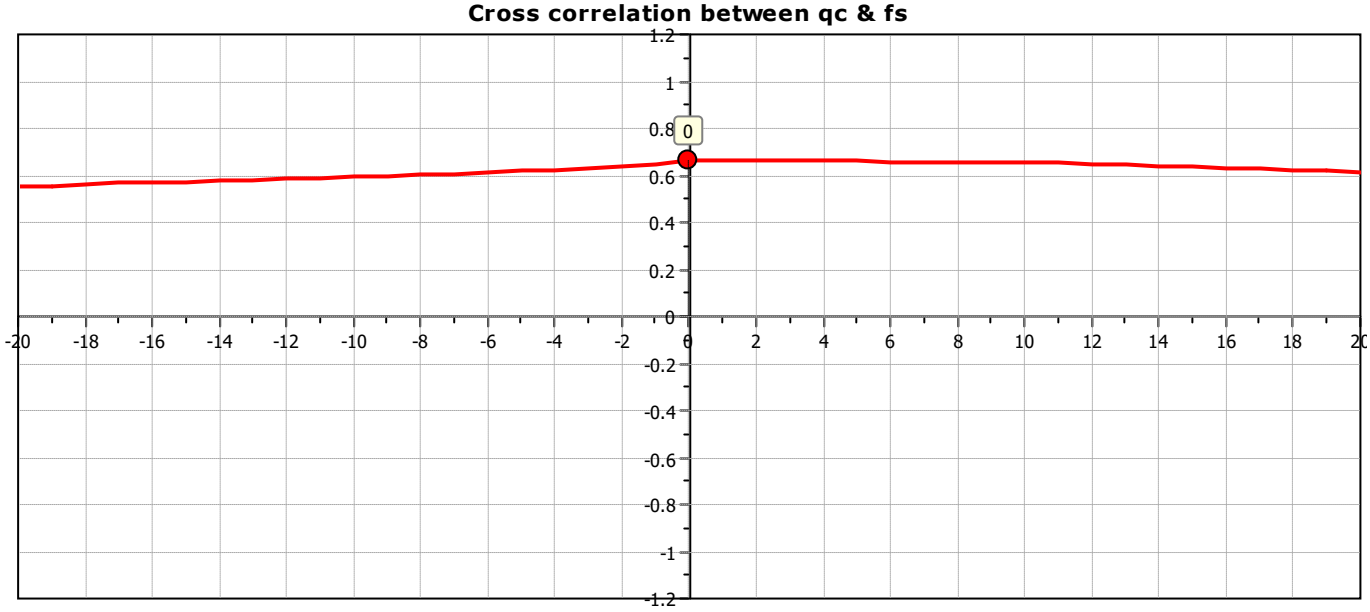

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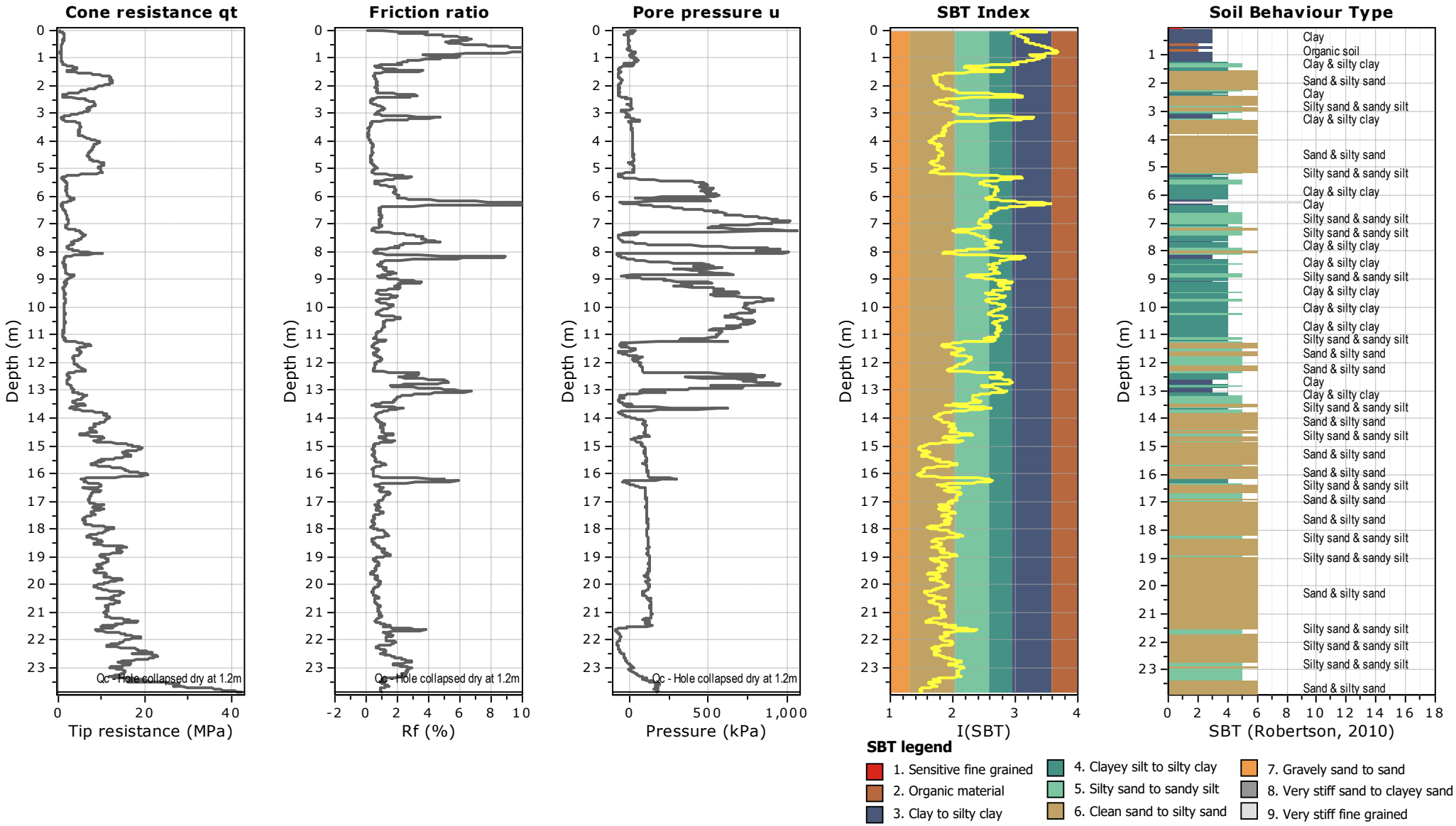
CPT: 24-10
Total depth: 23.89 m, Date: 4/06/2024
Coords: lat -37.82614° lon 175.752408°
Cone Type: DC10

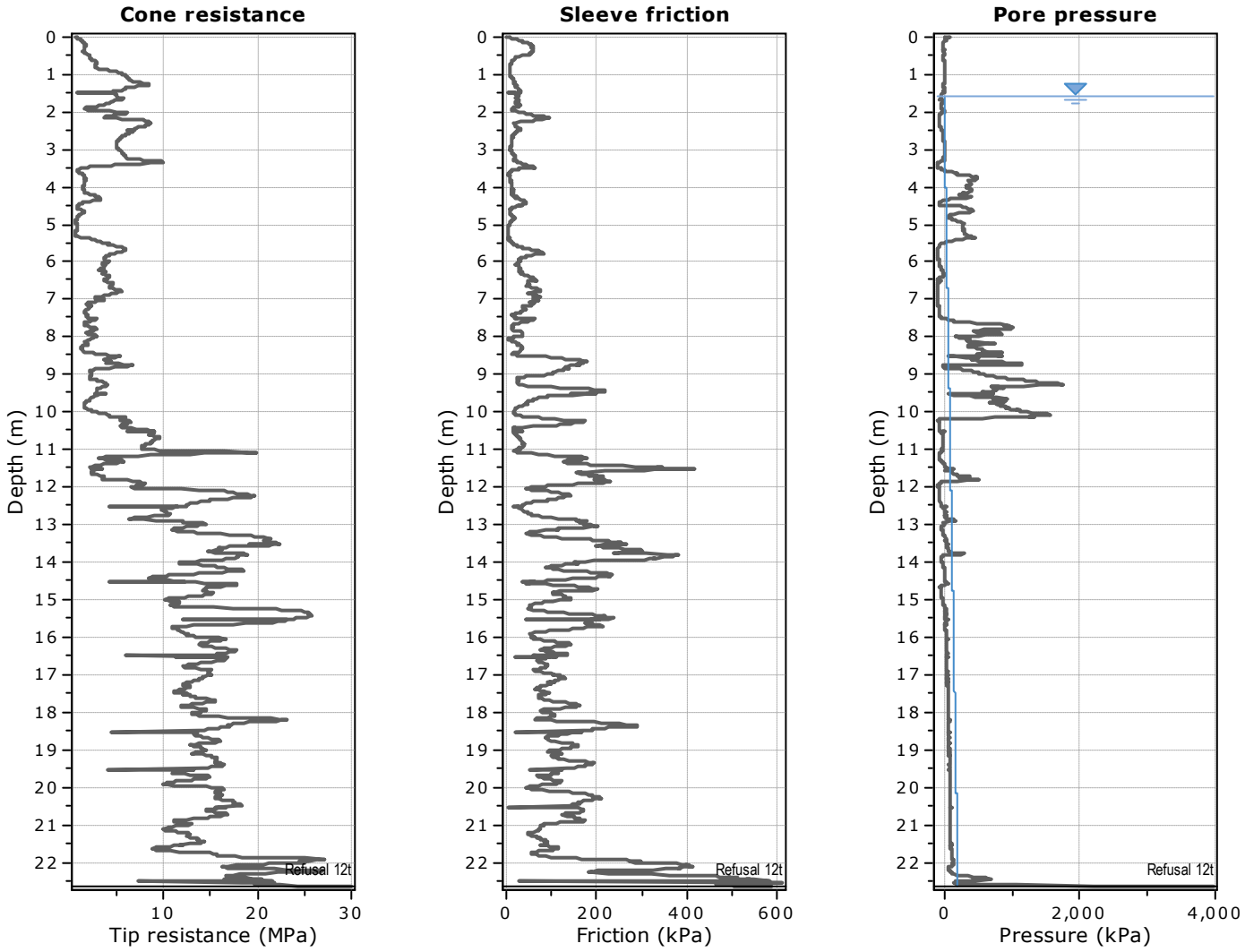
Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: SCPT24-01
Total depth: 22.64 m, Date: 4/06/2024
Coords: lat -37.820766° lon 175.747979°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



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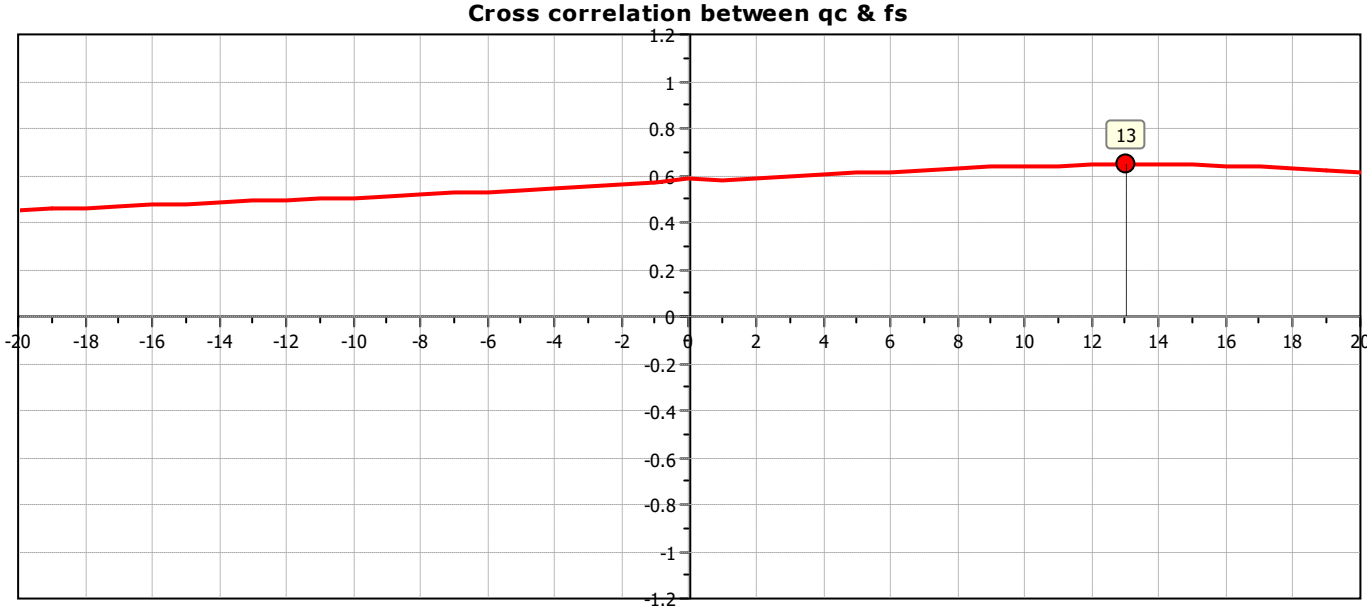

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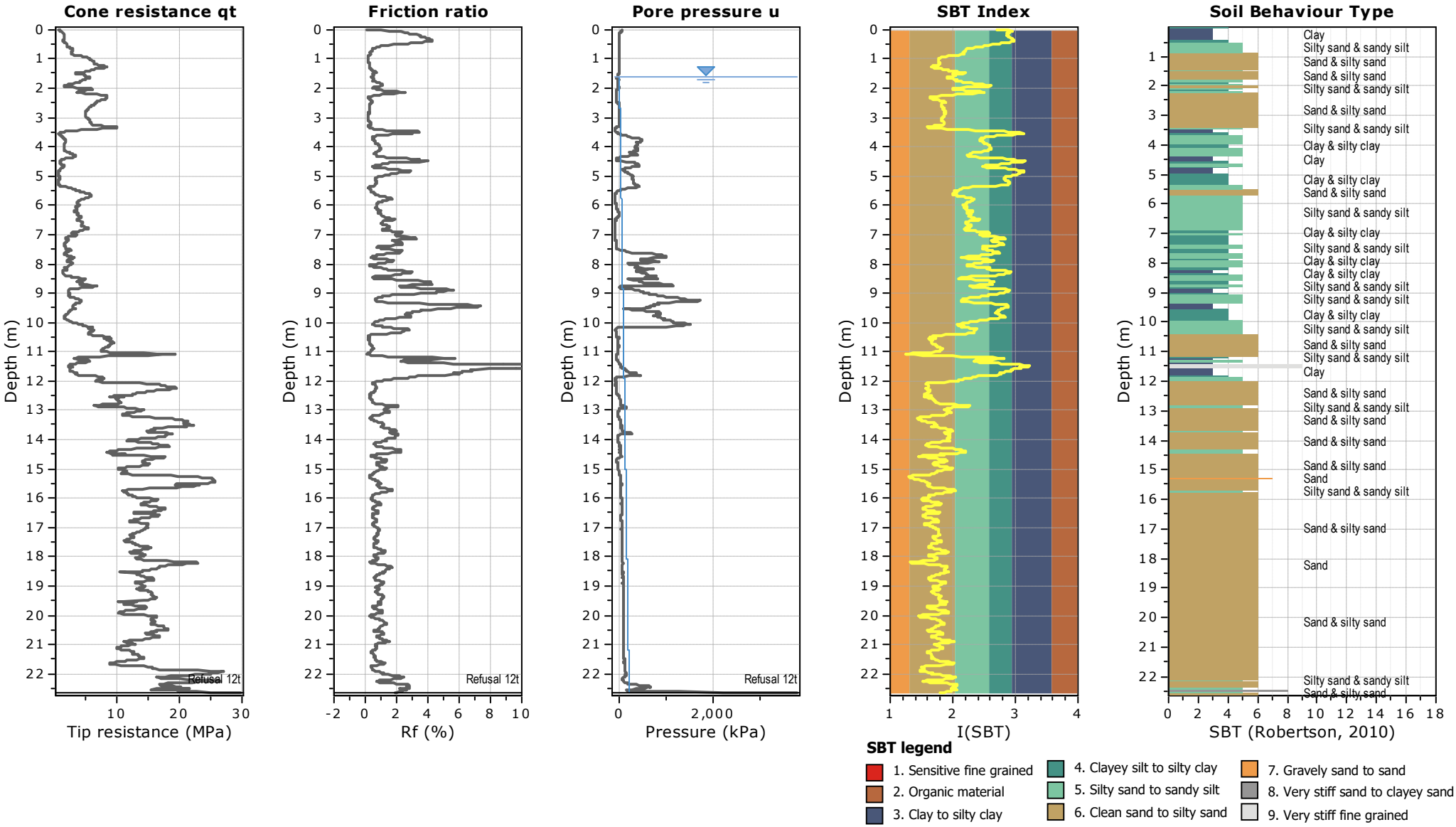
CPT: SCPT24-01
Total depth: 22.64 m, Date: 4/06/2024
Coords: lat -37.820766° lon 175.747979°
Cone Type: DC10

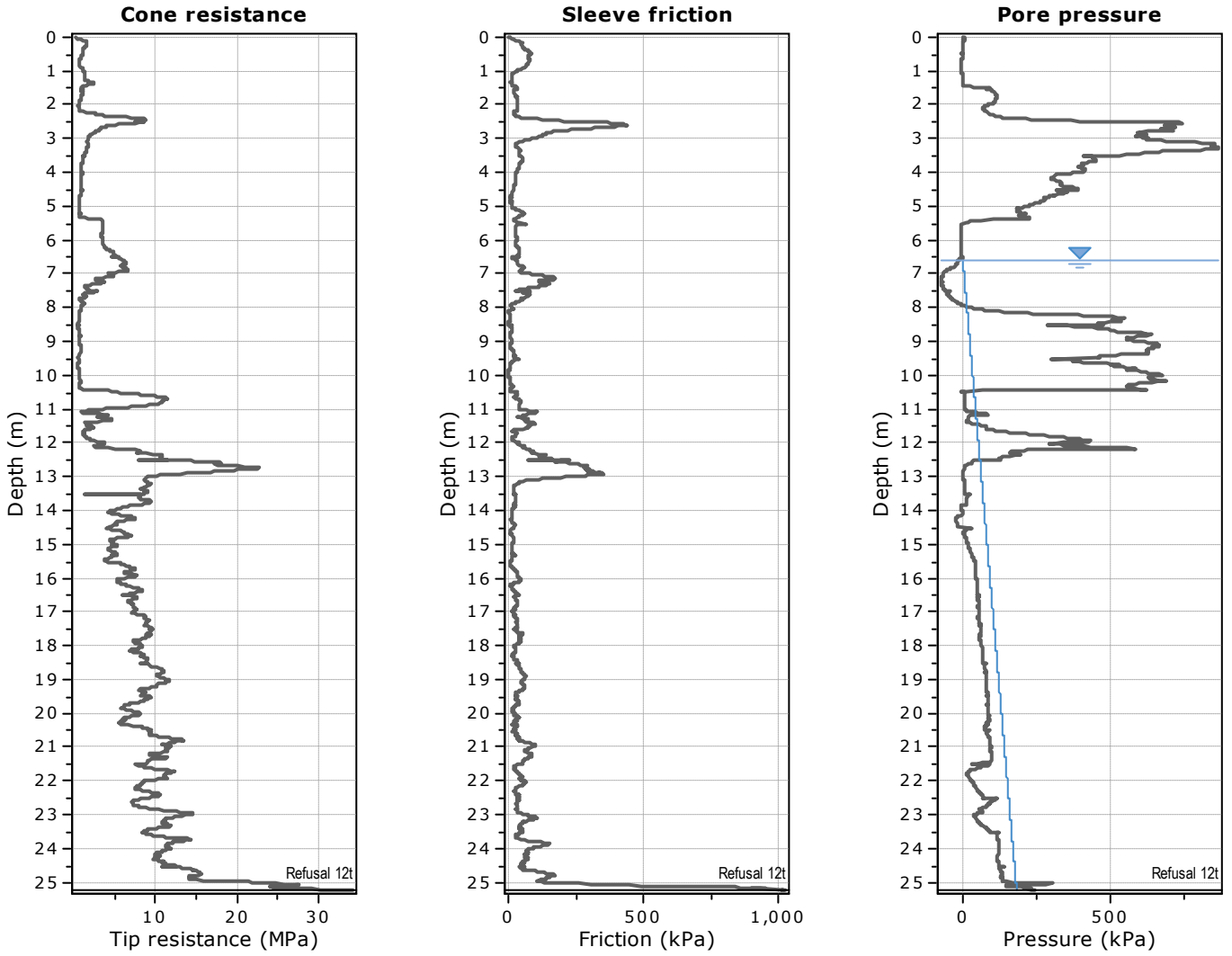
Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: SCPT24-02
Total depth: 25.23 m, Date: 4/06/2024
Coords: lat -37.822827° lon 175.745404°
Cone Type: DC10

Project: CMW Geosciences | HAM2023-0124 | GDS NZ Ltd
Location: 127 Station Road, Matamata | Holes dipped onsite using Dipmeter



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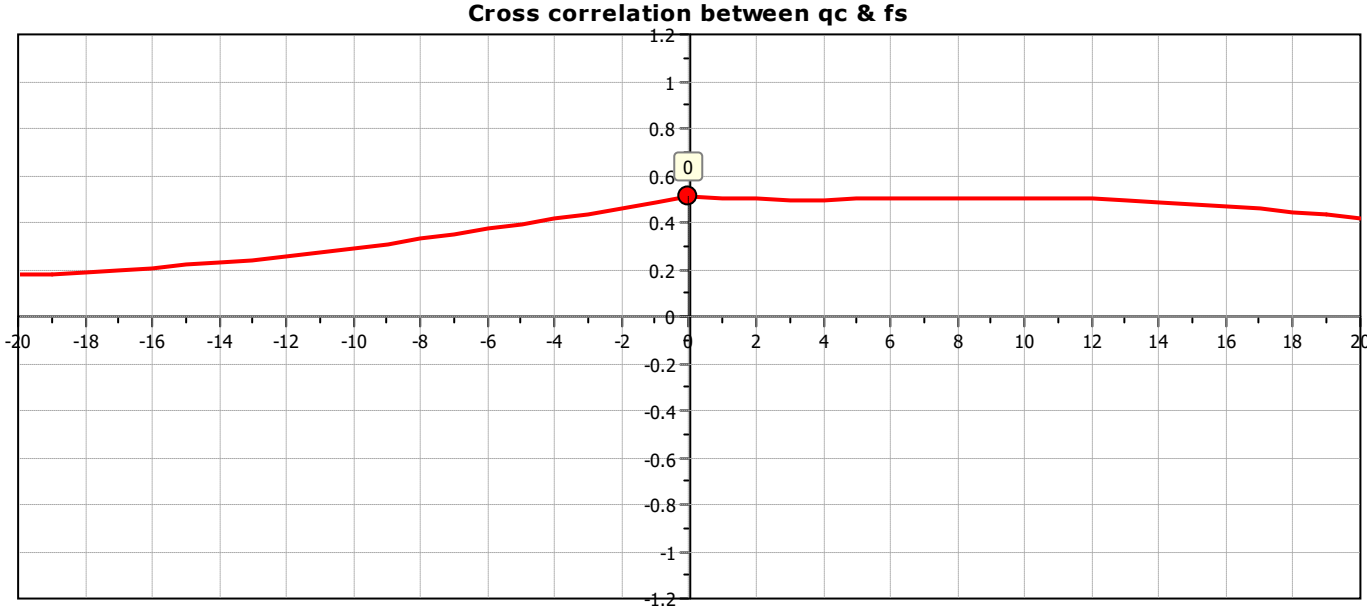

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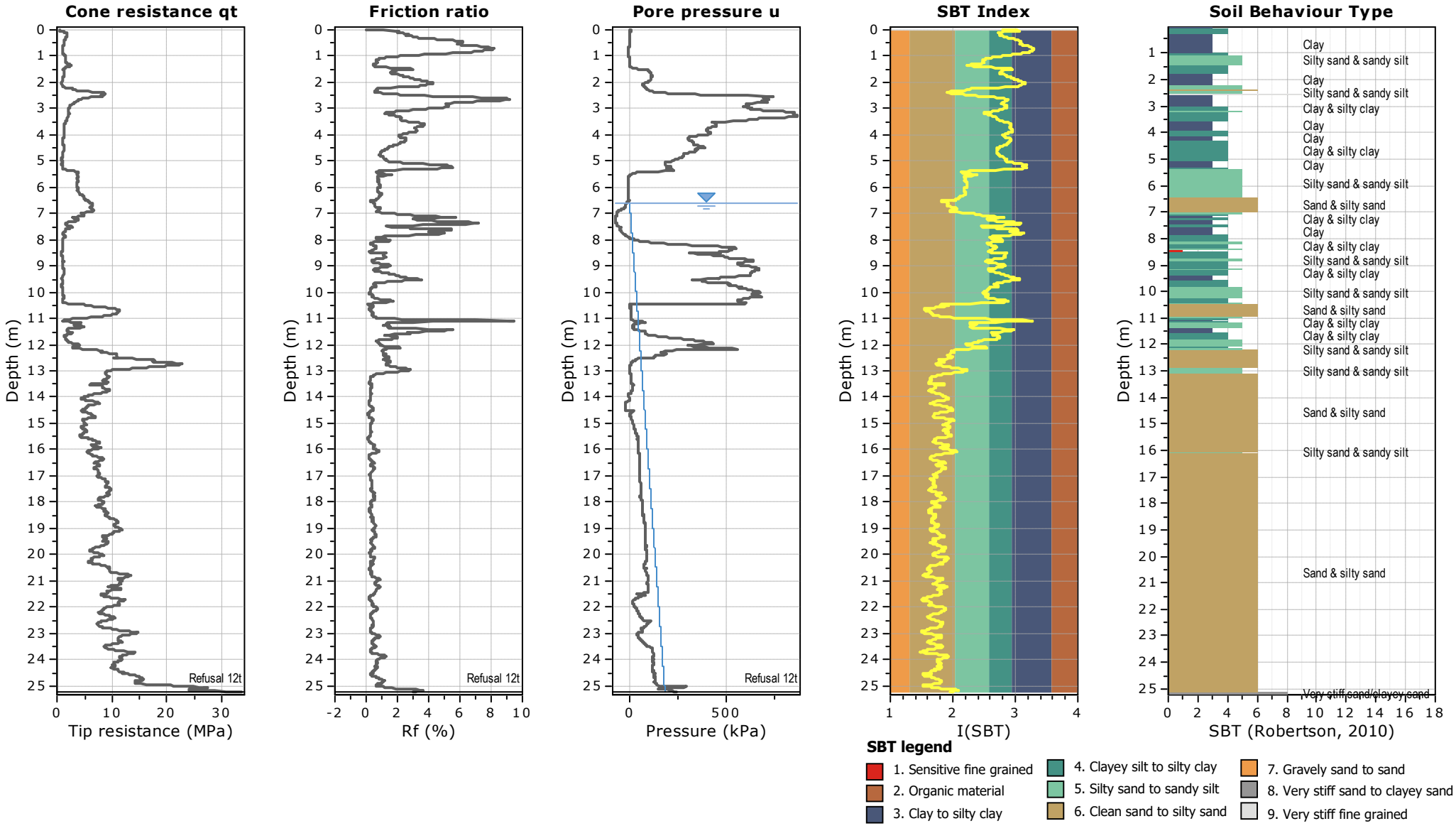
CPT: SCPT24-02
Total depth: 25.23 m, Date: 4/06/2024
Coords: lat -37.822827° lon 175.745404°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



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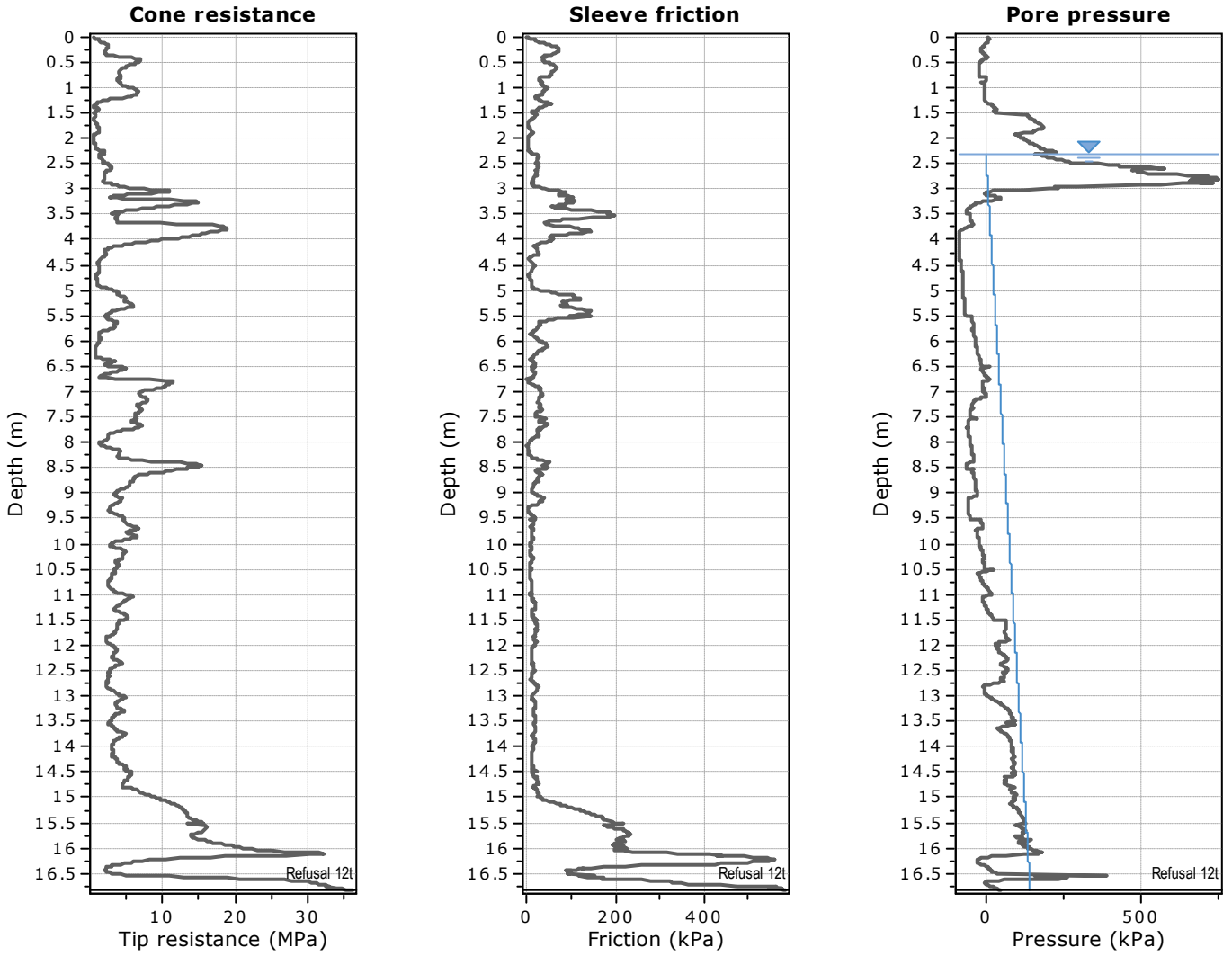
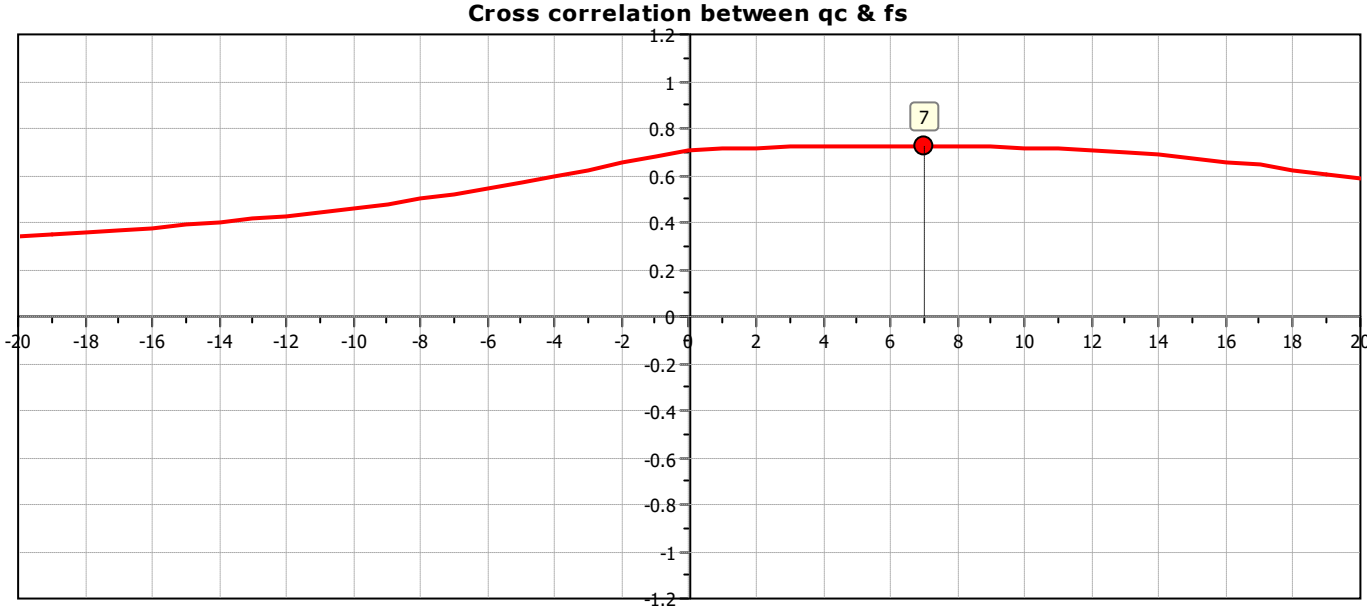
www.gdsnz.co.nz

CPT: SCPT24-03
Total depth: 16.83 m, Date: 4/06/2024
Coords: lat -37.825528° lon 175.745502°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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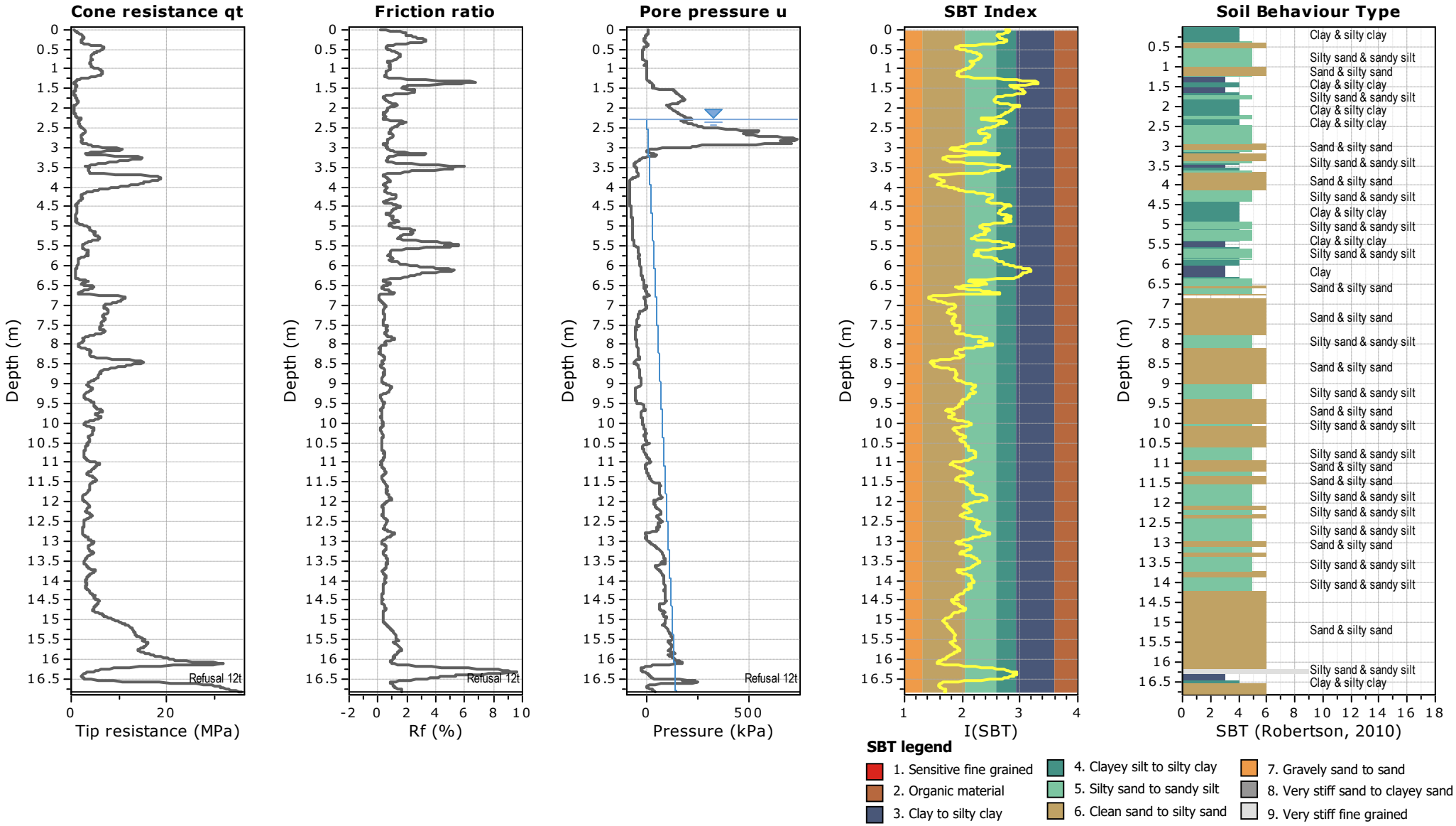
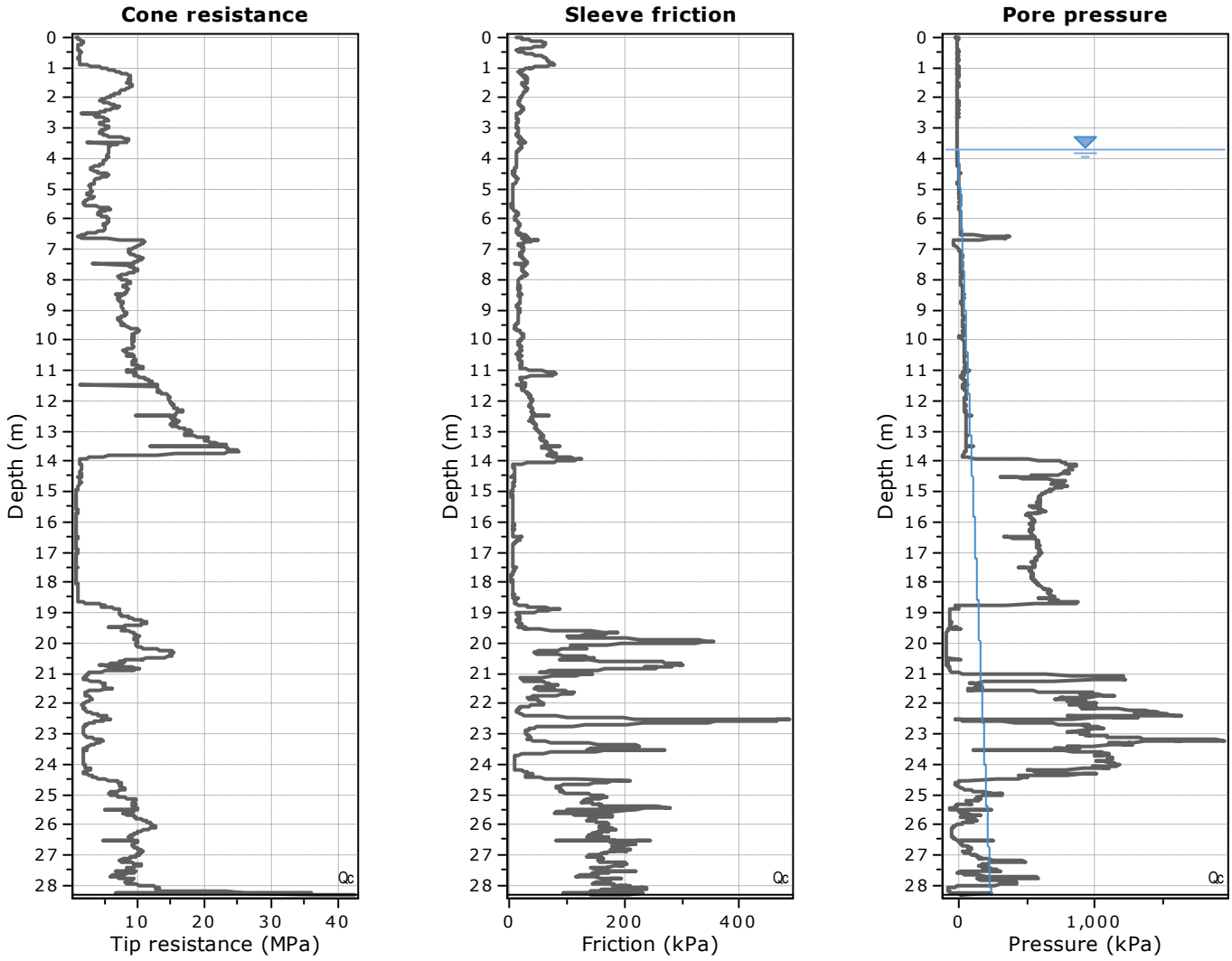
Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: SCPT24-04
Total depth: 28.31 m, Date: 4/06/2024
Coords: lat -37.825977° lon 175.756443°
Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**



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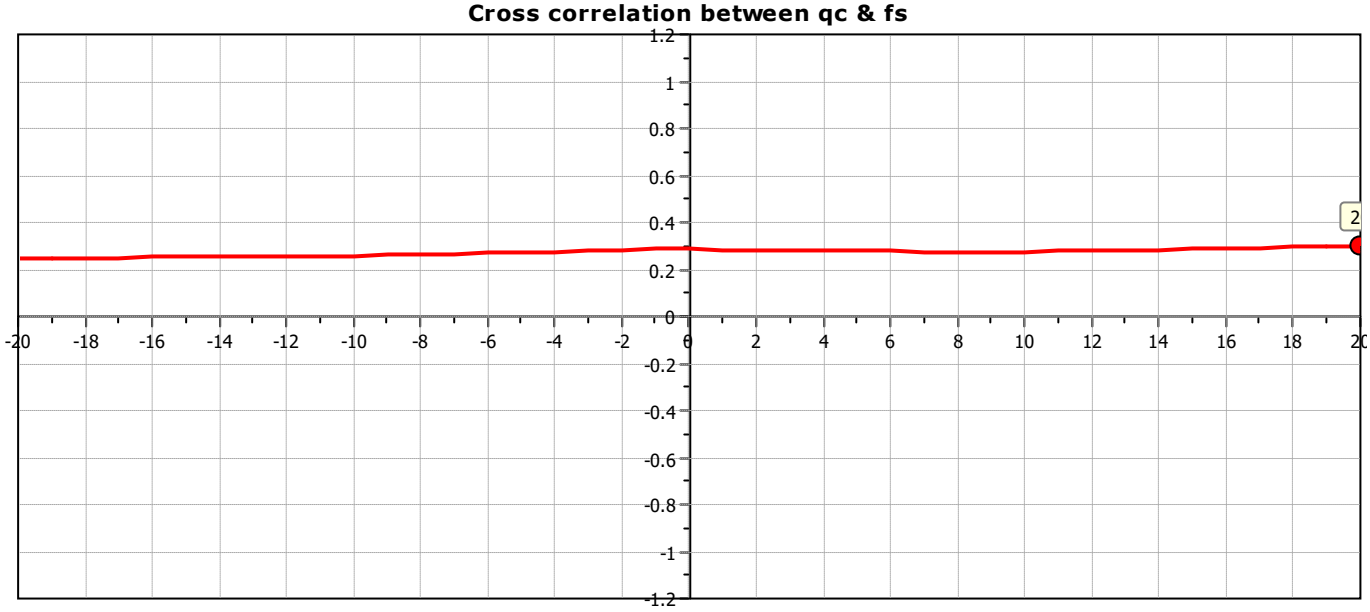

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CPT: SCPT24-04
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Cone Type: DC10

Project: **CMW Geosciences | HAM2023-0124 | GDS NZ Ltd**
Location: **127 Station Road, Matamata | Holes dipped onsite using Dipmeter**