TEST PIT LOG - TP01-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 24/08/2022
Test Pit Location: Refer to site plan Logged by: DW Checked by: MC Scale: 1:25 Sheet 1 of 1

Position: 389192.3mE; 829421.9mN Projection: EDENTM2000 Pit Dimensions: 3.5m by 1.5m
Elevation: 57.06m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations (Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks)
			57.1			OL: TOPSOIL: Dark brown. Low plasticity. Minor rootlets.				
			56.9			MH: Clayey SILT: Light brownish orange streaked grey. High plasticity. Minor limonite straining. (RS Northland Allochthon)				
	0.5	Peak = 66kPa Residual = 30kPa						St		
	1.0	Peak = 40kPa Residual = 13kPa		1			M to W	F		
	1.5	Peak = UTP						H		
			55.1	2		Highly weathered blocky LIMESTONE. Limonite staining. Calcareous. Light grey mottled ashy white. Sheared structure. Strong. Some moisture on surfaces. :	M			
						... at 2.20m, Less oxidisation	D			
						Test pit terminated at 2.30 m				
				3						
				4						
				5						

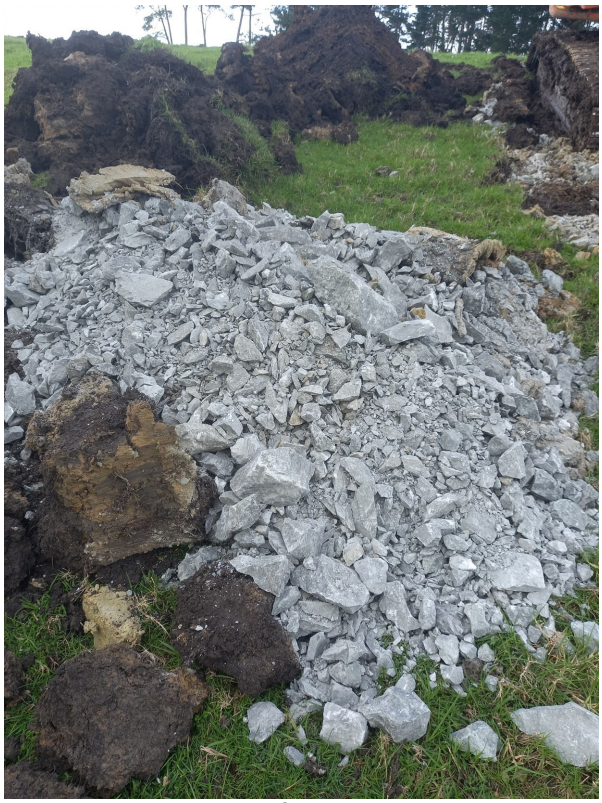
Termination Reason: Refusal on hard ground.
Shear Vane No: 1702 DCP No:

Remarks: No groundwater encountered. Orientation 189 degrees south.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP01-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 24/08/2022
Investigation Location: Refer to site plan



Spoil

Test pit

TEST PIT LOG - TP02-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 24/08/2022
Test Pit Location: Refer to site plan Logged by: PH Checked by: MC Scale: 1:25 Sheet 1 of 1

Position: 389123.9mE; 829403.3mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 55.25m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations
			55.2			OL: TOPSOIL: Brown. Low plasticity.				
			55.0			MH: Clayey SILT: Light orange brown streaked grey. High plasticity. Blocky structure. Large gravel sized, very weak silt clasts. Minor limestone clasts inclusions. (RS Northland Allochthon)	M	St		
	0.5	Peak = 66kPa Residual = 43kPa								
			54.4			Highly weathered dark grey MUDSTONE. Weak. Sheared structure. Clay on sheared surfaces. Some ashy white moderately strong limestone inclusions.: (Mangakahia Complex)	D to M			
	1.0	Peak = UTP		1						
				2						
						Test pit terminated at 2.50 m				
				3						
				4						
				5						

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

Structure & Other Observations: Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks

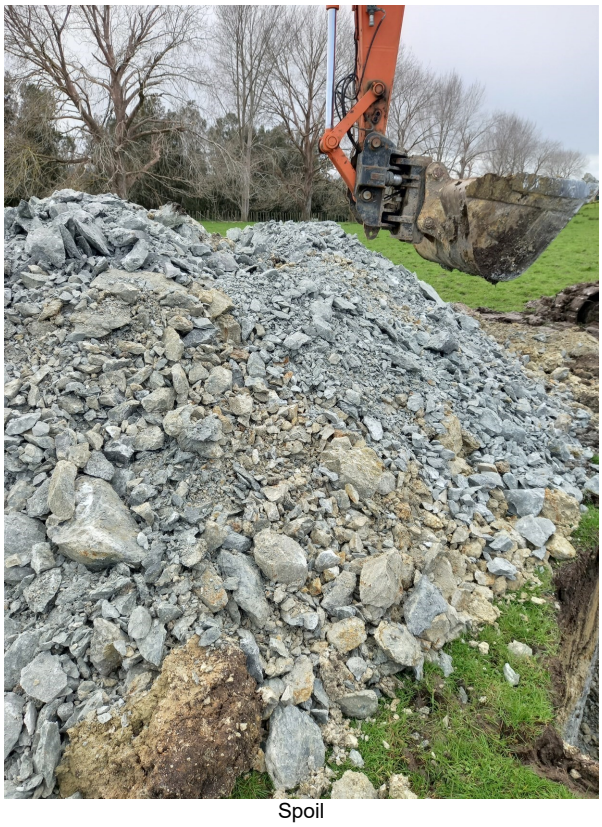
Termination Reason: Refusal on hard ground.
Shear Vane No: 1702 DCP No:

Remarks: No groundwater encountered. Orientation 241 degrees south-west.

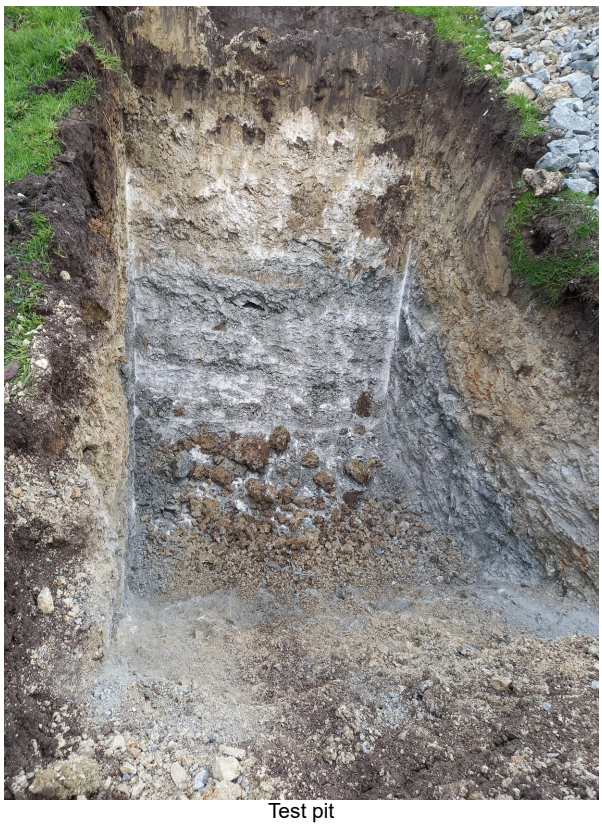
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP02-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 24/08/2022
Investigation Location: Refer to site plan



Spoil



Test pit

TEST PIT LOG - TP03-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 24/08/2022
Test Pit Location: Refer to site plan Logged by: PH Checked by: MC Scale: 1:25 Sheet 1 of 1

Position: 389255.4mE; 829440.3mN Projection: EDENTM2000 Pit Dimensions: 3.0m by 1.5m
Elevation: 59.49m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations
			59.5			OL: TOPSOIL: Brown. Low plasticity.				
			59.4			ML: Clayey SILT: Light orange brown streaked light grey. Low plasticity. Blocky structure. Some large gravel to 30cm silt clasts/ blocks. Silt blocks are extremely weak. Limonite staining on surfaces. (RS Northland Allochthon)				
	0.5	Peak = 112kPa Residual = 30kPa								
	1.0	Peak = 182kPa Residual = 63kPa		1				VSt to H		
	1.5	Peak = UTP					M			
			57.7			Completely weathered dark grey MUDSTONE. Extremely weak. Recovered as silty clay with some mudstone blocks. Sheared structure. Glossy surfaces on fracture faces with minor limonite staining. : (Mangakahia Complex)				
				2		*... at 2.20m, Becoming with some minor light bluish grey mudstone clasts inclusions*				
				3		*... at 3.50m, Becoming with some highly weathered to moderately weathered 20-40cm mudstone blocks. Very weak.*	D			
				4		Test pit terminated at 4.10 m				
				5						

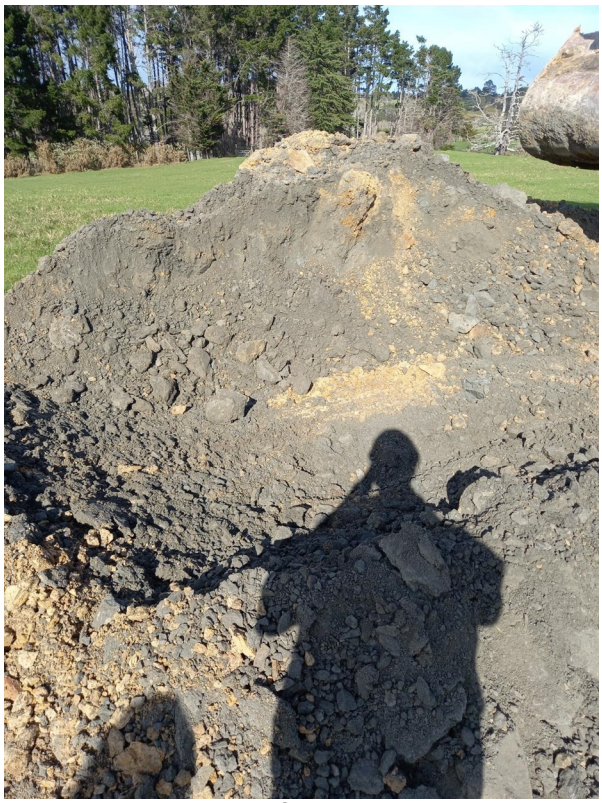
Termination Reason: Refusal on hard ground.
Shear Vane No: 1702 DCP No:

Remarks: Water seepage encountered at 1.0m. Orientation 107 degrees east.

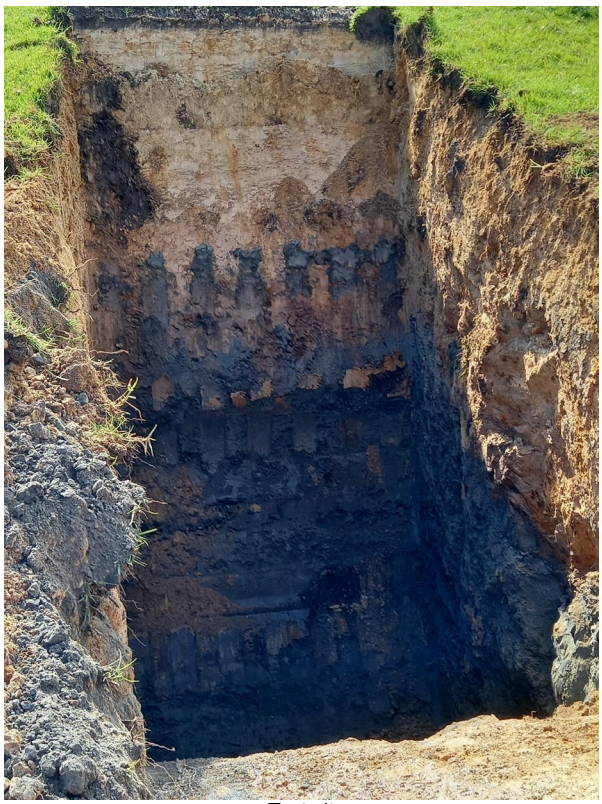
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP03-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 24/08/2022
Investigation Location: Refer to site plan



Spoil



Test pit

TEST PIT LOG - TP04-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 24/08/2022
Test Pit Location: Refer to site plan Logged by: DW Checked by: MC Scale: 1:25 Sheet 1 of 1
Position: 389146.8mE; 829479.2mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 51.86m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations
			51.9			OL: TOPSOIL: Dark brown. Low plasticity.				
			51.7			ML: Clayey SILT: Greyish brown. Low plasticity. Minor limonite staining. Medium to large gravel sized blocky clasts. (RS Northland Allochthon)				
	0.5	Peak = 66kPa Residual = 33kPa						St		
	1.0	Peak = 50kPa Residual = 17kPa		1			M			
			50.5			Completely weathered to highly weathered light greyish brown MUDSTONE. Extremely weak. Recovered as silty clay with large mudstone blocks. Water on fractures surfaces. Some large gravel sized limestone inclusions. : (Mangakahia Complex)				
	1.5	Peak = UTP		2				H		
			49.6			Highly weathered grey MUDSTONE Very weak. Recovered as large mudstone blocks, with clay on block surfaces. Highly to moderately weathered ashy white limestone blocks. : (Mangakahia Complex)	M to W			
						Test pit terminated at 2.50 m				
				3						
				4						
				5						

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

Structure & Other Observations: Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks

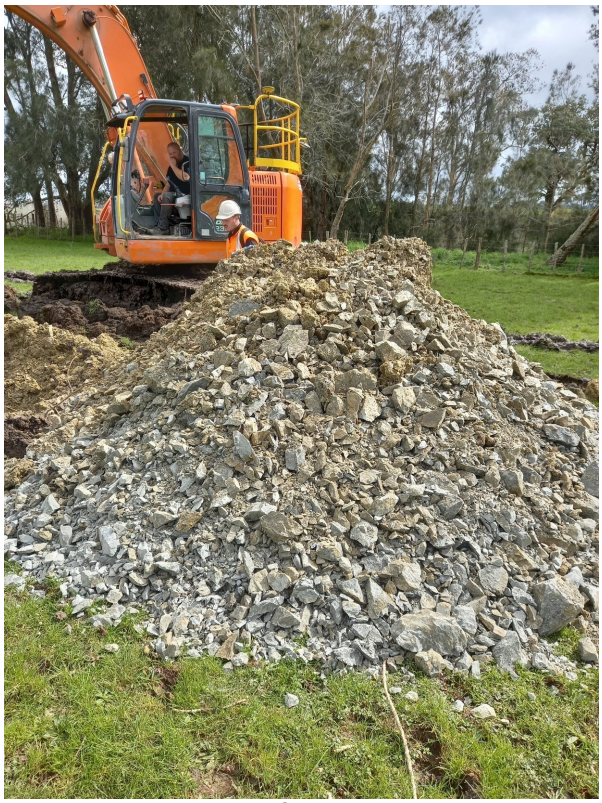
Termination Reason: Refusal on hard ground.
Shear Vane No: 1702 DCP No:

Remarks: Water seepage at 1.5m. Orientation 124 degrees south.

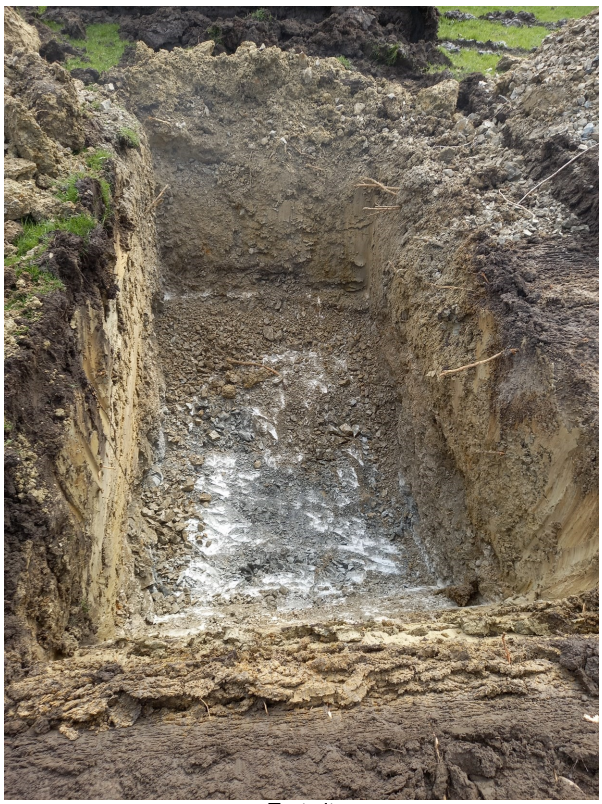
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP04-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 24/08/2022
Investigation Location: Refer to site plan



Spoil



Test pit

TEST PIT LOG - TP05-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 14/08/2022
Test Pit Location: Refer to Site Plan Logged by: PH Checked by: MC Scale: 1:25 Sheet 1 of 1

Position: 389067.0mE; 829504.0mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 52.53m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations
			52.5			OL: TOPSOIL: Brown. Low plasticity. Minor rootlets.				
			52.4			CH: Silty CLAY: Light greyish brown mottled light orange brown and orange. High plasticity. Blocky structure. Minor rootlets. (RS Northland Allochthon)	W	St to VSt		
	0.5	Peak = 99kPa Residual = 40kPa								
			51.7			Completely weathered to highly weathered light greyish brown MUDSTONE. Extremely weak. Recovered as silty clay with large gravel sized to 40cm mudstone blocks. Limonite staining on block surfaces. : (Mangakahia Complex)				
	1.0	Peak = UTP		1						
			51.3			Highly weathered dark grey MUDSTONE. Extremely weak. Sheared structure. Recovered as mudstone blocks with randomly orientated clay seams. Limonite staining on fractured surfaces. Moderately weathered ashy white limestone inclusions. Weak. : (Mangakahia Complex)	D to M			
				2						
				3		Test pit terminated at 3.00 m				
				4						
				5						

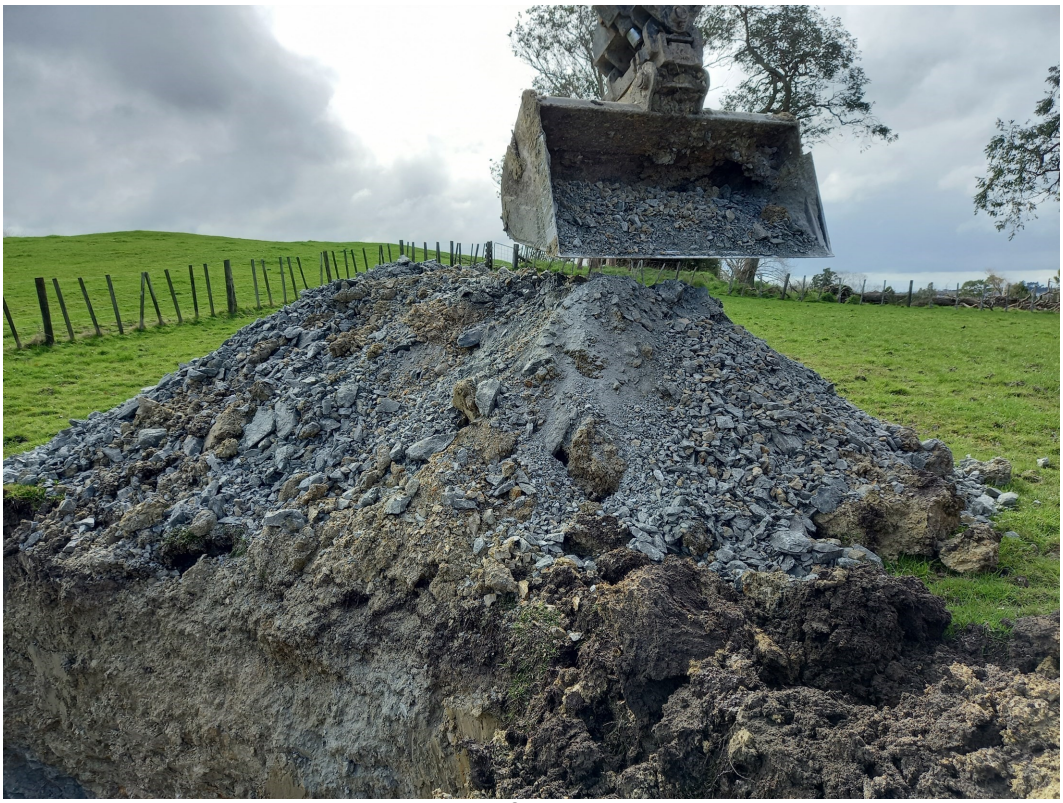
Termination Reason: Refusal on hard ground.
Shear Vane No: 1702 DCP No:

Remarks: Groundwater not encountered. Orientation 318 degrees north west.

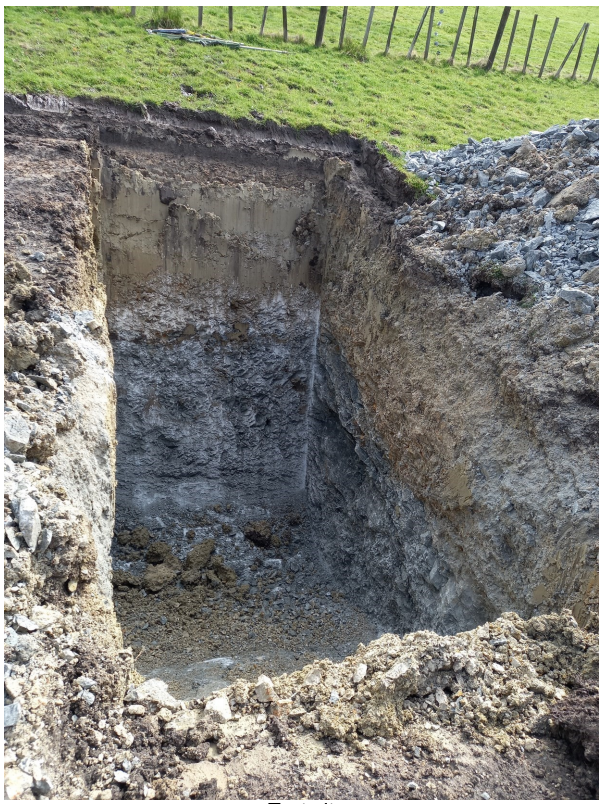
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP05-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 14/08/2022
Investigation Location: Refer to Site Plan



Spoil



Test pit

TEST PIT LOG - TP06-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 24/08/2022
Test Pit Location: Refer to Site Plan Logged by: Checked by: MC Scale: 1:25 Sheet 1 of 1

Position: 389133.0mE; 829524.1mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 44.98m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations
			45.0			Highly weathered light grey to white LIMESTONE. Weak. Recovered as large gravel to cobble sized limestone blocks with some clay. Clay is grey, low plasticity. : (Northland Allochthon)			5 10 15 20	Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	0.5	Peak = UTP					D to M	H		
			44.0	1		Highly to moderately weathered grey mottled white LIMESTONE. Blocky structure. Weak. : (Northland Allochthon)				
						Test pit terminated at 1.30 m				
				2						
				3						
				4						
				5						

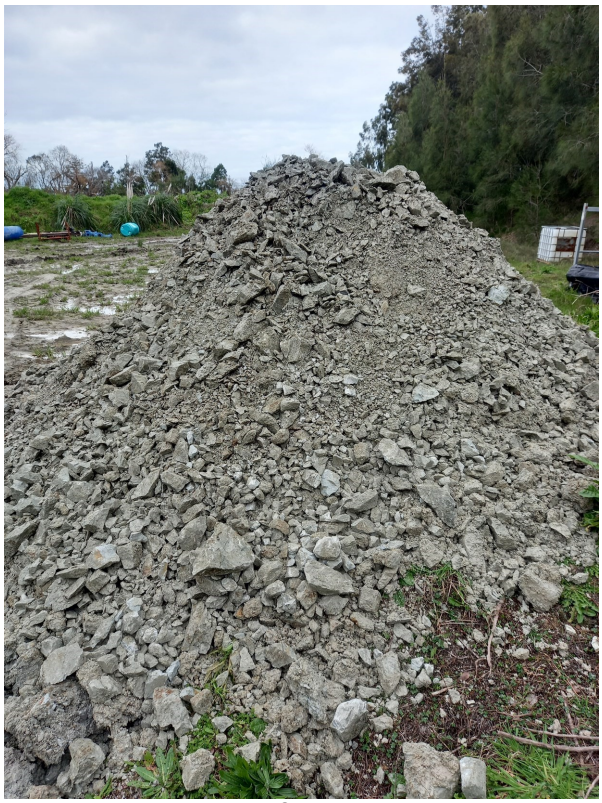
Termination Reason: Refusal on hard ground.
Shear Vane No: 1702 DCP No:

Remarks: Groundwater not encountered. Orientation 184 degrees south.

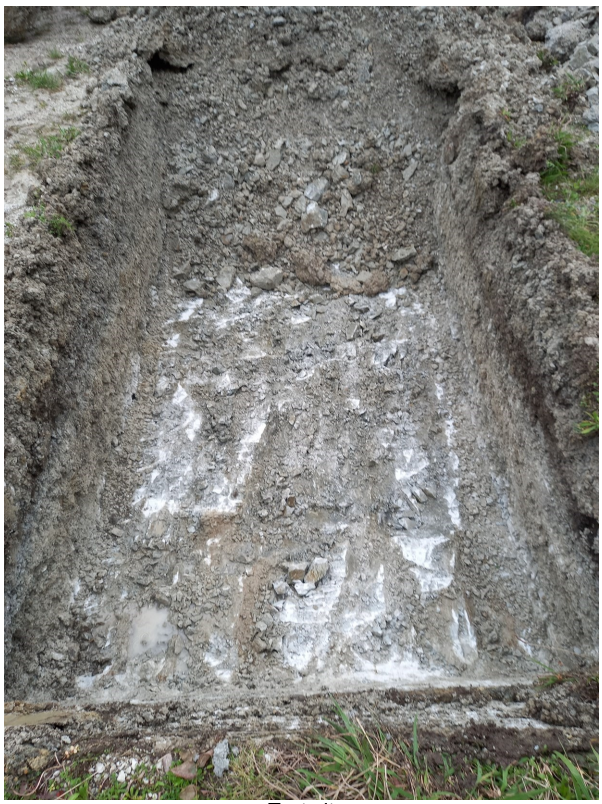
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP06-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 24/08/2022
Investigation Location: Refer to Site Plan



Spoil



Test pit

TEST PIT LOG - TP07-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 25/08/2022
Test Pit Location: Refer to site plan Logged by: DW Checked by: MC Scale: 1:25 Sheet 1 of 1

Position: 389172.3mE; 829612.6mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 48.56m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations
			48.6			Topsoil: Dark brown. Silty. Low plasticity.				
			48.4			MH: Fill: Dark brown mottled light brown streaked blue. Low plasticity. Large gravel sized hardfill inclusions. Minor rootlets				
	0.5	Peak = 47kPa Residual = 15kPa					W	F		
	1.0	Peak = 44kPa Residual = 12kPa		1						
	1.5	Peak = 115kPa Residual = 56kPa	47.1			MH: Clayey SILT: Light brown mottled orange. Low plasticity. Blocky structure. Limonite staining. Large gravel sized siltstone clasts. Highly weathered. (Mangakahia Complex)				
						... at 1.50m, Becoming with large grass rootlets from buried topsoil horizon				
	2.0	Peak = 106kPa Residual = 41kPa		2			M to W	VSt		
	2.5	Peak = 100kPa Residual = 29kPa								
	3.0	Peak = 71kPa Residual = 29kPa		3						
			45.3			MH: Clayey SILT: Light bluish grey with brown interbeds. Low plasticity. Blocky structure. Limonite staining. Rock description as follows. Completely weathered MUDSTONE Extremely weak. Easily shattered. (Mangakahia Complex)	M	St		
				4						
						Test pit terminated at 4.30 m				
				5						

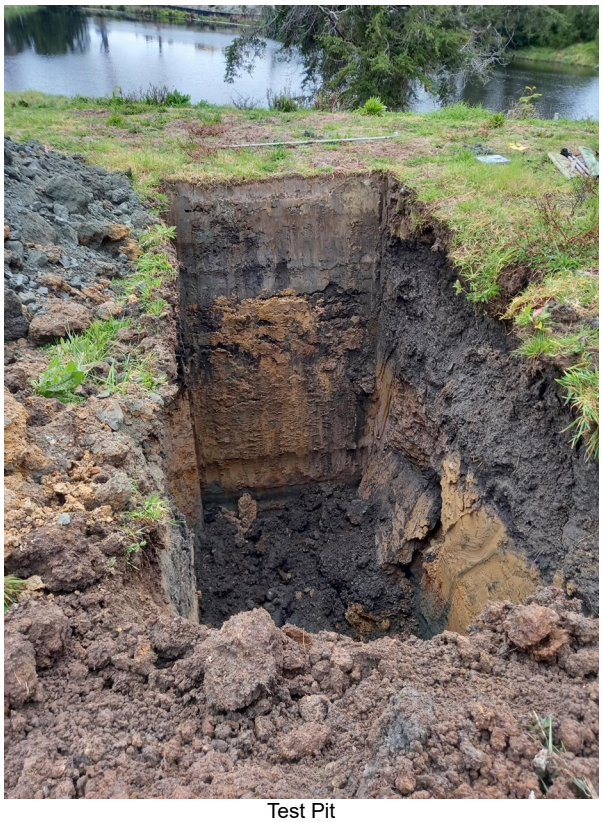
Termination Reason: Target depth reached
Shear Vane No: 1702 DCP No:

Remarks: Water seepage at 1.2m. Orientation 138 degrees. EOTP collapse.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP07-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 25/08/2022
Investigation Location: Refer to site plan



Test Pit

TEST PIT LOG - TP08-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 24/08/2022
Test Pit Location: Refer to Site Plan Logged by: Checked by: MC Scale: 1:25 Sheet 1 of 1
Position: 389119.5mE; 829565.3mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 51.98m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations
			52.0			OL: TOPSOIL: Brown. Low plasticity. Minor rootlets.				
			51.8			ML: Clayey SILT: Light brown streaked grey. Low plasticity. Blocky structure. Some limonite staining. (RS Northland Allochthon)				
	0.5	Peak = 73kPa Residual = 33kPa								
	1.0	Peak = 66kPa Residual = 20kPa	51.0	1		Completely to highly weathered mudstone. Extremely weak. Sheared structure. Easily shattered. Glossy fractured edges. Recovered as dark brown and grey large gravel to 20-30cm mudstone blocks. (Mangakahia Complex) *... from 1.00m to 1.50m, Small white dots evident on block surface and throughout. Can be easily scraped off.*	M	St		
	2.0	Peak = 106kPa Residual = 30kPa	50.0	2		Highly weathered dark brown grey MUDSTONE. Extremely weak. Sheared structure. Easily shattered with glossy faces. (Mangakahia Complex)		VSt		
	2.5	Peak = UTP						H		
				3						
				4						
				5		Test pit terminated at 3.20 m				

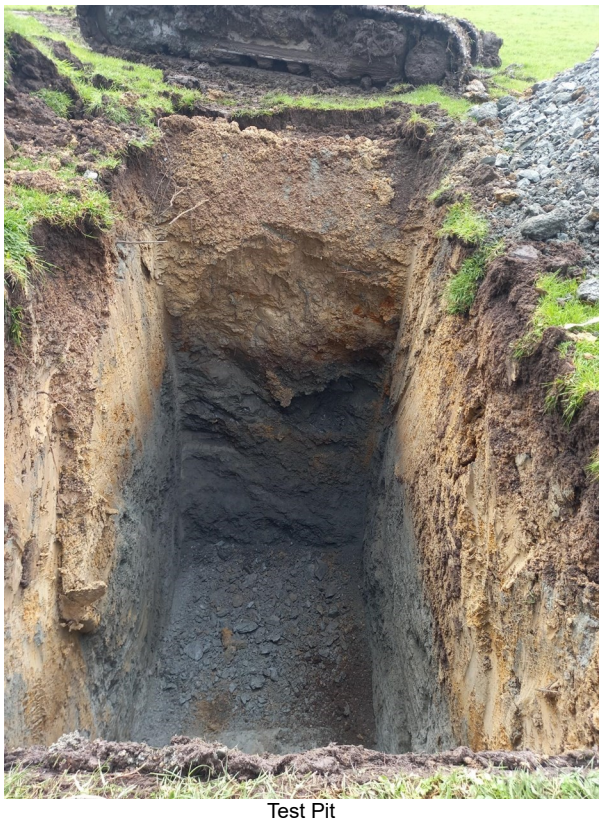
Termination Reason: Refusal on hard ground.
Shear Vane No: 1702 DCP No:

Remarks: Groundwater not encountered. Orientation 108 degrees east.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP08-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 24/08/2022
Investigation Location: Refer to Site Plan



Test Pit

TEST PIT LOG - TP09-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 25/08/2022
Test Pit Location: Refer to site plan Logged by: DW Checked by: MC Scale: 1:25 Sheet 1 of 1
Position: 389066.6mE; 829573.7mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 56.41m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations
			56.4			Topsoil: Dark brown. Silty. Low plasticity.				
			56.2			MH: Clayey SILT: Light brown mottled orange. Low plasticity. Blocky structure. Limonite staining. (Mangakahia Complex)		VSt		
	0.5	Peak = 112kPa Residual = 23kPa					M			
	1.0	Peak = 96kPa Residual = 23kPa		1				St		
						... at 1.20m, Becoming with Large gravel to cobble sized siltstone clasts. Highly weathered.				
	1.5	Peak = >200kPa					M to W	VSt		
			54.4	2		MH: Clayey SILT: Light bluish grey with randomly orientated brown interbeds. Low plasticity. Moist. Rock description as follows. Completely weathered MUDSTONE. Extremely weak. Blocky structure. Limonite staining. Glossy surface on fractured edges. (Mangakahia Complex)				
			54.0			MH: Clayey SILT: Dark brownish grey. Low plasticity. Rock description as follows. Completely to highly weathered mudstone. Extremely weathered. Sheared structure. Easily shattered. Glossy fractured edges. (Mangakahia Complex)				
				3			M			
				4						
						Test pit terminated at 4.30 m				
				5						

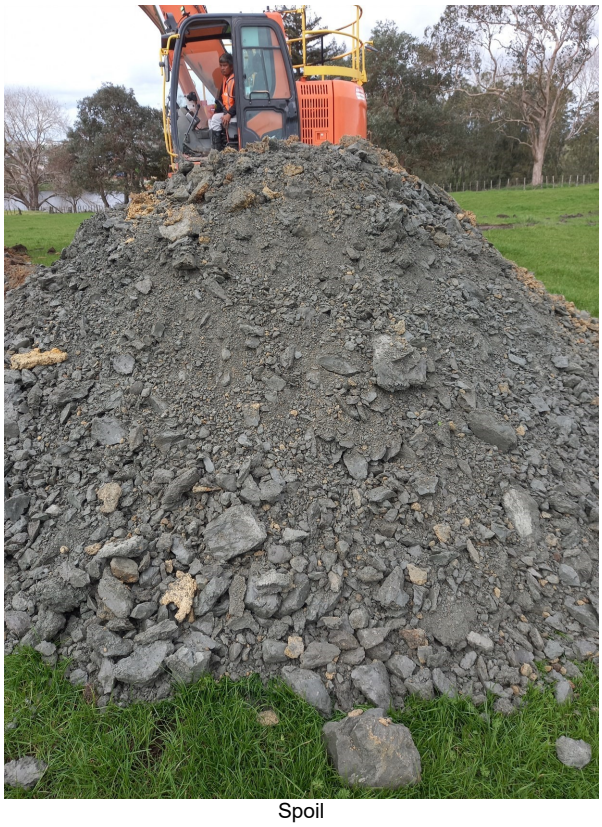
Termination Reason: Target depth reached
Shear Vane No: 1702 DCP No:

Remarks: water seepage at 1.9m Orientation 320 degrees north west.

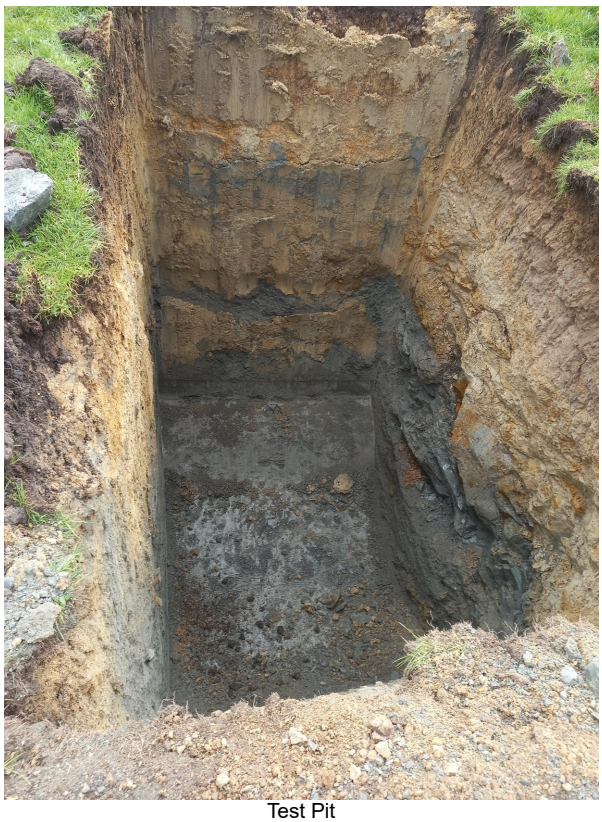
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP09-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 25/08/2022
Investigation Location: Refer to site plan



Spoil



Test Pit

TEST PIT LOG - TP10-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 25/08/2022
Test Pit Location: Refer to site plan Logged by: DW Checked by: MC Scale: 1:25 Sheet 1 of 1

Position: 389160.8mE; 829655.4mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 47.82m Datum: Survey Source: Hicks Survey

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)	Structure & Other Observations
			47.8			Topsoil: Dark brown. Silty. Low plasticity.				
			47.6			MH: Clayey SILT: Light brown mottled orange. Low plasticity. Blocky structure. Limonite staining. With trace rootlets. (Mangakahia Complex)				
	0.5	Peak = 71kPa Residual = 29kPa						St		
	1.0	Peak = 71kPa Residual = 29kPa		1						
	1.5	Peak = 112kPa Residual = 27kPa					M	VSt		
	2.0	Peak = 118kPa		2						
			45.5			MH: Clayey SILT: Light bluish grey. Low plasticity. Blocky structure. Rock description as follows. Highly weathered. SILTSTONE. Extremely weak. slickensided smooth on fractured surfaces. Clayey. Easily sheared. (Mangakahia Complex)		H		
				3						
						Test pit terminated at 3.50 m				
				4						
				5						

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

Structure & Other Observations: Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks

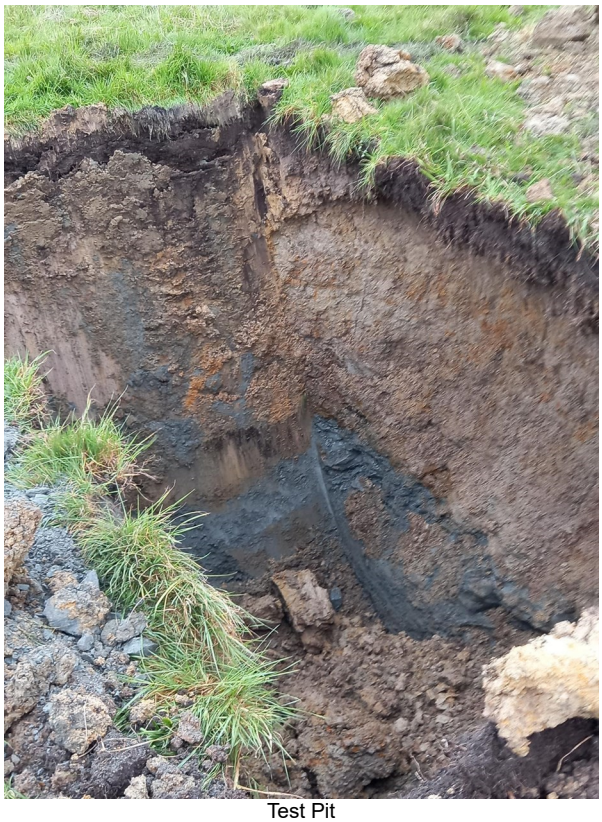
Termination Reason: Target depth reached
Shear Vane No: 2992 DCP No:

Remarks: Water seepage at 2.2m. Orientation 004 degrees north.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP10-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 25/08/2022
Investigation Location: Refer to site plan



Test Pit

TEST PIT LOG - TP14-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 25/08/2022
Test Pit Location: Refer to Site Plan Logged by: DW Checked by: MC Scale: 1:25 Sheet 1 of 1

Position: 389098.2mE; 829693.1mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 42.02m Datum: AUCKHT1946 Survey Source: Hicks Survey

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)	Structure & Other Observations (Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks)
			42.0			OL: TOPSOIL: Brown. Low plasticity.				
			41.8			CL: Silty CLAY: Light grey mottled orange. Low plasticity. Blocky structure. Limonite staining. (Mangakahia Complex)				
	0.5	Peak = 59kPa Residual = 18kPa								
	1.0	Peak = 99kPa Residual = 46kPa		1			M	St		
	1.5	Peak = 52kPa Residual = 15kPa								
	2.0	Peak = UTP	40.0	2		Highly weathered ashy grey LIMESTONE. Very weak. Randomly orientated mudstone seams throughout. Breaking into jagged cobble sized clasts. (Northland Allochthon)				
						Test pit terminated at 2.20 m				
				3						
				4						
				5						

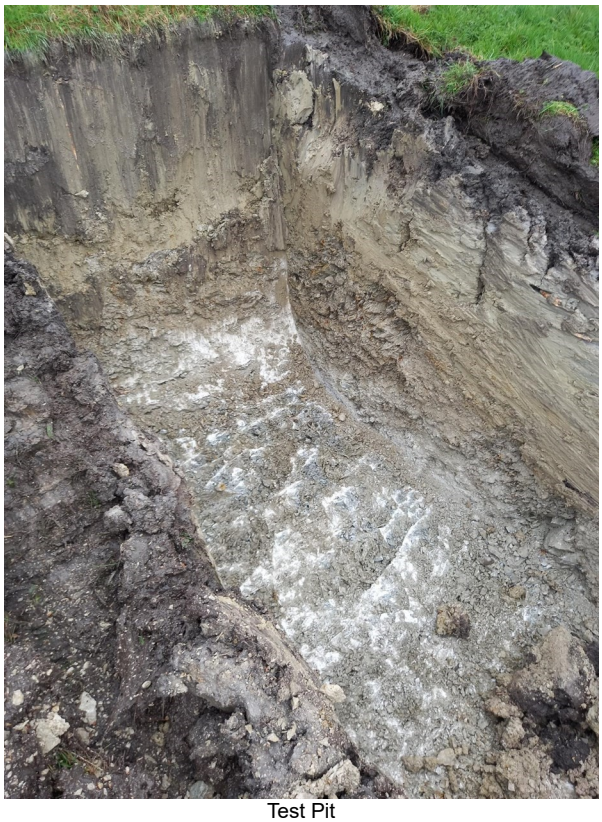
Termination Reason: Refusal on hard ground.
Shear Vane No: 2992 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP14-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 25/08/2022
Investigation Location: Refer to Site Plan



Test Pit

TEST PIT LOG - TP15-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Site Location: Milldale
Project No.: AKL2022-0138
Date: 25/08/2022
Test Pit Location: Refer to site plan Logged by: DW Checked by: MC Scale: 1:25 Sheet 1 of 1

Position: 389139.0mE; 829699.1mN Projection: EDENTM2000 Pit Dimensions: 4.0m by 1.5m
Elevation: 40.96m Datum: Survey Source: Hicks Survey

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)	Structure & Other Observations (Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks)
			41.0			Topsoil: Dark brown. Silty. Low plasticity.				
			40.8			CL: Silty CLAY: Light grey mottled orange. Low plasticity. Limonite staining. Blocky structure. Small gravel sized manganese inclusions (Mangakahia Complex)				
	0.5	Peak = 56kPa Residual = 15kPa								
	1.0	Peak = 53kPa Residual = 15kPa		1			M	F		
	1.5	Peak = 48kPa Residual = 13kPa								
			39.0	2		Limestone: Highly weathered ashy grey LIMESTONE. Very weak. Randomly orientated mudstone seams throughout. Breaking into jagged cobble sized clasts. (Northland Allochthon)				
						Test pit terminated at 2.50 m				
				3						
				4						
				5						

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

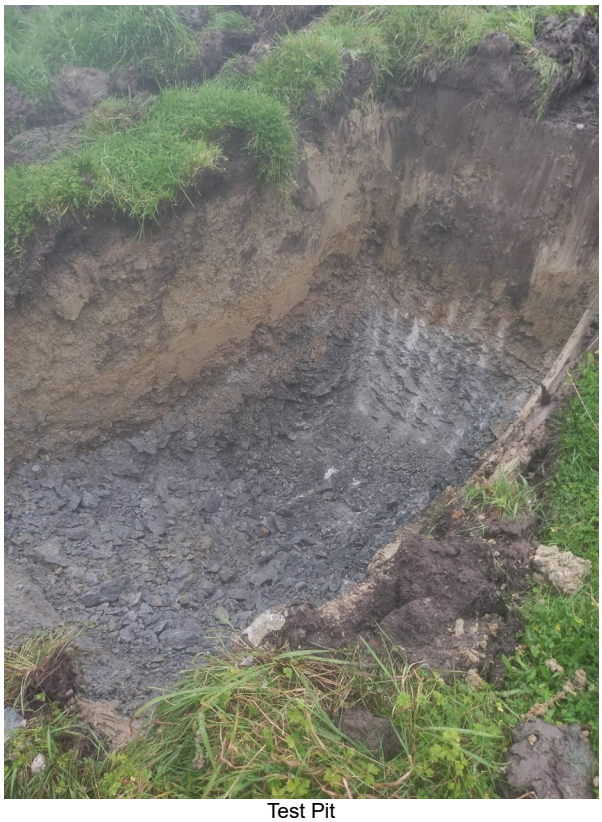
Termination Reason: Target depth reached
Shear Vane No: 2992 DCP No:

Remarks: No groundwater encountered. Orientation 198 degrees south.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

PHOTOGRAPH SHEET - TP15-22

Client: Fulton Hogan Land Development Ltd
Project: Precinct 3, Argent Lane
Location: Milldale
Project ID: AKL2022-0138
Date: 25/08/2022
Investigation Location: Refer to site plan



Test Pit

TEST PIT LOG - TP01-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 03/04/2023
Test Pit Location: Refer to Site Plan Logged by: ZW/SS Checked by:MJC Scale: 1:30 Sheet 1 of 1
Position: 389032.2mE; 829352.6mN Projection: EDENTM2000 Pit Dimensions: 6.0m by 1.0m
Elevation: 54.20m Datum: AUCKHT1946 Survey Source: Dines Survey

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)	Structure & Other Observations (Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks)
			54.2			OL: TOPSOIL: Dark brown. Low plasticity. Minor rootlets. (Topsoil)	M	St		
			53.9			CH: Silty CLAY: Brownish grey. High plasticity. Blocky structure. (RS Northland Allochthon)				
	0.5	Peak = 80kPa Residual = 26kPa	53.7			Moderately weathered light grey LIMESTONE: Very weak. Blocky structure. Minor limonite staining. Recovered as GRAVEL with trace clay, grey, medium to coarse angular clasts. (Northland Allochthon)	D	H		
			52.4	2		Slightly weathered grey LIMESTONE: Very weak. Sheared structure. Recovered as GRAVEL with trace silt. Calcareous. Grey mottled white. Medium to coarse with minor cobbles, angular clasts. (Northland Allochthon)				
						Test pit terminated at 2.60 m				

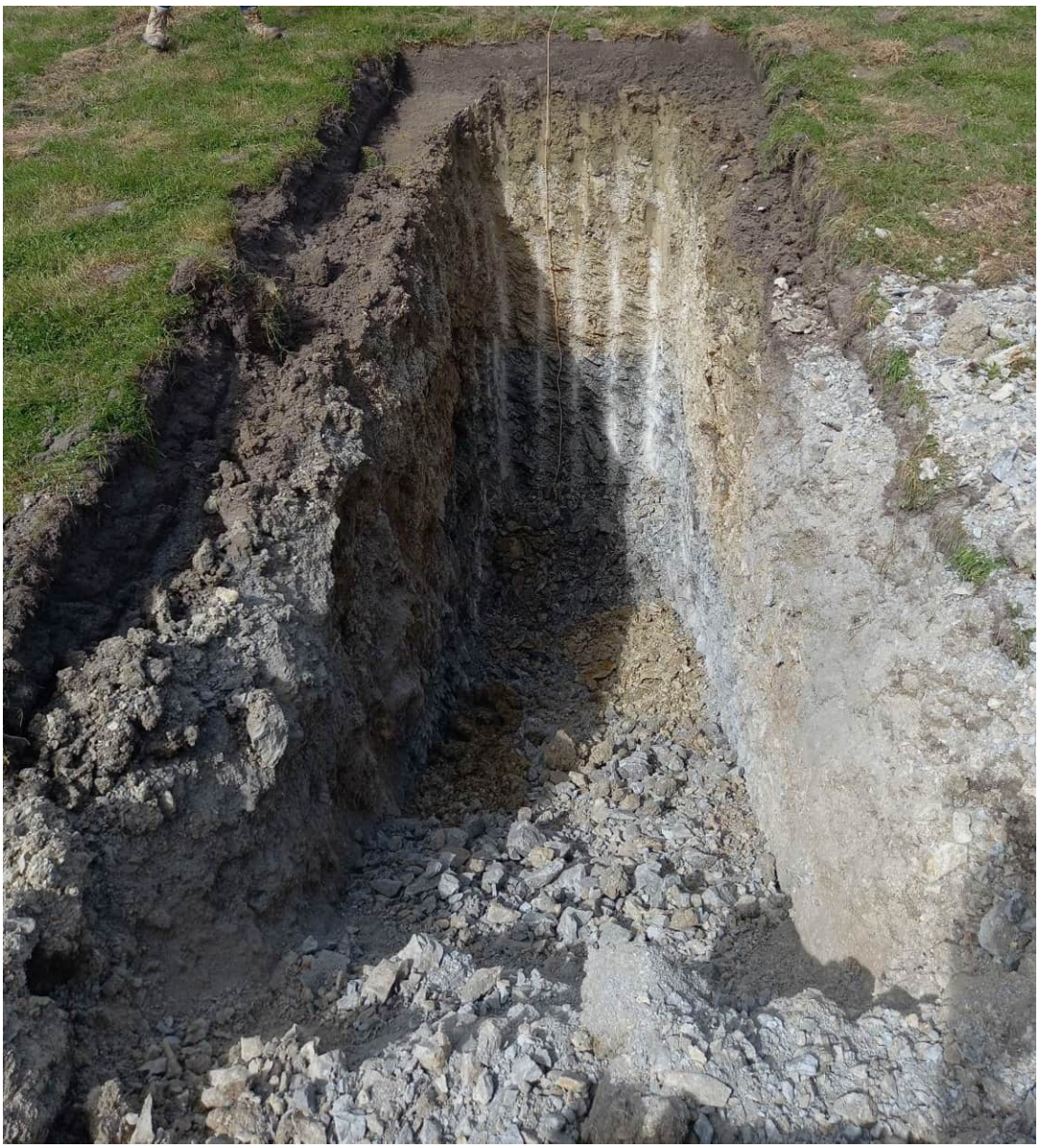
Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

Termination Reason: Refusal on hard ground.
Shear Vane No: 3661 DCP No:
Remarks: Groundwater not encountered. Orientation: NW/SE. Excavator used: 26Tonne.

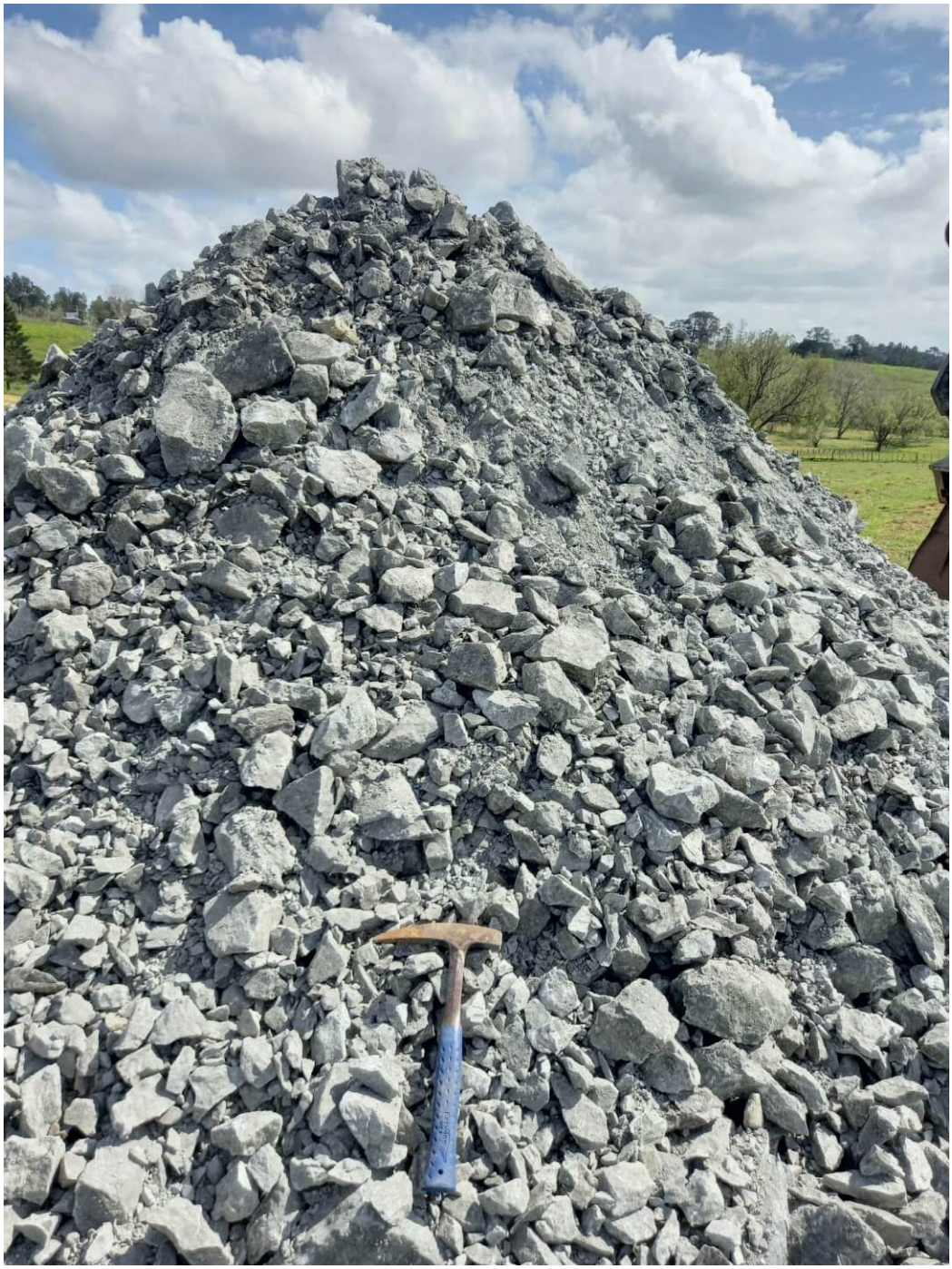
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP01-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	04/04/2023
Position:	E: 389032.2 / N: 829352.6	Contractor:	Kerry Dines Limited
Logged by:	ZW	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	2.6m



TP01-23 – TEST PIT EXCAVATION



TP01-23 - Spoil

TEST PIT LOG - TP02-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 03/04/2023
Test Pit Location: Refer to Site Plan | Logged by: ZW/SS | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388977.8mE; 829317.0mN | Projection: EDENTM2000 | Pit Dimensions: 6.0m by 1.0m
Elevation: 52.15m | Datum: AUCKHT1946 | Survey Source: Dines Survey

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)	Structure & Other Observations
			52.2			OL: TOPSOIL: Dark brown. Low plasticity. With minor rootlets. (Topsoil)	M			
	0.5	Peak = 48kPa Residual = 16kPa	51.8			CH: Silty CLAY: Greyish brown mottled grey. High plasticity. (RS Northland Allochthon)		F		
			51.2	1		Moderately weathered light brownish grey LIMESTONE: Very weak. Blocky structure. Minor limonite staining. Recovered as GRAVEL with trace clay, grey, medium to coarse angular clasts. (Northland Allochthon)	S	H		
▼			50.8	2		Slightly weathered dark grey LIMESTONE: Very weak. Sheared structure. Recovered as GRAVEL with trace silt. Calcareous. Grey mottled white. Medium to coarse with minor cobbles, angular clasts. (Northland Allochthon)	D			
				3		Test pit terminated at 3.30 m				
				4						
				5						
				6						

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

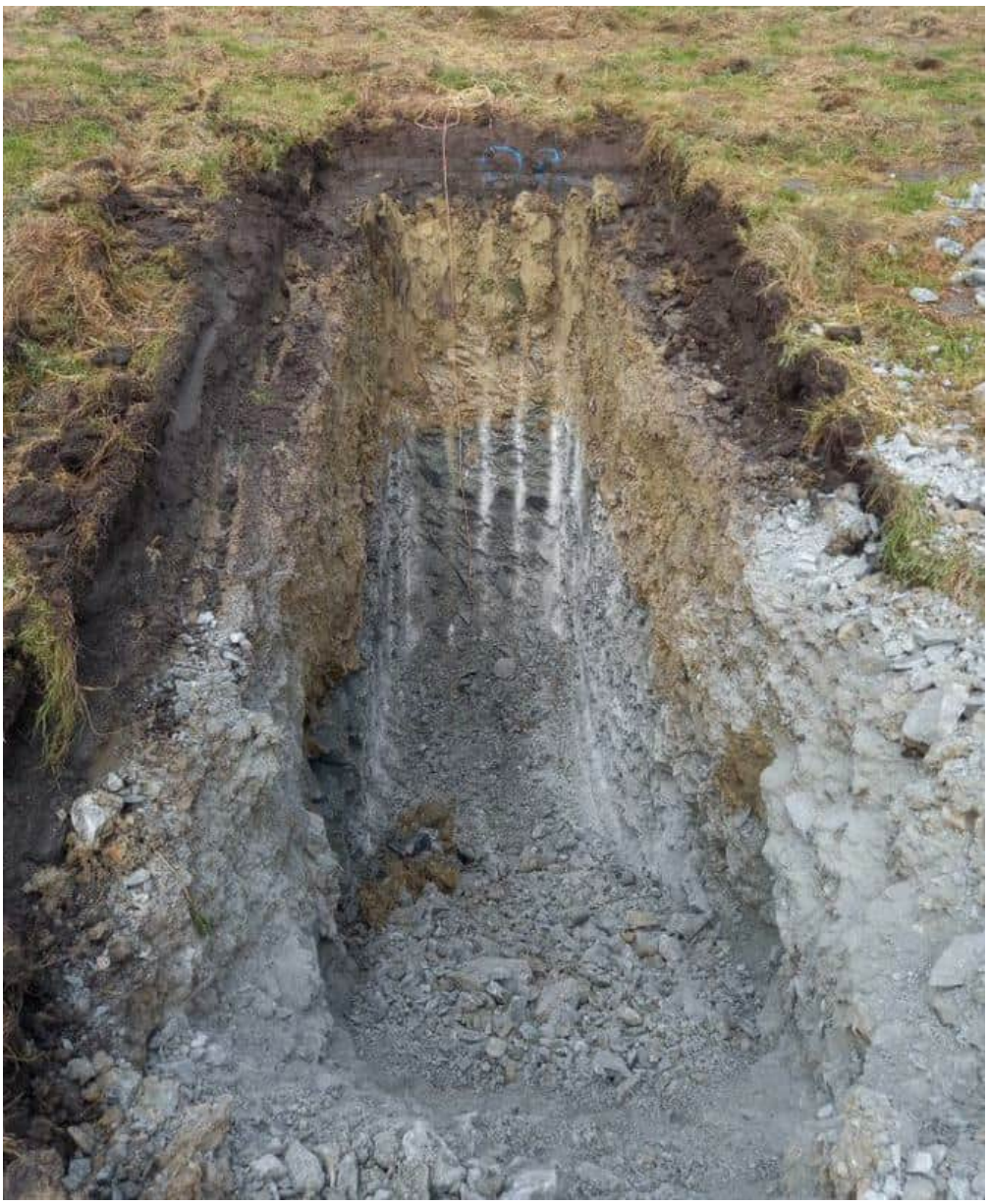
Structure & Other Observations: Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks

Termination Reason: Refusal on hard ground.
Shear Vane No: 3661 DCP No:
Remarks: Groundwater encountered at 1.4m. Groundwater ingress flowing into pit. Orientation NE/SW. Excavator used: 26Tonne.

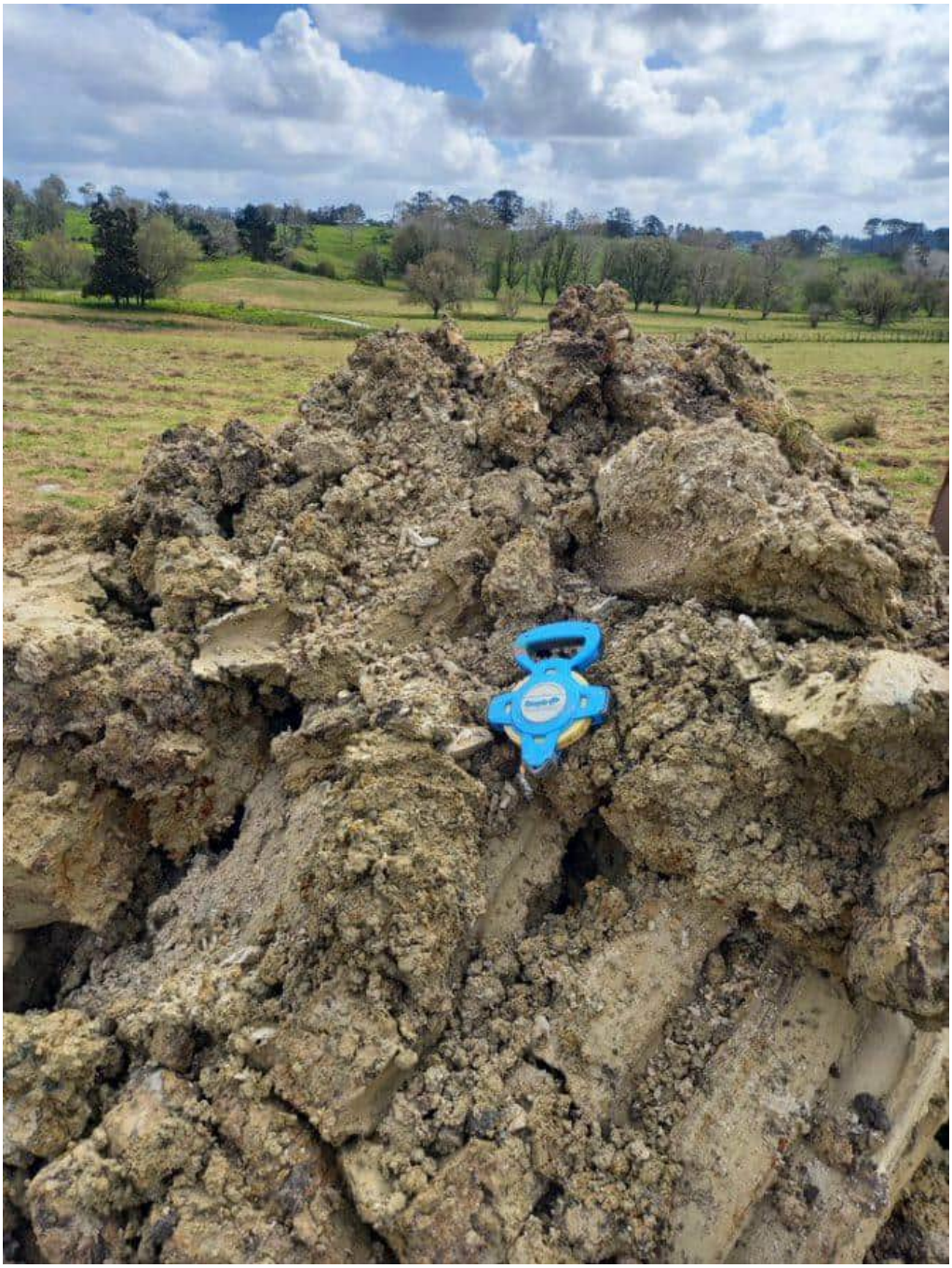
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP02-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	04/04/2023
Position:	E: 388977.803 / N: 829317.014	Contractor:	Kerry Dines Limited
Logged by:	SS/ZW	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	3.3m



TP02-23 – TEST PIT EXCAVATION



TP02-23 - Spoil

TEST PIT LOG - TP03-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane Wainui
Project No.: AKL2022-0138
Date: 03/04/2023
Test Pit Location: Refer to Site Plan | Logged by: ZW/SS | Checked by: MJC | Scale: 1:35 | Sheet 1 of 1
Position: 388862.7mE; 829302.7mN | Projection: EDENTM2000 | Pit Dimensions: 6.0m by 1.0m
Elevation: 54.22m | Datum: AUCKHT1946 | Survey Source: Dines Survey

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)	Structure & Other Observations
			54.2			OL: TOPSOIL: Dark brown. Low plasticity. With minor rootlets. (Topsoil)				
			53.9			CH: Silty CLAY with trace rootlets: Brownish grey mottled orange brown. High plasticity. (RS Northland Allochthon)				
	0.5	Peak = 97kPa Residual = 45kPa								
	1.0	Peak = 64kPa Residual = 32kPa		1			M	St		
				2						
			52.0			ML: Clayey SILT : Greyish brown with minor orange mottles. Low plasticity. (RS Northland Allochthon)				
	2.8	Peak = 103kPa Residual = 16kPa	51.3	3		Completely weathered dark grey SILTSTONE: Extremely weak, Blocky structure. Recovered as Sandy SILT with minor coarse to medium gravel. Gravel is angular. (Transitional Northland Allochthon)		VSt		
				4						
			50.0			Highly weathered dark grey MUDSTONE: Extremely weak. Sheared and tightly interlocked structure. Recovered as GRAVEL with minor SILT, medium to coarse, angular. Smooth polished clast surfaces. (Northland Allochthon)	D			
				5						
				6						
				7		Test pit terminated at 7.00 m				

Termination Reason: Target depth reached
Shear Vane No: 3661 DCP No:

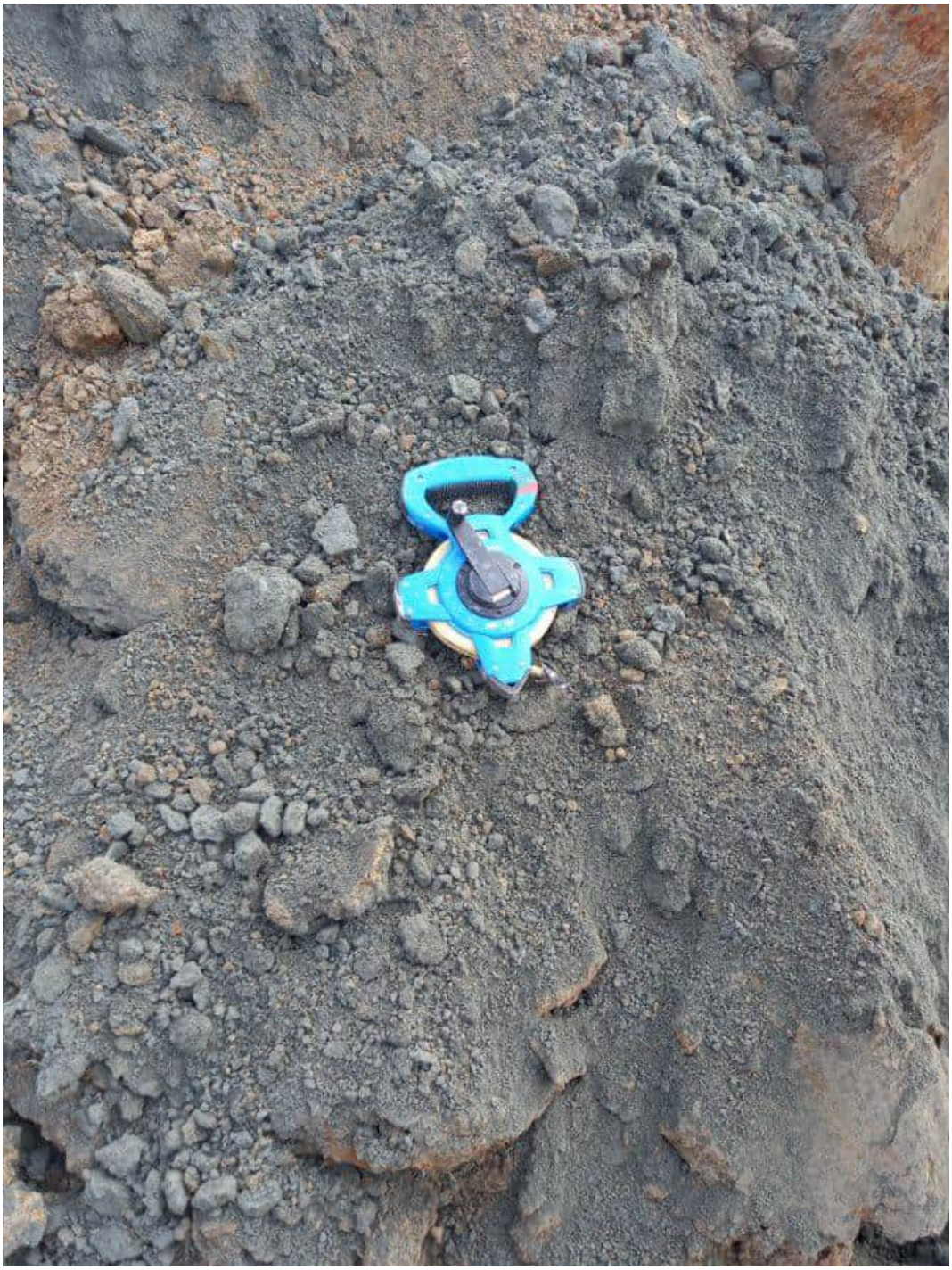
Remarks: Groundwater not encountered. Orientation 110°(true). Excavator used: 26Tonne.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP03-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	04/04/2023
Position:	E: 388862.739 / N: 829302.666	Contractor:	Kerry Dines Limited
Logged by:	ZW/SS	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	7.0m

TP03-23 – TEST PIT EXCAVATION



TP03-23 - Spoil

TEST PIT LOG - TP04-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 03/04/2023
Test Pit Location: Refer to Site Plan | Logged by: SS | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388848.0mE; 829341.2mN | Projection: EDENTM2000 | Pit Dimensions: 6.0m by 1.0m
Elevation: 48.61m | Datum: AUCKHT1946 | Survey Source: Dines Survey

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)	Structure & Other Observations
			48.6			OL: TOPSOIL: Dark brown. Low plasticity. With minor rootlets. (Topsoil)				
			48.3			CH: Silty CLAY: Brownish grey mottled orange brown. High plasticity. (RS Northland Allochthon)				
	0.5	Peak = 64kPa Residual = 29kPa						F		
	1.0	Peak = 84kPa Residual = 16kPa		1						
			47.4			ML: Clayey SILT: Brownish grey mottled brown. Low plasticity. (RS Northland Allochthon)	M			
				2				St		
			45.8			Completely weathered to highly weathered dark grey SILTSTONE: Extremely weak. Tightly interlocking structure. Recovered as Sandy SILT with minor medium to coarse angular gravel clasts. Highly polished clasts. (Transitional Northland Allochthon)				
				3						
				4			D			
				5						
						Test pit terminated at 5.50 m				
				6						

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

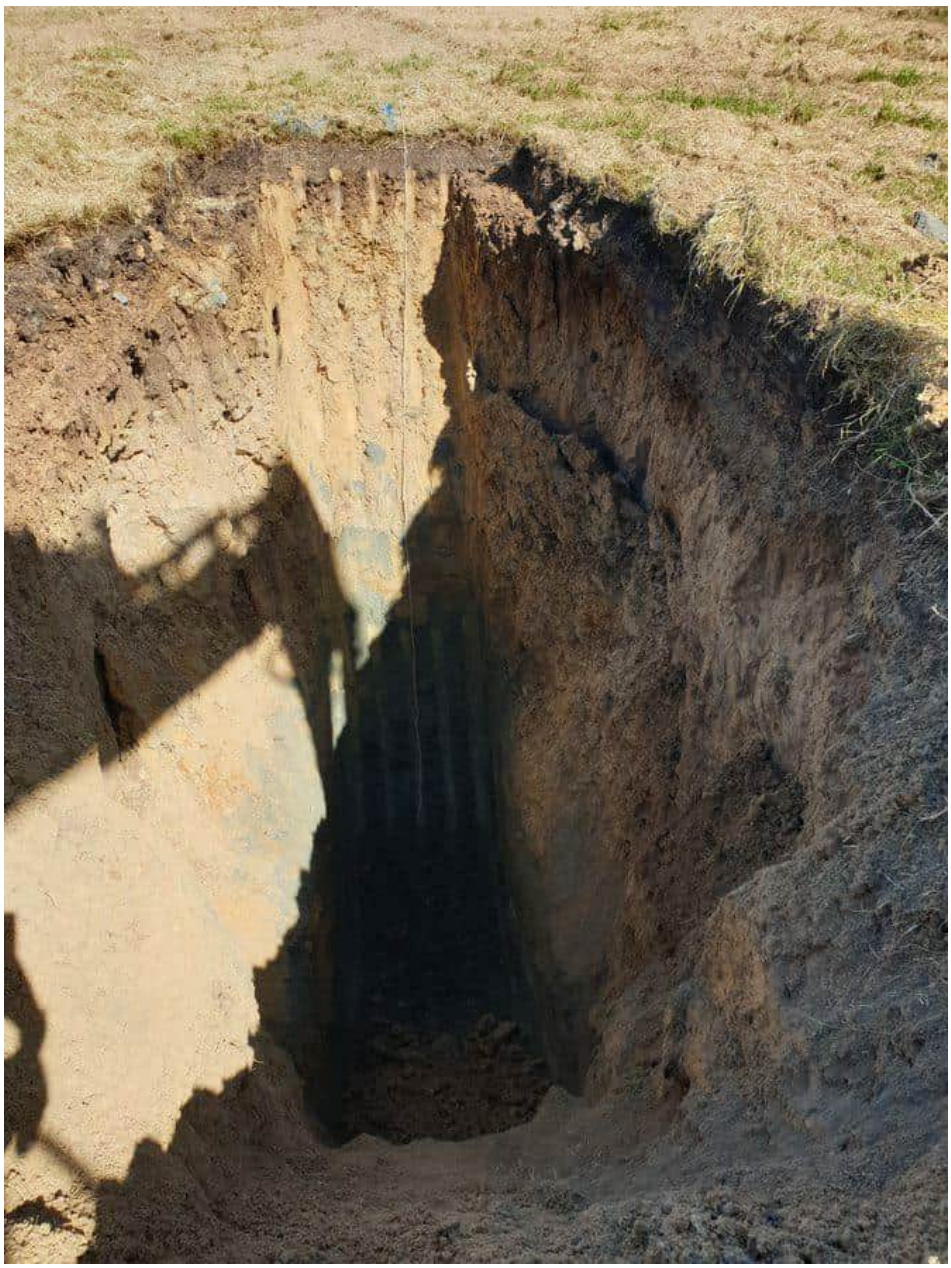
Structure & Other Observations: Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks

Termination Reason: Collapsed pit.
Shear Vane No: 3661 DCP No:
Remarks: Groundwater not encountered. Orientation 316°(true). Excavator used: 26Tonne.

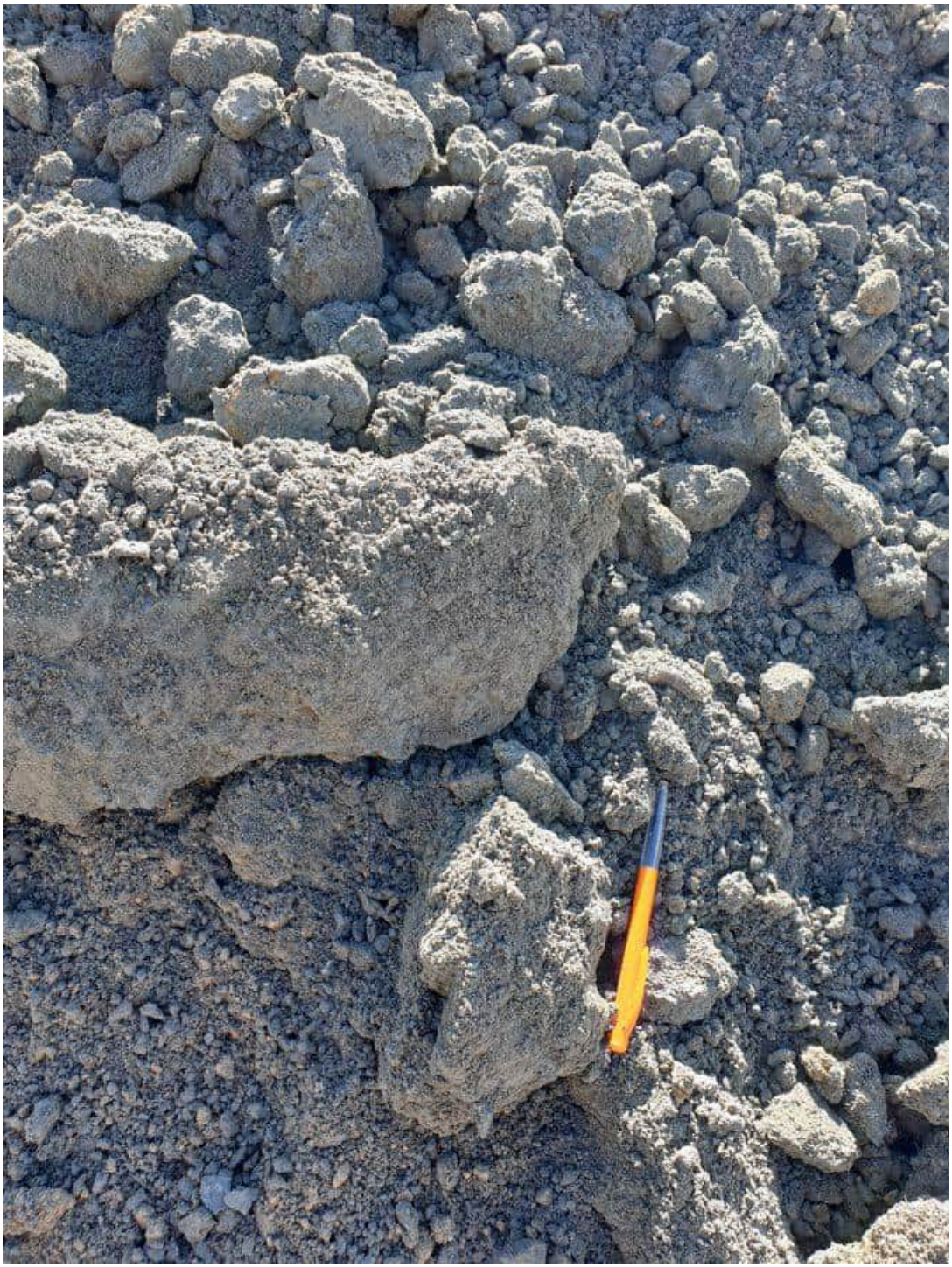
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP04-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	04/04/2023
Position:	E: 388848.019 / N: 829341.23	Contractor:	Kerry Dines Limited
Logged by:	SS	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	5.5m



TP04-23 – TEST PIT EXCAVATION



TP04-23 - Spoil

TEST PIT LOG - TP05-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 03/04/2023
Test Pit Location: Refer to Site Plan | Logged by: ZW/SS | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388898.5mE; 829272.1mN | Projection: EDENTM2000 | Pit Dimensions: 6.0m by 1.0m
Elevation: 60.51m | Datum: AUCKHT1946 | Survey Source: Dines Survey

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)	Structure & Other Observations
			60.5			OL: TOPSOIL: Dark brown. Low plasticity. (Topsoil)				
			60.1			ML: Clayey SILT : Brown with minor dark brown mottles. Low plasticity. (RS Northland Allochthon)				
	0.5	Peak = 80kPa Residual = 32kPa						St		
	1.0	Peak = 177kPa Residual = 40kPa		1		... at 1.00m, becoming orange brown with minor grey mottles.	M	VSt		
▼	1.9	Peak = 138kPa Residual = 19kPa		2		... at 2.50m, water ingress.				
			57.7			Completely weathered dark grey SILTSTONE: Extremely weak. Tightly interlocking structure. Recovered as SILT with minor medium to coarse gravel. Angular, polished clasts. (Transitional Northland Allochthon)				
				3						
						... at 3.60m, becoming highly to moderately weathered SILTSTONE.				
				4			D			
				5						
						Test pit terminated at 5.30 m				
				6						

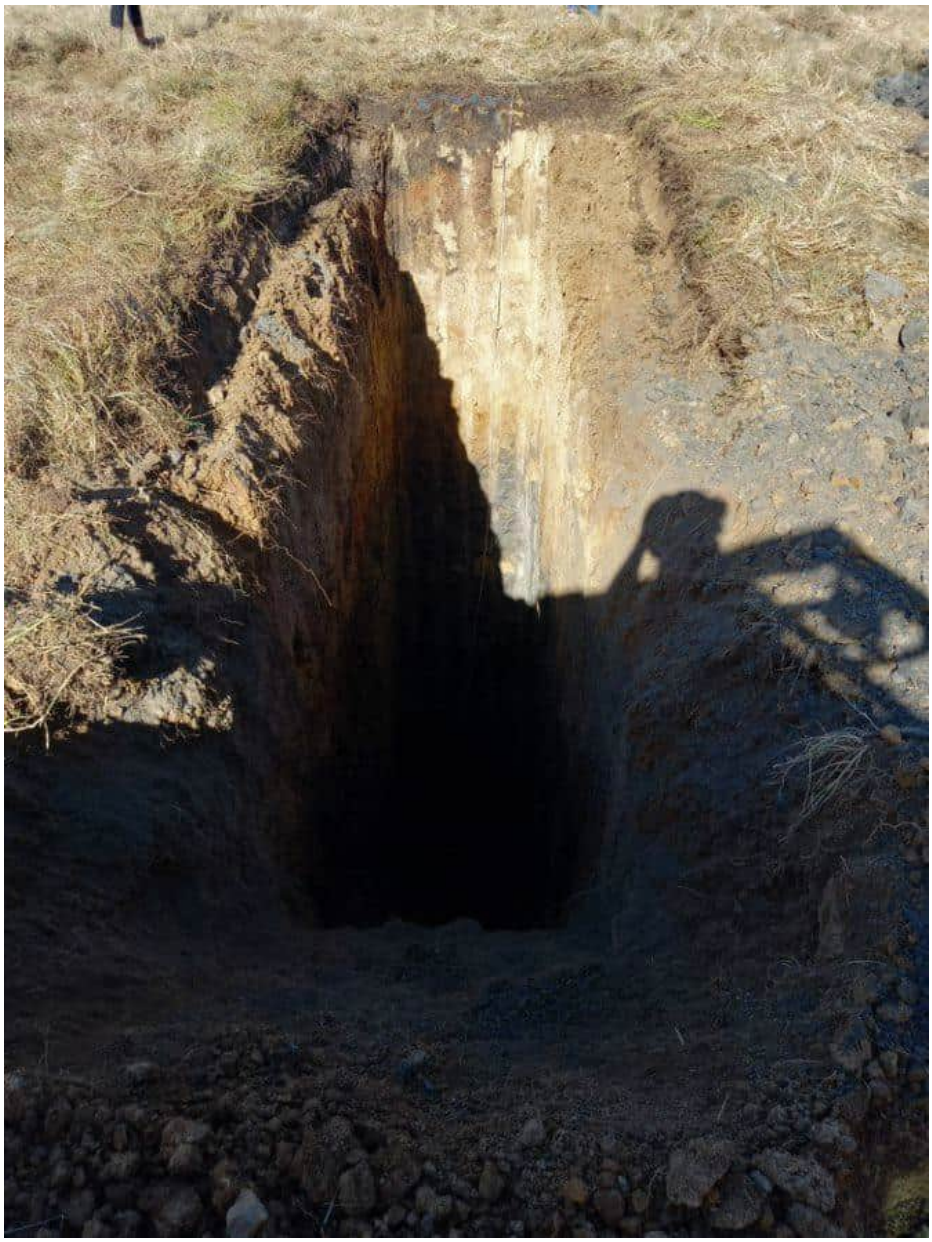
Termination Reason: Target depth reached
Shear Vane No: 3661 DCP No:

Remarks: Groundwater encountered at 2.5m. Orientation 270°(true). Excavator used: 26Tonne.

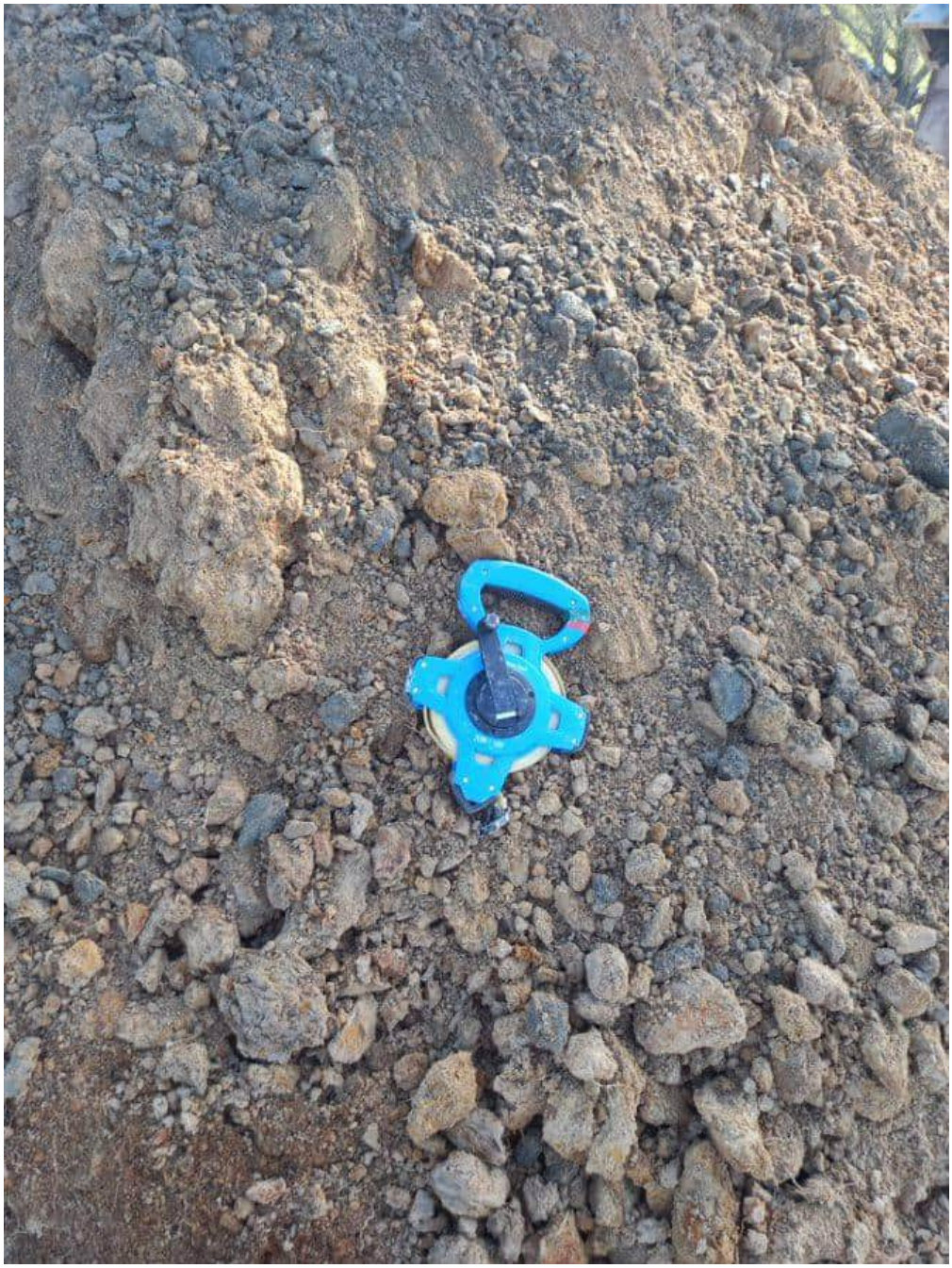
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP05-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	04/04/2023
Position:	E: 388898.494 / N: 829272.072	Contractor:	Kerry Dines Limited
Logged by:	ZW/SS	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	5.3m



TP05-23 – TEST PIT EXCAVATION



TP05-23 - Spoil

TEST PIT LOG - TP06-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 03/04/2023
Test Pit Location: Refer to Site Plan | Logged by: ZW/SS | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388938.0mE; 829377.2mN | Projection: EDENTM2000 | Pit Dimensions: 6.0m by 1.0m
Elevation: 47.29m | Datum: AUCKHT1946 | Survey Source: Dines Survey

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)	Structure & Other Observations
			47.3			OL: TOPSOIL: Dark grey. Low plasticity. With minor rootlets. (Topsoil)				
			47.0			CH: Silty CLAY: Brown with minor dark brown mottles. High plasticity. (RS Northland Allochthon)				
	0.5	Peak = 46kPa Residual = 10kPa		1		*... from 0.40m to 0.55m, band of manganese nodules.*	M	F		
▼			45.6	2		Moderately weathered light grey LIMESTONE: Very Weak, Shattered interlocking structure. Calcareous. Recovered as GRAVEL with minor silt. Gravel is medium to coarse angular clasts. Free water on clast face. Polished clast surfaces. (Northland Allochthon)	D to M	H		
			44.8			Slightly weathered light grey LIMESTONE: Weak, Shattered interlocking structure. Calcareous. Recovered as GRAVEL with minor cobbles and trace silt. Gravel is medium to coarse angular clasts. (Northland Allochthon)				
				3		Test pit terminated at 2.70 m				
				4						
				5						
				6						

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

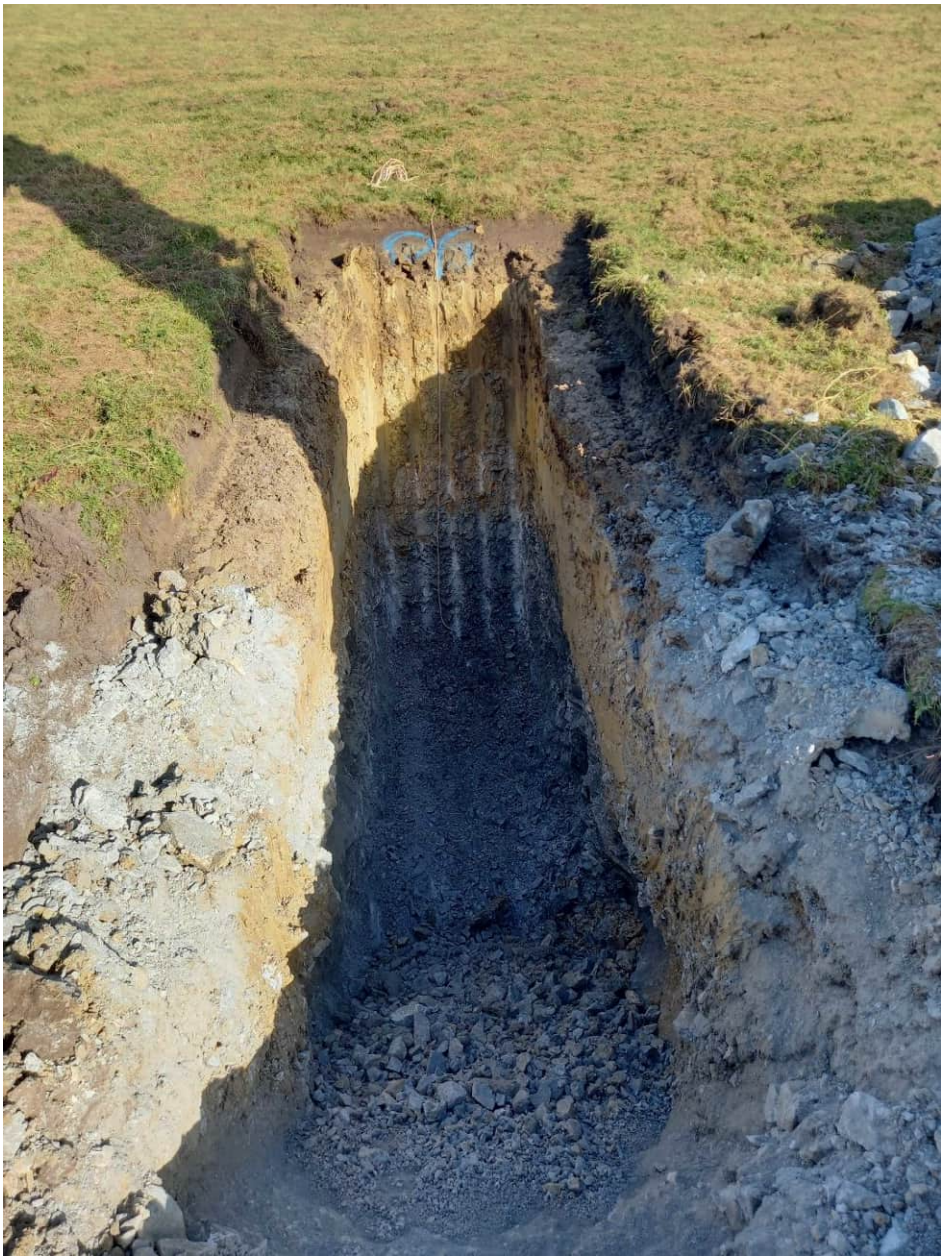
Structure & Other Observations: Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks

Termination Reason: Refusal on hard ground.
Shear Vane No: 3661 DCP No:
Remarks: Groundwater encountered at 1.7m. Orientation 300°(true). Excavator used: 26Tonne.

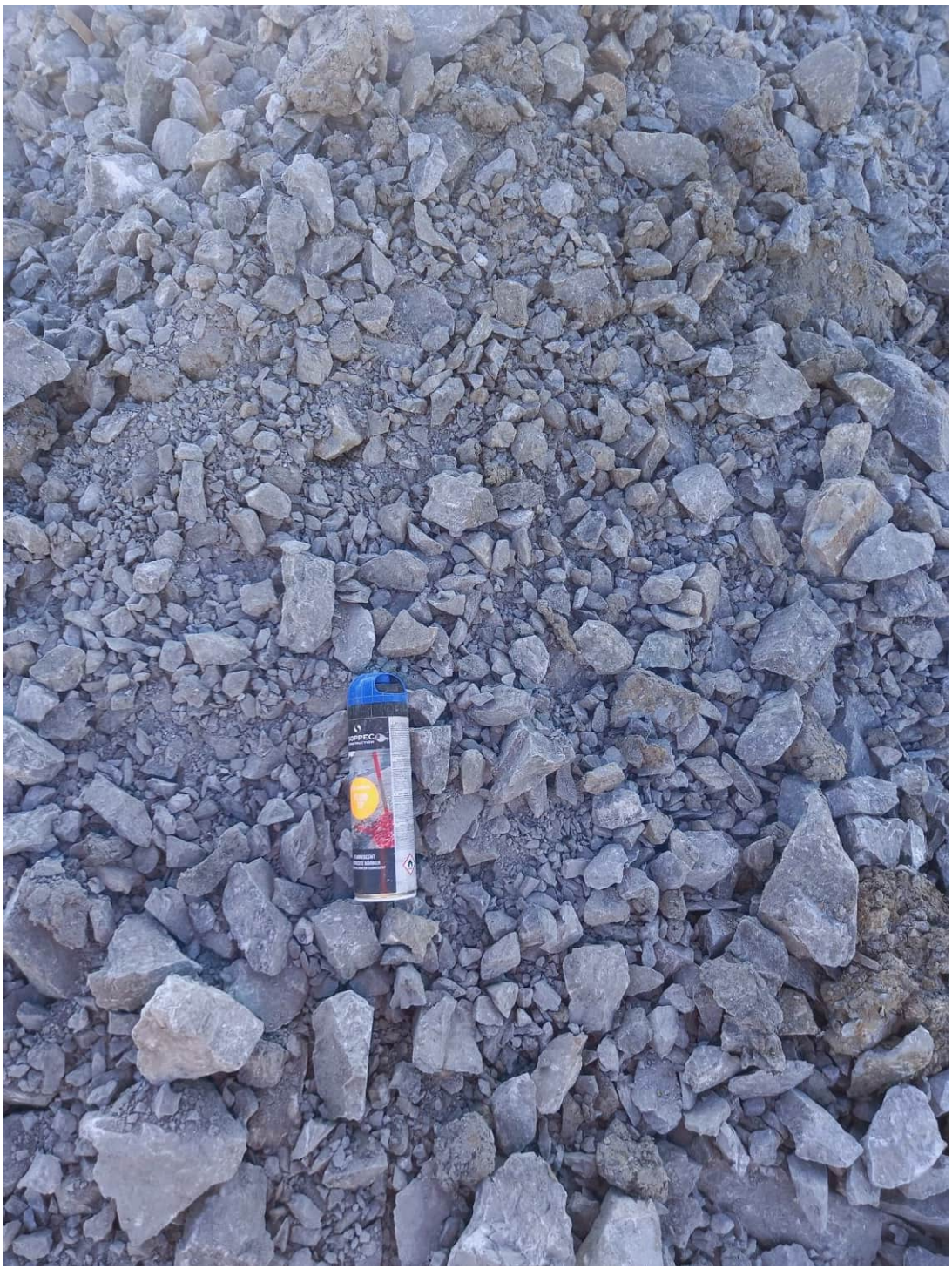
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP06-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	04/04/2023
Position:	E: 388938.05 / N:829377.24	Contractor:	Kerry Dines Limited
Logged by:	ZW	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	2.7m



TP06-23 – TEST PIT EXCAVATION



TP06-23 - Spoil

TEST PIT LOG - TP07-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 04/04/2023
Test Pit Location: Refer to site plan | Logged by: ZW | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388808.2mE; 829242.0mN | Projection: EDENMT2000 | Pit Dimensions: 5.0m by 1.0m
Elevation: 60.45m | Datum: AUCKHT1946 | Survey Source: Dines Survey

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)	Structure & Other Observations
			60.4			OL: Clayey SILT: Dark brown. High plasticity. (Topsoil)				
			60.2			CH: Silty CLAY: Grey mottled orange. High plasticity. (RS Northland Allochthon)				
	0.5	Peak = 48kPa Residual = 26kPa				*... from 0.25m to 1.50m, Limonite staining*				
	1.0	Peak = 80kPa Residual = 26kPa		1			M to W	St		
						... at 1.50m, Becoming grey				
				2						
			58.4			Highly weathered chaotic greenish grey mottled brown. MUDSTONE. Extremely weak. Recovered as fine to coarse gravel with some silt. Sub angular blocks with polished slicksided surfaces. Tightly packed. (Hukerenui Mudstone)				
				3			D to M	H		
				4						
						Test pit terminated at 4.80 m				
				5						
				6						

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

Structure & Other Observations: Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks

Termination Reason: Target depth reached
Shear Vane No: 3661 DCP No:

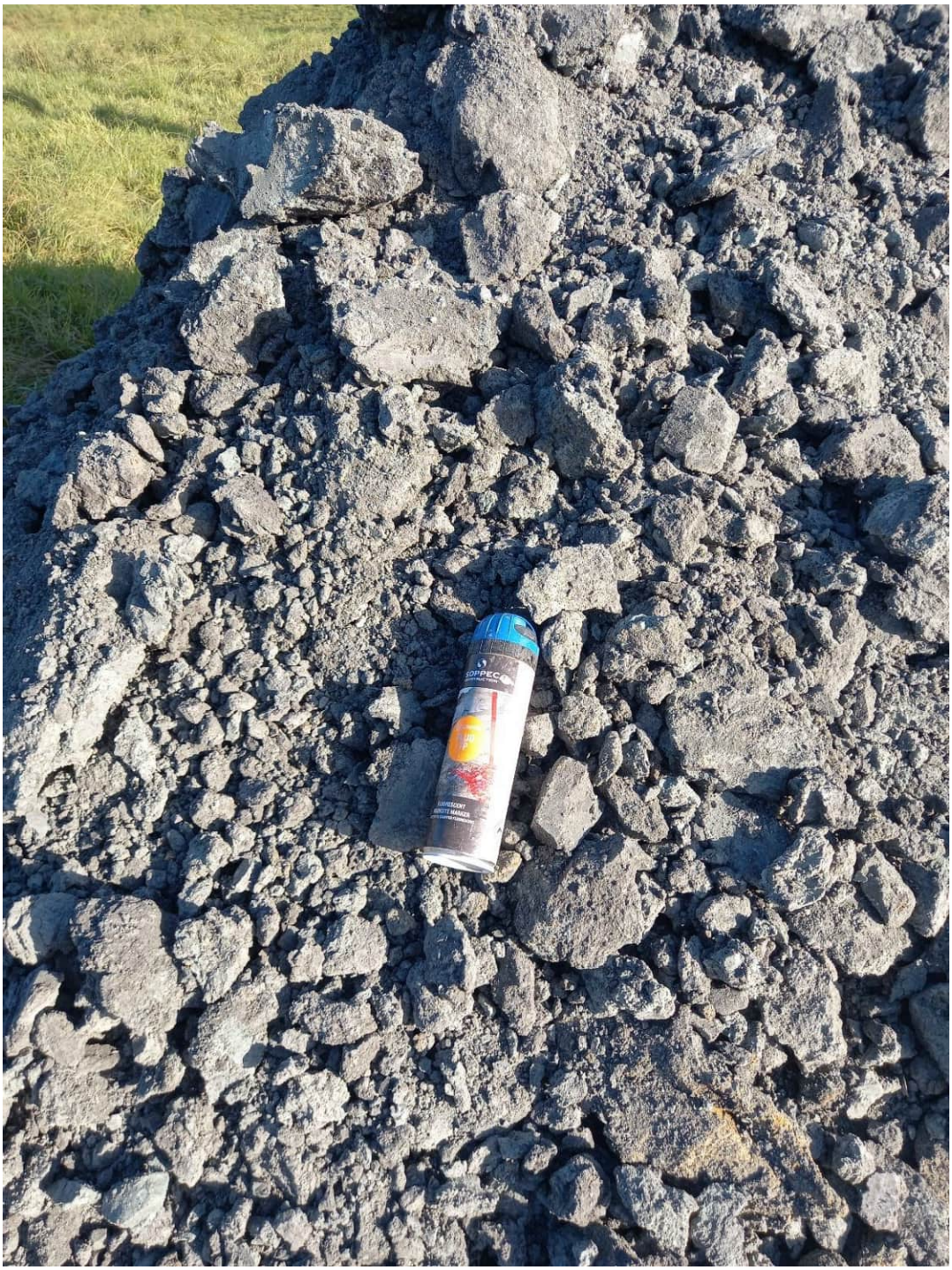
Remarks: Groundwater not encountered. Orientation 350°(true). Excavator used: 26Tonne.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP07-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	05/04/2023
Position:	E: 388808.2 / N: 829242	Contractor:	Kerry Dines Limited
Logged by:	ZW	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	4.8m

TP07-23 – TEST PIT EXCAVATION



TP07-23 - Spoil

TEST PIT LOG - TP08-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 04/04/2023
Test Pit Location: Refer to site plan | Logged by: ZW | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388755.5mE; 829262.5mN | Projection: EDENMT2000 | Pit Dimensions: 5.0m by 1.0m
Elevation: 56.93m | Datum: AUCKHT1946 | Survey Source: Dines Survey

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)	Structure & Other Observations
			56.9			OL: Clayey SILT: Dark brown. high plasticity. (Topsoil)				
			56.6			CH: Silty CLAY: Grey mottled orange and brown. High plasticity. (RS Northland Allochthon)				
	0.5	Peak = 129kPa Residual = 48kPa				*... from 0.30m to 2.60m, Trace rootlets*				
	1.0	Peak = 90kPa Residual = 32kPa		1			W	VSt		
						... at 1.60m, Becoming grey				
				2		*... from 2.50m to 2.60m, Limonite nodules/staining*				
			54.3			MH: Clayey SILT: Grey mottled brown. High plasticity. Completely weathered grey mottled brown MUDSTONE. Extremely weak. (Hukerenui Mudstone)				
				3			M	H		
			52.9	4		Highly weathered chaotic greenish grey mottled brown MUDSTONE. Very weak. Recovered as fine to coarse gravel with minor silt. Sub angular blocks with polished slickensided surfaces. Tightly packed. (Hukerenui Mudstone)				
				5			M	H		
						... from 5.50m to 6.00m, Blocks recovered as moderately weathered				
				6		Test pit terminated at 6.00 m				

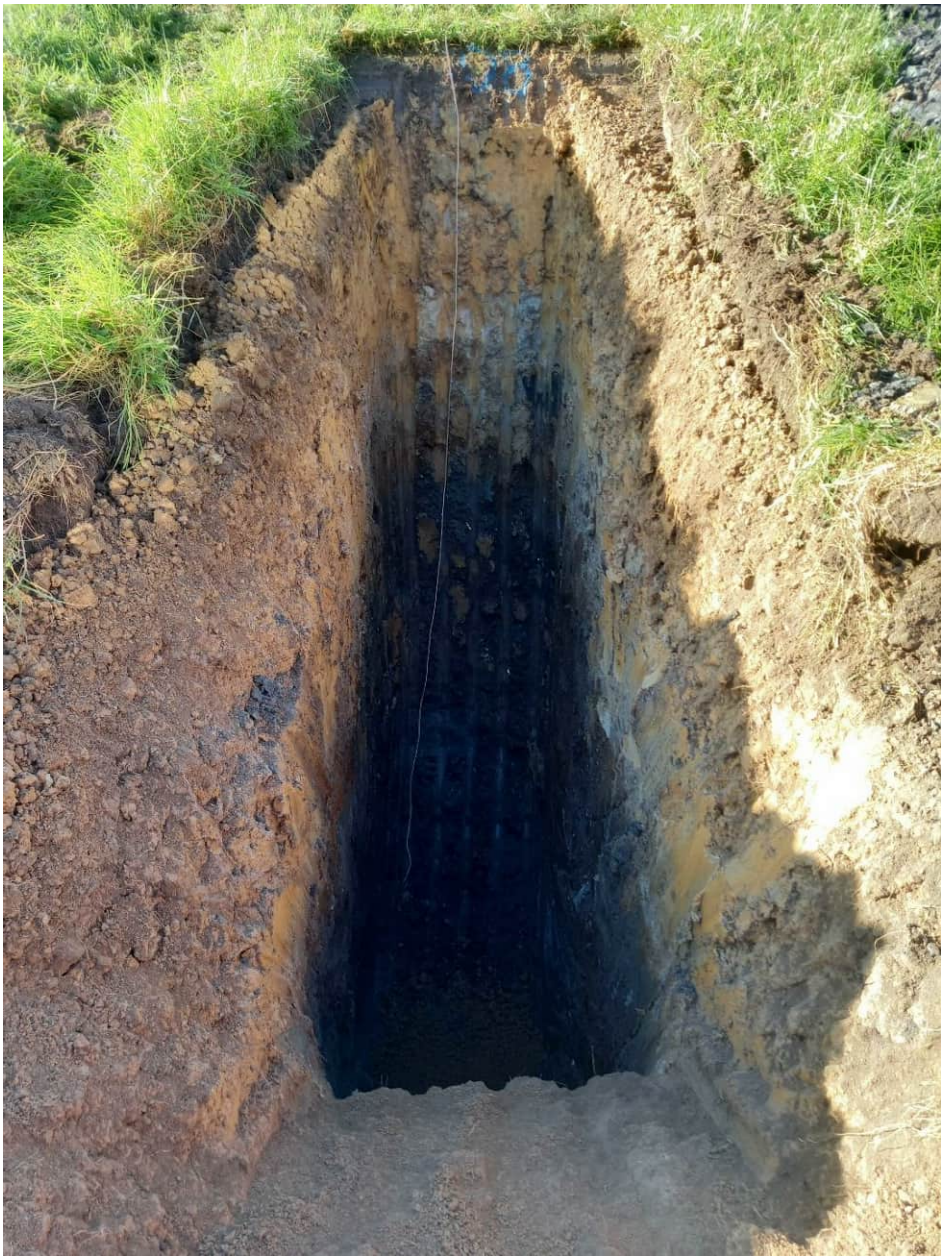
Termination Reason: Target depth reached
Shear Vane No: 3661 DCP No:

Remarks: Groundwater not encountered. Orientation 336°(true). Excavator used: 26Tonne.

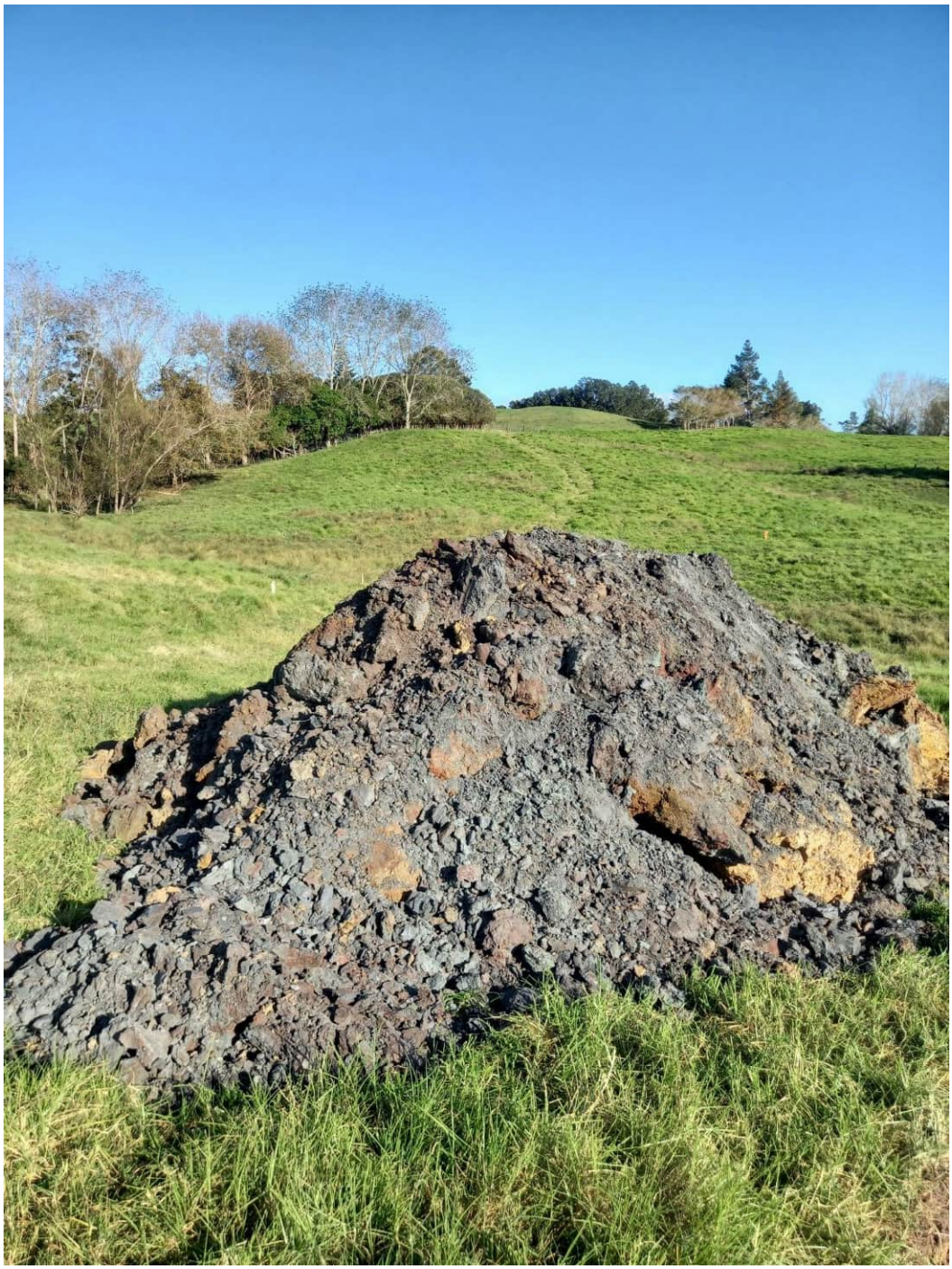
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP08-23

Client:	Fulton Hogan Land development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	05/04/2023
Position:	E: 388755.5 / N: 829262.5	Contractor:	Kerry Dines Limited
Logged by:	ZW	Checked by:	MJC
Dimensions:	1.0m by 6.0m	Termination Depth:	6.0m



TP08-23 – TEST PIT EXCAVATION



TP08-23 - Spoil

TEST PIT LOG - TP09-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 04/04/2023
Test Pit Location: Refer to site plan | Logged by: ZW | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388874.9mE; 829436.7mN | Projection: EDENMT2000 | Pit Dimensions: 5.0m by 1.0m
Elevation: 41.40m | Datum: AUCKHT1946 | Survey Source: Dines Survey

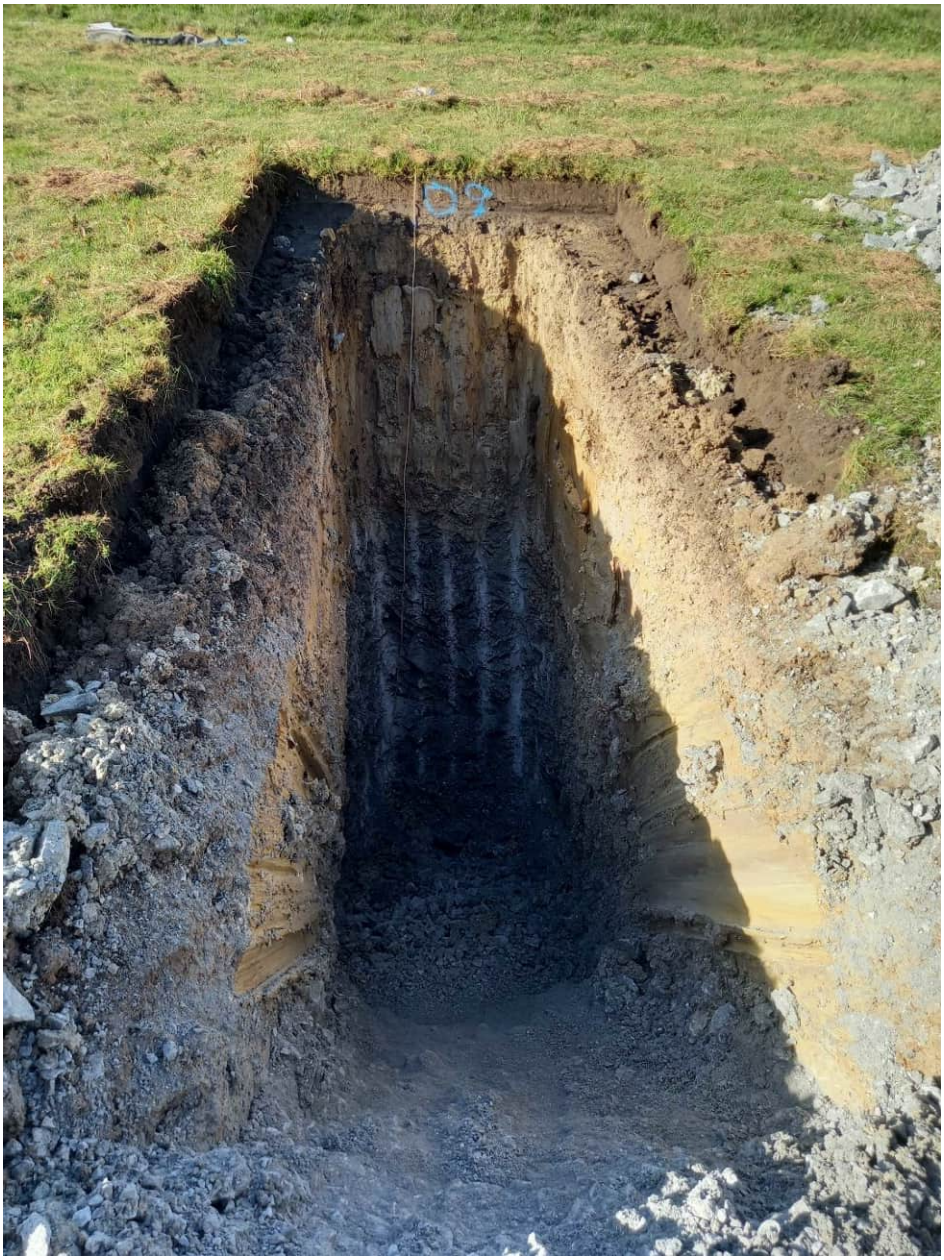
Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			41.4			OL: Clayey SILT: Dark brown. Low plasticity. (Topsoil)			5 10 15 20	
			41.1			CH: CLAY: Grey mottled brown. High plasticity. (RS Northland Allochthon)				0.3-2.2m: Minor organic material present as tree roots up to 200mm
	1.0	Peak = 39kPa Residual = 16kPa		1			S	F		
				2						
			39.2			Highly weathered light brownish grey. Sheared structure. LIMESTONE. Calcareous. Very weak. Recovered as fine gravel to large cobble sized angular blocks. Water on fractured surfaces. (Northland Allochthon)	D	H		
			38.7			Slightly weathered light bluish grey. Sheared structure. LIMESTONE Calcareous. Weak. Recovered as medium gravel to large cobble sized angular blocks. (Northland Allochthon)	D			
				3		Test pit terminated at 3.50 m				
				4						
				5						
				6						

Termination Reason: Refusal on hard ground.
Shear Vane No: 3661 DCP No:
Remarks: Groundwater not encountered. Orientation 357°(true). Excavator used: 26Tonne.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP09-23

Client:	Fulton Hogan land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	05/04/2023
Position:	E: 388874.86 / N: 829436.68	Contractor:	Kerry Dines Limited
Logged by:	ZW	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	3.5m



TP09-23 – TEST PIT EXCAVATION

TP09-23 - Spoil

TEST PIT LOG - TP10-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 04/04/2023
Test Pit Location: Refer to site plan | Logged by: ZW | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388948.0mE; 829459.9mN | Projection: EDENMT2000 | Pit Dimensions: 5.0m by 1.0m
Elevation: 44.40m | Datum: AUCKHT1946 | Survey Source: Dines Survey

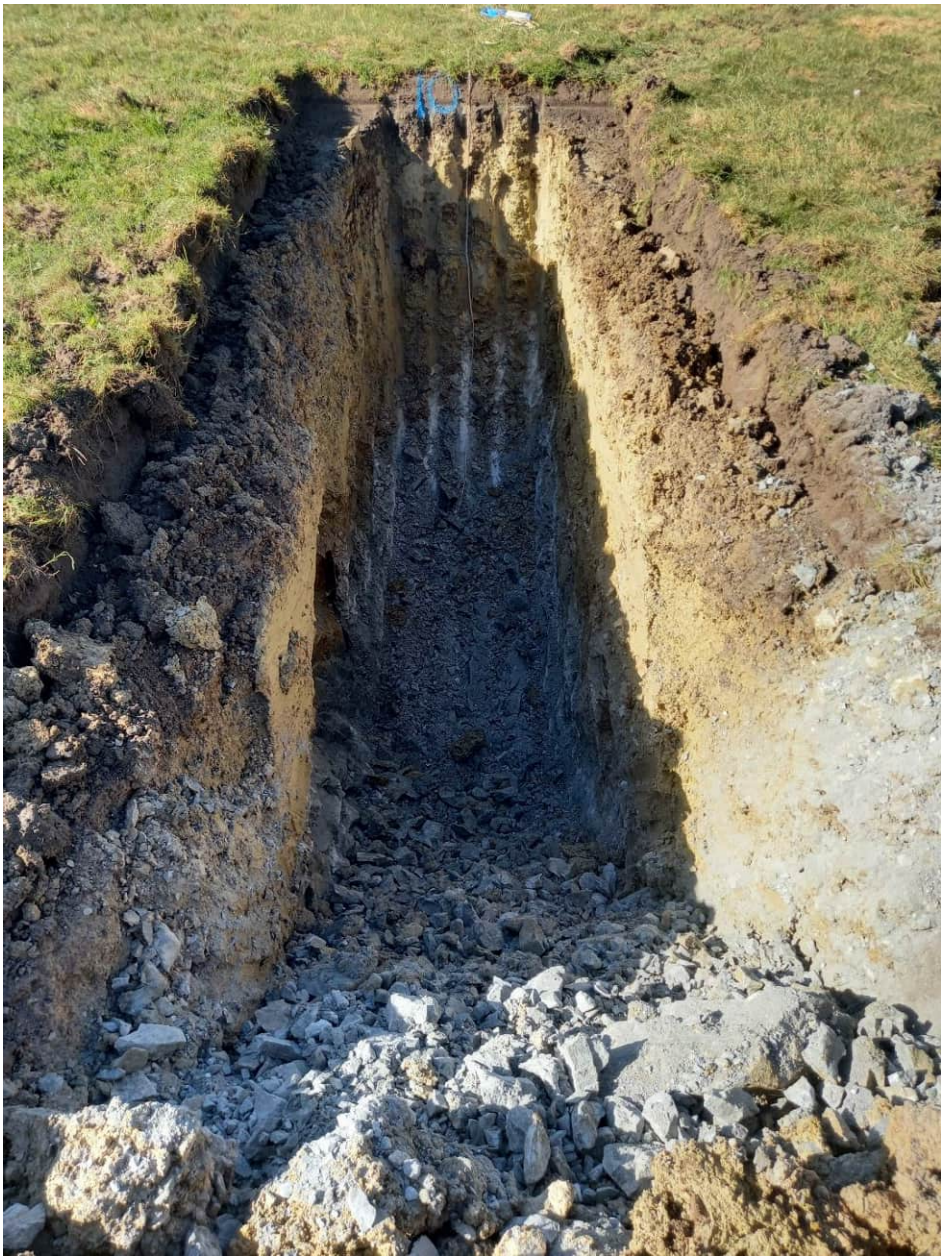
Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations (Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks)
			44.4			OL: Clayey SILT: Dark brown. High plasticity. (Topsoil)				
			44.1			CH: CLAY with minor silt : Brownish grey. High plasticity. (RS Northland Allochthon)	S	St		
	1.0	Peak = 61kPa Residual = 26kPa		1						
			42.9			Highly weathered light brownish grey. Sheared structure. LIMESTONE. Very weak. Recovered as fine gravel to large cobble sized angular blocks. Water on fractured surfaces. (Northland Allochthon)	D	H		
			42.3	2		Slightly weathered light grey. Sheared structure. LIMESTONE. Calcareous. Weak. Recovered as medium gravel to large cobble sized angular blocks. (Northland Allochthon)	D			
				3		Test pit terminated at 3.10 m				
				4						
				5						
				6						

Termination Reason: Refusal on hard ground.
Shear Vane No: 3661 DCP No:
Remarks: Groundwater not encountered. Orientation 343°(true). Excavator used: 26Tonne.

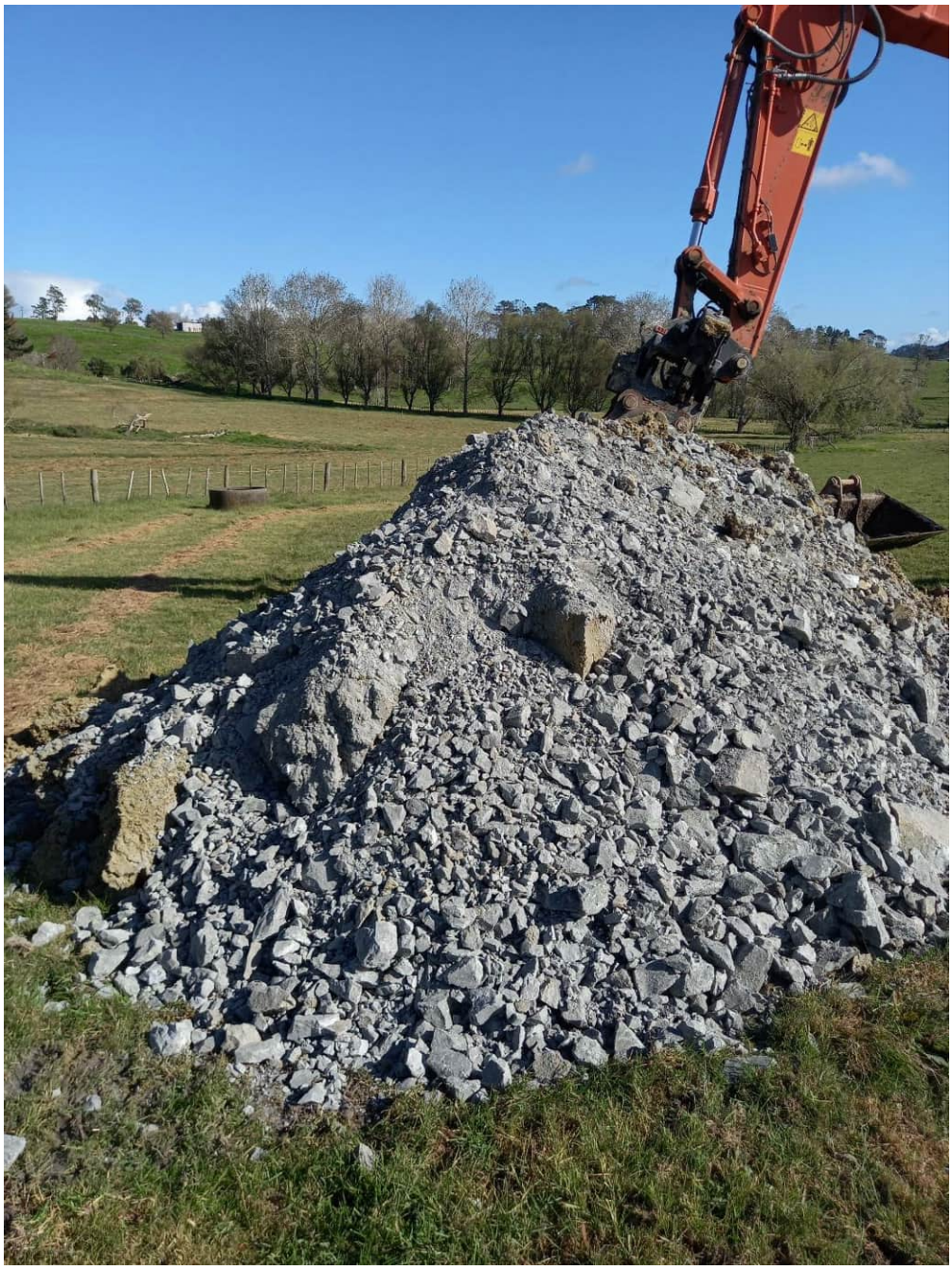
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP10-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	05/04/2023
Position:	E: 388947.96 / N: 829459.88	Contractor:	Kerry Dines Limited
Logged by:	ZW	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	3.1m



TP10-23 – TEST PIT EXCAVATION



TP10-23 - Spoil

TEST PIT LOG - TP11-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 04/04/2023
Test Pit Location: Refer to site plan | Logged by: ZW | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388980.0mE; 859565.9mN | Projection: EDENMT2000 | Pit Dimensions: 5.0m by 1.0m
Elevation: 44.23m | Datum: AUCKHT1946 | Survey Source: Dines Survey

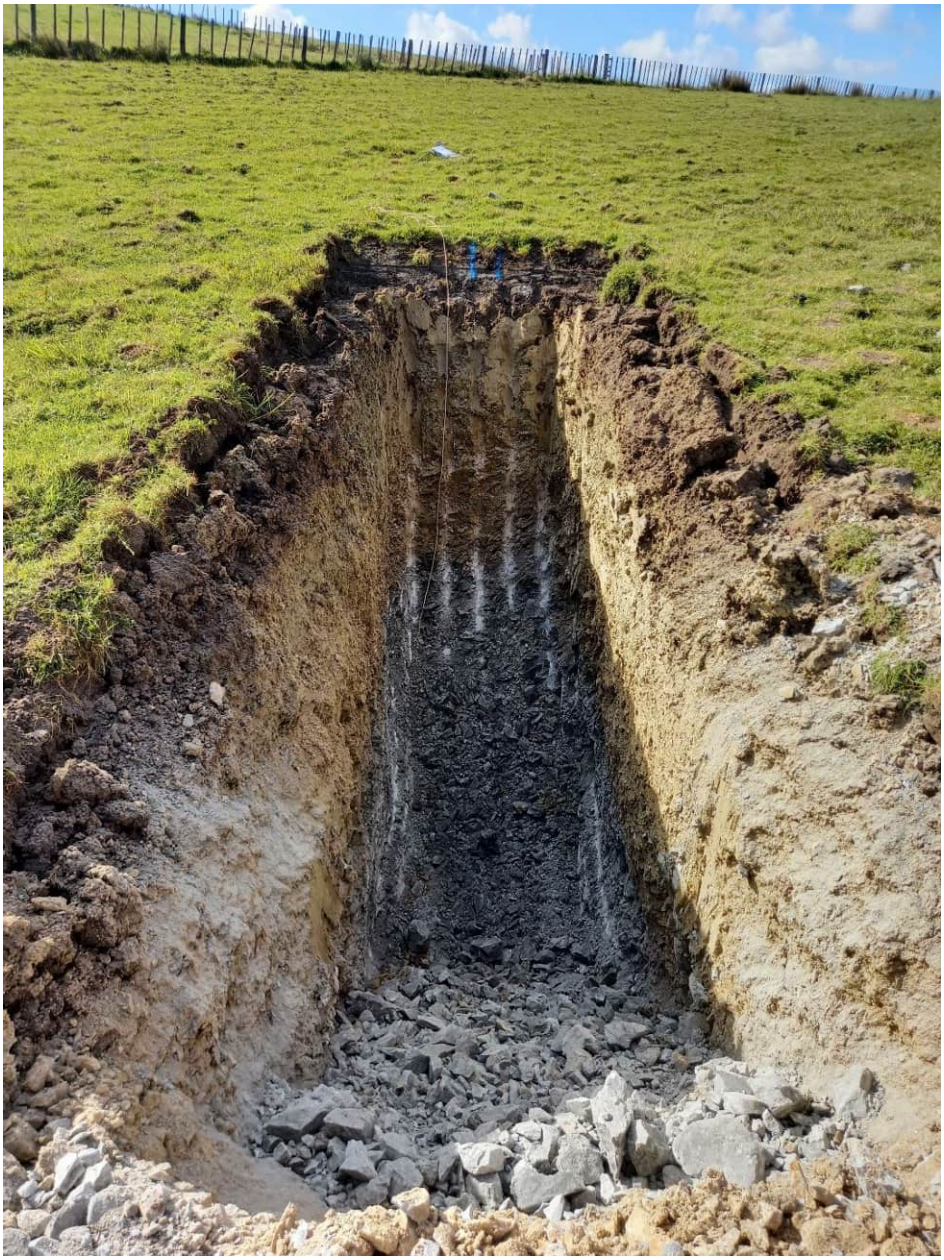
Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			44.2	0		OL: Clayey SILT: Dark brown. High plasticity (Topsoil)			5 10 15 20	Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
			43.9			CH: Silty CLAY: Grey streaked orange/blue. High plasticity. (RS Northland Allochthon)	W to S	St		
	1.0	Peak = 55kPa Residual = 16kPa	43.1	1		Highly to moderately weathered light brownish grey. Sheared structure. LIMESTONE. Very weak. Calcareous. Recovered as fine gravel to medium cobble sized angular blocks. Water on fractured surfaces. (Northland Allochthon) *... from 1.10m to 2.00m, Limonite staining*	D	H		
			42.2	2		Slightly weathered light greyish white. Sheared structure. LIMESTONE. Weak. Calcareous. Recovered as medium gravel to large cobble sized angular blocks. (Northland Allochthon)	D			
				3		Test pit terminated at 2.90 m				
				4						
				5						
				6						

Termination Reason: Refusal on hard ground.
Shear Vane No: 3661 DCP No:
Remarks: Groundwater not encountered. Orientation 271°(true). Excavator used: 26Tonne.

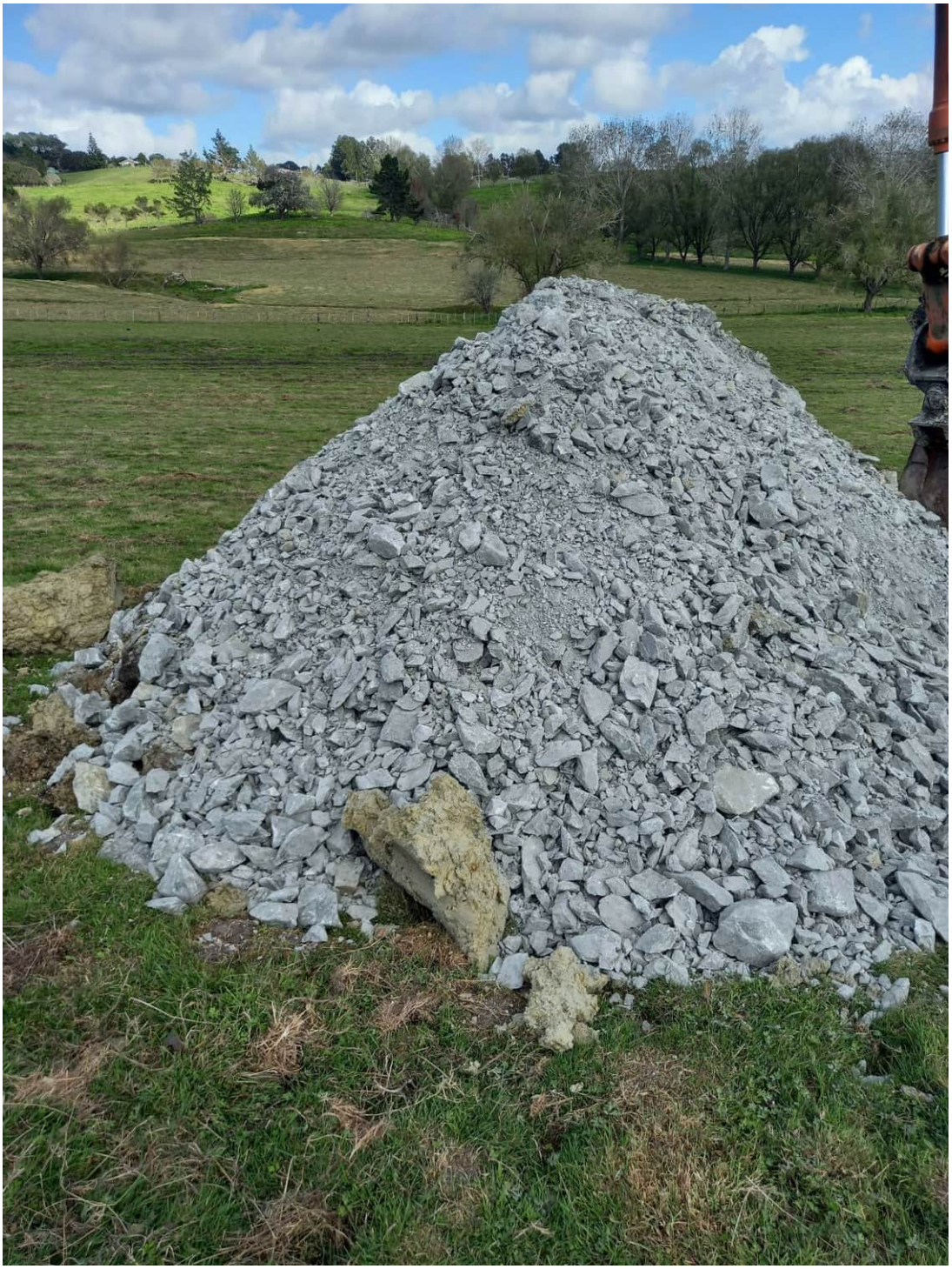
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP11-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	05/04/2023
Position:	E: 388979.96 / N: 829565.91	Contractor:	Kerry Dines Limited
Logged by:	ZW	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	2.9m



TP11-23 – TEST PIT EXCAVATION



TP11-23 - Spoil

TEST PIT LOG - TP12-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 04/04/2023
Test Pit Location: Refer to site plan | Logged by: ZW | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388908.6mE; 829625.1mN | Projection: EDENMT2000 | Pit Dimensions: 5.0m by 1.0m
Elevation: 36.70m | Datum: AUCKHT1946 | Survey Source: Dines Survey

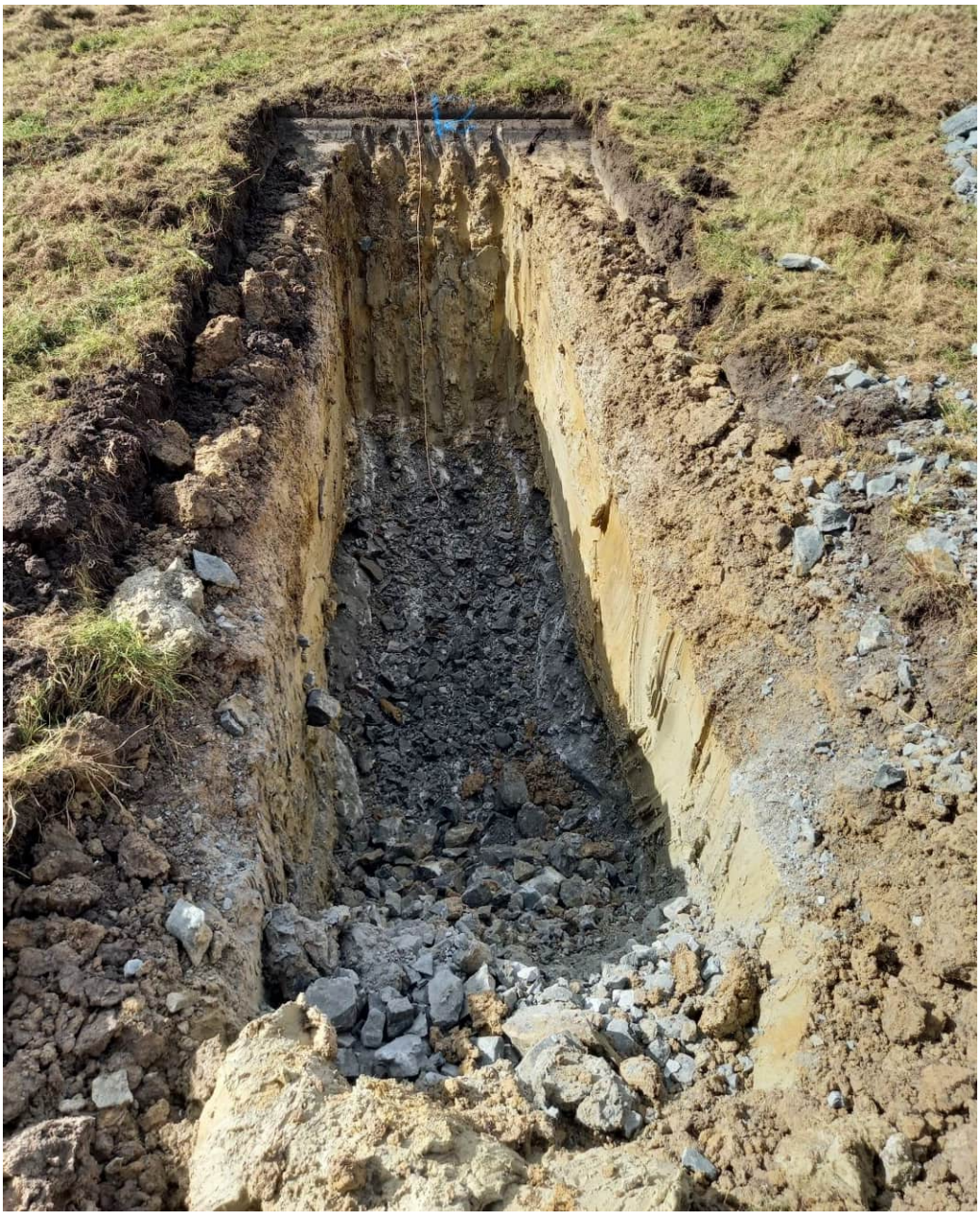
Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			36.7	0		OL: Clayey SILT: Dark brown. High plasticity. (Topsoil)			5 10 15 20	Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
			36.4			CH: CLAY with minor silt: Grey mottled orange. High plasticity. (RS Northland Allochthon)				
						... at 0.50m, Minor manganese nodules				
	1.0	Peak = 68kPa Residual = 32kPa		1			S	St		
				2						
			34.4			Slightly weathered light greyish blue. Sheared structure. LIMESTONE. Weak. Recovered as medium gravel to large cobble sized angular blocks. (Northland Allochthon)	D			
						Test pit terminated at 2.80 m				
				3						
				4						
				5						
				6						

Termination Reason: Refusal on hard ground.
Shear Vane No: 3661 DCP No:
Remarks: Groundwater not encountered. Orientation 297°(true). Excavator used: 26Tonne.

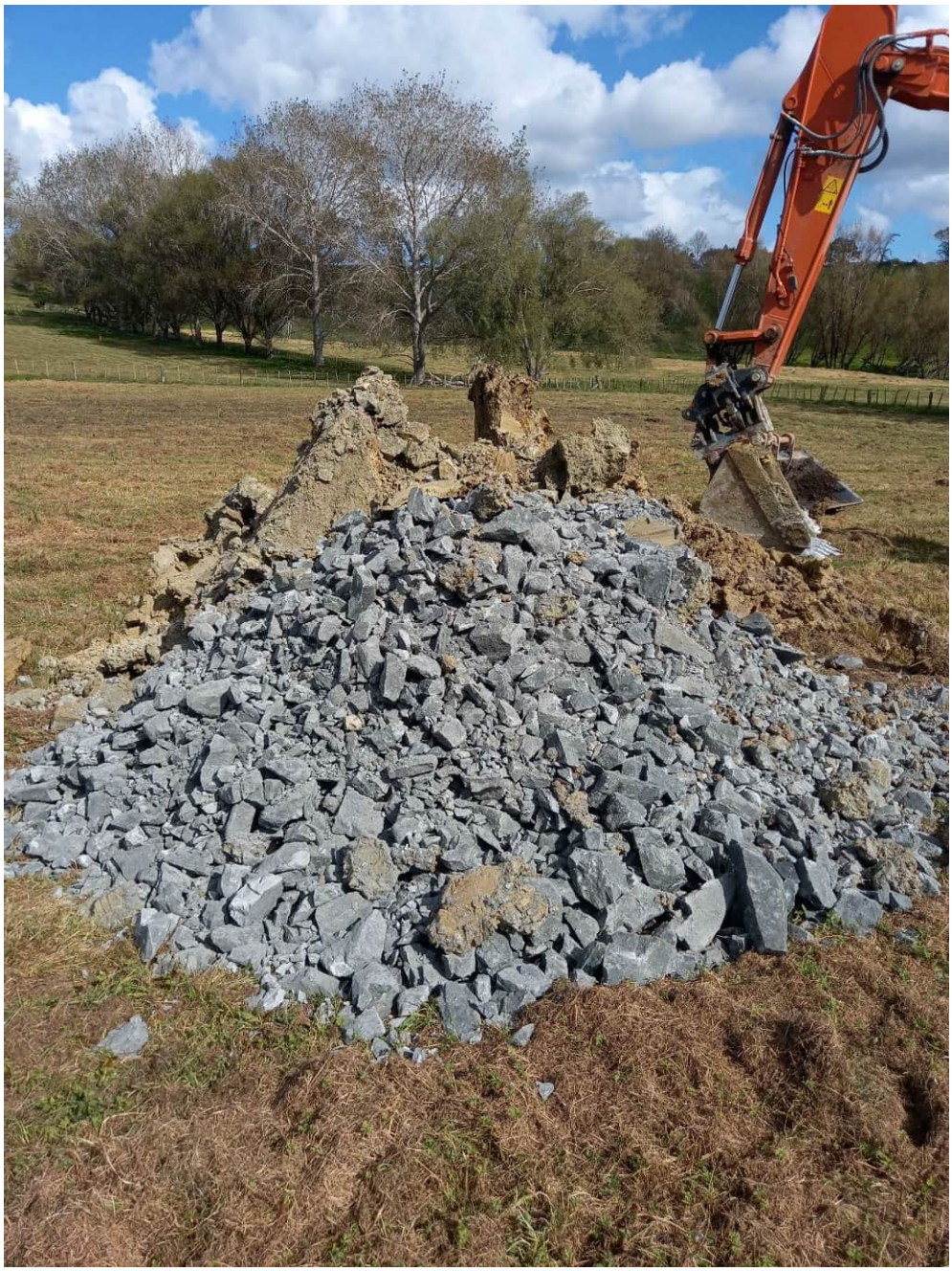
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP12-23

Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	05/04/2023
Position:	E: 388908.64 / N: 829625.14	Contractor:	Kerry Dines Limited
Logged by:	ZW	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	2.8m



TP12-23 – TEST PIT EXCAVATION



TP12-23 - Spoil

TEST PIT LOG - TP13-23

Client: Fulton Hogan Land Development Ltd
Project: Milldale - Stage 7
Site Location: Argent Lane, Wainui
Project No.: AKL2022-0138
Date: 04/04/2023
Test Pit Location: Refer to site plan | Logged by: ZW | Checked by: MJC | Scale: 1:30 | Sheet 1 of 1
Position: 388896.5mE; 829563.9mN | Projection: EDENTM2000 | Pit Dimensions: 5.0m by 1.0m
Elevation: 38.21m | Datum: AUCKHT1946 | Survey Source: Dines Survey

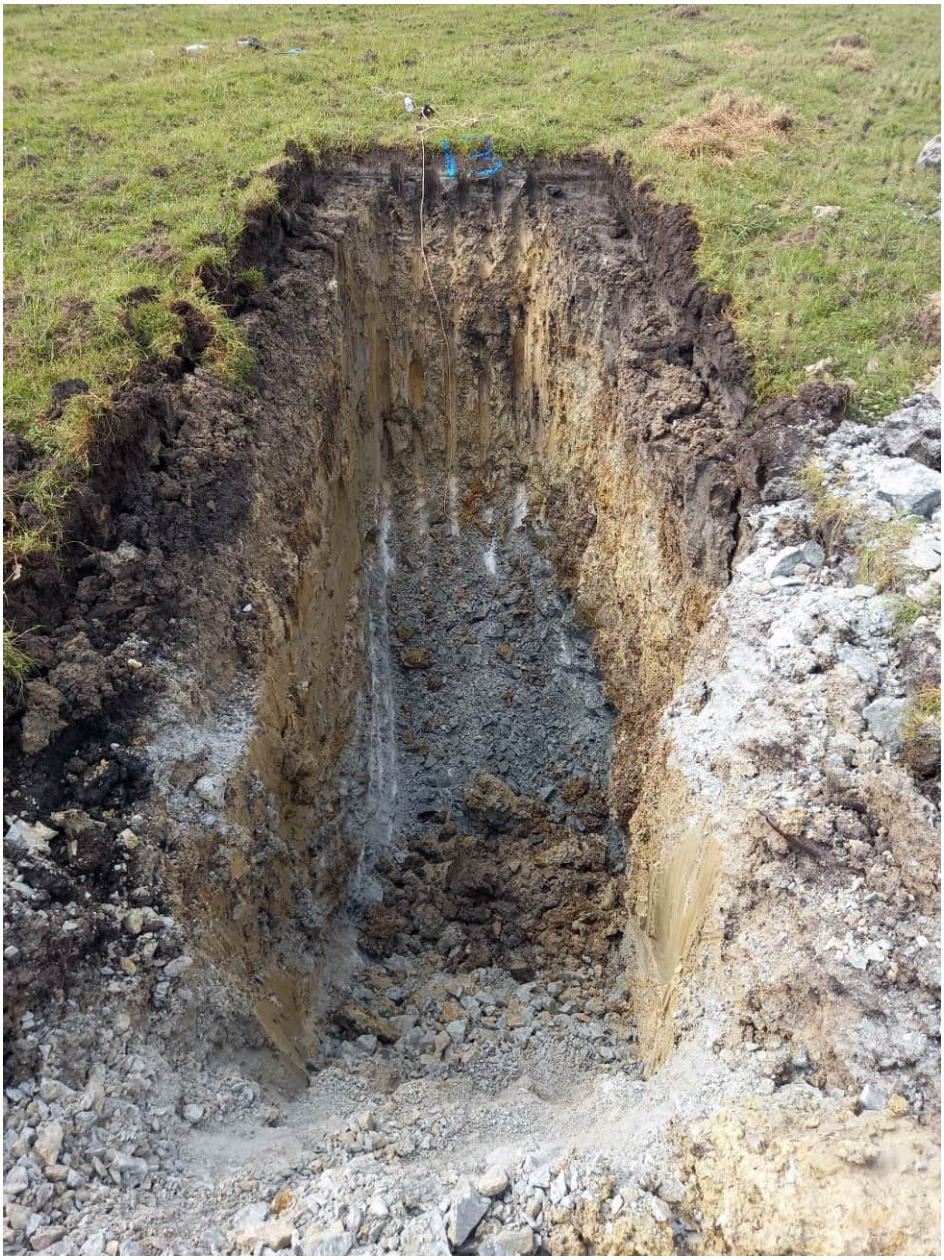
Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			38.2	0		OL: Clayey SILT: Dark brown. High plasticity (Topsoil)			5 10 15 20	Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
			37.9			CH: CLAY with minor silt: Light grey streaked orange. High plasticity. (RS Northland Allochthon)				
	1.0	Peak = 68kPa Residual = 32kPa		1			S	St		
				2						
			36.0			Highly weathered light brownish grey. Sheared structure. LIMESTONE. Calcareous. Extremely weak. Recovered as fine gravel to large cobble sized angular blocks. Water on fractured surfaces. (Northland Allochthon)	D	H		
			35.7			Slightly weathered light greyish white. Sheared structure. LIMESTONE. Calcareous. Weak. Recovered as medium gravel to large cobble sized angular blocks. (Northland Allochthon)	D			
				3		Test pit terminated at 3.00 m				
				4						
				5						
				6						

Termination Reason: Refusal on hard ground.
Shear Vane No: 3661 DCP No:
Remarks: Groundwater not encountered. Orientation 326°(true). Excavator used: 26Tonne.

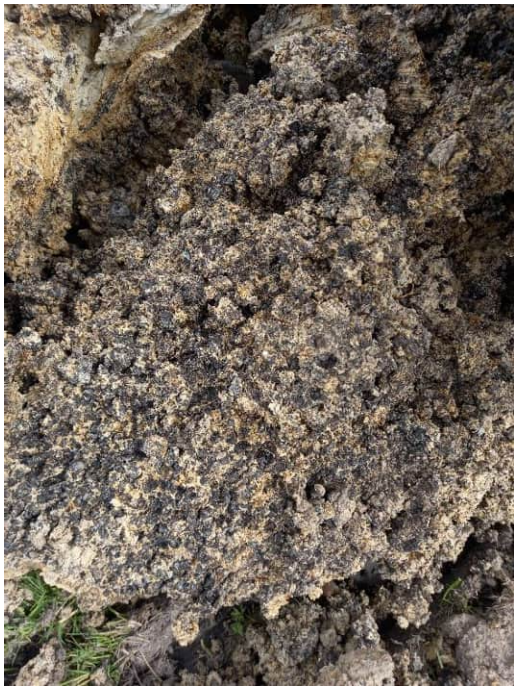
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT PHOTOGRAPHS: TP13-23

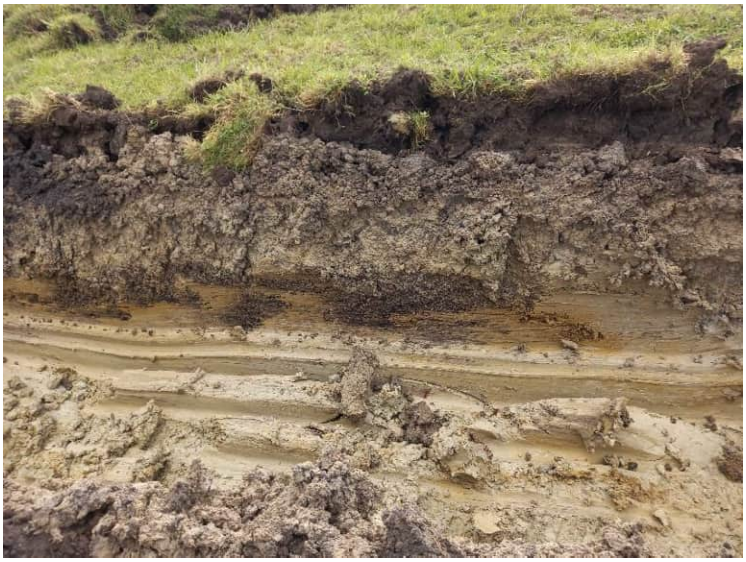
Client:	Fulton Hogan Land Development Ltd		
Project:	Milldale – Stage 7	Location:	Milldale
Project No:	AKL2022-0138	Date:	04/04/2023
Position:	E: 388896.50 / N: 829563.87	Contractor:	Kerry Dines Limited
Logged by:	ZW	Checked by:	MJC
Dimensions:	1.0m by 5.0m	Termination Depth:	3.0m



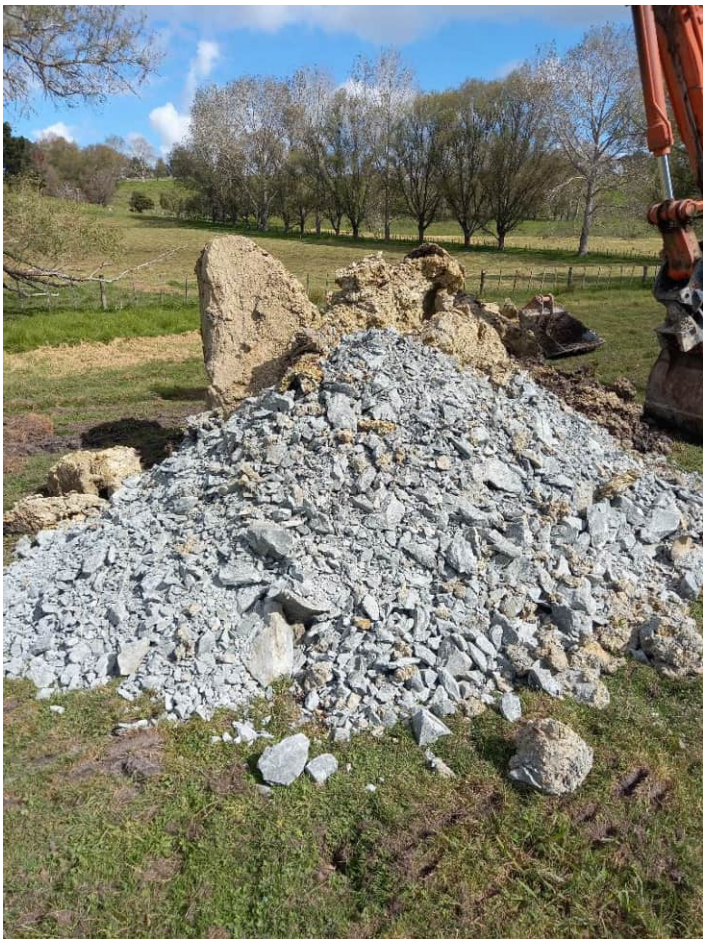
TP13-23 – TEST PIT EXCAVATION



Manganese Nodules



Manganese Band



TP13-23 - Spoil