Spring 2021 Geotechnical Site Investigation, Meliadine Gold Project, NU



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Agnico Eagle Mines Limited

SEPTEMBER 22, 2021
ISSUED FOR USE
FILE: ENG.EARC03193-02

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LIMITATIONS OF REPORT

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1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Agnico Eagle Mines Limited (Agnico Eagle) to conduct a geotechnical site investigation for the Meliadine Gold Project (the Project) within the footprints of the proposed A6 Berm, Dike D-CP9, D-B4 South and West Drainage Boundaries, B5 North Berm, D-B7 West and North Drainage Boundaries, CP2 Berm, and Waste Rock and Overburden Storage Facility No. 3 (WRSF3). The geotechnical site investigation program consisted of geotechnical drilling, field core logging and sampling, packer testing, ground temperature cable (GTC) installation, and laboratory testing of overburden core samples. Data obtained from the boreholes will augment information from previous site investigations to support the final design of the above noted structures.

This data report summarizes the geotechnical site investigation program, with borehole logs, GTC installation details, field test results, and laboratory test results in their respective appendices.

1.1 Project Details

The Project is located along the southwestern length of the existing mine development (from 63°02'N, 92°16'W to 63°00'N, 92°09'W) and on a peninsula between the east, south, and west basins of Meliadine Lake (63°01'N, 92°12'W), approximately 25 km northwest of Rankin Inlet in the Kivalliq Region of Nunavut, Canada. This coincides with Zone 15 of the Universal Transverse Mercator (UTM) Grid. The horizontal datum for this project is the North American Datum 1983 (NAD83).

The site investigation program was conducted from April 12, 2021 to April 26, 2021. The on-site Tetra Tech personnel were Ernest Palczewski, P.Geo. and Lekan Mitchell, P.Eng. Drilling operations were performed by Orbit Garant Drilling Inc. (Orbit Garant).

2.0 GEOTECHNICAL SITE INVESTIGATION

2.1 General

A total of twenty-one vertical boreholes were drilled and logged, with depths ranging from 10.0 m to 16.5 m. Three of the drilled boreholes are located along the proposed A6 Berm footprint (GT21-60 (35), GT21-61 (36), GT21-62 (37)), two located along the proposed D-B4 North footprint (BH21-16 to BH21-17), five are located along the proposed Dike D-CP9 footprint (BH21-18 to BH21-21, BH21-26), one each at the proposed footprints of D-B4 South, D-B4 West, D-B7 West, and D-B7 North (GT21-45, GT21-63, GT21-73, and GT21-74, respectively), two at the CP2 Berm footprint (GT21-64 and GT21-65), one at the WRSF3 footprint (GT21-66), and four at the B5 North Berm footprint (GT21-99 to GT21-102). Boreholes GT21-99 to GT21-101 were drilled from the frozen lake surface. The borehole locations are presented in Figure 1.

Nine multi-bead (GTCs) were installed during the site investigation. At least one GTC was installed in the footprint of each proposed structure. Packer testing was performed within the footprints of the A6 berm, Dike D-CP9, D-B7 West Drainage Boundary, and B5 North Berm.

Borehole logging provided data regarding depth to bedrock, general lithology, condition of the overburden, and condition of bedrock. Sixty-one representative soil and bedrock samples were collected during the site investigation. Twenty-two samples were tested for excess ice content on site and the remaining thirty-nine samples were shipped to Tetra Tech's Edmonton laboratory for testing.

2.2 Borehole Locations

Survey control for the geotechnical site investigation was provided by Agnico Eagle. Tetra Tech personnel used a handheld GPS unit (Garmin GPSMAP 60CSx) to locate and verify the boreholes that had been staked prior to the investigation by Agnico Eagle.

The coordinates, surface elevations, depth to bedrock, and completion depth for each of the boreholes are summarized in Table 1 below. Coordinates were provided by Agnico Eagle unless otherwise noted in Table 1.

Table 1: Borehole Information Summary

General Area	Borehole No.	UTM ZONE 15		Surface Elevation (m)	Depth to Bedrock (m)	Completion Depth (m)
		Northing (m)	Easting (m)			
A6 Berm	^GT21-60 (35)	6986202	542110	59.3	5.5	15.0
	*GT21-61 (36)	6986081	542271	59.9	7.5	15.6
	GT21-62 (37)	6986012	542650	57.6	3.0	15.0
D-B4 North	*GT21-16	6987772	538406	57.7	2.8	15.0
	GT21-17	6987820	538345	57.6	3.7	15.0
Dike D-CP9	GT21-18	6987132	539112	57.9	4.4	10.5
	GT21-19	6987038	539131	57.3	3.8	10.0
	*^GT21-20	6986948	539154	57.5	4.0	15.5
	`GT21-21	6986851	539172	60.0	4.0	10.0
	GT21-26	6986764	539188	57.9	5.8	12.0
D-B4 South	`GT21-45	6986444	538921	56.0	7.3	15.0
D-B4 West	`*GT21-63	6987059	537972	52.0	4.4	15.0
D-B7 West	*^GT21-73	6989381	537818	62.8	11.4	16.5
D-B7 North	*GT21-74	6990225	537018	62.6	6.8	15.0
CP2 Berm	`*GT21-64	6989012	541524	46.0	2.7	15.0
	`GT21-65	6988974	541563	46.0	4.5	15.0
WRSF3	`*GT21-66	6988736	541295	58.0	2.4	15.0
B5 North Berm	GT21-99	6988526	538167	57.7	6.9	13.5
	^GT21-100	6988473	538108	57.7	5.6	12.0
	GT21-101	6988420	538044	57.9	5.2	10.5
	*^GT21-102	6988362	537974	60.0	6.2	15.0

Notes: NAD83 Datum
*Multi-bead GTC installed in BH.
^Packer test performed in BH.
`Location obtained from handheld GPS. Handheld GPS reported elevations to 0 decimal places.

2.3 Drilling Methodology

The geotechnical boreholes were drilled using a diamond drill rig (SH-48) mounted on a skid and operated by Orbit Garant. The drill was equipped with a triple tube coring system. The maximum depth of drilling was 16.5 m at Borehole GT21-73. All overburden and bedrock cores were recovered using an NQ core barrel (47.6 mm inner diameter) and conventional diamond drilling techniques.

Chilled brine was used as the drilling fluid while drilling through overburden to enable good frozen core recovery. The chilled brine was prepared by the drilling crew with lake water, ice, and calcium chloride (80% to 87% calcium chloride content was used in previous investigation on site). The temperature of the brine was measured at approximately -5°C.

Photo 39 in the “Photographs” section of the report presents the drill rig set up on borehole GT21-18.

2.4 Overburden and Rock Core Logging Methodology

Percent recovery of the core sample was determined immediately following its extraction from the core barrel. The overburden and bedrock cores were then examined, soil and bedrock index parameters were determined, and detailed core logging was conducted.

2.4.1 Frozen Soil and Ground Ice Logging

Frozen soil logging undertaken by Tetra Tech consisted of three components, which are described as follows:

- A description of the soil composition (lithology) according to the Modified Unified Soil Classification System guidelines and Tetra Tech’s Work Method WM4440 guidelines;
- A description of the frozen state of the soil (visible or non-visible ice) with Tetra Tech’s Work Method WM4102 guidelines; and
- A description of characteristic ice strata, including cryogenic structures (cryostructures) found within the frozen soil with Tetra Tech’s Work Method WM4102 guidelines.

2.4.2 Rock Logging

Bedrock logging undertaken by Tetra Tech was based on Tetra Tech’s Work Method WM3403 guidelines. This consisted of identifying:

- Type of rock; degree of weathering (W1 to W6, Table 2);
- Joint set number (JSN, Table 3);
- Spacing of joints including their roughness, orientation, and type of infill; fracture frequency (FF); and
- Rock quality designation (RQD, Table 4).

Rock strength was determined using a geological hammer in the field. Classification of rock strength and strength description terms are based on the International Society for Rock Mechanics (ISRM 1981). These terms are summarized in Table 5.

Table 2: Degree of Weathering

Degree of Weathering	Description	Rating
Residual Soil	Original fabric destroyed	W6
Completely weathered/altered	Original fabric and relict structures remain, but rock is decomposed and friable	W5
Highly weathered/altered	Rock is discoloured and strength is significantly reduced by weathering	W4
Moderately weathered/altered	Rock is discoloured, but rock strength only slightly affected, discontinuous weathering	W3
Slightly weathered/altered	Rock strength unchanged, weathering on joints only	W2
Fresh and unweathered	Alteration may result in an improvement in rock competency (e.g., silicification)	W1

Table 3: Joint Set Number (JSN), J_n (after Barton et al. 1974)

Description	J_n Rating
Massive, no or few joints	0.5 to 1.0
One joint set	2
One joint set, plus random	3
Two joint sets	4
Two joint sets, plus random	6
Three joint sets	9
Three joint sets, plus random	12
Four or more joint sets, random, heavily jointed, “sugar coated”	15
Crushed rock, earth-like	20

Table 4: Correlation between RQD and Rock Mass Quality

RQD (%)	Rock Quality
<25	Very Poor
25-50	Poor
50-75	Fair
75-90	Good
90-100	Excellent

Table 5: Classification of Rock with Respect to Strength

Grade	Strength Classification	Field Identification Method	Range of Unconfined Compressive Strength (MPa)
R0	Extremely Weak	Indented by thumbnail	<1
R1	Very Weak	Crumbles under firm blows of geological hammer; can be peeled with a pocket knife	1-5
R2	Weak Rock	Can be peeled by a pocket knife with difficulty; shallow indentations made by a firm blow with point of geological hammer	5-25
R3	Medium Strong	Cannot be scarped or peeled with a pocket knife; specimen can be fractured with a single firm blow of geological hammer	25-50
R4	Strong	Specimen required more than one blow of geological hammer to fracture	50-100
R5	Very Strong	Specimen required many blows of geological hammer to fracture	100-250
R6	Extremely Strong	Specimen can only be chipped by the geological hammer	>250

2.5 Excess Ice Content Field Testing

Twenty-two overburden samples were selected and tested on-site using a jar test to determine their volumetric excess ice contents. The test results are summarized in Table 6.

The jar test consisted of placing an approximately 5 cm to 15 cm long frozen soil core sample into a graduated glass beaker and allowing it to thaw. The thawed saturated soil was then thoroughly mixed and allowed to settle. Volumes of sediment and supernatant water were recorded to estimate percentage of excess ice content in the sample.

Table 6: Excess Ice Content Summary

General Area	Borehole No.	Sample Depth		Excess Ice Content by Volume (%)
		From (m)	To (m)	
A6 Berm	GT21-60 (35)	3.4	3.4	9.3
	GT21-61 (36)	1.0	1.2	16.1
	GT21-61 (36)	2.6	2.6	30.9
	GT21-62 (37)	2.4	2.5	1.6
D-B4 North	GT21-16	1.8	1.8	83.1
	GT21-17	1.4	1.5	1.9
		1.9	2.0	58.4

Table 6: Excess Ice Content Summary

General Area	Borehole No.	Sample Depth		Excess Ice Content by Volume (%)
		From (m)	To (m)	
Dike D-CP9	GT21-18	1.1	1.1	9.3
		2.5	2.5	72.8
	GT21-19	0.4	0.5	10.3
		1.6	1.7	55.3
	GT21-20	1.8	1.8	57.0
	GT21-21	3.1	3.1	32.9
	GT21-26	2.0	2.1	64.5
		4.9	4.9	8.5
D-B4 South	GT21-45	3.7	3.8	40.1
D-B4 West	GT21-63	0.1	0.2	*1-5
D-B7 West	GT21-73	2.3	2.4	56.7
		4.5	4.7	*1
D-B7 North	GT21-74	4.5	4.9	3.5
CP2 Berm	GT21-64	1.5	1.7	*5-10
	GT21-65	1.9	2.1	19.7
B5 North Berm	GT21-102	2.1	2.1	11.7

*Inferred from bag sample

2.6 Packer Testing

Packer tests are used to infer the in situ hydraulic conductivity of a rock mass over a specific interval. All packer tests were conducted as constant head injection tests; water was injected at specific pressure steps and the resulting injection rate was recorded when flow reached a quasi-steady state. Boreholes were flushed with fresh water before performing the packer tests to remove chilled brine used while drilling.

The packer test system used in this investigation was composed of:

- A downhole assembly of two inflatable packer glands used to isolate the target interval within the hole;
- A packer inflation system using nitrogen (inert gas) to inflate the system and seal the test section; and
- A water pressure system (in this case using a submersible water pump provided by Orbit Garant) to inject water at a constant pressure (head) to the tested interval with the ability to measure flow rate.

The packer tests were conducted after the drill had penetrated a specified depth. A static water level measurement is important to determine the excess pressure (P_W^{max}) to apply over the specific test interval. This is calculated as follows:

$$P_W^{max} = \sigma_v' = \gamma_s'(z_s) + \gamma_r'(z_{tz} - z_s)$$

Where γ_s' is the submerged unit weight of the overburden deposits; γ_r' is the submerged unit weight of the bedrock; z_s is the thickness if the overburden deposits; and $(z_{tz} - z_s)$ is the thickness of bedrock over the tested interval.

If the water pressure is too high, hydraulic fracturing or opening of fissures may alter the rock mass hydraulic conductivity. Since CANMET (1977) recommends a maximum excess water pressure (P_W^{max}) of 700 kPa, the excess pressure was not allowed to exceed 700 kPa to avoid potential hydraulic fracturing of the bedrock.

Once the drill reached the specified testing depth, the hole was flushed with clear water to remove cuttings, and the drill rods were pulled back to allow water levels to stabilize. The downhole packer assembly was attached to the wireline and lowered through the drill rods with the bottom packer(s) extending through the drill bit into the open drill hole. The packer glands were then inflated, and the water pressure assembly was attached to the submersible pump. Water for testing was sourced by Orbit Garant.

Once the packer assembly was in place, water was injected into the bedrock under a constant pressure. The injection rate (flow rate) was measured by recording readings of total flow at regular time intervals. The packer tests were conducted in stages where the excess pressure was increased from 33% to 67% to 100% of P_W^{max} as available, to a maximum calculated pressure of 380 kPa.

Data from these tests was then analyzed to determine the hydraulic conductivity of the bedrock interval tested. The results were interpreted using the Thiem solution, and the following assumptions were made:

- Steady-state condition was reached during the test;
- Laminar flow applies; and
- Radius of influence of the test did not exceed 10 m.

The hydraulic conductivity *K* of the rock mass over the test zone is inferred from the field data using the following modified Thiem equation (e.g., Doe et al. 1980):

$$K = \frac{Q}{2\pi L \cdot dH} \cdot \ln\left(\frac{L}{r}\right)$$

Where *K* is the hydraulic conductivity, *Q* is the flow rate (m^3/s), *L* is the vertical length of the test zone (m), *dH* is the excess head applied to the test zone (m water column), and *r* is the radius of the test zone (borehole radius) (m).

The excess head *dH* applied to the test zone is calculated as follows:

$$dH = (DTW - s + a)\sin(A) + p$$

Where *DTW* is the depth to water (m-ah), *s* is the casing stick-up height (m-ah), *a* is the pressure gauge height (m-ags), *A* is the plunge (degrees), and *p* is the measured test pressure (m of water).

A total of five packer tests were conducted in five boreholes drilled within the footprints of the A6 Berm, CP9 Dike, D-B7 West Drainage Boundary, and B5 North Berm. Table 7 summarizes the packer test locations and conditions encountered. Appendix E contains a raw data repository of the packer tests.

Table 7: Notes on Packer Tests

General Area	Borehole No.	Sample Depth		K-value (m/s)	Comments
		From (m)	To (m)		
FZone Till Berm	GT21-60	12.0	15.0	4.5×10^{-6}	No issues
Dike D-CP9	GT21-20	11.0	15.5	1.8×10^{-7}	No flow at measured test pressures below ~300 kPa
B5 North Berm	GT21-100	9.0	12.0	1.3×10^{-5}	No issues
D-B7 West	GT21-73	13.5	16.5	2.3×10^{-6}	Pressure gauge was bouncing during test; pressure values may not be very accurate
B5 North Berm	GT21-102	12.0	15.0	3.4×10^{-7}	Pressure gauge was bouncing during test; pressure values may not be very accurate

Best field techniques were used to determine accurate and desired pressure values, but some errors were likely introduced while setting up the tests or reading the gauges. Errors could be introduced due to large increments on the pressure gauges combined with low pressures required at the relatively shallow testing intervals and at times inconsistent pressure provided by the water pump causing bouncing on the pressure gauge. Photos 57, 58, and 108, in the photographs section, show the pressure gauge, flowmeter, and setup of the packer testing equipment.

2.7 Laboratory Testing

2.7.1 Index Laboratory Testing

Selected representative overburden core samples were shipped to Tetra Tech's Edmonton laboratory. Laboratory testing on the overburden samples included natural moisture content tests and particle size distribution analyses (via sieve tests).

Tetra Tech received two thirds of the overburden samples on May 5, 2021 while the remainder arrived on May 12, 2021. A small amount of moisture was observed between the sample bags and cooler and upon inspection it was determined that some of the samples had potentially lost moisture during transport. Although these samples could not provide accurate natural moisture contents, the analyses were completed as the results provide a lower bound for the moisture contents in their natural state. Samples GT21-64 S1 and S2 and samples GT21-73 S1 and S2 were combined due to limited amount of sample to perform a particle size analysis. The index laboratory test results are presented in Appendix C. Table 8 provides a summary of these results.

Moisture contents should be referenced from Table 8 below and not the particle size analysis results in Appendix C. Natural moisture testing was performed on the samples before they underwent advanced laboratory testing (Section 2.7.2) then particle size analysis afterwards.

Table 8: Summary of Index Laboratory Test Results

General Area	Borehole No.	Sample No.	Sample Depth		*Moisture Content (%)	Fines (Silt and Clay) (%)	Sand (%)	Gravel (%)
			From (m)	To (m)				
A6 Berm	GT21-60 (35)	S1	1.1	1.5	10.9	29.1	48.9	22.0
		S2	3.6	4.1	11.9	-	-	-
	GT21-61 (36)	S1	1.2	1.5	11.3	-	-	-
		S2	1.8	2.4	28.2	47.2	52.8	0.0
		S3	3.6	4.0	4.8	18.9	32.1	49.0
	GT21-62 (37)	S1	0.8	1.0	19.2	-	-	-
		S2	2.2	2.4	23.1	-	-	-
D-B4 north	GT21-17	S1	1.1	1.4	8.4	13.3	45.7	41.0
		S2	2.0	2.6	13.0	-	-	-
Dike D-CP9	GT21-18	S1	1.2	1.5	15.7	-	-	-
		S2	2.0	3.0	27.2	-	-	-
	GT21-19	S1	0.2	0.4	23.4	-	-	-
		S2	1.4	1.7	22.4	41.9	54.1	4.0
	GT21-20	S1	0.1	0.4	15.1	-	-	-
		S2	1.8	2.1	9.9	32.0	42.0	26.0
	GT21-21	S1	3.1	3.4	24.2	74.7	22.3	3.0
		S2	3.5	3.9	8.8	31.9	31.1	37.0
	GT21-26	S1	3.2	3.8	3.4	14.2	20.8	65.0
D-B5 South	GT21-45	S1	3.2	3.7	9.5	-	-	-
		S2	5.1	5.6	5.9	26.5	34.5	39.0
D-B4 West	GT21-63	S1	0.7	1.0	4.3	-	-	-
		S2	1.2	2.3	7.8	25.0	32.0	43.0
CP2 Berm	GT21-64	S1	1.1	1.5	6.1	21.9	29.3	49.0
		S2	1.7	2.3				
	GT21-65	S1	1.5	1.9	29.2	78.1	21.9	0.0
		S2	3.5	4.0	4.8	19.8	25.2	55.0
WRSF3	GT21-66	S1	0.2	0.9	18.0	-	-	-
D-B7 West	GT21-73	S1	1.9	2.3	2.1	41.1	33.9	25.0
		S2	4.0	4.5	9.0			
D-B7 North	GT21-74	S2	3.0	3.5	19.5	43.0	41.0	16.0
B5 North Berm	GT21-102	S1	2.6	3.0	11.4	3.5	53.5	43.0
		S2	5.5	6.0	6.1	32.4	36.6	31.0

*Note: Moisture contents on select particle size analysis reports are lower than in Table 8 because the samples were used for direct shear or permeability testing first. Moisture contents were taken before shearing/permeability testing to determine saturation (wet density).

2.7.2 Advanced Laboratory Testing

2.7.2.1 Direct Shear

Direct shear tests were carried out on 18 test specimens (DS-1 to DS-18) from 6 samples following ASTM D3080 at Tetra Tech's Edmonton laboratory. The samples were selected based on fines and excess ice contents. Selected samples were reconstituted to saturation (wet density) using calculated moisture content and void ratio by assuming the specific gravity of the soils to be 2.6.

The direct shear laboratory test results are presented in Appendix C and summarized in Table 9.

Table 9: Summary of Direct Shear Test Results

General Area	Borehole and Sample No.	Sample Depth (m)		Sample ID	Moisture Content (%)		Wet Density (Mg/m³)		Dry Density (Mg/m³)		Normal Stress (kPa)	Shear Stress (kPa)	Inferred Shear Strength Parameters – Residual	
		From (m)	To (m)		Initial	Final	Initial	Final	Initial	Final			Cohesion Intercept (kPa)	Shearing Resistance Angle (°)
A6 Berm	GT21-61(36)-S1	1.2	1.5	DS-1	11.5	14.9	2.229	2.154	1.999	1.875	50	54	6	35.5
				DS-2	11.8	14.9	2.229	2.192	1.994	1.908	100	91		
				DS-3	11.1	14.4	2.229	2.138	2.007	1.870	200	189		
	GT21-61(36)-S3	3.6	4.0	DS-4	7.5	10.3	2.319	2.310	2.158	2.094	50	57	7	34.1
				DS-5	7.7	10.2	2.320	2.311	2.154	2.097	100	112		
				DS-6	7.5	10.7	2.331	2.277	2.168	2.056	200	194		
D-B4 West	GT21-63-S2	1.2	2.3	DS-7	8.8	11.2	2.309	2.304	2.122	2.073	50	56	3	35.3
				DS-8	7.5	9.6	2.309	2.300	2.148	2.100	100	91		
				DS-9	8.6	11.0	2.309	2.292	2.127	2.065	200	191		
WRSF3	GT21-66-S1	0.2	0.9	DS-10	11.5	16.3	1.979	2.004	1.774	1.723	50	46	12	29.1
				DS-11	11.6	16.5	1.979	1.998	1.773	1.716	100	82		
				DS-12	11.5	16.9	1.979	1.836	1.775	1.570	200	145		
D-B7 North	GT21-74-S2	3.0	3.5	DS-13	12.0	18.4	1.925	1.958	1.719	1.653	50	47	4	32.2
				DS-14	12.1	18.4	1.925	1.974	1.718	1.668	100	90		
				DS-15	12.2	19.2	1.925	1.602	1.716	1.343	200	144		
B5 North Berm	GT21-102-S2	5.5	6.0	DS-16	7.5	15.8	2.074	2.138	1.930	1.846	50	43	8	31.5
				DS-17	7.4	16.4	2.074	2.154	1.932	1.850	100	84		
				DS-18	7.3	14.6	2.074	2.068	1.933	1.804	200	155		

2.7.2.2 Constant Head Hydraulic Conductivity

Nine constant head hydraulic conductivity tests were performed per ASTM D5084, Method A. Selected samples were reconstituted to saturation (wet density) using calculated moisture content and void ratio by assuming the specific gravity of the soils to be 2.6. The constant head hydraulic conductivity test results are presented in Appendix C and summarized in Table 10.

General Area	Sample	Sample Depth (m)		Type of Sample	Hydraulic Conductivity (cm/s)
		From (m)	To (m)		
A6 Berm	GT21-62(37)-S2	2.2	2.4	Reconstituted	3.8 x 10-5
	GT21-61(36)-S2	1.8	2.4	Reconstituted	5.0 x 10-5
	GT21-61(36)-S3	3.6	4.0	Reconstituted	1.0 x 10-5
	GT21-60(35)-S2	3.6	4.1	Reconstituted	4.8 x 10-5
Dike D-CP9	GT21-21-S1	3.1	3.4	Reconstituted	3.6 x 10-5
	GT21-21-S2	3.5	3.9	Reconstituted	1.7 x 10-5
D-B7 West	GT21-73-S2	4.0	4.5	Reconstituted	2.7 x 10-5
B5 North Berm	GT21-102-S1	2.6	3.0	Reconstituted	2.4 x 10-4
	GT21-102-S2	5.5	6.0	Reconstituted	9.8 x 10-6

2.8 Ground Temperature Cable Installation

Nine multi-bead GTCs were installed as part of the site investigation. A summary of GTC installation details is provided in Appendix D.

GTCs were installed immediately after drilling the boreholes. Tetra Tech field staff performed the installations with assistance from the drilling crew. GTCs were installed into 25 mm (1 inch) diameter PVC pipes. The boreholes were backfilled with bentonite and cuttings and esker sand was used within the PVC pipes. The GTC leads were temporarily coiled up at the installation location and tapped to the PVC pipes sticking out of the boreholes. It is understood remote data loggers were installed by Agnico Eagle in early June 2021. It is recommended the extra cables and data loggers be placed in a steel casing for protection and to facilitate future data collection. The GTC's were planned to be installed to 15 m depths but actual installation depths varied from 10.95 m at GT21-61 (36) to 15 m due to sloughing of borehole material and buoyancy due to water in the borehole.

Manual GTC readings were taken to confirm the thermistor beads were working correctly prior to installation. Ground temperature readings were taken again on April 25, 2021 after most of the cables were allowed time to equilibrate with ground conditions. Agnico Eagle recorded GTC temperature readings on June 2 and 3, 2021 and provided Tetra Tech readings via email on June 9, 2021. The measured ground temperatures on June 2 and 3, 2021, at installation depths of 10.95 m to 15 m, ranged from approximately -3.4°C at GT21-63 (35) to -6.9°C at GT21-66. Figures presenting ground temperature measurements are included in Appendix D.

3.0 SUBSURFACE CONDITIONS

3.1 General

Subsurface conditions encountered during the geotechnical site investigation are discussed in the following sections. Subsurface conditions are not uniform; it is expected that conditions between and surrounding the boreholes may deviate from the subsurface conditions identified within the boreholes and discussed herein. However, borehole data does give a general indication of the range of subsurface properties to be expected in the area.

Selected photos of the recovered overburden and bedrock cores are presented in the “Photographs” section of this report.

Borehole logs are provided in Appendix B. The borehole logs summarize data collected during the drilling, logging, and laboratory testing phases of the investigation. Tables 11 to 19 present a summary of this data.

3.1.1 A6 Berm

Table 11: Summary of Overburden and Bedrock Condition A6 Berm

Borehole No.	Organic Layer Thickness (m)	Major Overburden Soil Types	Overburden Thickness (m)	Ground Ice Conditions	Bedrock Conditions
GT21-60 (35)	-	Gravel and Peat; Sand and Silt; Silt; Gravel	5.5	Up to 9% Vs, Vx and Nbn	Slightly weathered to fresh; moderately jointed; medium strong; competent rock
GT21-61 (36)	0.06	Peat; Sand and Silt; Gravel	7.5	Up to 40% Vs, Vx, Vc; clear horizontal ice lenses up to 10 mm thick, 2 mm clear ice coatings	Slightly to moderately weathered; medium to very strong; competent rock
GT21-62 (37)	0.25	Peat and Silt; Clay; Gravel; Silt	3.0	Up to 40% Vr, Vx, Vs; clear to cloudy ice lenses up to 5 mm thick spaced 2 mm to 3 mm apart	Slightly weathered; moderately jointed; extremely strong; competent rock

3.1.1.1 Overburden

Two of the three boreholes (GT21-61 (36) and GT21-62 (37)) in the A6 Berm area encountered a veneer of organic material from 0.06 m to 0.25 m thick, respectively. The recovered organic material consisted of fine fibrous, grey to brown to black peat that contained leafy plants. The organic material was frozen.

The underlying overburden encountered in the boreholes consisted of various layers of Sand and Silt, Silt, and Gravel and an approximately 0.1 m thick layer of Clay in GT21-62 (37) at a depth of 0.7 m to 0.8 m.

Excess ice (Vs, Vx, Vr, and Vc) was observed in all three boreholes. Some of the excess ice occurred in the form of clear to cloudy horizontal ice lenses up to 10 mm thick. Photo 10 details visible ice lenses (Vs) up to 10 mm thick at a depth of 2.5 m in BH16-61 (36).

Volumetric ice content measurements were conducted in the field on ice-rich overburden core samples from each of the three boreholes, which are shown in Photos 7, 16, 17, and 25. The overburden cores sampled from GT21-60 (35), GT21-61 (36), and GT21-62 (37) contained approximately 9.3%, 30.9%, and 1.6% volumetric ice content, respectively.

The gravimetric moisture content of the overburden varied from 4.8% at a depth of 3.6 m to 28.2% at a depth of 1.8 m (BH21-61 (36)).

3.1.1.2 Bedrock

Greywacke was encountered in all three boreholes drilled in the A6 Berm area. The depth (from ground surface) to encountered bedrock ranged from approximately 3.0 m (GT21-62 (37)) to 7.5 m (GT21-61 (36)).

The encountered greywacke is medium strong to extremely strong, greyish green to dark grey, fine grained, foliated, and fresh to moderately weathered containing brownish stains, white quartz veins, and some pyrite mineralization.

The greywacke is of very poor (RQD <25%) to excellent quality (RQD >90%) with FF ranging from 0 to 20 per metre and JSN ranging from 0.5 to 3.

The bedrock contained joints with roughness ranging from undulating smooth to undulating rough and planar smooth to rough. Some joints were partially infilled with clay/silt and calcite.

3.1.2 D-B4 North Berm

Table 12: Summary of Overburden and Bedrock Condition D-B4 North Berm

Borehole No.	Organic Layer Thickness (m)	Major Overburden Soil Types	Overburden Thickness (m)	Ground Ice Conditions	Bedrock Conditions
GT21-16	0.27	Peat; Gravel (Rubble)	2.8	Nbn	Fresh to slightly weathered; very strong to extremely strong; slightly to highly jointed; moderately competent rock
GT21-17	0.45	Peat; Gravel and Sand; Silt; Ice and Silt	3.7	Up to 58% Vx, Vs, Nbe; clear ice lenses to 3 mm thick	Fresh to slightly weathered; strong to very strong; slightly to highly jointed; moderately competent rock

3.1.2.1 Overburden

Both boreholes in the D-B4 North Berm area encountered a layer of organic material from 0.27 m (BH21-16) to 0.45 m (BH21-17) thick. The recovered organic material consisted of fine fibrous, dark brown to black peat that contained fragmented angular gravel. The organic material was frozen and ice conditions ranged from non-visible non-excess ice.

The underlying overburden encountered in the boreholes consisted of various layers of Gravel (rubble), Gravel and Sand, Silt, and Ice and Silt.

Excess ice (Vx and Vs) was observed in borehole GT21-17. Excess ice occurred in the form of ice crystals less than 1 mm in size and clear lenticular and wavey ice lenses up to 3 mm thick.

Volumetric ice content measurements were conducted in the field on three ice-rich overburden core samples, one from GT21-16 (1.8 m) and two from GT21-17 (1.4 m to 1.5 and 1.9 m to 2.0 m), which are shown in Photos 31, 37, and 38. The overburden cores sampled contained approximately 83.1%, 1.9%, and 58.4% volumetric ice content, respectively.

The gravimetric moisture content of the overburden varied from 8.4% at a depth of 1.1 m to 13.0% at a depth of 2.0 m (BH21-17).

3.1.2.2 Bedrock

Greywacke was encountered in both boreholes drilled in the D-B4 North Berm area, diorite was encountered in GT21-17 from approximately 7.1 m. The depth (from ground surface) to encountered bedrock was approximately 2.8 m (GT21-16) to 3.7 m (GT21-17).

The encountered greywacke is very strong to extremely strong, dark grey, fine grained, foliated, and fresh to slightly weathered containing light brownish stains, white quartz veins, and some pyrite mineralization.

The greywacke is of fair (RQD 50% to 75%) to good quality (RQD 75% to 90%) with FF ranging from 1 to 4 per metre and JSN ranging from 0.5 to 3.

The greywacke contained undulating smooth joints. Some joints were partially infilled with clay/silt.

The encountered diorite is fresh, strong, green to black, medium to coarse grained, moderately jointed with some light brownish weathering.

The diorite is of excellent quality (RQD 90% to 100%) with FF ranging from 0 to 4 per metre and JSN ranging from 1 to 3.

The diorite contained joints with roughness ranging from undulating smooth to undulating rough and planer smooth. Some joints were partially infilled with clay/silt and calcite.

3.1.3 Dike D-CP9

Table 13: Summary of Overburden and Bedrock Condition Dike D-CP9

Borehole No.	Organic Layer Thickness (m)	Major Overburden Soil Types	Overburden Thickness (m)	Ground Ice Conditions	Bedrock Conditions
GT21-18	0.26	Peat; Rubble; Sand; Ice and Silt and Sand	4.4	Up to 73% Vs, Vx; ice lenses 1 mm to 10 mm thick; 1.5 m ICE + Silt and Sand	Fresh to slightly weathered; medium strong; moderately jointed; competent rock
GT21-19	0.06	Peat; Silt; Gravel: Ice and Sand and Silt; Cobbles	3.8	Up to 55% Vs, Vx, Nbn, Nf; horizontal lenses 1 mm to 5 mm thick	Unweathered; strong; competent rock
GT21-20	0.06	Peat and Gravel; Silt; Ice and Sand;	4.0	Up to 57% Vx, Vc, Vs, Vu; clear ice crystals and coatings	Quartz veins; competent rock
GT21-21	0.21	Peat; Silt; Gravel	4.0	Up to 33% Vx, Vs, Vu, Nbn; clear lenticular ice lenses to 4 mm thick	Quartz veins; competent rock
GT21-26	0.60	Peat; Sand and Gravel; Gravel; Ice and Sand; Gravel	5.8	Up to 64% Vx, Vr, Vs, Nbe, Nbn; clear ice lenses 1 mm thick	Fresh; medium strong; moderately jointed; semi-competent rock

3.1.3.1 Overburden

All five boreholes in the Dike D-CP9 area encountered a layer of organic material from 0.06 m (GT21-19/20) to 0.60 m (GT21-26) thick. The recovered organic material consisted of fine fibrous, brown to black peat that contained trace shells, silt, and subangular to angular gravel. The organic material was frozen and ice conditions ranged from non-visible non-excess ice to visible ice crystals and coatings on grains.

The underlying overburden encountered in the boreholes consisted of various layers of Rubble, Sand, Ice and Silt and Sand, Ice and Sand and Silt, Silt, Gravel, Sand and Gravel, and Ice and Sand.

Excess ice (Vs, Vx, Vr, Vu, and Vc) was observed in all five boreholes. Excess ice occurred in the form of clear lenticular ice lenses up to 10 mm thick and clear ice coatings up to 10 mm thick. Massive ice approximately 1.5 m thick was also observed in borehole GT21-18 between 2.0 m and 3.5 m depth.

Volumetric ice content measurements were conducted in the field on at least one ice-rich overburden core sample from each of the five boreholes, and are shown in Photos 45, 46, 51, 52, 56, 62, 66, and 67. The volumetric ice contents ranged between 8.5% and 72.8%. The overburden core with a volumetric ice content of 72.8% was sampled at approximately 2.5 m below ground surface from borehole GT21-18.

The gravimetric moisture content of the overburden varied from 3.4% at a depth of 3.2 m (BH21-26) to 27.2% at a depth of 2.0 m (BH21-18).

3.1.3.2 Bedrock

Greywacke was encountered in all seven boreholes drilled in the Dike D-CP9 area. The depth (from ground surface) to encountered bedrock ranged from approximately 3.75 m (GT21-19) to 7.3 m (GT21-45).

The encountered greywacke is medium strong to very strong, green to dark grey, fine grained, foliated, and fresh to slightly weathered, white quartz veins, and some pyrite mineralization.

The greywacke is of poor (RQD 25% to 50%) to excellent quality (RQD >90%) with FF ranging from 0 to 10+ per metre and JSN ranging from 0 to 4.

The bedrock contained joints with roughness ranging from undulating smooth to undulating rough. Some joints were partially infilled with clay/silt and calcite.

3.1.4 D-B4 South

Table 14: Summary of Overburden and Bedrock Condition D-B4 South

Borehole No.	Organic Layer Thickness (m)	Major Overburden Soil Types	Overburden Thickness (m)	Ground Ice Conditions	Bedrock Conditions
GT21-45	2.3 (ICE + Peat to 4.3)	Peat; Ice and Peat; Sand; Gravel and Sand	7.3	Up to 75% Vc, Vr, Vs, Nbe; clear ice lenses to 2 mm thick, up to 20 mm clear ice coatings	Fresh; strong to very strong; moderately jointed; pyrite mineralization, semi-competent rock

3.1.4.1 Overburden

The borehole in the D-B4 South area encountered a layer of organic material 2.3 m thick (4.3 m if including massive ice). The recovered organic material consisted of fine fibrous, dark brown to black peat that contained cobbles and gravel, some sand, and trace silt. The organic material was frozen and ice conditions ranged from non-visible excess ice to visible ice coatings and stratified layers of ice.

The underlying overburden encountered in the boreholes consisted of various layers of Ice and Peat, Sand, and Gravel and Sand.

Excess ice (Vs, Vc, and Vr) was observed in the borehole. Excess ice occurred in the form of clear ice lenses up to 2 mm thick and clear ice coatings up to 20 mm thick. Massive ice approximately 2.0 m thick was observed between 2.3 m and 4.3 m depth in borehole GT21-45.

Volumetric ice content measurements were conducted in the field on one ice-rich overburden core sample (Photo 73). The volumetric ice content was 40.1% for the sample collected at 3.7 m below ground surface.

The gravimetric moisture content of the overburden in GT21-45 varied from 5.9% at a depth of 5.1 m to 9.5% at a depth of 3.2 m.

3.1.4.2 Bedrock

Greywacke was encountered in the borehole drilled. Depth (below ground surface) to the encountered bedrock was approximately 7.3 m (BH21-45).

The encountered greywacke is strong to very strong, dark grey, fine-grained, fresh to slightly weathered (pyrite along joints), and contains white quartz veins.

The greywacke is of poor (RQD 25% to 50%) to good quality (RQD 75% to 90%) with FF ranging from 3 to 11 per metre and JSN ranging from 0.5 to 3.

The bedrock contained subhorizontal to subvertical joints including a fracture zone that was partially infilled with silt.

3.1.5 D-B4 West

Table 15: Summary of Overburden and Bedrock Condition D-B4 West

Borehole No.	Organic Layer Thickness (m)	Major Overburden Soil Types	Overburden Thickness (m)	Ground Ice Conditions	Bedrock Conditions
GT21-63	0.13	Peat; Silt and Sand; Gravel; Gravel and Sand	4.4	Up to 10% Vx, ice crystals to 4 mm	Fresh; medium strong; moderately jointed; semi-competent rock

3.1.5.1 Overburden

The borehole in the D-B4 West area encountered a layer of organic material of 0.13 m thick. The recovered organic material consisted of fibrous, brown peat that contained gravel, and trace sand. The organic material was frozen and ice conditions were non-visible non-excess ice.

The underlying overburden encountered in the boreholes consisted of various layers of Silt and Sand, Gravel, and Gravel and sand.

Excess ice (Vx) was observed in the borehole. Excess ice occurred in the form of visible individual ice crystals up 4 mm thick.

Volumetric ice content measurements were conducted in the field on one ice-rich overburden core sample (Photo 76). The volumetric ice content was visually estimated to be between 1% and 5% based on the bagged sample.

The gravimetric moisture content of the overburden in GT21-63 varied from 4.3% at a depth of 0.7 m to 7.8% at a depth of 1.2 m.

3.1.5.2 Bedrock

Greywacke was encountered in the borehole drilled. Depth (below ground surface) to the encountered bedrock was approximately 4.4 m (BH21-63).

The encountered greywacke is medium strong, grey to green, fine-grained, fresh, and contains white quartz veins.

The greywacke is of excellent quality (RQD >90%) with FF ranging from 0 to 5 per metre and JSN ranging from 0 to 3.

The bedrock contained subhorizontal and inclined joints with roughness ranging from undulating smooth to planar rough. Some joints were partially infilled with quartz.

3.1.6 D-B7 West

Table 16: Summary of Overburden and Bedrock Condition D-B7 West

Borehole No.	Organic Layer Thickness (m)	Major Overburden Soil Types	Overburden Thickness (m)	Ground Ice Conditions	Bedrock Conditions
GT21-73	0.10	Peat; Silt; Rubble	11.4	Up to 56.7% Vx, Vu, Vs, Nbn; Ice crystals and lenses	Fresh; medium strong; slightly jointed; competent rock

3.1.6.1 Overburden

The borehole in the D-B7 West area encountered a layer of organic material 0.10 m thick. The recovered organic material consisted of fibrous, dark brown peat that contained some rootlets. The organic material was frozen and ice conditions were non-visible non-excess ice.

The underlying overburden encountered in the boreholes consisted of various layers of Silt and Rubble.

Excess ice (Vs, Vx, and Vu) was observed in the one borehole. Excess ice occurred in the form of ice lenses and visible individual ice crystals. Massive ice bed approximately 2.8 m thick was also observed in GT21-73.

Volumetric ice content measurements were conducted in the field on two ice-rich overburden core samples from GT21-73 (Photo 83). The volumetric ice contents ranged between approximately 1% and 56.7%. The overburden core with a volumetric ice content of 1% was visually inferred through the sample bag.

The gravimetric moisture content of the overburden in GT21-73 varied from 2.1% at a depth of 1.9 m to 9.0% at a depth of 4.0 m.

3.1.6.2 Bedrock

Greywacke was encountered in the borehole drilled. Depth (below ground surface) to the encountered bedrock was approximately 11.4 m (BH21-73).

The encountered greywacke is medium strong, dark grey, fine-grained, fresh, and contains white quartz veins.

The greywacke is of excellent quality (RQD >90%) with FF ranging from 3 to 4 per metre and JSN of 2.

The bedrock contained subhorizontal undulating smooth joints.

3.1.7 D-B7 North

Table 17: Summary of Overburden and Bedrock Condition D-B7 North

Borehole No.	Organic Layer Thickness (m)	Major Overburden Soil Types	Overburden Thickness (m)	Ground Ice Conditions	Bedrock Conditions
GT21-74	0.06	Peat; Gravel; Silt and Sand; Cobbles	6.8	Up to 20% Vx, Vc, Vs with Ice crystals and lenses less than 1 mm thick	Fresh; strong; highly to slightly jointed; competent rock

3.1.7.1 Overburden

The borehole in the D-B7 North area encountered a layer of organic material of 0.06 m thick. The recovered organic material consisted of fibrous, dark brown peat that contained some rootlets. The organic material was frozen and ice conditions were non-visible non-excess ice.

The underlying overburden encountered in the boreholes consisted of various layers Gravel, Silt and Sand, and Cobbles.

Excess ice (Vs, Vx, and Vc) was observed in the borehole. Excess ice occurred in the form of ice lenses and visible individual ice crystals.

Volumetric ice content measurements were conducted in the field on one ice-rich overburden core sample (Photo 90). The volumetric ice content was 3.5% from a sample collected at 4.5 m below ground surface.

The gravimetric moisture content of the overburden in GT21-74 was measured at 19.5% at a depth of 3.0 m.

3.1.7.2 Bedrock

Greywacke was encountered in the borehole drilled. Depth (below ground surface) to the encountered bedrock was approximately 6.8 m (BH21-74).

The encountered greywacke is medium strong, dark grey, fine-grained, fresh, and contains white quartz veins.

The greywacke is of fair (RQD 50% to 75%) to excellent quality (RQD >90%) with FF ranging from 0 to 5 per metre and JSN ranging from 0.5 to 2.

The bedrock contained subhorizontal undulating smooth joints. Some joints were partially infilled with quartz.

3.1.8 CP2 Berm/WRSF3

Table 18: Summary of Overburden and Bedrock Condition CP2 Berm/WRSF3

Borehole No.	Organic Layer Thickness (m)	Major Overburden Soil Types	Overburden Thickness (m)	Ground Ice Conditions	Bedrock Conditions
GT21-64	0.45	Peat; Gravel	2.7	Up to 15% Vx; ice crystals	Fresh; very strong; moderately jointed; competent rock
GT21-65	0.29	Peat; Silt; Gravel and Cobbles	4.5	Up to 20% Vs, Vr; lenticular ice and ice crystals	Fresh to slightly weathered; very strong; competent rock
GT21-66	0.10	Peat; Sand; Ice and Sand and Gravel	2.4	Up to 70% Vr, Vs, Nbe; 0.6 m of ICE + Sand and Gravel	Fresh; strong; very competent rock

3.1.8.1 Overburden

All three boreholes in the CP2 Berm and WRSF3 area contained a veneer of organic material from 0.10 m (GT21-66) to 0.45 m (GT21-64) thick. The recovered material consisted of fibrous, brown to black peat, with trace to some rootlet inclusions. The organic material was frozen and ice conditions ranged from non-visible non-excess ice to non-visible excess ice.

The underlying overburden of the boreholes consisted of various layers of Gravel, Silt, Gravel and Cobbles, Sand, and Ice and Sand and Gravel.

Excess ice (Vx, Vs, and Vr) was observed in all three boreholes. Excess ice occurred in the form of clear lenticular ice lenses and visible individual ice crystals. Massive ice of approximately 0.60 m thick was also observed in borehole GT21-66 between1.75 m and 2.35 m.

Volumetric ice content measurements were conducted in the field on one ice-rich overburden core sample from GT21-64 and GT21-65 (Photo 99). The overburden core from GT21-64 was visually inferred to contain approximately 5% to 10% volumetric ice content based on the bag sample. The core sampled from GT21-65 had 19.7% volumetric ice content at a depth of 1.9 m.

The gravimetric moisture content of the overburden varied from 4.8% at a depth of 3.5 m to 29.2% at a depth of 1.5 m (GT21-65).

3.1.8.2 Bedrock

Greywacke was encountered in all the three boreholes drilled in the CP2 Berm WRSF3 areas. The depth (from ground surface) to encountered bedrock ranged from approximately 2.7 m (GT21-64) to 4.5 m (GT21-65).

The encountered greywacke is strong to very strong, grey to dark grey, fine grained, foliated, and fresh to slightly weathered containing orange staining of fractured faces, white quartz veins and pyrite mineralization.

The greywacke is of good (RQD 75% to 90%) to excellent quality (RQD >90%) with FF ranging from 0 to 5 metre and JSN ranging from 0 to 3.

The bedrock contained undulating smooth joints.

3.1.9 B5 North Berm

Table 19: Summary of Overburden and Bedrock Condition B5 North Berm

Borehole No.	Organic Layer Thickness (m)	Depth of Lake to Overburden Material (m)	Major Overburden Soil Types	Overburden Thickness (m)	Ground Ice Conditions	Bedrock Conditions
GT21-99	-	4.4	Gravel and Silt	6.9	-	Fresh to slightly weathered; slightly jointed; very strong; competent rock
GT21-100	-	3.5	Cobbles and Boulders	5.6	-	Fresh; medium strong; competent rock
GT21-101	-	2.5	Cobbles; Gravel	5.2	-	Slightly weathered; slightly jointed; very strong; foliated; competent rock
GT21-102	-	-	Gravel and Sand; Sand	6.2	Up to 20% Vs, Vc, Nbe; clear ice lenses to 12 mm thick, up to 10 mm clear ice coatings	Fresh; slightly jointed; medium strong; foliated; moderately jointed; competent rock

3.1.9.1 Overburden

Boreholes GT21-99, GT21-100, and GT21-101 were drilled from the B5 Lake ice surface. Organic material was not encountered in any of these three boreholes. Borehole GT21-102 was drilled from the western shore of B5 Lake and did not encounter any organic material either.

The overburden encountered in the boreholes consisted of various layers of Gravel and Silt, Cobbles and boulders, Cobbles, Gravel, Gravel and Sand, and Sand. Due to drilling in lake water it was determined that fine material was washed out or lost through the bottom of the drill rod while extracting the rods.

Excess ice (Vs and Vc) was only observed in one borehole (GT21-102). Excess ice occurred in the form of clear ice lenses up to 12 mm thick and clear ice coatings up to 10 mm thick.

Volumetric ice content measurements were conducted in the field on one ice-rich overburden core sample from GT21-102 (Photo 114). The overburden core was sampled from 2.1 m below original ground surface and contained approximately 11.7% volumetric ice content.

The gravimetric moisture content of the overburden in GT21-102 varied from 6.1% at a depth of 5.5 m to 11.4% at a depth of 2.6 m.

3.1.9.2 Bedrock

Greywacke was encountered in all four boreholes drilled in the B5North Berm area. The depth (from ground surface) to encountered bedrock was approximately 5.6 m (GT21-100) to 6.9 m (GT21-99).

The encountered greywacke is medium strong to very strong, dark green to dark grey, fine grained, foliated, and fresh to slightly weathered containing slight weathering, white quartz veins throughout, and occasional pyrite mineralization.

The greywacke is of fair (RQD 50% to 75%) to excellent quality (RQD 90% to 100%) with FF ranging from 0 to 7 per metre and JSN ranging from 0.5 to 3.

The bedrock contained joints with roughness ranging from undulating smooth to undulating rough. Some joints were partially infilled with clay/silt.

3.2 Hydraulic Conductivity

This section presents the results of the packer tests that were employed to determine bedrock hydraulic conductivities in Boreholes GT21-60, GT21-20, GT21-100, GT21-73, and GT21-102. The results of the individual packer tests are presented in Table 20. The raw data for each packer test are included as Appendix E.

Packer tests were conducted at selected depth intervals deemed representative for both intersected bedrock sequences and structural features encountered as observed in the drill core.

To assess the validity of the packer test data with respect to the assumptions implied by the analytical method of Thiem for inferring the aquifer hydraulic conductivity, the observed flow rate is plotted against the injection pressure for each pressure step (Appendix E). Ideally the flow rate should increase linearly with increasing injection pressure. However, deviation from the linear behaviour is often observed in packer test data and can be caused by a variety of reasons including, but not limited to, the following:

- Washing out of gouge material from fractures causing increased permeability;
- Fracture dilation or hydraulic fracturing due to excessive pressure;
- Clogging of fractures by transported material with a decrease in permeability;
- Enhancement (scouring) due to material being washed out of fractures; and
- Turbulent (non-Darcian) flow due to excessive flow rate.

Table 20 summarizes the results of the diagnostic plot analysis and presents a data quality assessment. Packer tests with ideal linear flow behaviour are likely to result in reliable estimates of hydraulic conductivity using the method presented in Section 2.6. Moderate quality data will likely still result in reasonable estimates of hydraulic conductivity but should be used with some caution. Poor quality data with non-linear flow behaviour should be interpreted cautiously and may not result in reasonable estimates of hydraulic conductivity.

Table 20 presents the inferred hydraulic conductivities for each packer test. The inferred hydraulic conductivities range from 1.8×10^{-7} m/s to 1.3×10^{-5} m/s, which are typical values for the upper range of hydraulic conductivities observed in (fractured) sandstone, including greywacke (e.g., Freeze and Cheery 1979).

Table 20: Summary of Packer Test Results

General Area	Borehole No.	Test No.	Sample Depth		K-value (m/s)	Diagnostic Plot Analysis (see Appendix E)	Data Quality		
			From (m)	To (m)			Good	Moderate	Poor
A6 Berm	GT21-60 (35)	1	12.0	15.0	4.5×10^{-6}	Linear relationship (laminar flow); possibly very slight enhancement.	X		
Dike D-CP9	GT21-20	2	11.0	15.5	1.8×10^{-7}	Dilation		X	
B5 North Berm	GT21-100	3	9.0	12.0	1.3×10^{-5}	Linear relationship (laminar flow)	X		
D-B7 West	GT21-73	4	13.5	16.5	2.3×10^{-6}	Only measured increasing pressure. Results appear of poor quality because flow rate is similar for all pressure steps.			X
B5 North Berm	GT21-102	5	12.0	15.0	3.4×10^{-7}	Slight dilation during increasing pressure. Decreasing pressure appears to be influenced by clogging of fractures and reduced permeability. Only increasing pressure used to estimate K value, which should therefore be at upper limit.		X	

Tetra Tech also logged all drill core for geotechnical parameters, including Recovery, RQD, and Fracture Frequency. Recovery, RQD, and Fracture Frequency are related to the degree of fracturing of the bedrock and therefore potentially to the permeability as well.

4.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

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Sept 22, 2021
FILE: ENG.EARC03193-02
FILE: ENG.EARC03193-02
FILE: ENG.EARC03193-02

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/jf

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date SEPT 22, 2021
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

REFERENCES

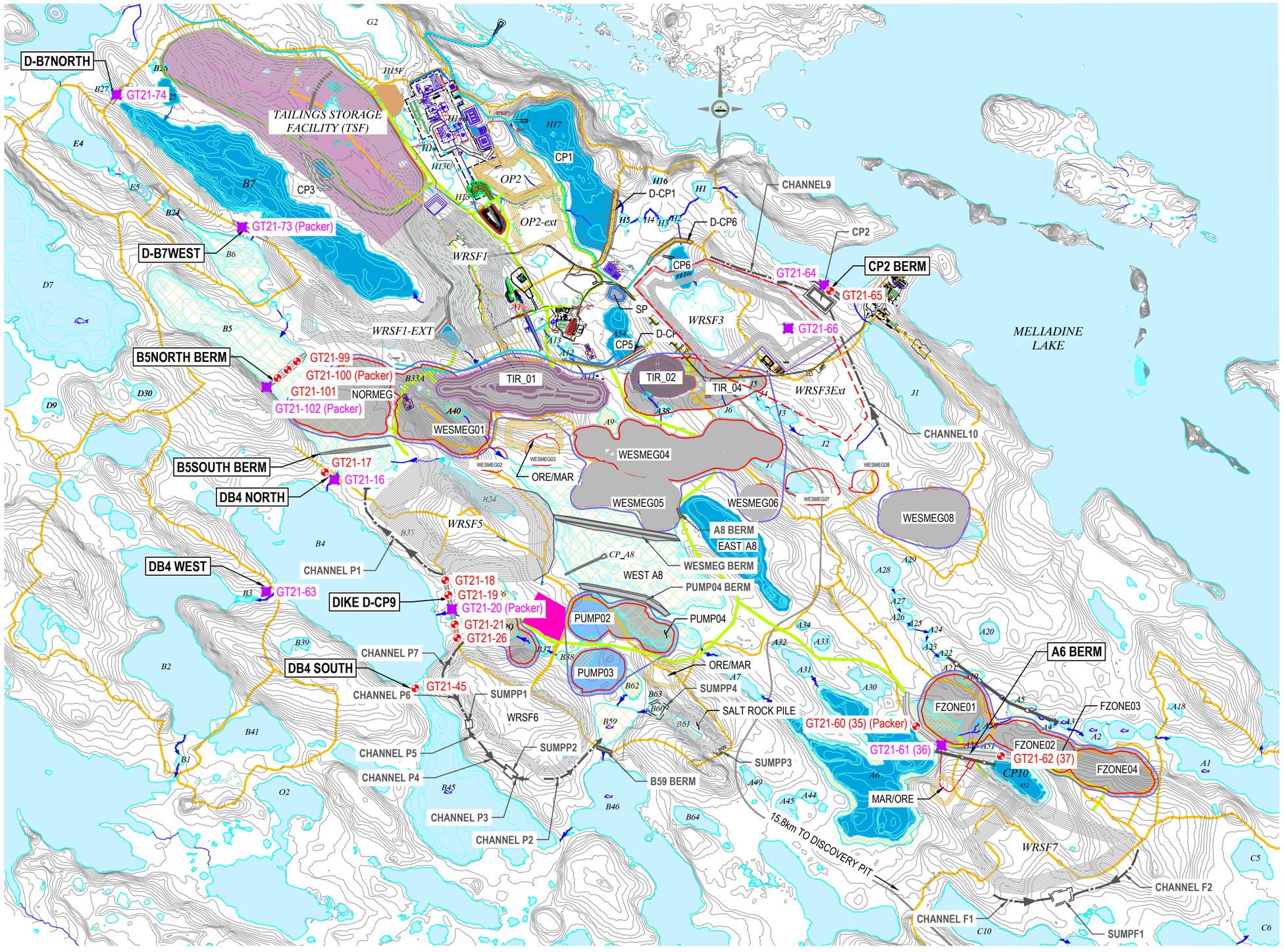
Canada Centre for Mineral and Energy Technology (CANMET). 1977. Appendix C-Constant head permeability tests. In Pit Slope Manual, Chapter 4 Groundwater, CANMET, Energy, Mines and Resources Canada, Ottawa.

Doe TW, Remer J, Schwarz WJ. 1980. Analysis of constant-head well tests in nonporous fractured rock. In: Proceedings of the 3rd International Well Testing Symposium, Berkeley, CA, Mar 26–28, 1980

FIGURES

NO. DESSIN
DRAWING NO.

FORMAT ANSI B–11x17



LEGEND

- CATCHMENT BOUNDARY
- WRSF LIMITS WITHIN FEIS
- HAUL ROAD
- WASTE ROCK STORAGE FACILITY
- PLOM 2020 PIT DESIGN LIMIT
- ORE BOUNDARY
- DIVERSION CHANNEL
- PIPELINE
- AS-DRILLED BOREHOLE LOCATION (NON-DESTRUCTIVE)
- AS-DRILLED BOREHOLE LOCATION WITH MULTI-BEAD GROUND TEMPERATURE CABLE

NOTE: BOREHOLES WITH PACKER TESTS NOTED

AGNICO EAGLE

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TITRE / TITLE	# DWG

DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

0	ISSUED FOR USE	9/14/2021	EP
A	ISSUED FOR REVIEW	6/25/2021	EP
REV	DESCRIPTION	DATE	PAR BY

REVISIONS

DESSINÉ PAR DRAWN BY	EP	DATE 6/23/2021
VÉRIFIÉ PAR CHECKED BY	HX	6/23/2021
APPROUVÉ PAR APPROVED BY	FN	6/23/2021
No. PROJET PROJECT NO.	ENG.EARC03193–02	
DATE	6/23/2021	

TITRE / TITLE

AGNICO EAGLE – MELIADINE DIVISION

AS–DRILLED BOREHOLE LOCATIONS
SPRING 2021 GEOTECHNICAL INVESTIGATION

ÉCHELLE/ SCALE	1:25000	FICHIER FILE	.DWG
No. DESSIN/ DRAWING NO.	FIGURE 1	REVISION	A
		FEUILLE/SHT	1 / 1

AE–CART–ANSI B

C:\pwworking\can_infra\dms13236\ENG.EARC03193–02 Figure 1_As–Drilled Borehole Locations IFU.dwg

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Photo 4	GT21-60 (35) overburden & bedrock core; depth 4.5 – 13.5 m
Photo 5	GT21-60 (35) overburden & bedrock core; depth 8.3 m
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Photo 71	GT21-45 bedrock core; depth 8.6 – 12.8 m
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Photo 90	GT21-74 jar test; depth 4.5 – 4.85 m
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Photo 101	GT21-66 bedrock core; depth 4.5 – 12.0 m
Photo 102	GT21-66 bedrock core; depth 8.4 – 15.0 m
Photo 103	GT21-66 multi-bead GTC installation; depth 14.15 m
Photo 104	GT21-66 multi-bead GTC installation; depth 14.15 m
Photo 105	GT21-99 overburden & bedrock core; depth 0.0 – 10.5 m
Photo 106	GT21-99 overburden & bedrock core; depth 10.5 – 13.5 m

Photo 1: GT21-60 (35) overburden core; depth 0.0 – 2.5 m

Photo 2: GT21-60 (35) overburden core; depth 2.5 – 4.5 m

Photo 3: GT21-60 (35) overburden core; depth 3.9 m

Photo 4: GT21-60 (35) overburden & bedrock core; depth 4.5 – 13.5 m

Photo 5: GT21-60 (35) overburden core; depth 8.3 m

Photo 6: GT21-60 (35) bedrock core; depth 13.5 – 15.0 m

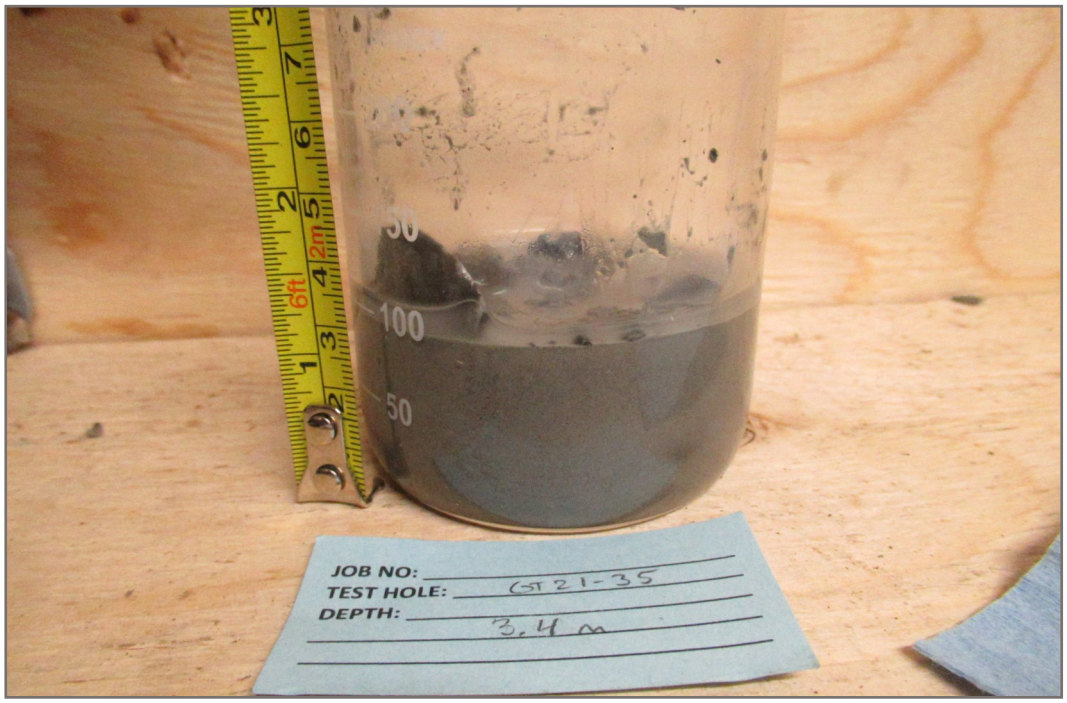


Photo 7: GT21-60 (35) jar test; depth 3.4 m

Photo 8: GT21-61 (36) overburden core; depth 0.0 – 1.5 m

Photo 9: GT21-61 (36) overburden core; depth 1.5 – 3.0 m

Photo 10: GT21-61 (36) overburden core; depth 2.5 m

Photo 11: GT21-61 (36) overburden core; depth 3.0 – 4.5 m

Photo 12: GT21-61 (36) overburden core; depth 4.5 – 7.5 m

Photo 13: GT21-61 (36) overburden core; depth 7.5 – 9.0 m

Photo 14: GT21-61 (36) bedrock core; depth 9.0 – 13.5 m

Photo 15: GT21-61 (36) bedrock core; depth 13.5 – 15.6 m

Photo 16: GT21-61 (36) jar test; depth 1.0 – 1.18 m

Photo 17: GT21-61 (36) jar test; depth 2.6 m

Photo 18: GT21-61 (36) multi-bead GTC installation; depth 10.95 m

Photo 19: GT21-61 (36) multi-bead GTC installation; depth 10.95 m

Photo 20 : GT21-62 (37) overburden core; depth 0.0 – 1.1 m

Photo 21 : GT21-62 (37) overburden core; depth 1.1 – 3.35 m

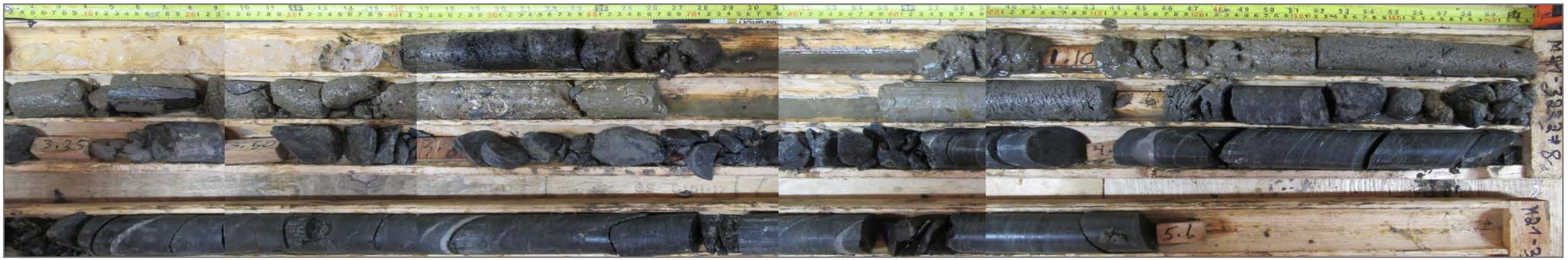


Photo 22: GT21-62 (37) overburden & bedrock core; depth 3.35 – 5.6 m

Photo 23: GT21-62 (37) bedrock core; depth 4.4 – 8.6 m

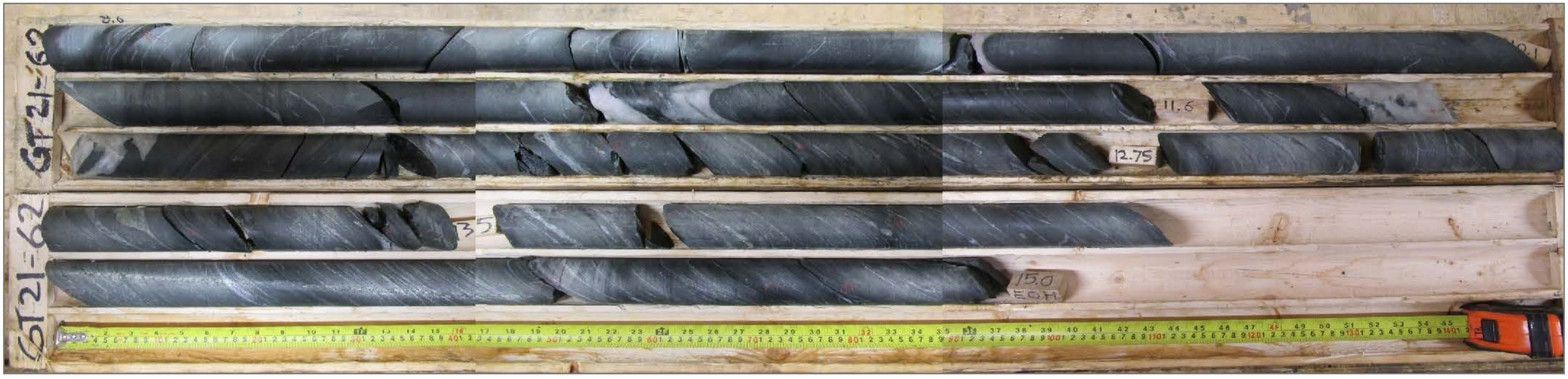


Photo 24: GT21-62 (37) bedrock core; depth 8.6 – 15.0 m

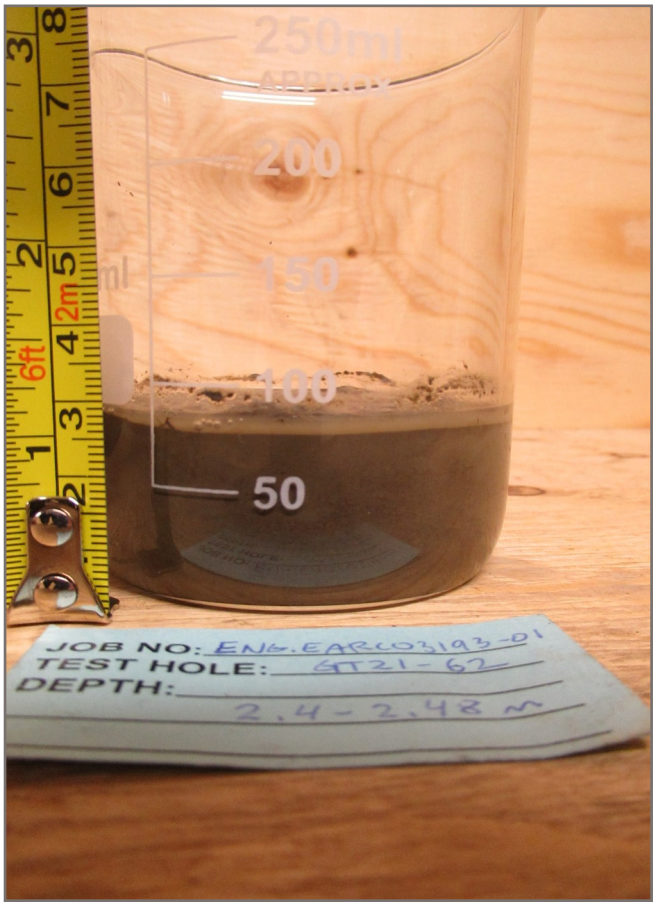


Photo 25: GT21-62 (37) jar test; depth 2.4 – 2.48 m

Photo 26: GT21-16 overburden core; depth 0.0 – 2.5 m

Photo 27: GT21-16 overburden & bedrock core; depth 2.5 – 5.27 m

Photo 28: GT21-16 bedrock core; depth 5.27 – 9.3 m

Photo 29: GT21-16 bedrock core; depth 9.3 – 13.5 m

Photo 30: GT21-16 bedrock core; depth 13.5 – 15.0 m

Photo 31: GT21-16 jar test; depth 1.8 m

Photo 32: GT21-16 multi-bead GTC installation; depth 14.3 m

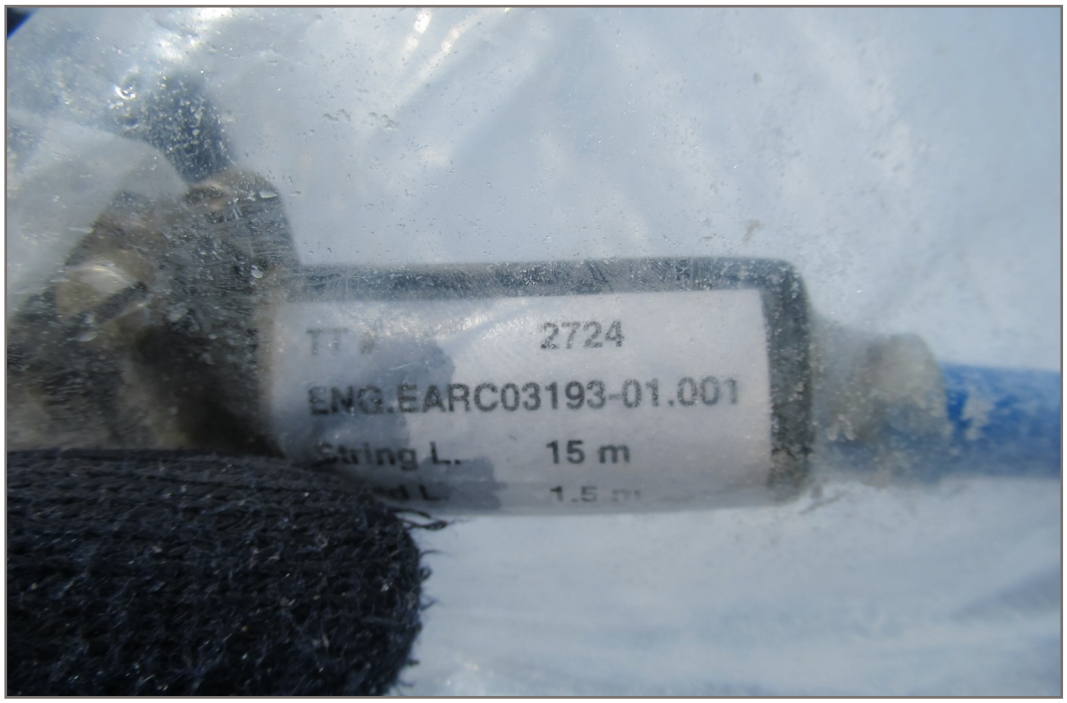


Photo 33: GT21-16 multi-bead GTC installation; depth 14.3 m

Photo 34: GT21-17 overburden core; depth 0.0 – 4.5 m

Photo 35: GT21-17 bedrock core; depth 4.5 – 13.5 m

Photo 36: GT21-17 bedrock core; depth 13.5 – 15.0 m

Photo 37: GT21-17 jar test; depth 1.44 – 1.5 m

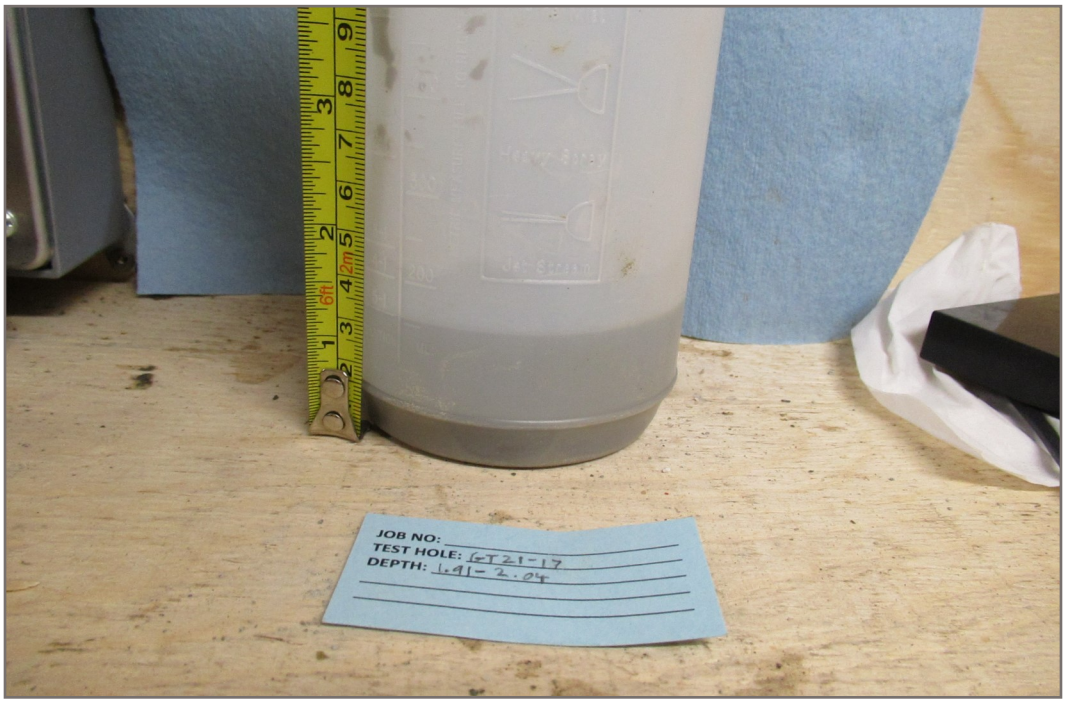


Photo 38: GT21-17 jar test; depth 1.91 – 2.04 m

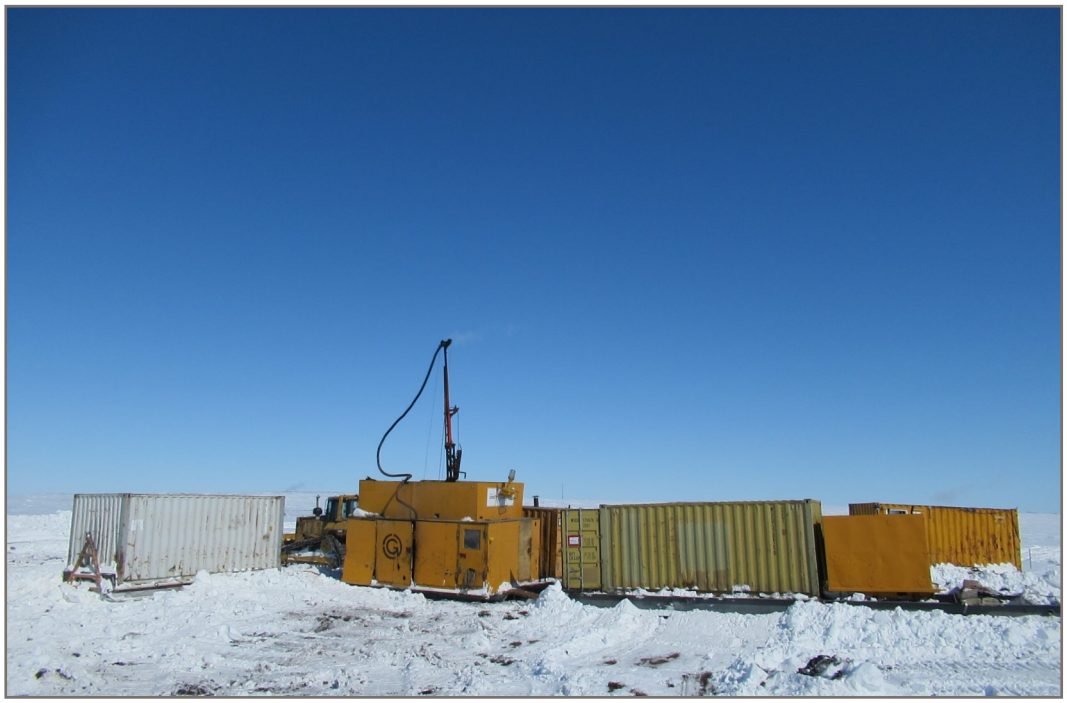


Photo 39: GT21-18 drill rig setup

Photo 40: GT21-18 overburden core; depth 0.0 – 1.5 m

Photo 41: GT21-18 overburden core; depth 1.5 – 3.0 m

Photo 42: GT21-18 overburden & bedrock core; depth 3.0 – 5.8 m

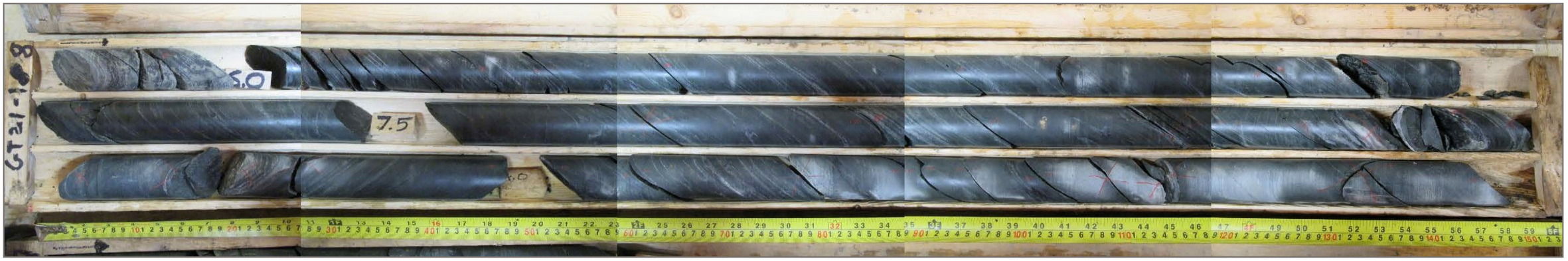


Photo 43: GT21-18 bedrock core; depth 5.8 – 9.9 m

Photo 44: GT21-18 bedrock core; depth 9.9 – 10.5 m

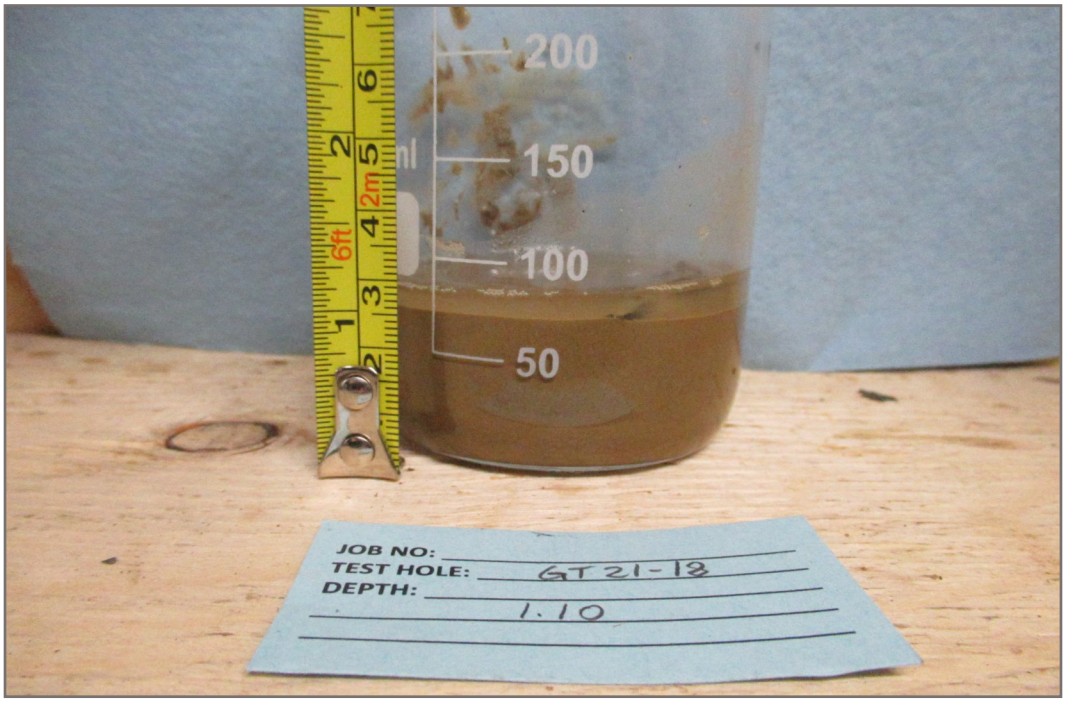


Photo 45: GT21-18 jar test; depth 1.1 m

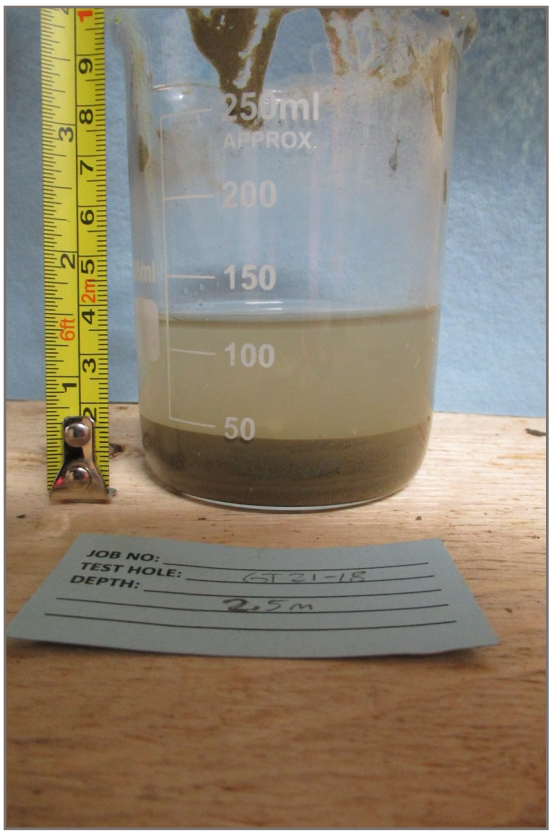


Photo 46: GT21-18 jar test; depth 2.5 m

Photo 47: GT21-19 overburden core; depth 0.0 – 1.0 m

Photo 48: Photo 48 – GT21-19 overburden core; depth 1.0 – 2.5 m

Photo 49: GT21-19 overburden & bedrock core; depth 2.5 – 4.36 m

Photo 50: GT21-19 bedrock core; depth 4.36 – 10.0 m

Photo 51: GT21-19 jar test; depth 0.44 – 0.53 m

Photo 52: GT21-19 jar test; depth 1.62 – 1.72 m

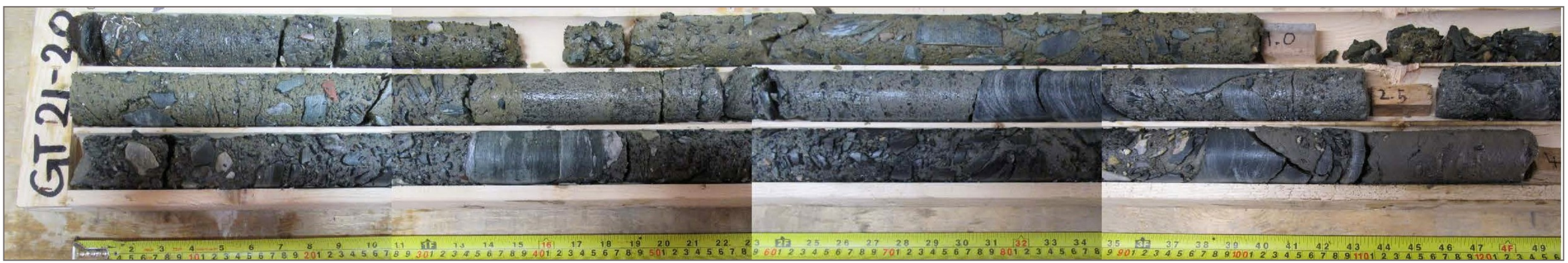


Photo 53: GT21-20 overburden & bedrock core; depth 0.0 – 4.14 m

Photo 54: GT21-20 bedrock core; depth 4.14 – 10.0 m

Photo 55: GT21-20 bedrock core; depth 8.5 – 15.5 m

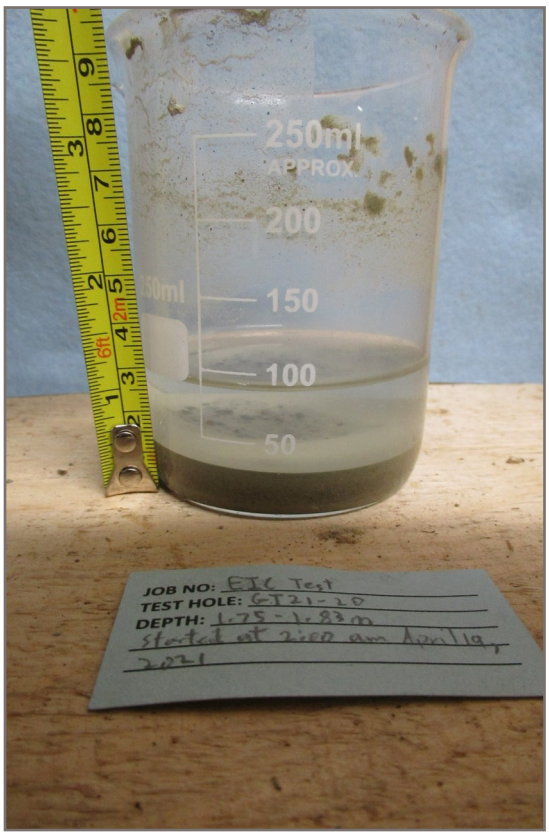


Photo 56: GT21-20 jar test; depth 1.75 – 1.83 m

Photo 57: GT21-20 packer test; depth 11.0 – 15.5 m

Photo 58: GT21-20 packer test; depth 11.0 – 15.5 m

Photo 59: GT21-20 multi-bead GTC installation; depth 15.0 m

Photo 60: GT21-21 overburden core; depth 0.0 – 4.0 m

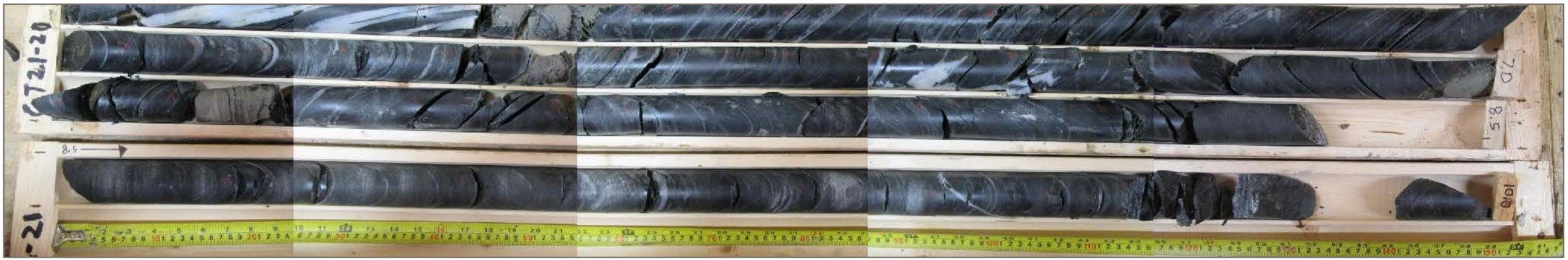


Photo 61: GT21-21 bedrock core; depth 4.0 – 10.0 m

Photo 62: GT21-21 jar test; depth 3.06 – 3.12 m

Photo 63: GT21-26 overburden core; depth 0.0 – 4.5 m

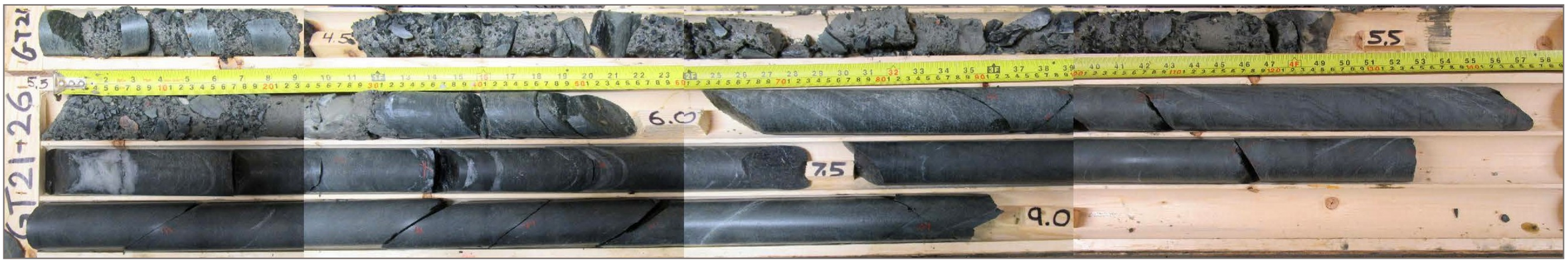


Photo 64: GT21-26 overburden & bedrock core; depth 4.5 – 9.0 m

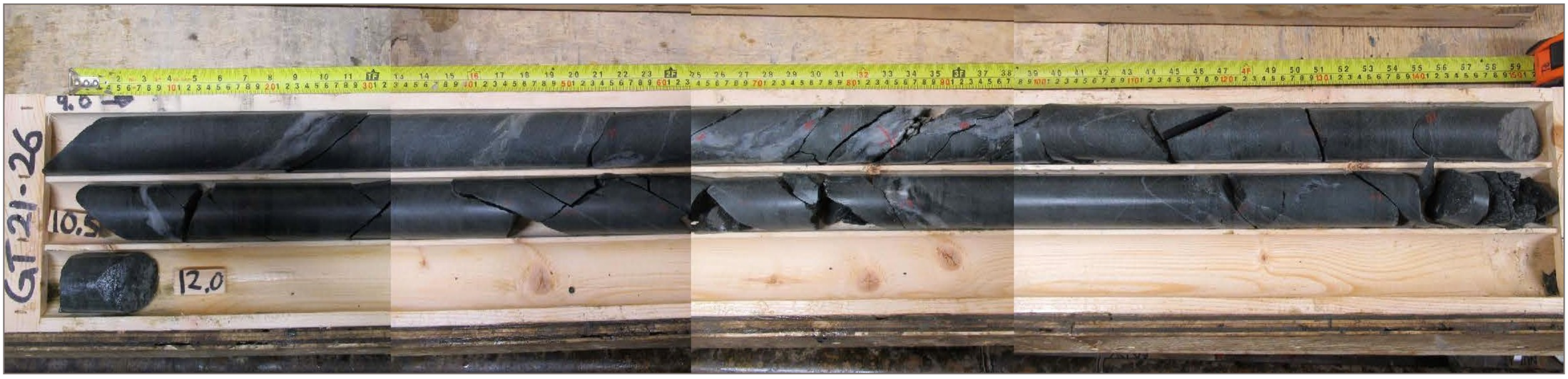


Photo 65: GT21-26 bedrock core; depth 9.0 – 12.0 m

Photo 66: GT21-26 jar test; depth 2.0 – 2.1 m

Photo 67: GT21-26 jar test; depth 4.9 m

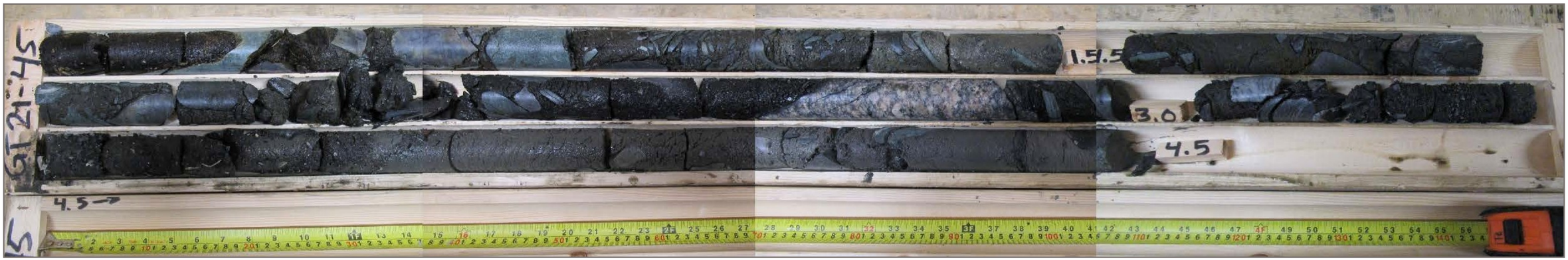


Photo 68: GT21-45 overburden core; depth 0.0 – 4.5 m

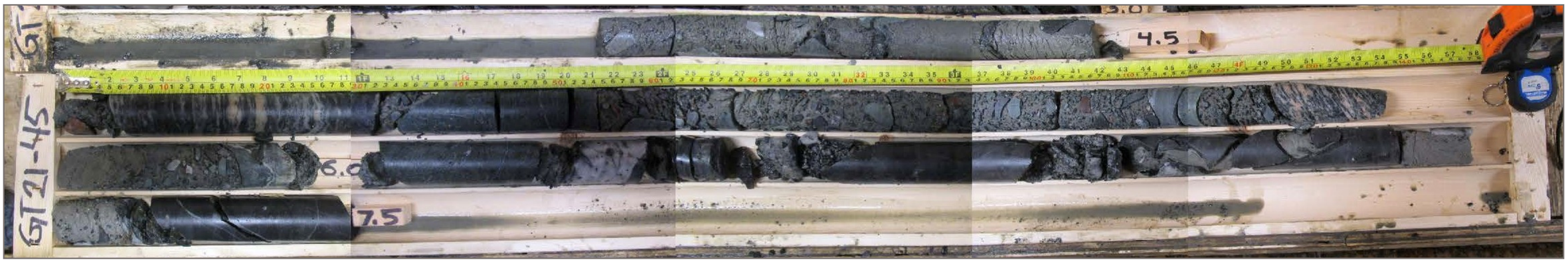


Photo 69: GT21-45 overburden core; depth 4.5 – 7.5 m

Photo 70: GT21-45 bedrock core; depth 7.5 – 8.6 m

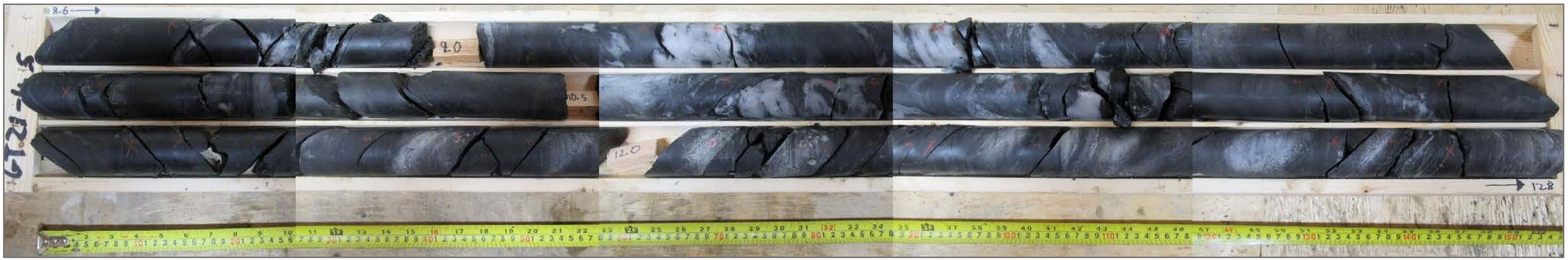


Photo 71: GT21-45 bedrock core; depth 8.6 – 12.8 m

Photo 72: GT21-45 bedrock core; depth 12.8 – 15.0 m

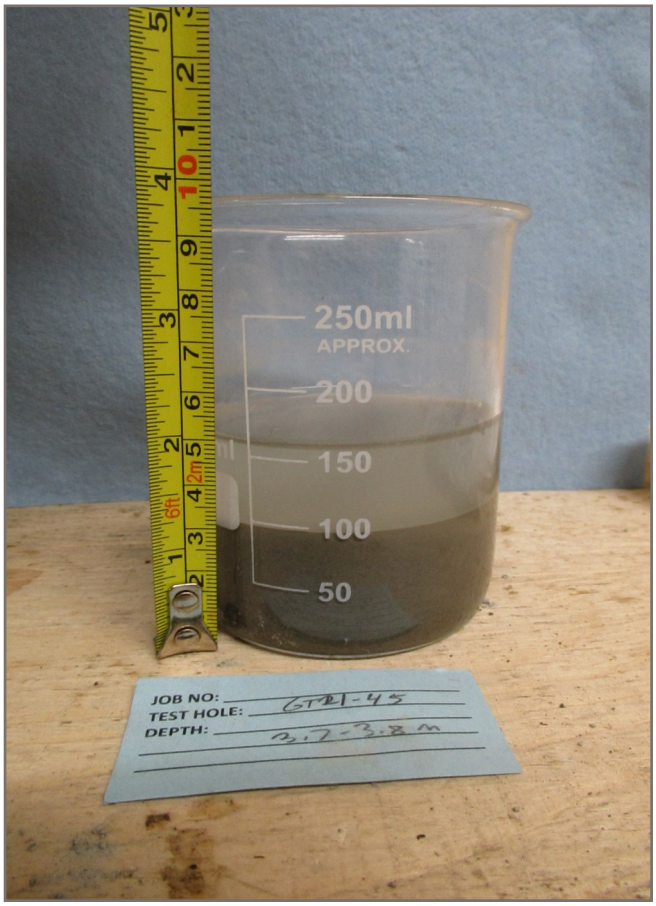


Photo 73: Photo 73 – GT21-45 jar test; depth 3.7 – 3.8 m

Photo 74: GT21-63 overburden core; depth 0.0 – 4.3 m

Photo 75: GT21-63 bedrock core; depth 4.3 – 15.0 m

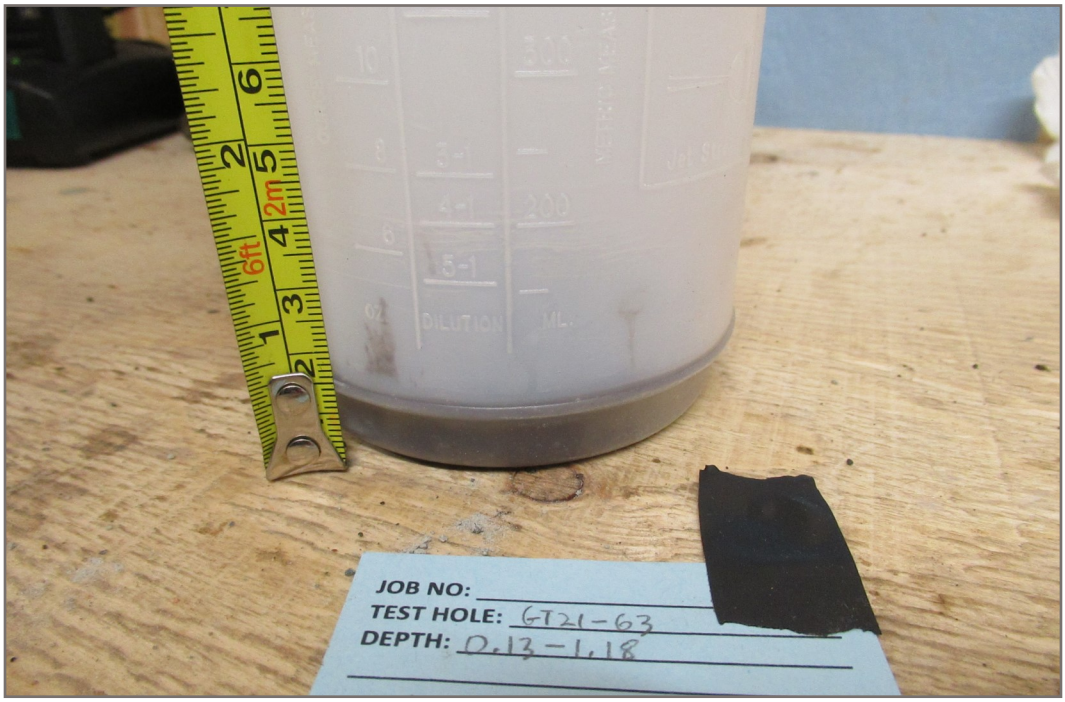


Photo 76: GT21-63 jar test; depth 0.13 – 0.18 m

Photo 77: GT21-63 multi-bead GTC installation; depth 14.5 m

Photo 78: GT21-63 multi-bead GTC installation; depth 14.5 m

Photo 79: GT21-73 overburden core; depth 0.0 – 3.0 m

Photo 80: GT21-73 overburden core; depth 3.0 – 6.0 m

Photo 81: GT21-73 overburden core; depth 6.0 – 10.5 m

Photo 82: GT21-73 bedrock core; depth 10.5 – 16.5 m

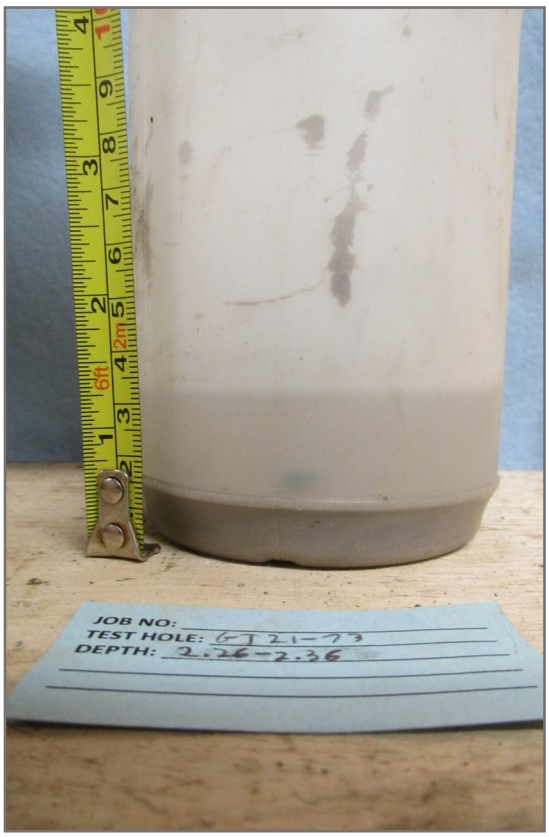


Photo 83: GT21-73 jar test; depth 2.26 – 3.36 m

Photo 84: GT21-73 multi-bead GTC installation; depth 15.0 m

Photo 85: GT21-73 multi-bead GTC installation; depth 15.0 m

Photo 86: GT21-74 overburden core; depth 0.0 – 4.5 m

Photo 87: GT21-74 overburden & bedrock core; depth 4.5 – 9.0 m

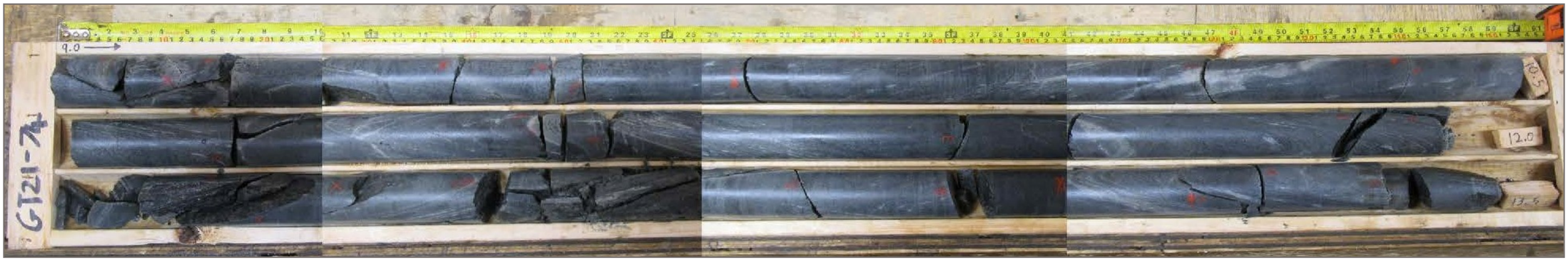


Photo 88: GT21-74 bedrock core; depth 9.0 – 13.5 m

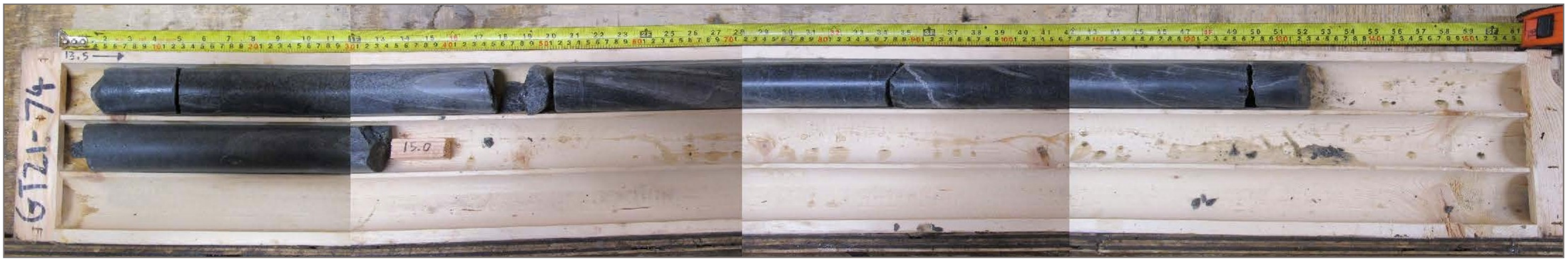


Photo 89: GT21-74 bedrock core; depth 13.5 – 15.0 m

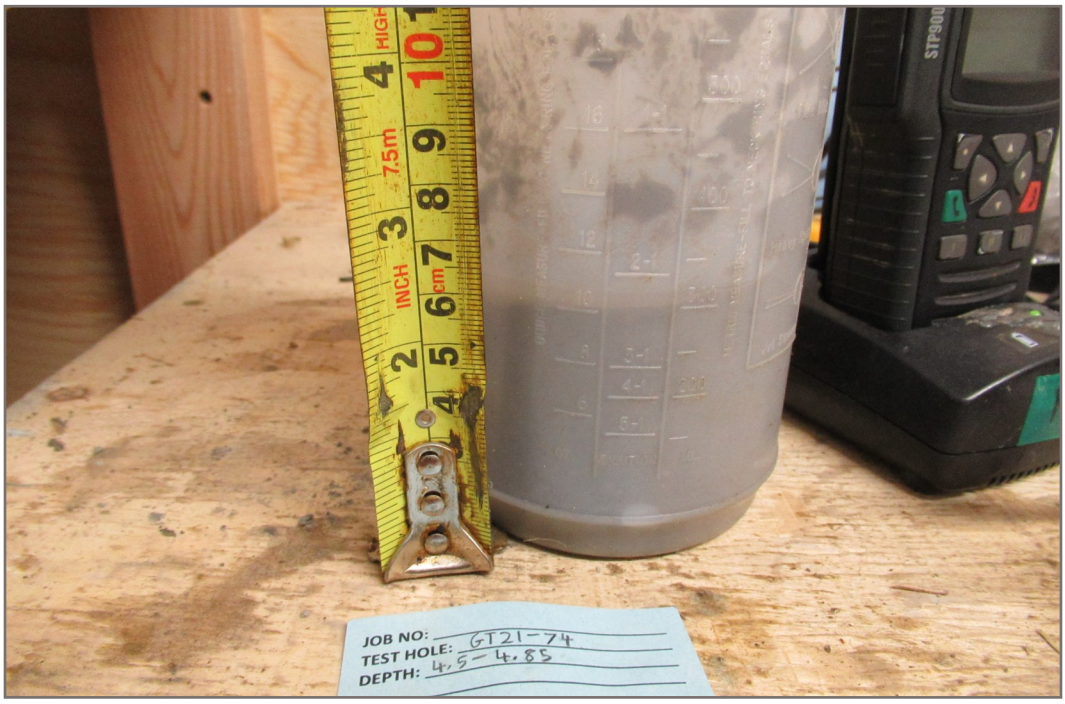


Photo 90: GT21-74 jar test; depth 4.5 – 4.85 m

Photo 91: GT21-74 multi-bead GTC installation; depth 14.4 m

Photo 92: GT21-64 overburden & bedrock core; depth 0.0 – 3.0 m

Photo 93: GT21-64 bedrock core; depth 3.0 – 4.5 m

Photo 94: GT21-64 bedrock core; depth 4.5 – 13.5 m

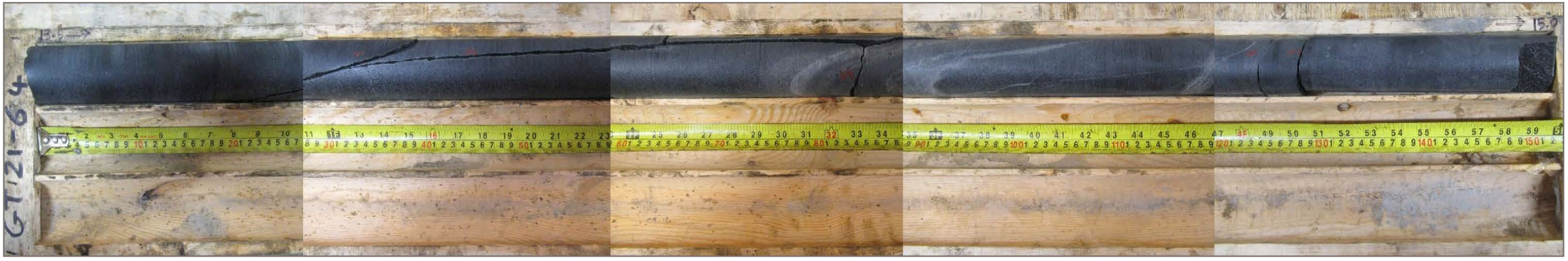


Photo 95: GT21-64 bedrock core; depth 13.5 – 15.0 m

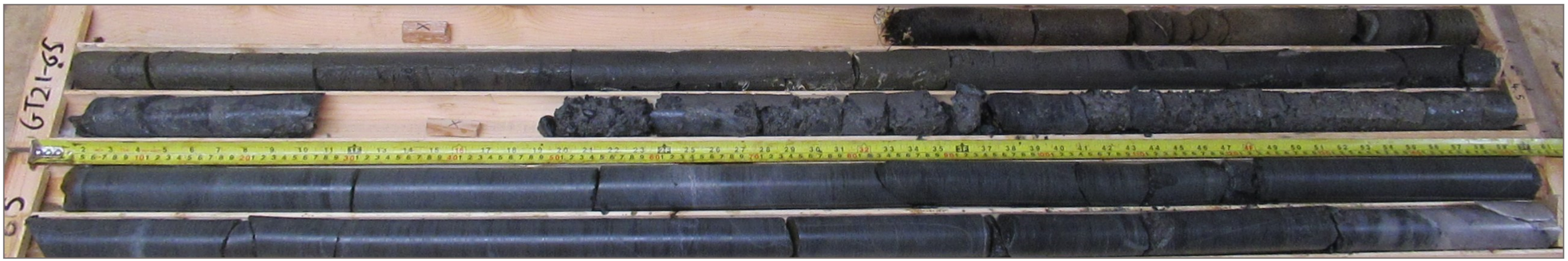


Photo 96: GT21-65 overburden & bedrock core; depth 0.0 – 7.5 m

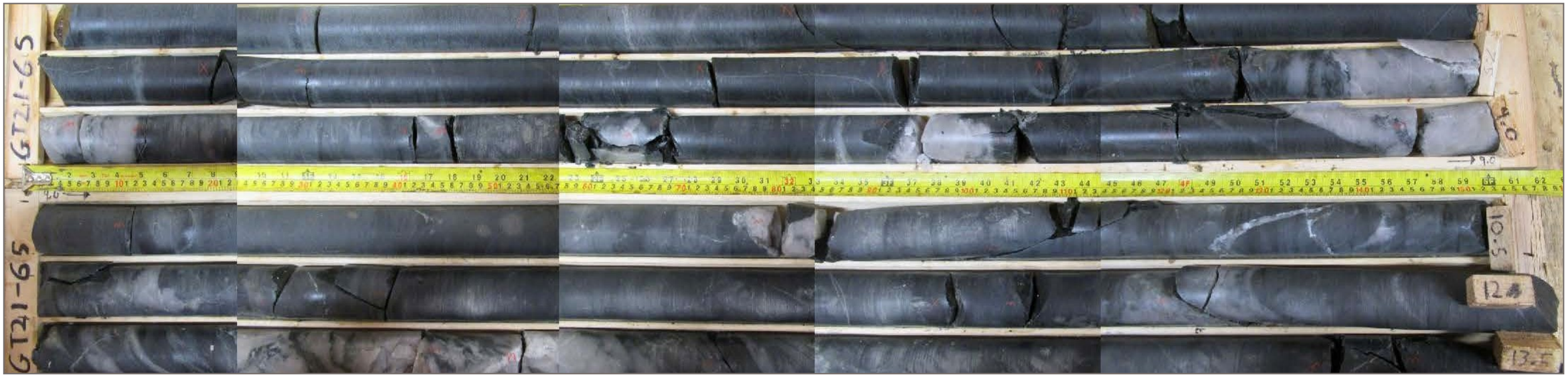


Photo 97: GT21-65 bedrock core; depth 4.5 – 13.5 m

Photo 98: GT21-65 bedrock core; depth 13.5 – 15.0 m

Photo 99: Photo 99 – GT21-65 jar test; depth 1.88 – 2.11 m

Photo 100: GT21-66 overburden & bedrock core; depth 0.0 – 5.93 m

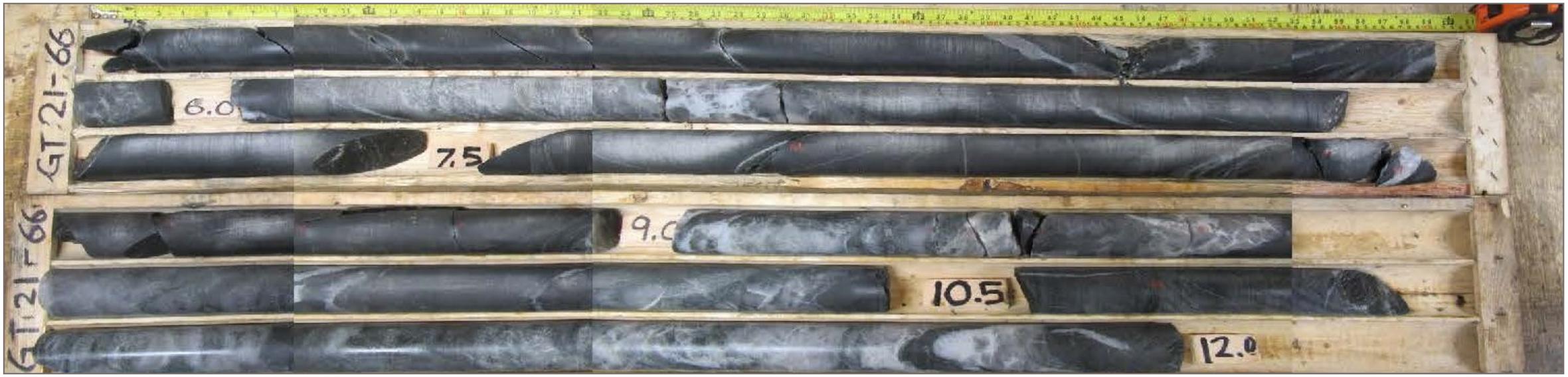


Photo 101: GT21-66 bedrock core; depth 4.5 – 12.0 m

Photo 102: GT21-66 bedrock core; depth 8.4 – 15.0 m

Photo 103: GT21-66 multi-bead GTC installation; depth 14.15 m

Photo 104: GT21-66 multi-bead GTC installation; depth 14.15 m

Photo 105: GT21-99 overburden & bedrock core; depth 0.0 – 10.5 m

Photo 106: GT21-99 bedrock core; depth 10.5 – 13.5 m

Photo 107: GT21-100 overburden & bedrock core; depth 0.0 – 12.0 m

Photo 108: GT21-100 packer test; depth 10.5 – 12.0 m

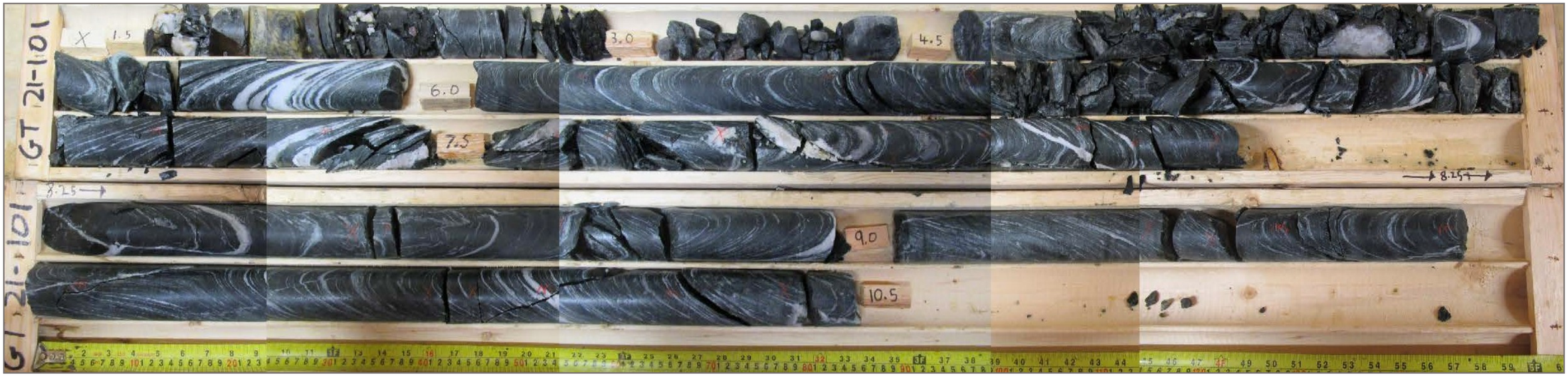


Photo 109: GT21-101 overburden & bedrock core; depth 0.0 – 10.5 m

Photo 110: GT21-102 overburden core; depth 0.0 – 4.5 m

Photo 111: GT21-102 overburden core; depth 4.5 – 6.0 m

Photo 112: GT21-102 bedrock core; depth 6.0 – 13.5 m

Photo 113: GT21-102 bedrock core; depth 13.5 – 15.0 m

Photo 114: GT21-102 jar test; depth 2.1 m

Photo 115: GT21-102 multi-bead GTC installation; depth 14.4 m

Photo 116: GT21-102 multi-bead GTC installation; depth 14.4 m

APPENDIX A

TETRA TECH'S LIMITATIONS ON USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

Any unauthorized use of the Professional Document is at the sole risk of the user. TETRA TECH accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where TETRA TECH has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by TETRA TECH during the performance of the work are TETRA TECH's professional work product and shall remain the copyright property of TETRA TECH.

The Professional Document is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the Document, if required, may be obtained upon request.

1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.15 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

1.16 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

1.17 SAMPLES

TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

APPENDIX B

BOREHOLE LOGS

Agnico Eagle Mines Limited

Borehole No: **GT21-16**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: D-B4 North	Ground Elev: 57.7 m
Meliadine Gold Project, Nunavut	UTM: 538406 E; 6987772 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Elevation (m)
0		PEAT - fine fibrous, dark brown to black, (270 mm thick)	Nbn			57
1		RUBBLE - peat between gravel			R1	
		No recovery				
2		RUBBLE - 300 mm of ice and silt between			R2	56
3	Diamond with Chilled Brine	GREYWACKE (BEDROCK) - fresh, very strong, dark grey, quartz striations throughout, striations appear to be aligned vertically, fine greywacke, JSN:0.5				55
4		- at 3.00 m, slightly weathered, subvertical and subhorizontal joints spaced approximately 500 mm and infilled with clay and pyrite, JSN:3			R3	54
5		- at 4.50 m, striations become less frequent, joints spaced 200-300 mm			R4	53
6		- at 5.27 m, quartz nodules and subvertical veins to 30 mm thick				52
7					R5	51
8		- at 8.01 m, no visible quartz nodules or veins			R6	50
9		- at 9.00 m, trace quartz nodules and veins to 10 mm thick throughout				49
10					R7	48
11					R8	47
12		- at 12.00 m, fresh, extremely strong, JSN:2				46
13					R9	45
14		- at 13.50 m, no visible joints, JSN:0.5			R10	44
15		END OF BOREHOLE (15.00 metres)				43
		Ground temperature cable #2724 installed at ?.?? metres				42
16						
17						41
18						40
19						39
20						38

Excess Ice Content (% by volume): 20 40 60 80

Fracture Frequency (/m): 2 4 6 8

RQD (%): 40 60 80 100

Recovery (%): 40 60 80 100

#2724

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 21
Logged By: EP/LM	Completion Date: 2021 April 22
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-17**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: D-B4 North	Ground Elev: 57.6 m
Meliadine Gold Project, Nunavut	UTM: 538345 E; 6987820 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
0		SNOW AND SLUSH	Snow and slush						57
1	Diamond with Chilled Brine	PEAT AND GRAVEL - fibrous peat, weathered gravel, massive, well graded, brown peat, grey gravel, angular fragmented gravel to 20 mm diameter	Nbn 5% Ice crystals <1 mm, Vx 2-5%		R1 S1	8.4			56
2		GRAVEL AND SAND - silty, massive, well graded, grey, mixed colour clasts, angular gravel to 30 mm diameter - (Gravel - 41.0%; Sand - 45.7%; Silt & Clay - 13.3%)	Vx 5% Ice becoming lenticular, clear, hard, Vs 15%		R2 S2	13		0	55
3		SILT - some sand, some gravel, massive, well graded, grey, mixed colour clasts, some shells, angular gravel to 8 mm diameter	Ice is wavy to 3 mm thick layers, clear, hard, Vs 58%						54
4		ICE AND SILT - trace sand, trace gravel, massive, poorly graded, grey, angular gravel to 5 mm diameter			R3			0	53
5		GREYWACKE (BEDROCK) - slightly weathered, very strong, grey, layered quartz and alteration lenses, fragmented throughout, fine greywacke, JSN:3			R4				52
6		- at 4.50 m, JSN:1							51
7		- at 4.66 and 4.72 m, inclined joints, undulating, smooth - at 4.92 m, slight brownish weathering			R5				50
8		- at 6.00 m, JSN:0.5 - at 6.80 m, inclined joint, undulating, smooth			R6				49
9		DIORITE (BEDROCK) - fresh, strong, green to black, medium to coarse diorite - at 7.50 m, JSN:1							48
10		- at 9.00 m, JSN:3 - at 9.56, 10.23 and 10.32 m, subhorizontal joints, undulating, rough			R7				47
11		- at 9.57, 9.75 and 10.30 m, subhorizontal joints, undulating, smooth, slight brown weathering - at 9.79 m, inclined joint, undulating, rough			1R R8				46
12		- at 11.65 m, inclined joint, undulating, smooth							45
13		- at 13.03 m, horizontal joint, planar, smooth			R9				44
14		- at 13.15 m, inclined joint, undulating, rough, slight brownish weathering			R10				43
15		END OF BOREHOLE (15.00 metres)							42
16									41
17									40
18									39
19									38
20									

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 22
Logged By: LM	Completion Date: 2021 April 22
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-18**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: Dike D-CP9	Ground Elev: 57.9 m
Meliadine Gold Project, Nunavut	UTM: 539112 E; 6987132 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
0	Diamond with Chilled Brine	PEAT - fine fibrous, dark brown to black, (260 mm thick)	Nbn		R1				57
1		RUBBLE - washed gravel of mixed lithology							
		SAND - some gravel, trace silt, massive, light brown, angular gravel	Vs 10%		S1	15.7			
2		No recovery							56
		ICE AND SILT AND SAND - some gravel, massive, shells	Clear ice throughout in 1-10 mm lenses, Vs, Vx 73%		R2				
3		- increased sand content, light grey			S2	27.2			55
		No recovery							
4		RUBBLE - greywacke			R3				54
		- at 4.00 m, 100 mm long quartz gravel, possible cobble							
5		GREYWACKE (BEDROCK) - fresh, medium strong, green to dark grey, thin quartz veins inclined to core, fine greywacke, JSN:1			R4				53
6		- from 4.60 to 4.95 m, rubble, no recovery							52
		- from 5.00 to 5.30 m, inclined joints along quartz veins, possible mechanical breaks			R5				
7									51
8		- at 7.50 m, slightly weathered, strong			R6				50
9									49
10					R7				48
11		END OF BOREHOLE (10.50 metres)							47
12									46
13									45
14									44
15									43
16									42
17									41
18									40
19									39
20									38

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 10.5 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 17
Logged By: EP/LM	Completion Date: 2021 April 17
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-19**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: Dike D-CP9	Ground Elev: 57.3 m
Meliadine Gold Project, Nunavut	UTM: 539131 E; 6987038 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
0	Diamond with Chilled Brine	ICE - trace green and brown organics, clear, hard, (10 mm thick)	Ice						57
1		PEAT - silty, trace gravel, fibrous, brown, grey subangular gravel to 12 mm diameter, (60 mm thick)	Nbn		R1	23.4			56
			Nbn 10%		S1				
		SILT - massive, grey	No visible ice						
2		- from 0.53 to 0.80 m, trace to some organic inclusions - fibrous, red brown	Nf 5%		S2	22.4			55
			Visible ice, stratified and perpendicular to borehole, lenses range from 2-5 mm and spaced 2-5 mm, Vs 55%		R2				
3		No recovery							54
		GRAVEL - poor recovery, matrix washed out, mixed greywacke, granite and quartz, angular to subrounded gravel			R3				
4		SILT - gravelly, trace to some sand, massive, well graded gravel, grey, some shells, fine angular mixed gravel to 8 mm diameter, coarse sand							53
			Lenses range 1-2 mm, spaced 1-2 mm, some ice nodules approximately 5 mm diameter, Vs, Vx 45-55%		R4				
5		ICE AND SAND AND SILT - trace gravel, shell content and size increasing							52
6		- (Gravel - 4.0%; Sand - 54.1%; Silt & Clay - 41.9%)			R5				51
		- at 1.79 m, no visible shells							
7		ICE AND SILT AND SAND - well graded, grey, coarse sand							50
		COBBLES - trace gravel, trace silt, greywacke, fragments, poorly graded, grey, mixed gravel to 15 mm diameter							
8		- from 3.44 to 3.75 m, borehole caved in, sand was recovered	Ice nodules approximately 5 mm diameter, Vx 33%		R6				49
			Some ice crystals, Vx 10%						
9		GREYWACKE (BEDROCK) - fresh, strong, green to grey, quartz nodules and veins throughout, subvertical veins, fine greywacke, JSN:1			R7				48
10		- at 4.00 m, quartz decreasing with depth							47
		- at 5.50 m, JSN:4							
11		- at 5.60, 5.70, 5.82 and 6.45 m, inclined joints, undulating, smooth							46
		- at 5.97 and 6.81 m, subvertical joints, undulating, smooth							
12		- at 7.00 m, JSN:3							45
		- at 7.13, 7.35, 7.73 7.81, 7.88 and 8.31 m, inclined joints, undulating, smooth							
13		- at 8.50 m, JSN:0							44
		- at 7.99 m, subvertical joint, undulating, rough							
14		END OF BOREHOLE (10.00 metres)							43
15									42
16									41
17									40
18									39
19									38
20									

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 10 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 17
Logged By: LM	Completion Date: 2021 April 17
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-20**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: Dike D-CP9	Ground Elev: 57.5 m
Meliadine Gold Project, Nunavut	UTM: 539154 E; 6986948 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Excess Ice Content (% by volume) 20 40 60 80 / Bulk Density (kg/m³) 1400 1600 1800 2000	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	#2722	Elevation (m)
0	Diamond with Chilled Brine	PEAT AND GRAVEL - silty, fibrous peat, well graded gravel, brown peat, mixed colour gravel, trace shells, angular gravel to 12 mm diameter, (60 mm thick)	Ice crystals and ice coating on gravel, Vs, Vc 15%, clear		S1				57
1		SILT - gravelly, trace fibrous organics, massive, well graded gravel, brown, mixed colour gravel, trace shells, angular gravel to 8 mm diameter	Vu 40%, clear, hard		R1				56
2		No recovery	Nbn		R2				55
3		SILT - gravelly, massive, well graded gravel, brown, mixed colour gravel with trace red staining, angular gravel to 25 mm diameter	Ice nodules an coating throughout, clear, hard, Vx, Vc 57%		S2				54
4		- from 1.00 to 1.31 m, matrix washed out	Ice crystals, clear, hard, Vx 20%		R3				53
5		ICE AND SAND - silty, gravelly, some inferred cobbles, massive, grey, angular gravel to 40 mm diameter			R4				52
6		- (Gravel - 26.0%; Sand - 42.0%; Silt & Clay - 32.0%)			R5				51
7		- at 3.72 m, brown							50
8		GREYWACKE (BEDROCK) - quartz, dark grey greywacke, trace to some pyrite in foliations throughout, quartz nodules, laminae and veins throughout, laminae and veins are subvertical, fine greywacke			R6				49
9		- from 5.73 to 5.97 m, inferred quartz layer			R7				48
10		- 8.50 m, greywacke lenses and inclusions present in quartz veins							47
11					R8				46
12		- from 11.27 to 11.31 m, ~40 mm wide white quartz vein			R9				45
13		- from 11.77 to 11.89 m, ~120 mm wide white quartz vein							44
14		- at 13.00, 13.88 and 14.20 m, inclined joints, undulating, rough, along quartz			R10				43
15		- at 14.94 m, subvertical joint, undulating, rough, quartz vein			1R				42
16		- at 15.30 m, ~15 mm wide section of pyrite mineralization			R11				41
17		END OF BOREHOLE (15.50 metres)							40
18		Ground temperature cable #2722 installed to 15.00 metres							39
19									38
20									

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15.5 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 18
Logged By: LM	Completion Date: 2021 April 19
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-21**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: Dike D-CP9	Ground Elev: 60 m
Meliadine Gold Project, Nunavut	UTM: 539172 E; 6986851 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
0									60
1	Diamond with Chilled Brine	PEAT - sod covered, fibrous, massive, brown, (210 mm thick) - at 0.20 m, gravelly, gravel to 3 mm diameter	Nbn		R1				59
2		SILT - some sand, trace organics, massive, poorly graded sand, grey - from 0.35 to 0.40 m, no recovery	Vs 15% Vu 25%		R2				58
3		SILT (ORGANIC) - massive, dark brown No recovery	Nbn						57
4		SILT - some sand, trace to some silt (organic), inferred cobbles, massive, poorly graded sand, grey and brown - from 1.00 to 1.20 m, organic rich - at 1.80 m, some gravel, grey, trace red staining, some shells, mixed gravel to 25 mm diameter - at 2.50 m, some sand, no visible gravel or cobbles - at 3.03 m, trace gravel - (Gravel - 3.0%; Sand - 22.3%; Silt & Clay - 74.7%)	Ice inclusions and micro lenticular ice, clear, hard, Vx, Vu 10% Micro lenticular to lensed ice to 4 mm thick, randomly spaced, clear, hard, Vu, Vs ~33% Micro lenticular ice, clear, hard, Vu 5%		R3 S1 S2 R4	24.2 8.8			56 55
6		GRAVEL - silty, sandy, massive, well graded, grey matrix, mixed colour clasts, angular gravel to 17 mm diameter - (Gravel - 37.0%; Sand - 31.1%; Silt & Clay - 31.9%) No recovery			R5				54 53
8		GREYWACKE (BEDROCK) - silt and fragmented greywacke filling, dark grey, 45°quartz veins, trace red staining on quartz veins - from 4.00 to 4.45 m, healed subvertical shear zone - quartz veins and quartz infill - from 5.99 to 6.04 m, silt and fragmented greywacke filling zone - from 6.41 to 6.57 m, inferred healed shear zone filled with quartz - at 7.00 m, no visible shear zone - from 7.14 to 7.24 m, silt and fragmented greywacke filling zone			R6 R7				52 51 50
10		END OF BOREHOLE (10.00 metres)							
20									40

Contractor: Orbit Garant Drilling inc.	Completion Depth: 10 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 19
Logged By: LM	Completion Date: 2021 April 20
Reviewed By: HX	Page 1 of 1

TETRA TECH

Agnico Eagle Mines Limited

Borehole No: **GT21-26**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: Dike D-CP9	Ground Elev: 57.9 m
Meliadine Gold Project, Nunavut	UTM: 539188 E; 6986764 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
0		PEAT - gravel disseminated throughout, fine fibrous, black	Nbn						
1		SAND AND GRAVEL - some silt, massive, light grey to brown, angular sand			R1				57
		No recovery							
2		GRAVEL - greywacke, possible cobble	~1 mm thick horizontal clear ice lenses, Vs 10%		R2				56
		SAND - some gravel, some silt, massive, grey, shells, angular gravel	Vx, Vr, Vs 65%						
3		ICE AND SAND - grey							55
		No recovery	Nbe 9%		S1	3.4			
4		GRAVEL - greywacke, possible cobble			R3				54
		- at 3.20 m, some sand, silt, poorly graded, grey, angular gravel							
5		- (Gravel - 65.0%; Sand - 20.8%; Silt & Clay - 14.2%)			R4				53
6	Diamond with Chilled Brine	GREYWACKE (BEDROCK) - fresh, medium strong, grey to greyish green, thin quartz veins throughout, JSN:1							52
7		- at 5.85 m, inclined joint, planar, smooth			R5				51
		- at 6.00 m, JSN:2							
8		- at 6.32, 6.41, 6.96 and 7.15 m, inclined joints, undulating, smooth			R6				50
		- at 7.50 m, JSN:1							
9		- at 7.88 m, inclined joint, planar, rough							49
		- at 9.00 m, JSN:3							
10		- at 9.84, 9.95 and 9.98 m, inclined joints along quartz vein, undulating, smooth, quartz infill, slight brownish grey discolouring			R7				48
11		- at 10.27 m, subhorizontal joint, undulating, rough							47
		- at 10.50 m, JSN:2			R8				
12		- at 10.57 and 11.67 m, inclined joints, undulating, rough							46
		- from 11.86 to 11.94 m, rubble section							
13		END OF BOREHOLE (12.00 metres)							45
14									44
15									43
16									42
17									41
18									40
19									39
20									38

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 12 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 20
Logged By: EP	Completion Date: 2021 April 20
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-45**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: D-B4 South	Ground Elev: 56 m
Meliadine Gold Project, Nunavut	UTM: 538921 E; 6986444 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit Moisture Content Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
0									
1	Diamond with Chilled Brine	PEAT - cobbles and gravel disseminated throughout, fine fibrous, dark brown to black - at 0.60 m, some sand, trace silt	Nbe		R1				55
		No recovery							
2		PEAT - some sand, trace silt, cobbles and gravel disseminated throughout, fine fibrous, dark brown to black	Vc, Vs 10-15%		R2				54
3		ICE AND PEAT - some sand, some gravel, trace silt - from 2.60 to 2.82 m, ~220 mm long granite cobble - from 3.20 to 2.70 m, shells	~20 mm clear ice coating on gravel Vc, Vs, Vr 60%		S1	9.5			53
4		- at 3.70 m, no visible peat, light brown	~10 mm thick clear ice coating on gravel Random clear ice lenses to 2 mm thick, Vr 70-75%		R3				52
5		SAND - silty, some gravel, massive, well graded, light grey to brown, angular gravel BOULDERS - quartz and greywacke, orange and white quartz	Clear ice lenses <1 mm thick spaced at 5 mm, Vs 10-15%		R4 S2	5.9			51
6		GRAVEL AND SAND - silty, massive, poorly graded, grey, mixed angular gravel - (Gravel - 39.0%; Sand - 34.5%; Silt & Clay - 26.5%) - at 6.00 m, greywacke gravel - from 6.20 to 6.27 m, ~70 mm wide quartz vein - silty, some gravel infill between gravel	Clear ice lenses to 1 mm thick, Vs 1-5%		R5				50
7									49
8		GREYWACKE (BEDROCK) - fresh, strong, dark grey, subvertical quartz lenses throughout, fine greywacke, JSN:0.5			R6				48
9		- at 7.50 m, quartz veins to 90 mm thick, pyrite on subvertical joints, JSN:2							47
10		- from 7.91 to 8.02 m, fractured zone with silt and greywacke infill			R7				46
11		- at 9.00 m, very strong, random subhorizontal joints, subvertical joints, pyrite on both joints, JSN:3			R8				45
12		- at 12.00 m, quartz content decreasing							44
13					R9				43
14					R10			11	42
15		END OF BOREHOLE (15.00 metres)							41
16									40
17									39
18									38
19									37
20									36

TETRA TECH

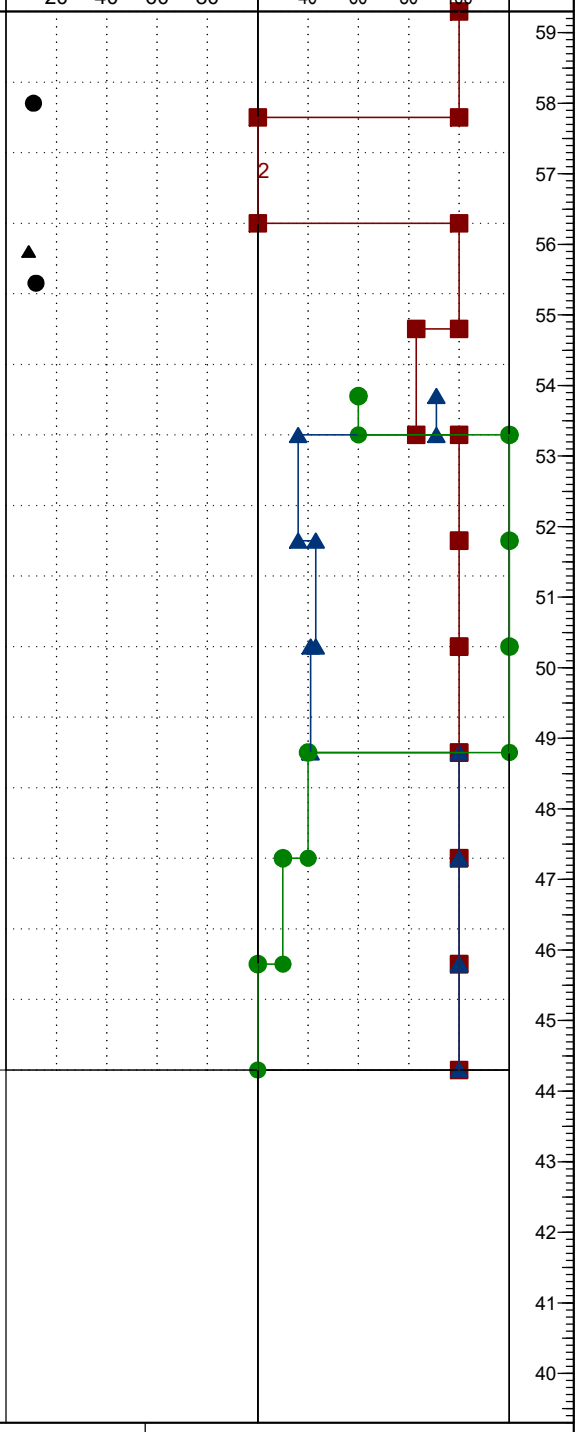
Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 20
Logged By: EP/LM	Completion Date: 2021 April 20
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-60 (35)**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: A6 Berm	Ground Elev: 59.3 m
Meliadine Gold Project, Nunavut	UTM: 542110 E; 6986202 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
0	Diamond with Chilled Brine	ICE - trace peat and organic inclusions	Ice, clear, hard, 5-8 mm discs						59
1		INFERRED COBBLES - trace to some peat, inferred trace gravel, interbedded, poorly graded, grey gravel and cobbles with white and red staining, black peat with brown woody inclusions	Vs 2%, peat is Nbn		R1				
			Nbn		S1	10.9			58
2		GRAVEL AND PEAT - fine fibrous peat, gravel randomly dispersed in peat, grey to black, coarse angular gravel			R2				57
3		SAND - silty, gravelly, brown, shells, angular sand - (Gravel - 22.0%; Sand - 48.9%; Silt & Clay - 29.1%)	Vx 9%						
4		SILT - massive, brown - at 1.95 m, grey			R3 S2	11.9			56 55
5		INFERRED COBBLES - some gravel, trace sand and silt, gravel dispersed in sand and silt, massive, grey			R4				54
6		No recovery			1R				53
7		GRAVEL - some sand, trace silt, light grey, fine to coarse sand, mixed angular gravel			R5				52
8		No recovery							
9		GRAVEL - trace silt, light grey, mixed angular gravel			R6				51
10		GREYWACKE (BEDROCK) - slightly weathered to fresh, medium strong, dark grey, pyrite inclusions, fine greywacke, JSN:1 - at 5.84 and 5.89 m, inclined joints, planar, smooth, slight calcite infill - at 6.00 m, JSN:2 - at 6.10 and 6.52 m, inclined joint, ~10 mm thick frozen fine sand infill - at 6.29 m, inclined joint, undulating, smooth - at 6.34 and 6.91 m, subvertical joints, undulating, smooth - from 7.10 to 7.70 m, fragmented rock - at 7.20 m, ~80 mm thick quartz vein, inclined to borehole - at 7.70 m, competent, JSN:1 - at 7.77, 7.84, 8.70, 8.88, 8.89 and 8.92 m, inclined joints, undulating, smooth, slight calcite infill - from 8.30 to 8.44 m, ~140 mm long light grey silt and sand infill in joint, fine sand - from 9.00 to 9.20 m, rubble - at 9.20 m, increased inclined thin white quartz veins, JSN:2 - at 9.74, 9.82, 9.94, 10.04 and 10.50 m, inclined joints, undulating, rough, some silt infill - at 9.90 m, subvertical joint, undulating, smooth - at 9.95 m, ~20 mm thick pyrite mineralization - at 11.48 m, subvertical joints, undulating, smooth - at 11.72 m, inclined joint, undulating, rough, slight clay and silt infill - at 12.00 m, mechanical fractures on quartz veins - from 12.84 to 12.85 m, ~10 mm thick friable rock layer			R7				50 49
15					R8				48
					R9				47 46
					R10				45
20		END OF BOREHOLE (15.00 metres)							44 43 42 41 40



TETRA TECH

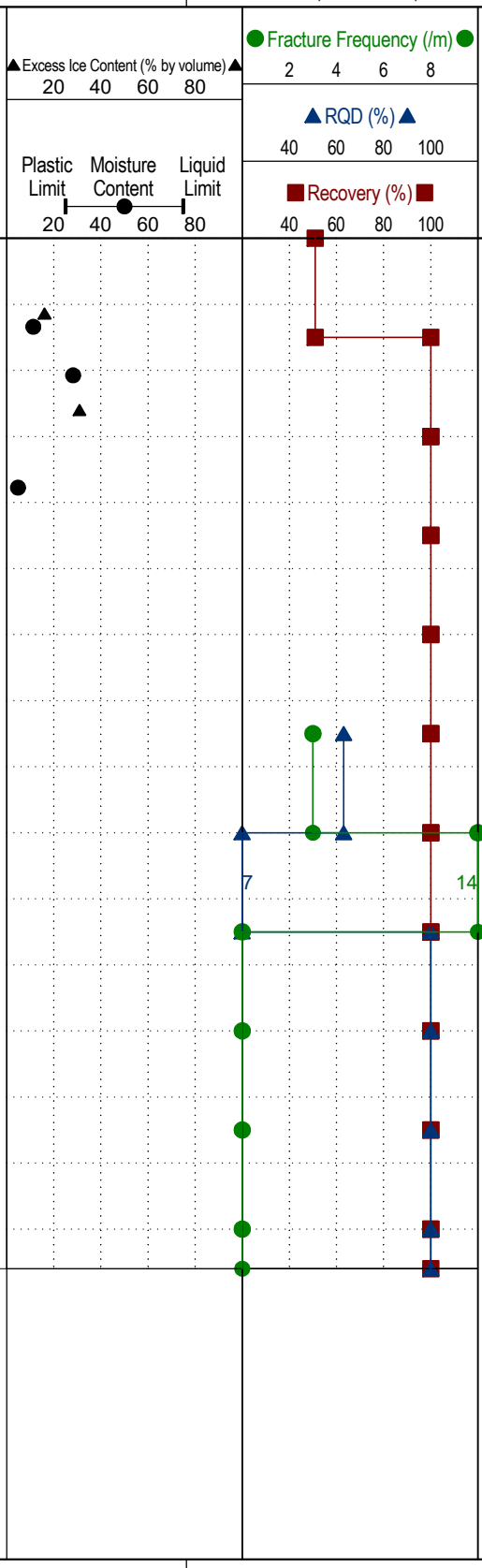
Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 16
Logged By: EP/LM	Completion Date: 2021 April 16
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-61 (36)**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: A6 Berm	Ground Elev: 59.9 m
Meliadine Gold Project, Nunavut	UTM: 542271 E; 6986081 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0		PEAT - fine fibrous, black, (60 mm thick)	Nbn		R1	
1		BOULDERS - greywacke fragments, (240 mm thick)				
		No recovery	<1 mm thick clear subhorizontal ice lenses throughout, Vs, Vx, Vc 15%, <1 mm thick clear ice coatings on gravel		S1	11.3
2		SAND AND SILT - some gravel, light brown, shells, angular sand and gravel			S2	28.2
		- trace gravel, grey, angular gravel			R2	
3		- (Gravel - 0.0%; Sand - 52.8%; Silt & Clay - 47.2%)	Vs, Vc, Vx 30-35%, increasing ice content with depth to 2 mm thick			
		- at 2.91 m, ~30 mm thick silt seam				
4		GRAVEL - sandy, trace to some silt, massive, angular greywacke and granite gravel	Vs 40%, clear, subhorizontal ice lenses to 10 mm thick		R3	4.8
		- (Gravel - 49%; Sand - 32.1%; Silt & Clay - 18.9%)			S3	
5		- at 4.50 m, some sand, trace silt	Vs, Vc 5-10%		R4	
6	Diamond with Chilled Brine					
7					R5	
8		GREYWACKE (BEDROCK) - grey green, steeply dipping quartz veins throughout, one dominant fracture set along plane of quartz, very fine to fine greywacke			R6	
9		- at 7.50 m, fragmented				
		- at 7.65 m, slightly weathered, medium strong, slight green clay infill on joints, JSN:2			R7	
10		- at 8.05 m, very strong				
		- at 8.79 m, fragmented				
11		- at 8.88 m, fresh, JSN:1			R8	
		- at 9.00 m, slightly weathered, slight red brown clay and pyrite mineralization on joints				
12		- at 9.84 m, moderately weathered, red brown clay on joints, one joint set steeply dipping along quartz, another subhorizontal, another subvertical, JSN:9			R9	
13		- at 10.50 m, fresh, strong, no visible natural fractures, no visible fragmented zones, JSN:0.5				
14		- at 12.00 m, very strong			R10	
15					R11	
16		END OF BOREHOLE (15.60 metres)				
		Ground temperature cable #2721 installed at 10.95 metres				
17						
18						
19						
20						



#2721	Elevation (m)
	59
	58
	57
	56
	55
	54
	53
	52
	51
	50
	49
	48
	47
	46
	45
	44
	43
	42
	41
	40

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15.6 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 15
Logged By: EP/LM	Completion Date: 2021 April 15
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-62 (37)**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: A6 Berm	Ground Elev: 57.6 m
Meliadine Gold Project, Nunavut	UTM: 542650 E; 6986012 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit Moisture Content Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
0		ICE - no visible inclusions - at 0.35 m, trace organic inclusions, green leafy plants	Ice, clear, hard 3-5 mm discs Vr, trace Vx 40%, mostly clear Nbn Vs 40%, cloudy ice lenses to 3 mm thick, spaced 4-5 mm apart Vs, Vr 40%, cloudy ice Vx 40%, clear Vx 2-5%, cloudy Vs 30%, ice lenses are 2-4 mm and spaced approximately 2-3 mm apart, ice is clear to cloudy Ice		R1				57
1		PEAT AND SILT - fibrous, massive, grey to brown			S1	19.2			
		CLAY - trace silt, massive, grey - at 0.80 m, some gravel, friable, poorly graded gravel, green, coarse gravel to 80 mm diameter - at 0.98 m, no visible gravel			R2				56
2					S2	23.1			
3		GRAVEL - some sand, trace silt, well graded, grey brown, trace red staining, light to dark grey clasts, light grey clasts are friable, angular to subangular gravel - at 1.60 m, some cobbles, some striations present, igneous to metamorphosed cobbles			R3			12 20	55
4									54
5		SILT - some gravel massive, poorly graded gravel, grey, brown staining, some grey shells - at 2.10 m, no visible gravel - at 2.48 m, grey - from 2.70 to 2.87 m, granitic cobble - grey, white and pink			R4			20	53
6									52
7		ICE AND SILT - some gravel and cobbles, red staining, angular to subangular gravel and cobbles			R5				51
8		GREYWACKE (BEDROCK) - some quartz, slightly weathered, extremely strong, subvertical to subhorizontal fractures along quartz plane every 50 mm, very fine to fine bedrock - from 4.10 to 4.50 m, fractured zone - at 4.70, 4.92 and 5.18 m, inclined joints, slightly weathering, undulating, smooth, JSN:1			R6				50
					R7				49
9	Diamond with Chilled Brine				1R R8				48
10									
11		- at 7.22, 7.92, 8.00, 8.15, 8.24 and 8.47 m, inclined joints, undulating, smooth - at 7.28, 7.98, 8.05 and 8.21 m, inclined joints, undulating, smooth to rough - at 8.30 m, JSN:2			R9				47
12		- at 8.48 m, inclined joints, undulating, smooth - at 8.69, 8.99, 9.11 and 9.48 m, inclined joints, undulating, smooth			R10				46
13		- at 9.16 m, subvertical joint, slight brownish weathering, undulating, rough - at 9.51 m, ~25 mm thick incline white quartz vein - at 11.36 and 11.58 m, inclined joints, undulating, smooth, slight calcite infill			R11				45
14									44
15		- at 11.44 m, subvertical joint, planar, smooth - at 11.60 m, JSN:1 - at 11.71 to 11.87 m, ~160 mm thick subvertical quartz vein			R12				43
16		- at 12.12, 12.27, 12.35 and 12.70 m, inclined joints, undulating, smooth, slight infill - at 12.75 m, JSN:2 - at 12.94 m, subhorizontal joint, planar, smooth, silt infill							42
17									41
18		- at 13.07, 13.33, 13.46 and 13.49 m, inclined joints, undulating, smooth - at 13.50 m, JSN:1 - at 13.63, 14.10 and 14.57 m, inclined joints, undulating, smooth							40
19									39
20									38

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 15
Logged By: EP/LM	Completion Date: 2021 April 15
Reviewed By: HX	Page 1 of 2

Agnico Eagle Mines Limited

Borehole No: **GT21-62 (37)**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: A6 Berm	Ground Elev: 57.6 m
Meliadine Gold Project, Nunavut	UTM: 542650 E; 6986012 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Elevation (m)
20		END OF BOREHOLE (15.00 metres)							37
21									36
22									35
23									34
24									33
25									32
26									31
27									30
28									29
29									28
30									27
31									26
32									25
33									24
34									23
35									22
36									21
37									20
38									19
39									18
40									

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 15
Logged By: EP/LM	Completion Date: 2021 April 15
Reviewed By: HX	Page 2 of 2

Agnico Eagle Mines Limited

Borehole No: **GT21-63**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: D-B4 West	Ground Elev: 52 m
Meliadine Gold Project, Nunavut	UTM: 537972 E; 6987059 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0	Diamond with Chilled Brine	PEAT - gravelly, trace sand, massive, fibrous, poorly graded gravel and sand, brown peat, mixed colour gravel to 40 mm diameter, (130 mm thick)	Nbn Partially melted by drill, ice crystals <1 mm diameter observed inside core, Vx 1-5% ice crystals to 4 mm diameter, Vx 10%		R1 S1	4.3
1		SILT AND SAND - some gravel, trace fibrous organics, massive, well graded gravel and sand, grey to brown, mixed colour gravel to 10 mm diameter - at 0.46 m, no visible gravel - at 0.67 m, no visible organics, gravel to 40 mm diameter - from 0.96 to 1.00 m, no recovery - at 1.00 m, mixed colour loose angular gravel - (Gravel - 43.0%; Sand - 32.0%; Silt & Clay - 25.0%)			S2 R2	7.8
2						
3					R3	
4						
5		GRAVEL - sandy, silty, cobbles disseminated throughout, massive, well graded, grey, angular gravel			R4	
6		No recovery				
7		GRAVEL AND SAND - trace silt, cobbles disseminated throughout, massive, well graded, grey, angular gravel			R5	
8		No recovery				
9		RUBBLE - greywacke GREYWACKE (BEDROCK) - fresh, medium strong, grey to green, quartz veins to 20 mm thick, fine greywacke, JSN:2 - at 5.10, 5.12 and 5.26 m, subhorizontal joints, undulating, rough			R6	
10		- at 5.89, 7.35 and 7.41 m, inclined joints along quartz veins, undulating, smooth - at 7.50 m, JSN:0 - at 9.00 m, JSN:1			1R R7	
11		- at 10.01 m, subhorizontal joint, undulating, smooth			R8	
12		- at 10.43 m, inclined joint, planar, smooth - at 10.50 m, JSN:2				
13		- at 10.51, 10.57 and 11.95 m, inclined joints, undulating, smooth			R9	
14		- from 10.57 to 11.50 m, darker grey, less quartz veins - at 12.00 m, JSN:3			R10	
15		- at 12.07 and 12.42 m, inclined joints, undulating, smooth - at 13.46 m, subhorizontal joints, planar, rough				
16		- at 13.50 m, JSN:1 - from 14.85 to 15.00 m, rubble, possibly mechanical				
17		END OF BOREHOLE (15.00 metres) Ground temperature cable #2723 installed to 14.50 metres				
18						
19						
20						

Excess Ice Content (% by volume): 20 40 60 80

Plastic Limit | Moisture Content | Liquid Limit: 20 40 60 80

Fracture Frequency (/m): 2 4 6 8

RQD (%): 40 60 80 100

Recovery (%): 40 60 80 100

#2723

152

Elevation (m)
52
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 21
Logged By: EP/LM	Completion Date: 2021 April 21
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: GT21-64

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: CP2 Berm	Ground Elev: 46 m
Meliadine Gold Project, Nunavut	UTM: 541524 E; 6989012 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0		No recovery				
1	Diamond with Chilled Brine	PEAT - trace rootlets, fibrous, massive, alternating dark brown and brown layers	Nbn		R1	
		GRAVEL - sandy, silty, massive, well graded sand and gravel, brown, trace shells, angular gravel to 20 mm dimeter	Ice crystals, Vx 15%		S1	6.1
2		- (Gravel - 49.0%; Sand - 29.3%; Silt & Clay - 21.9%)	Vx 5-10%		S2	
		- at 1.70 m, trace inferred cobbles, grey, no visible shells			R2	
3		GREYWACKE (BEDROCK) - fresh, very strong, grey, subvertical quartz laminae, no natural fractures, fine greywacke, JSN:0.5			R3	
4		- slightly weathered, one dominant subvertical fracture set, two random subhorizontal fractures, orange staining on all fractures, JSN:3				
5		- from 5.20 to 5.50 m, cross cutting subvertical weathered quartz vein			R4	
6		- from 6.81 to 7.11 m, cross cutting subvertical weathered quartz vein				
7		- 7.50 m, many random cross cutting laminae and veins			R5	
8						
9		- at 9.00 m, one subhorizontal fracture, no visible natural subvertical fractures, JSN:2			R6	
10		- from 9.85 to 10.20 m, apparent shear zone				
11		- at 10.50 m, fresh, JSN:0.5			R7	
12						
13					R8	
14					1R	
15		END OF BOREHOLE (15.00 metres)			R9	
16		Ground temperature cable installed at 14.4 metres				
17					R10	
18						
19						
20						

Excess Ice Content (% by volume): 20 40 60 80

Plastic Limit | Moisture Content | Liquid Limit: 20 40 60 80

Fracture Frequency (/m): 2 4 6 8

RQD (%): 40 60 80 100

Recovery (%): 40 60 80 100

#2761

Elevation (m): 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 26
Logged By: LM	Completion Date: 2021 April 26
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: GT21-65

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: CP2 Berm	Ground Elev: 46 m
Meliadine Gold Project, Nunavut	UTM: 541563 E; 6988974 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Elevation (m)
0		No recovery					46
1	Diamond with Chilled Brine	PEAT - some rootlets, fibrous, massive, dark brown, (290 mm thick)	Nbe Vein lenticular ice, Vr, Vs 5%, clear, hard		R1		45
2		SILT - sandy, trace gravel, trace organics, massive, poorly graded sand and gravel, brown to dark brown, angular gravel to 30 mm diameter - at 1.50 m, no visible gravel, grey - (Gravel - 0.0%; Sand - 21.9%; Silt & Clay - 78.1%) - from 2.00 to 2.40 m, some shells	Lenticular ice, Vs 20%		S1	29.2	44
3			Ice crystals		R2		43
4		GRAVEL AND INFERRED COBBLES - sandy, some silt, massive, well graded, weak, grey, angular gravel and cobbles			S2 R3	4.8	42
5		No recovery					41
6		GRAVEL AND INFERRED COBBLES - silty, some sand, massive, well graded, weak, grey, angular gravel and cobbles - (Gravel - 55.0%; Sand - 25.2%; Silt & Clay - 19.8%)			R4		40
7		GREYWACKE (Bedrock) - slightly weathered, very strong, trace subhorizontal quartz laminae throughout, on dominant subhorizontal fracture set with red orange staining on faces, fine greywacke, JSN:2 - from 7.25 to 7.50 m, becoming more quartz rich, trace pyrite throughout			R5		39
8					R6		38
9		- at 9.00 m, fresh, no visible staining, no visible quartz laminae, no visible natural fractures, trace subvertical quartz veins throughout, JSN:0.5					37
10					R7		36
11		- at 10.50 m, slightly weathered, trace quartz nodules, subhorizontal fractures with pyrite, JSN:2			R8		35
12		- at 12.00 m, fresh, no visible natural fractures, JSN:0.5					34
13		- from 12.00 to 12.90 m, quartz rich			R9		33
14		- at 13.50 m, one dominant subvertical fracture set with clay infill			R10		32
15		No recovery END OF BOREHOLE (15.00 metres)					31
16							30
17							29
18							28
19							27
20							26

Excess Ice Content (% by volume): 20 40 60 80

Plastic Limit / Moisture Content / Liquid Limit: 20 40 60 80

Fracture Frequency (/m): 2 4 6 8

RQD (%): 40 60 80 100

Recovery (%): 40 60 80 100

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 25
Logged By: LM	Completion Date: 2021 April 25
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-66**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: WRSF3	Ground Elev: 58 m
Meliadine Gold Project, Nunavut	UTM: 541295 E; 6988736 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0	Diamond with Chilled Brine	PEAT - rootlets, fine fibrous, dark brown to black, (100 mm thick)	Nbe		S1	18
1		SAND - trace to some silt, poorly graded, light grey to brown - from 0.60 to 0.80 m, some peat, rootlets	Vs 5%		R1	
2		No recovery ICE AND SAND AND GRAVEL - trace silt, cobbles disseminated throughout, poorly graded, light grey, angular gravel	Visible clear ice throughout, Vs, Vr 60-70%		R2	
3		GREYWACKE (BEDROCK) - fresh, strong, dark grey, thin white quartz veins, fine greywacke, JSN:0				
4		- at 3.00 m, JSN:2			R3	
5		- at 4.07, 4.15 and 4.37 m, subhorizontal joints, undulating, smooth - at 5.01, 5.17 and 5.56 m, inclined joints, undulating, smooth along quartz veins, could be mechanical			R4	
6		- at 6.00 m, JSN:0 - from 6.20 to 6.60 m, quartz			R5	
7		- at 7.50 m, mechanical breaks				
8					R6	
9		- at 9.00 m, increased quartz content				
10					R7	
11					R8	
12						
13					R9	
14					R10	
15		END OF BOREHOLE (15.00 metres) Ground temperature cable #2762 installed to 14.15 metres				
16						
17						
18						
19						
20						

Plastic Limit | Moisture Content | Liquid Limit
20 40 60 80

Fracture Frequency (/m)
2 4 6 8

RQD (%)
40 60 80 100

Recovery (%)
40 60 80 100

#2762

Elevation (m)
58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 26
Logged By: EP	Completion Date: 2021 April 26
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-73**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: D-B7 West	Ground Elev: 62.8 m
Meliadine Gold Project, Nunavut	UTM: 537818 E; 6989381 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0		PEAT - some rootlets, fibrous, massive, dark brown, (100 mm thick)	Nbn			
1		SILT - sandy, gravelly, trace organics, weathered, massive, well graded, brown, mixed colour gravel, angular gravel to 50 mm diameter	Ice crystals and medium lenses observed, Vx, Vu 10%		R1	
2		- at 1.50 m, trace cobbles, gravel to 60 mm diameter	Ice content increasing, wavy layered to stratified, Vs, Ice 50-60%		S1 R2	2.1
3		- (Gravel - 25.0%; Sand - 33.9%; Silt & Clay - 41.1%)				
		No recovery	Micro lenses and ice crystals, Vx, Vu 15%		R3	
4		SILT - sandy, gravelly, trace cobbles, massive, well graded, grey, angular gravel			S2	9
5		No recovery	Vx, Vu 1%		R4	
6	Diamond with Chilled Brine	RUBBLE - mixed lithology				
7		- at 7.50 m, ~40 mm frozen sand sections			R5	
8					R6	
9						
10					R7	
11		No recovery				
		RUBBLE - mixed lithology			R8	
12		GREYWACKE (BEDROCK) - fresh, medium strong, dark grey, fine quartz veins, JSN:2				
		- at 11.67 and 11.83 m, subhorizontal joints, undulating, smooth			R9	
13		- at 12.27 and 12.40 m, subhorizontal joints, undulating, smooth				
		- at 12.40 m, 50 mm section of joints				
14		- at 12.56 m, 70 mm section of joints			R10	
		- at 13.76, 13.84, 14.14, 14.33 m, subhorizontal joints, undulating, smooth				
15						
		- at 15.25, 15.42, 15.53 and 15.57 m, subhorizontal joints, undulating, smooth			R11	
16		- from 15.53 to 15.57 metres, ~40 mm section of joints				
17		END OF BOREHOLE (16.50 metres Ground temperature cable #2726 installed at 15.00 metres				
18						
19						
20						

Excess Ice Content (% by volume): 20 40 60 80

Plastic Limit | Moisture Content | Liquid Limit: 20 40 60 80

Fracture Frequency (/m): 2 4 6 8

RQD (%): 40 60 80 100

Recovery (%): 40 60 80 100

#2726

189

Elevation (m): 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 16.5 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 24
Logged By: EP/LM	Completion Date: 2021 April 24
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-74**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: D-B7 North	Ground Elev: 62.6 m
Meliadine Gold Project, Nunavut	UTM: 537018 E; 6990225 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)	Excess Ice Content (% by volume) 20 40 60 80 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	#2727	Elevation (m)
0	Diamond with Chilled Brine	SNOW								62
1		PEAT - some rootlets, fibrous, massive, dark brown, (60 mm thick)	Nbn Vx, Vc 10%		R1					61
2		INFERRED GRAVEL - some sand, some silt, trace cobbles, massive, well graded, brown, grey angular gravel to 85 mm diameter			R2					60
3		SILT AND SAND - some gravel, massive, well graded sand and gravel, grey, red staining, some shells, angular gravel to 8 mm diameter	Ice crystals and wavy ice lenses, Vx, Vs 20%		S2	19.5				59
4		- at 3.00 m, no visible shells - (Gravel - 16.0%; Sand - 41.0%; Silt & Clay - 43.0%)	Vx, Vs 10%		R3					58
5		INFERRED GRAVEL - some sand, some silt, trace cobbles, massive, well graded, grey, angular gravel to 85 mm diameter	Vx, Vs 4% Ice crystals <1 mm, Vs <5%		R4					57
6		No recovery								56
7		INFERRED COBBLES - trace gravel, trace sand, trace silt, massive, grey			R5					55
8		No recovery								54
9		INFERRED GRAVEL - some sand, some silt, trace cobbles, massive, well graded, grey, angular gravel to 85 mm diameter			R6					53
10		GREYWACKE (BEDROCK) - slightly weathered, strong, dark grey, subvertical and subhorizontal quartz veins, quartz nodules to 35 mm diameter, subvertical fractures coated with red orange staining, JSN:3			R7					52
11		No recovery								51
12		GREYWACKE (BEDROCK) - fresh, strong, dark grey, subvertical and subhorizontal quartz veins, quartz nodules to 35 mm diameter, JSN:0.5 - at 9.00 m, no visible quartz nodules - at 10.50 m, JSN:2			R8					50
13		- at 11.14 and 11.54 m, subhorizontal joints, undulating, smooth - from 12.42 to 12.67 m, rubble zone			R9					49
14					R10					48
15		END OF BOREHOLE (15.00 metres) Ground temperature cable #2727 installed to 14.40 metres								47
16										46
17										45
18										44
19										43
20										

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 25
Logged By: LM	Completion Date: 2021 April 25
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-99**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: B5 North Berm	Ground Elev: 57.7 m
Meliadine Gold Project, Nunavut	UTM: 538167 E; 6988526 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Elevation (m)
0						
0	Diamond with Chilled Brine	LAKE ICE				
3		SLUSH	Ice fragments mixed with water			
4.5		GRAVEL AND SILT - trace sand, massive, well graded, grey, angular gravel	Partially thawed, inferred Nf			
5		No recovery				
7		GREYWACKE (BEDROCK) - fresh, very strong, dark grey, two sets of quartz veins dipping at 45° and approximately subvertical, fine greywacke, JSN:0.5 - from ~6.90 to ~7.16 m, core fragmented by drill - at 7.50 m, quartz veins become weakly foliated and subvertical to vertical, possible gold observed along foliations - at 9.00 m, slightly weathered, JSN:2				
13.5		END OF BOREHOLE (13.50 metres)				
20						

Fracture Frequency (/m): 2, 4, 6, 8
RQD (%): 40, 60, 80, 100
Recovery (%): 40, 60, 80, 100

Sample Number: R1 0, R2 0, R3, R4 0, R5, R6, R7, R8, R9

Elevation (m): 57, 56, 55, 54, 53, 52, 51, 50, 49, 48, 47, 46, 45, 44, 43, 42, 41, 40, 39, 38

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 13.5 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 22
Logged By: LM	Completion Date: 2021 April 22
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-100**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: B5 North Berm	Ground Elev: 57.7 m
Meliadine Gold Project, Nunavut	UTM: 538108 E; 6988473 N; Z 15

Depth (m)	Method	Lithological Description	Sample Type	Sample Number	Fracture Frequency (/m) / RQD (%) / Recovery (%)	Elevation (m)
0					Fracture Frequency (/m): 2 4 6 8	
					RQD (%): 40 60 80 100	
					Recovery (%): 40 60 80 100	
0	Diamond with Chilled Brine	LAKE ICE		R1	0	57
1						56
2				R2	0	55
3						54
4		COBBLES AND BOULDERS - granite, light orange, white and black, medium granite - from 3.82 to 4.15 m, greywacke - from 4.15 to 4.43 m, granite - from 4.43 to 4.50 m, greywacke		R3		53
5		No recovery				52
6		RUBBLE GREYWACKE (BEDROCK) - fresh, medium strong, very thin quartz veins, fine greywacke		R4		51
7				R5		50
8				R6		49
9		- at 9.00 m, JSN:1				48
10		- at 9.90 m, inclined joint, undulating, smooth		R7		47
11				R8		46
12		END OF BOREHOLE (12.00 metres)				45
13						44
14						43
15						42
16						41
17						40
18						39
19						38
20						

TETRA TECH

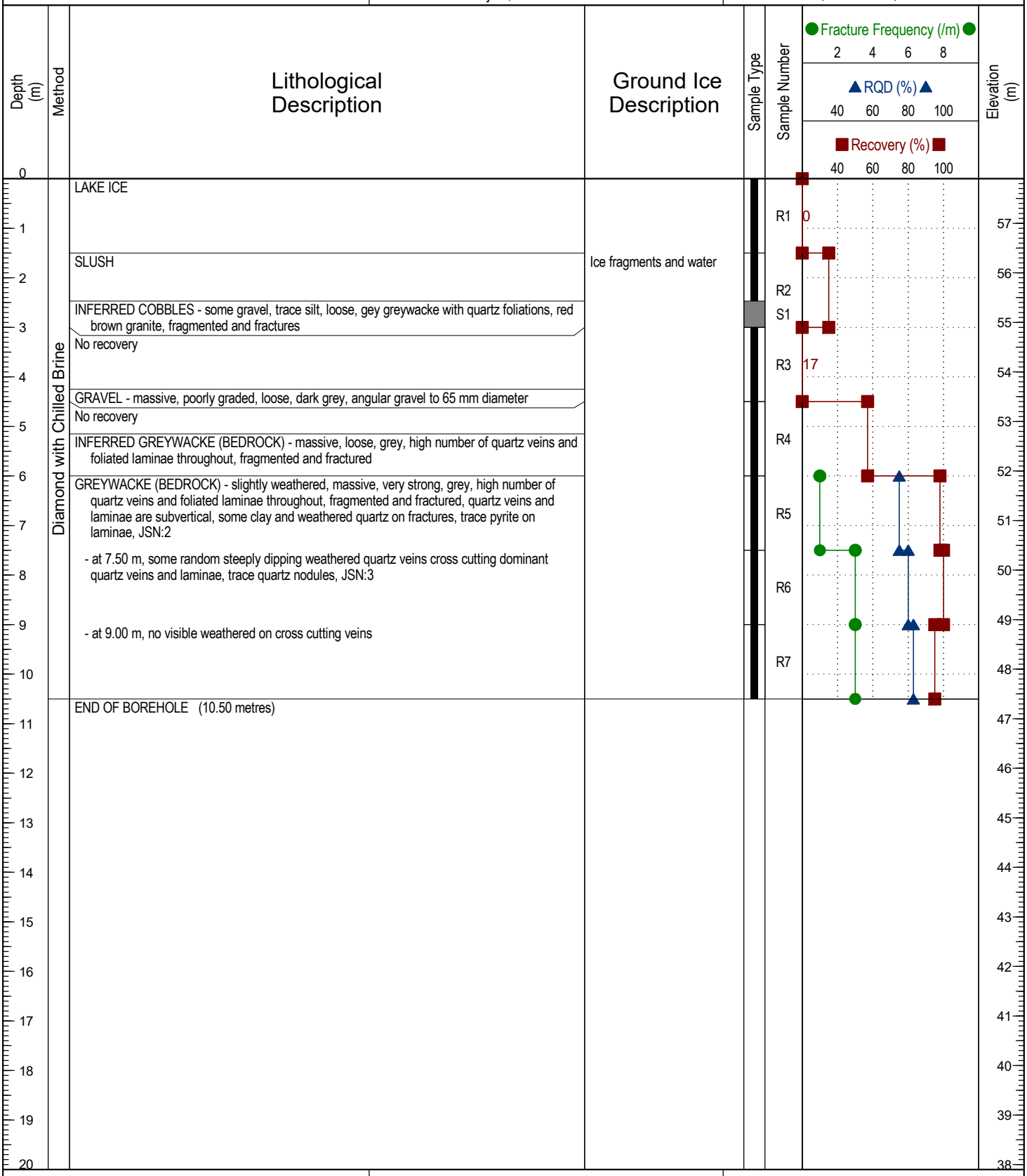
Contractor: Orbit Garant Drilling inc.	Completion Depth: 12 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 22
Logged By: EP	Completion Date: 2021 April 22
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: **GT21-101**

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: B5 North Berm	Ground Elev: 57.9 m
Meliadine Gold Project, Nunavut	UTM: 538044 E; 6988420 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description
0		LAKE ICE	
1			
2		SLUSH	Ice fragments and water
3	Diamond with Chilled Brine	INFERRED COBBLES - some gravel, trace silt, loose, gey greywacke with quartz foliations, red brown granite, fragmented and fractures	
4		No recovery	
5		GRAVEL - massive, poorly graded, loose, dark grey, angular gravel to 65 mm diameter	
6		No recovery	
7		INFERRED GREYWACKE (BEDROCK) - massive, loose, grey, high number of quartz veins and foliated laminae throughout, fragmented and fractured	
8		GREYWACKE (BEDROCK) - slightly weathered, massive, very strong, grey, high number of quartz veins and foliated laminae throughout, fragmented and fractured, quartz veins and laminae are subvertical, some clay and weathered quartz on fractures, trace pyrite on laminae, JSN:2 - at 7.50 m, some random steeply dipping weathered quartz veins cross cutting dominant quartz veins and laminae, trace quartz nodules, JSN:3	
9		- at 9.00 m, no visible weathered on cross cutting veins	
10			
11		END OF BOREHOLE (10.50 metres)	
12			
13			
14			
15			
16			
17			
18			
19			
20			



TETRA TECH

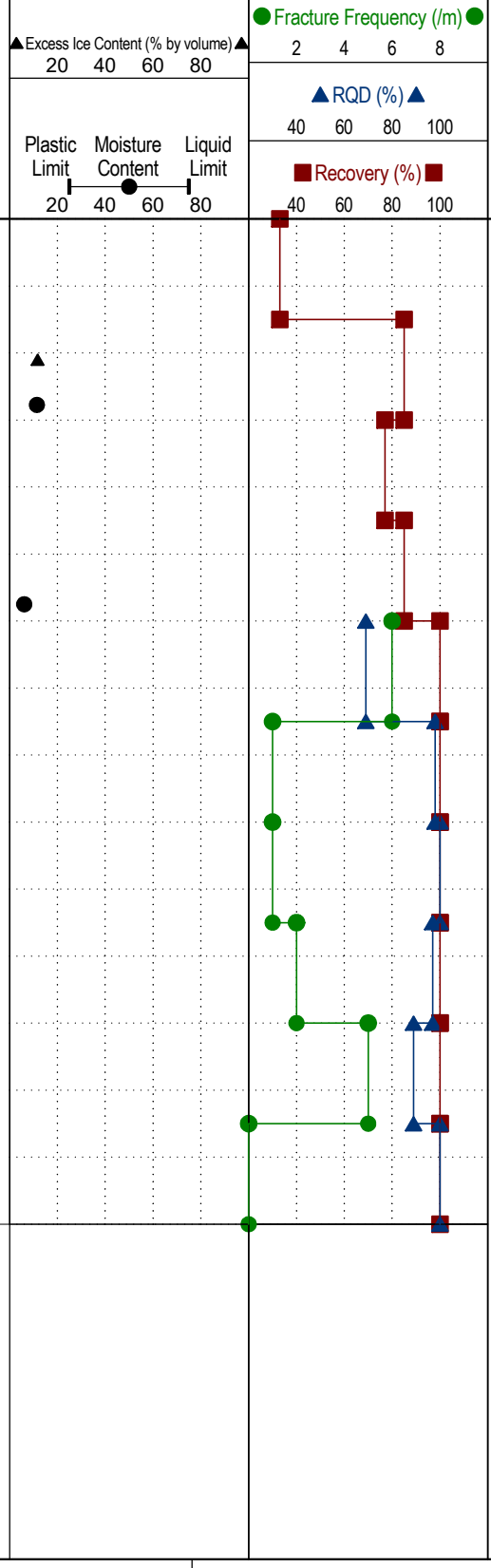
Contractor: Orbit Garant Drilling inc.	Completion Depth: 10.5 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 23
Logged By: LM	Completion Date: 2021 April 23
Reviewed By: HX	Page 1 of 1

Agnico Eagle Mines Limited

Borehole No: GT21-102

Project: Spring 2021 Geotechnical Investigation	Project No: ENG.EARC03193-02
Location: B5 North Berm	Ground Elev: 60 m
Meliadine Gold Project, Nunavut	UTM: 537974 E; 6988362 N; Z 15

Depth (m)	Method	Lithological Description	Ground Ice Description	Sample Type	Sample Number	Moisture Content (%)
0		No recovery				
1	Diamond with Chilled Brine	GRAVEL AND SAND - trace silt, organics, rootlets, ~112 mm long greywacke boulder - at 1.50 m, no visible organics or rootlets, poorly graded, angular gravel of mixed lithology - from 1.65 to 1.78 m, peat layer - fine fibrous, black - (Gravel - 43.0%; Sand - 53.5%; Silt & Clay - 3.5%) - at 3.00 m, light grey, trace shells	Thermally disturbed Clear ice coatings on gravel to 10 mm thick, Vc 12% Nbe		R1	
2					R2	
3			< 1 mm thick clear ice lenses and clear ice coatings on gravel, Vc, Vs 5-10%		S1	11.4
4					R3	
5		SAND AND GRAVEL - trace silt - from 4.64 to 4.89 m, granite boulder - light pink and black, medium granite	Vs 10% Vs 20% 12 mm wide clear ice lenses, other lenses ~ 1 mm wide		R4	
6		SAND - some gravel, trace silt, light grey, fine sand - at 5.21 m, silty, gravelly, poorly graded, shells, angular gravel - (Gravel - 31.0%; Sand - 36.6%; Silt & Clay - 32.4%)	Nbe		S2	6.1
7					R5	
8		RUBBLE GREYWACKE (BEDROCK) - fresh, medium strong, dark green, inclined quartz veins, fine greywacke, JSN:2			R6	
9		- from 6.47 to 6.70 m, fractured zone, inclined joints, undulating, smooth				
10		- at 7.50 m, mechanical breaks along inclined quartz veins, JSN:1 - from 8.87 to 8.90 m, joint, clay infill			R7	
11		- at 9.05 m, inclined joint, undulating, smooth, slight clay infill				
12		- at 10.50 m, JSN:2 - from 10.83 to 10.86 m, ~30 mm thick subhorizontal joint, clay infill			R8	
13		- at 10.88 and 11.53 m, subhorizontal joints, undulating, smooth			R9	
14		- at 12.08, 12.09, 13.03, 13.40 and 13.46 m, subhorizontal joints, undulating, rough, possibly mechanical			R10	
15		END OF BOREHOLE (15.00 metres) Ground temperature cable #3735 installed at 14.40 metres				
16						
17						
18						
19						
20						



#2725	Elevation (m)
	60
	59
	58
	57
	56
	55
	54
	53
	52
	51
	50
	49
	48
	47
	46
	45
	44
	43
	42
	41
	40

TETRA TECH

Contractor: Orbit Garant Drilling inc.	Completion Depth: 15 m
Drilling Rig Type: Diamond Drill Rig	Start Date: 2021 April 23
Logged By: EP	Completion Date: 2021 April 23
Reviewed By: HX	Page 1 of 1

APPENDIX C

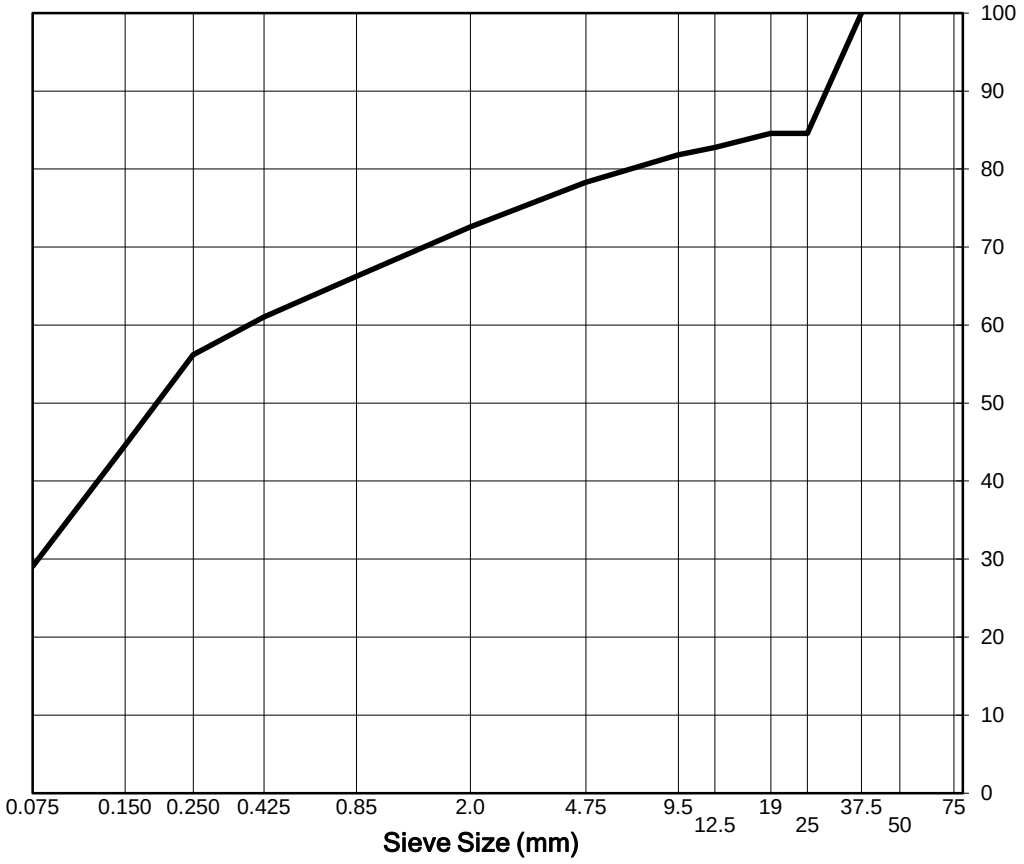
LABORATORY TEST RESULTS

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-60(35)-S1
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 16, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	EP/LM
Attention:	Angie Arbaiza	Date Tested:	May 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	SAND, silty, gravelly	Moisture Content (as received):	10.9%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	FZone	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	1.1 to 1.5 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	85
19	85
12.5	83
9.5	82
4.75	78
2.0	73
0.85	66
0.425	61
0.250	56
0.150	45
0.075	29.1



Remarks:

Reviewed By: _____ P.Eng.

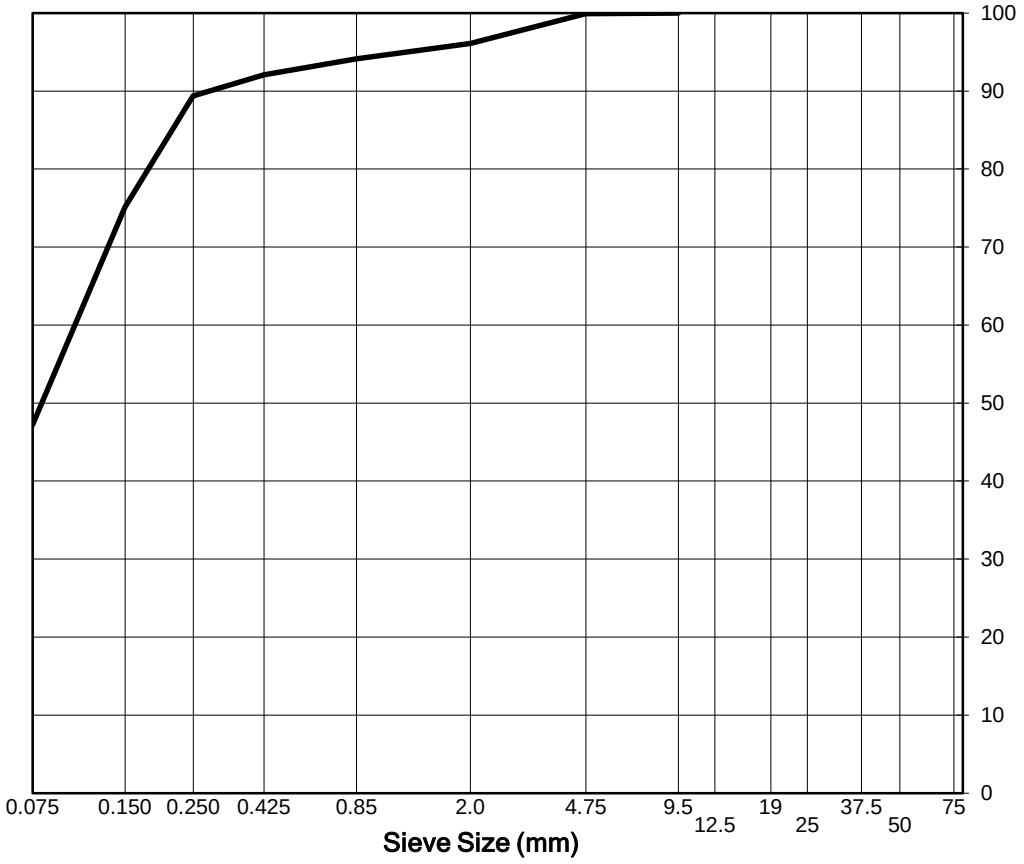
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-61(36)-S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 15, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	EP/LM
Attention:	Angie Arbaiza	Date Tested:	Jun 15, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by: JC	Office: Edmonton
Description:	SAND and SILT	Moisture Content (as received):	13.3%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	FZone	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	1.8 to 2.4 m		
Specification:			

Sieve Size	Percent Passing
9.5	100
4.75	100
2.0	96
0.85	94
0.425	92
0.250	89
0.150	75
0.075	47.2



Remarks:

Reviewed By: _____ P.Eng.

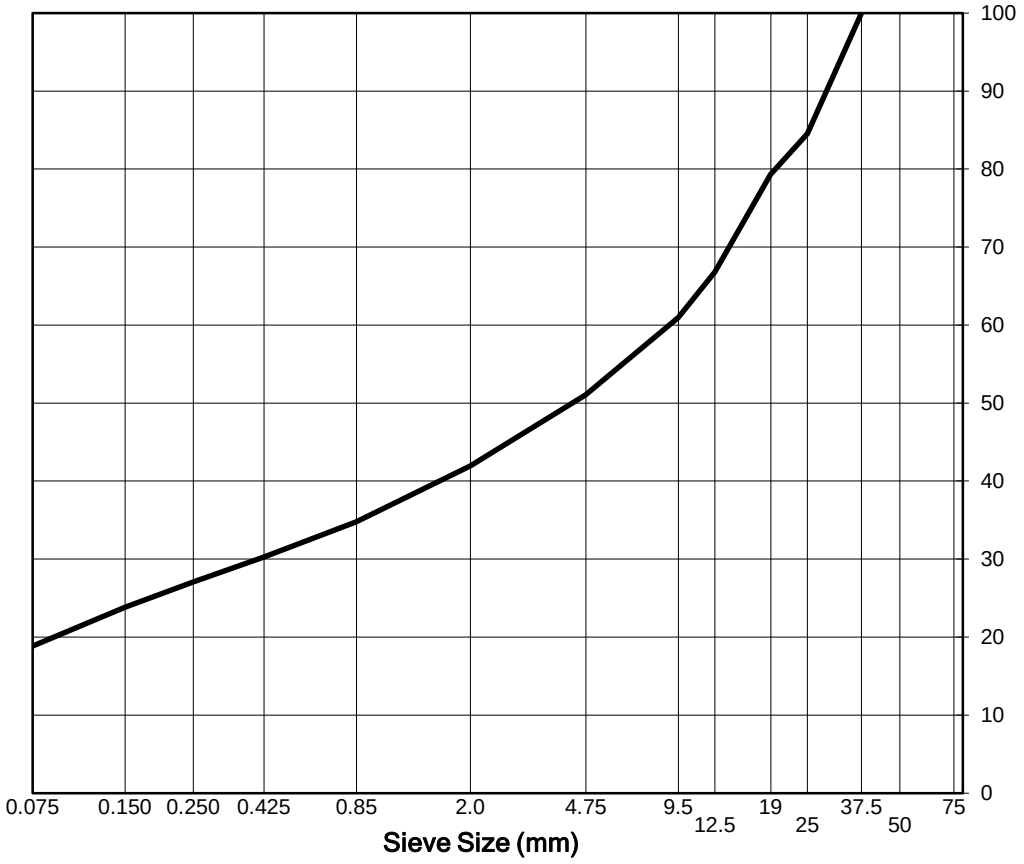
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-61(36)-S3
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 15, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	EP/LM
Attention:	Angie Arbaiza	Date Tested:	Jun 17, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by: JC	Office: Edmonton
Description:	GRAVEL, sandy, some silt	Moisture Content (as received):	0.5%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	FZone	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	3.6 to 4.0 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	85
19	79
12.5	67
9.5	61
4.75	51
2.0	42
0.85	35
0.425	30
0.250	27
0.150	24
0.075	18.9



Remarks:

Reviewed By: _____ P.Eng.

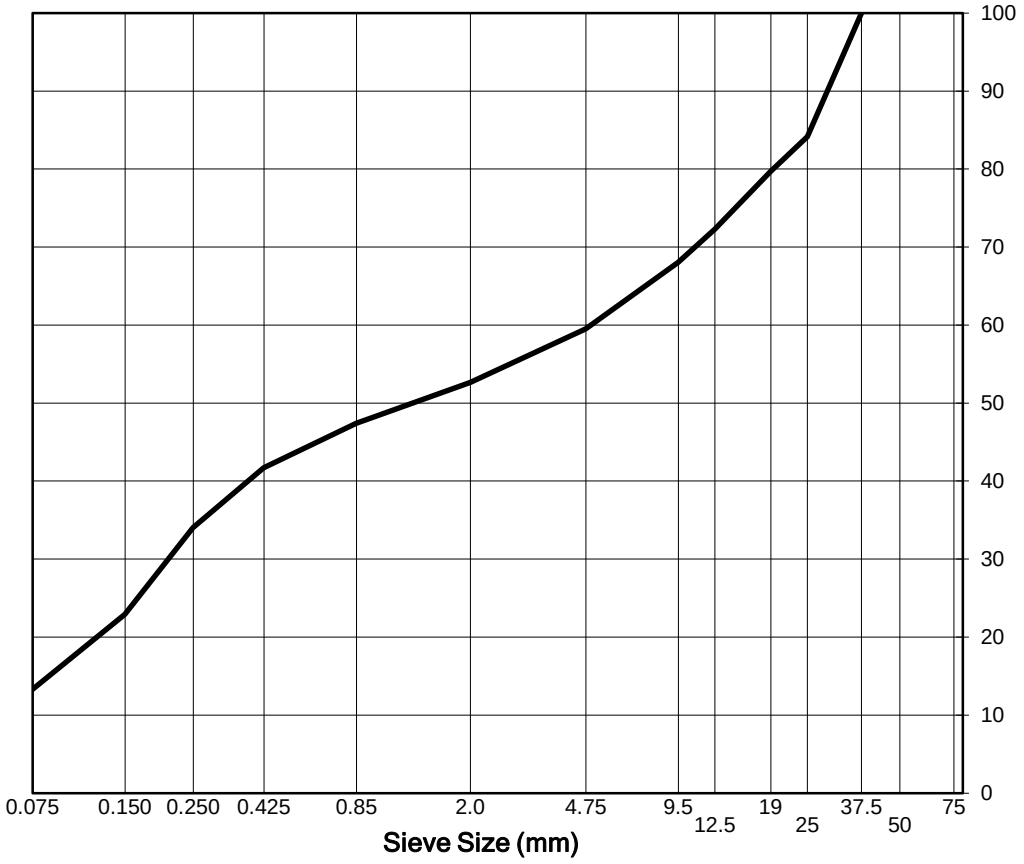
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-17-S1
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 22, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	LM
Attention:	Angie Arbaiza	Date Tested:	May 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	SAND and GRAVEL, some silt	Moisture Content (as received):	8.4%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	D-B4 North	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	1.1 to 1.4 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	84
19	80
12.5	72
9.5	68
4.75	59
2.0	53
0.85	47
0.425	42
0.250	34
0.150	23
0.075	13.3



Remarks:

Reviewed By: _____ P.Eng.

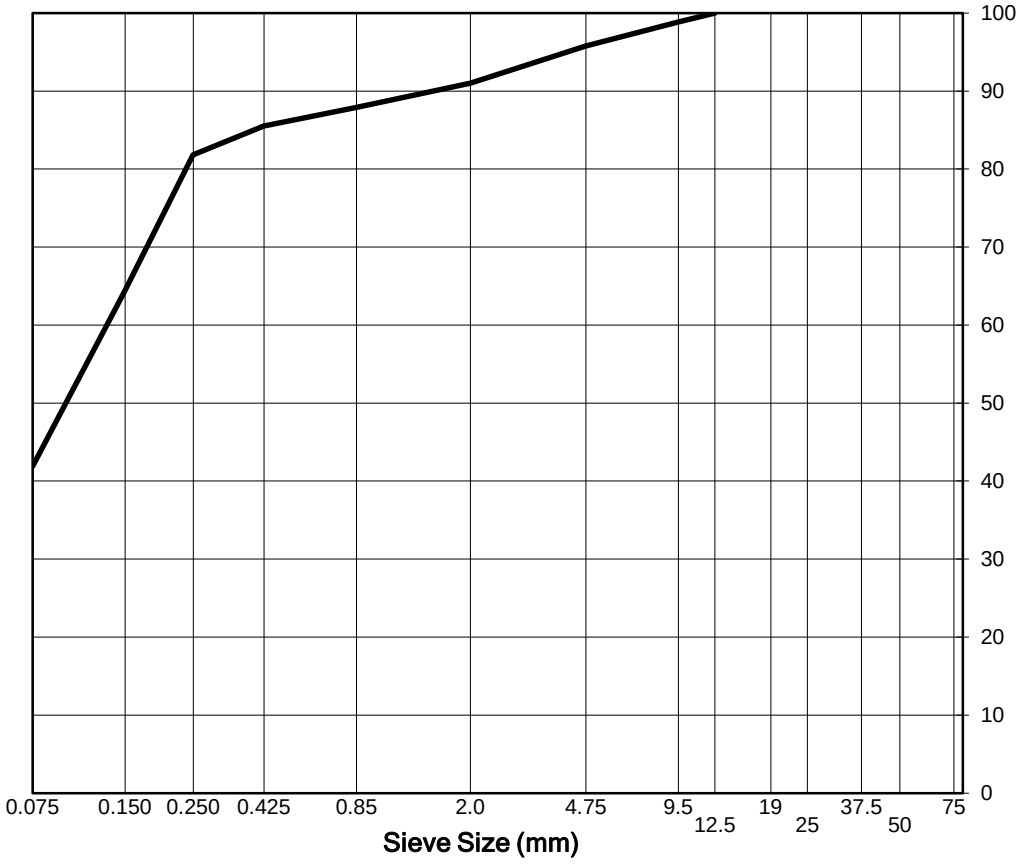
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-19-S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 17, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	LM
Attention:	Angie Arbaiza	Date Tested:	May 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	SAND and SILT, trace gravel	Moisture Content (as received):	22.4%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	CP9 Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	1.4 to 1.7 m		
Specification:			

Sieve Size	Percent Passing
12.5	100
9.5	99
4.75	96
2.0	91
0.85	88
0.425	85
0.250	82
0.150	64
0.075	41.9



Remarks: Ice rich when sampled

Reviewed By: _____ P.Eng.

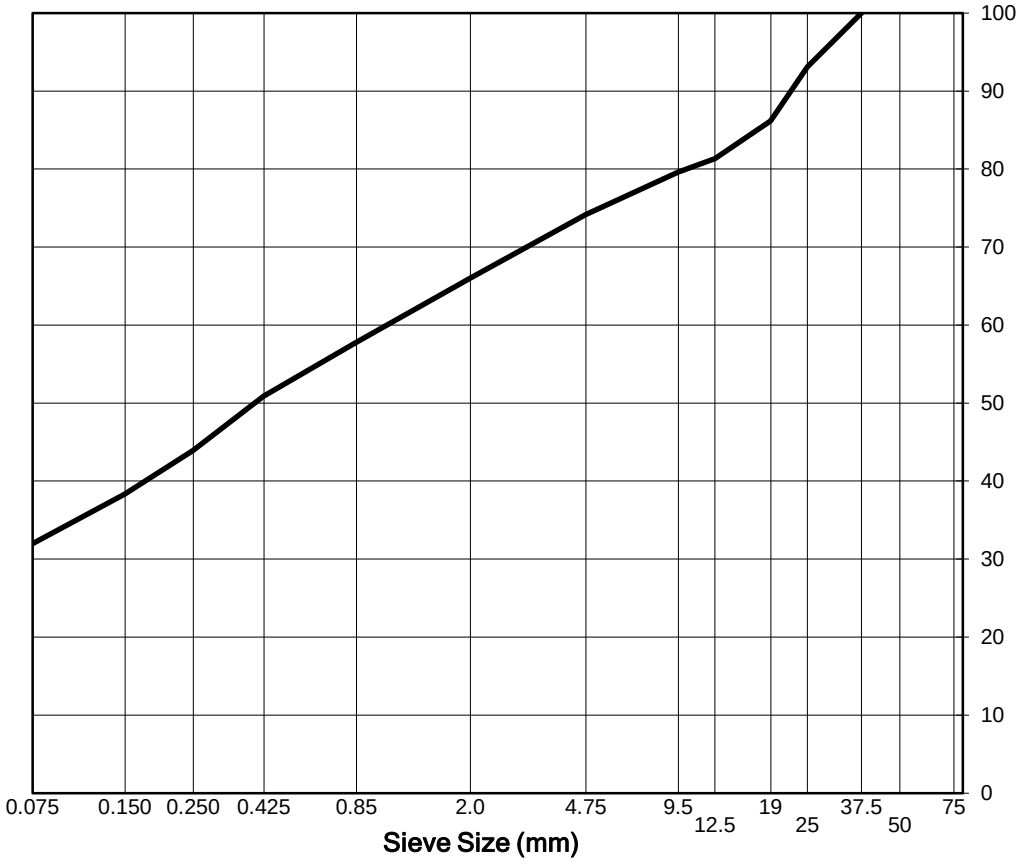
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-20-S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 18, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	LM
Attention:	Angie Arbaiza	Date Tested:	Jun 4, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	SAND, silty, gravelly	Moisture Content (as received):	9.9%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	CP9 Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	1.8 to 2.1 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	93
19	86
12.5	81
9.5	80
4.75	74
2.0	66
0.85	58
0.425	51
0.250	44
0.150	38
0.075	32.0



Remarks: Ice rich when sampled

Reviewed By: JDR P.Eng.

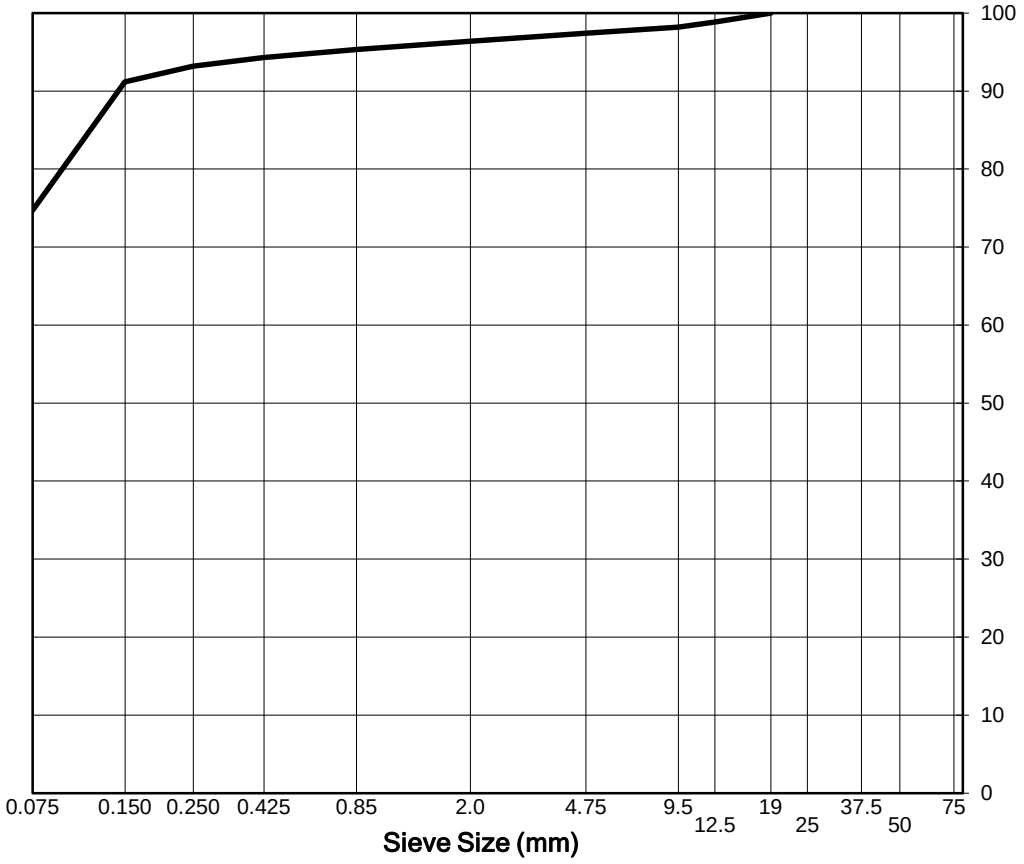
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-21-S1
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 19, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	LM
Attention:	Angie Arbaiza	Date Tested:	May 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	SILT, sandy, trace gravel	Moisture Content (as received):	24.2%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	CP9 Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	3.1 to 3.4 m		
Specification:			

Sieve Size	Percent Passing
19	100
12.5	99
9.5	98
4.75	97
2.0	96
0.85	95
0.425	94
0.250	93
0.150	91
0.075	74.7



Remarks:

Reviewed By: _____ P.Eng.

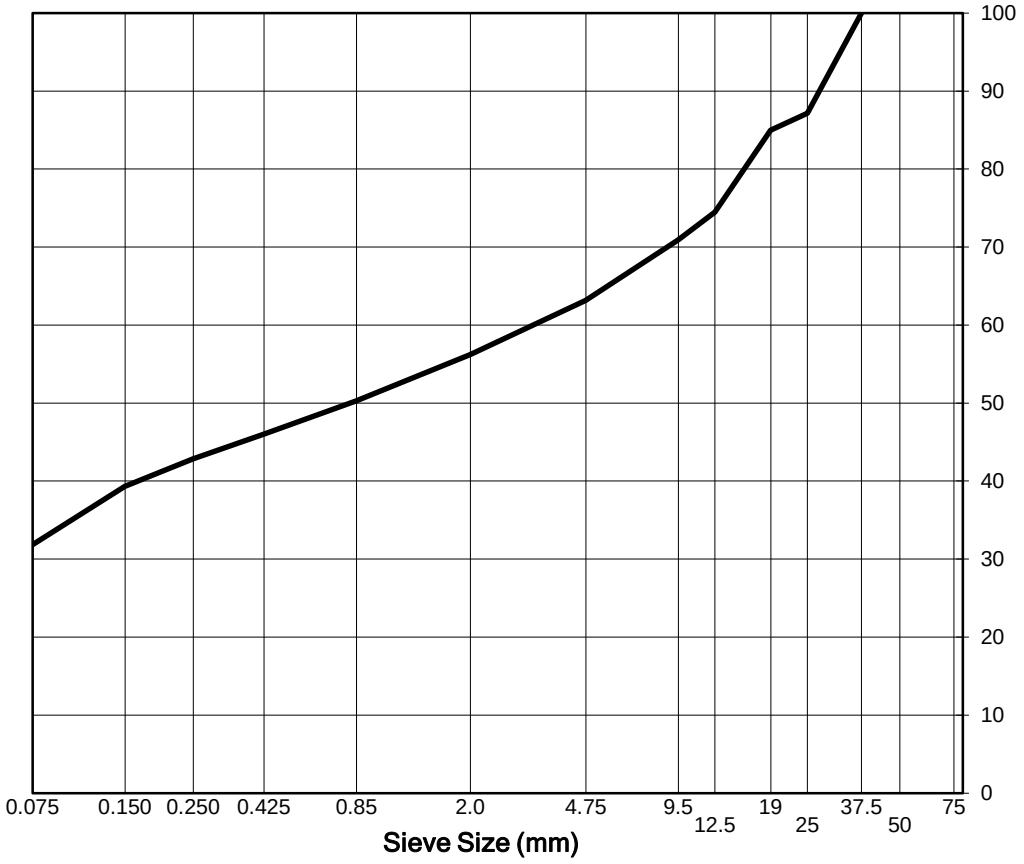
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-21-S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 19, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	LM
Attention:	Angie Arbaiza	Date Tested:	Jun 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	GRAVEL, silty, sandy	Moisture Content (as received):	1.1%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	CP9 Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	3.5 to 3.9 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	87
19	85
12.5	74
9.5	71
4.75	63
2.0	56
0.85	50
0.425	46
0.250	43
0.150	39
0.075	31.9



Remarks:

Reviewed By: _____ P.Eng.

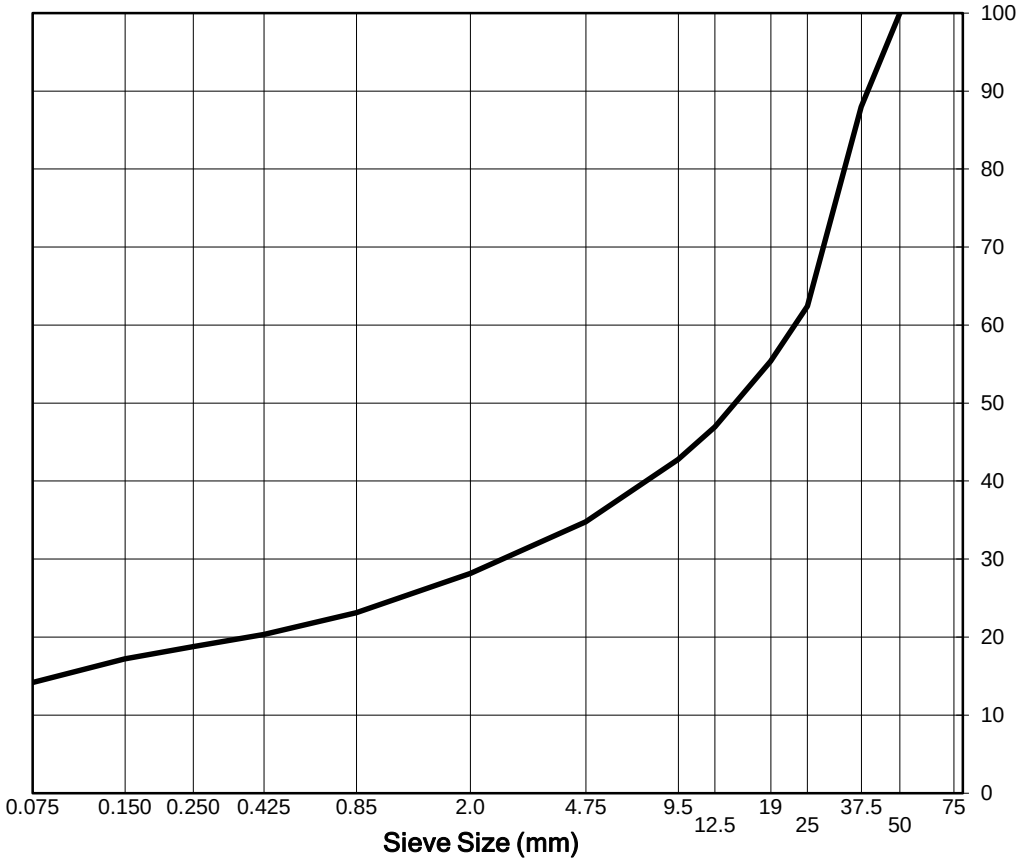
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-26-S1
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 20, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	EP
Attention:	Angie Arbaiza	Date Tested:	May 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	GRAVEL, some sand, silt	Moisture Content (as received):	3.4%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	CP9 Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	3.2 to 3.8 m		
Specification:			

Sieve Size	Percent Passing
50	100
37.5	88
25	62
19	55
12.5	47
9.5	43
4.75	35
2.0	28
0.85	23
0.425	20
0.250	19
0.150	17
0.075	14.2



Remarks:

Reviewed By: _____ P.Eng.

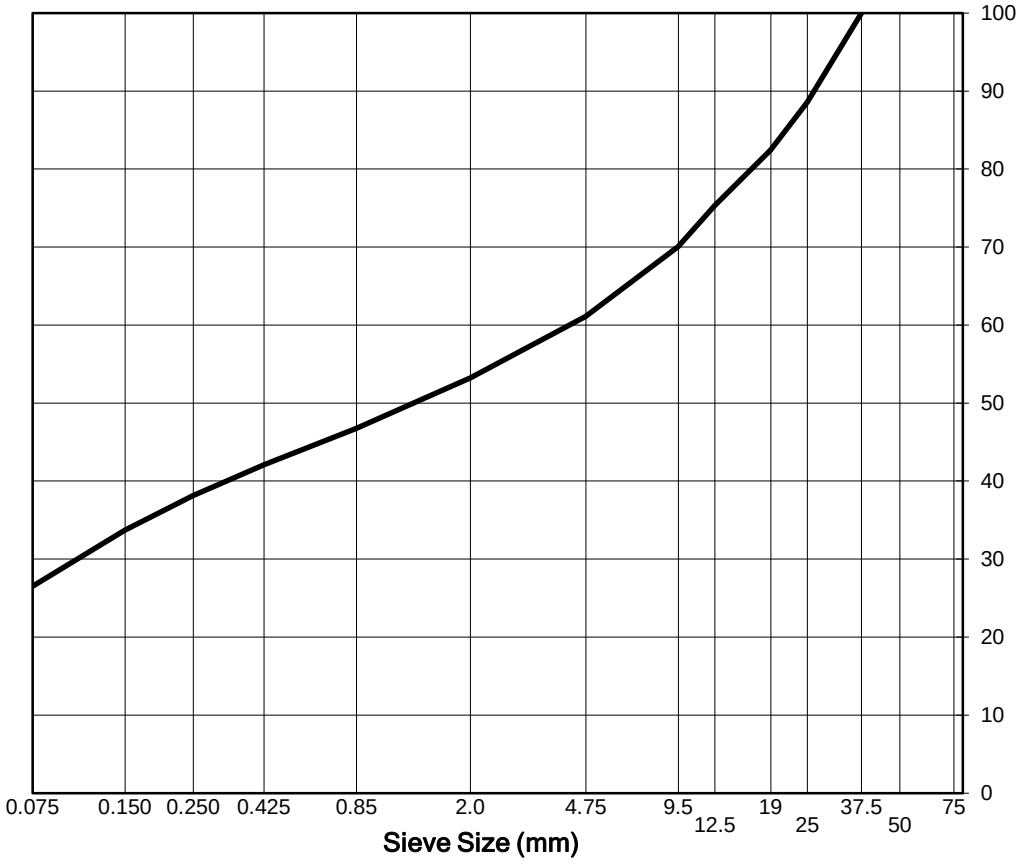
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-45-S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 20, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	EP/LM
Attention:	Angie Arbaiza	Date Tested:	May 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	GRAVEL and SAND, silty	Moisture Content (as received):	5.9%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	D-B4 South	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	5.1 to 5.6 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	89
19	82
12.5	75
9.5	70
4.75	61
2.0	53
0.85	47
0.425	42
0.250	38
0.150	34
0.075	26.5



Remarks:

Reviewed By: _____ P.Eng.

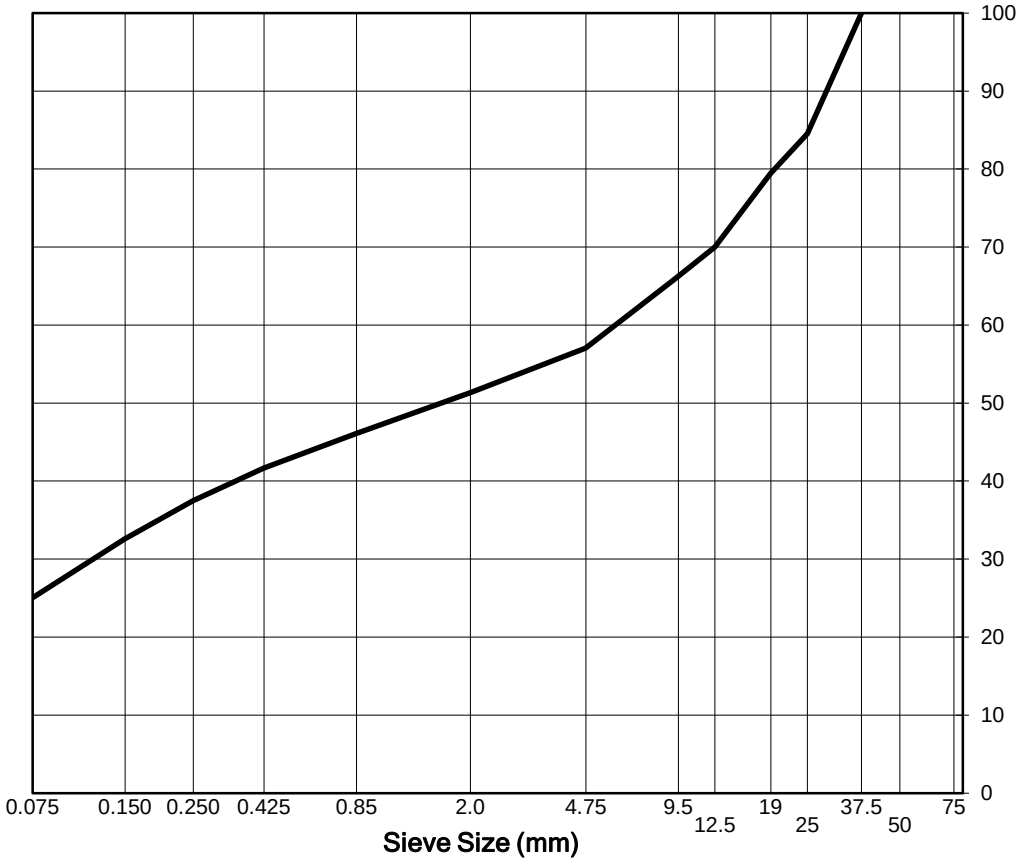
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-63-S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 21, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	EP/LM
Attention:	Angie Arbaiza	Date Tested:	Jun 15, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by: JC	Office: Edmonton
Description:	GRAVEL, sandy, silty	Moisture Content (as received):	3.6%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	D-B4 West	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	1.2 to 2.3 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	85
19	79
12.5	70
9.5	66
4.75	57
2.0	51
0.85	46
0.425	42
0.250	37
0.150	33
0.075	25.1



Remarks:

Reviewed By: JDR P.Eng.

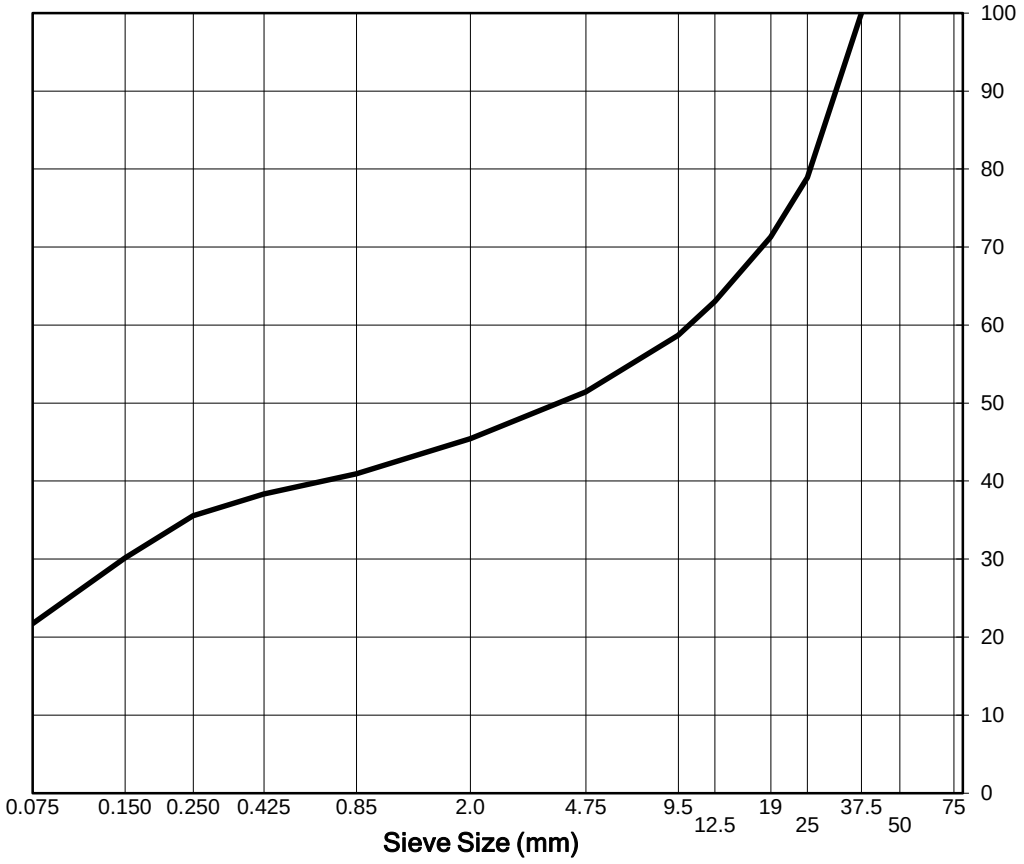
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-64-S1/S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 26, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	LM
Attention:	Angie Arbaiza	Date Tested:	Jun 4, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by: JC	Office: Edmonton
Description:	GRAVEL, sandy, silty	Moisture Content (as received):	6.1%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	CP2 Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	1.1 to 2.3 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	79
19	71
12.5	63
9.5	59
4.75	51
2.0	45
0.85	41
0.425	38
0.250	36
0.150	30
0.075	21.7



Remarks:

Reviewed By: _____ P.Eng.

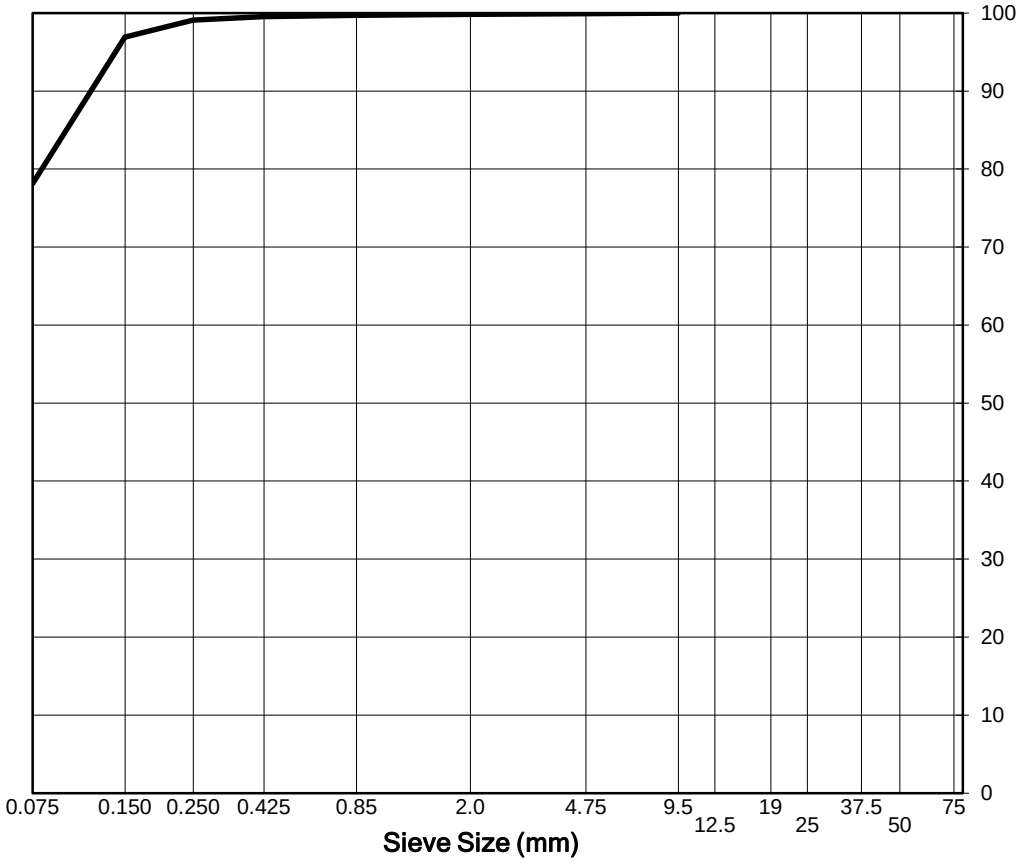
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-65-S1
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 25, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	LM
Attention:	Angie Arbaiza	Date Tested:	May 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	SILT, sandy, trace organics	Moisture Content (as received):	29.2%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	CP2 Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	1.5 to 1.9 m		
Specification:			

Sieve Size	Percent Passing
9.5	100
4.75	100
2.0	100
0.85	100
0.425	100
0.250	99
0.150	97
0.075	78.1



Remarks:

Reviewed By: _____ P.Eng.

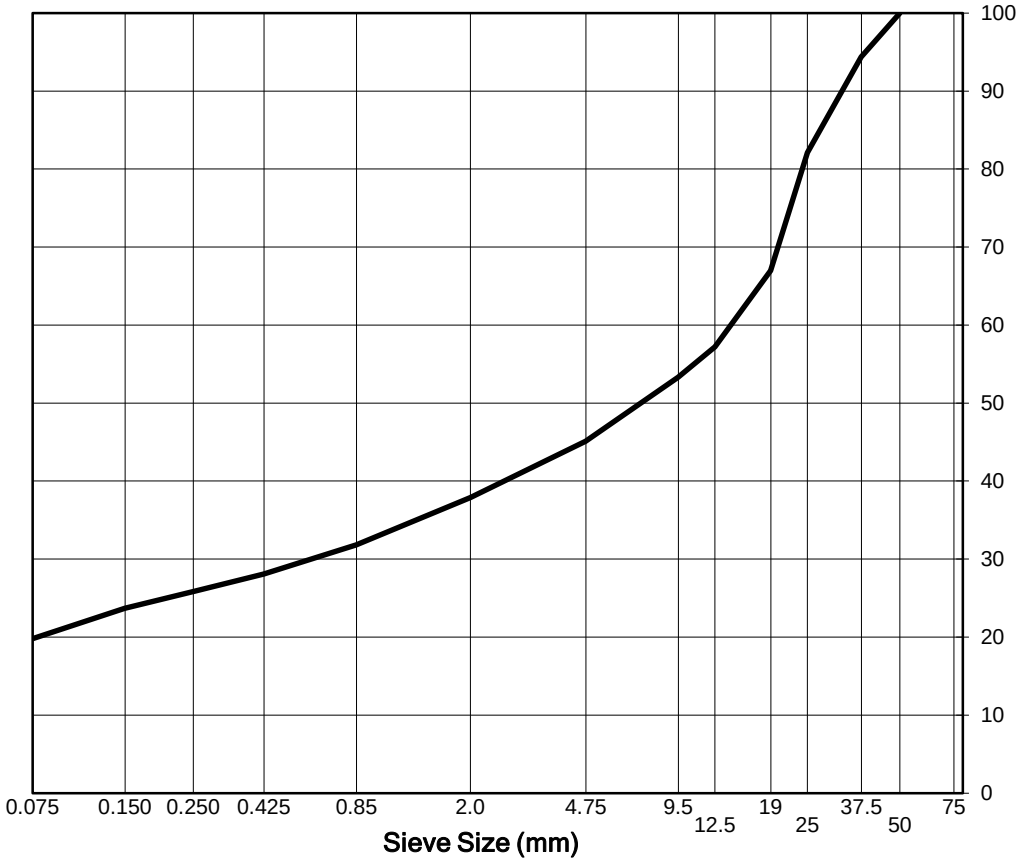
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-65-S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 25, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	LM
Attention:	Angie Arbaiza	Date Tested:	May 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	GRAVEL, sandy, some silt	Moisture Content (as received):	4.8%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	CP2 Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	3.5 to 4.0 m		
Specification:			

Sieve Size	Percent Passing
50	100
37.5	94
25	82
19	67
12.5	57
9.5	53
4.75	45
2.0	38
0.85	32
0.425	28
0.250	26
0.150	24
0.075	19.8



Remarks:

Reviewed By: _____ P.Eng.

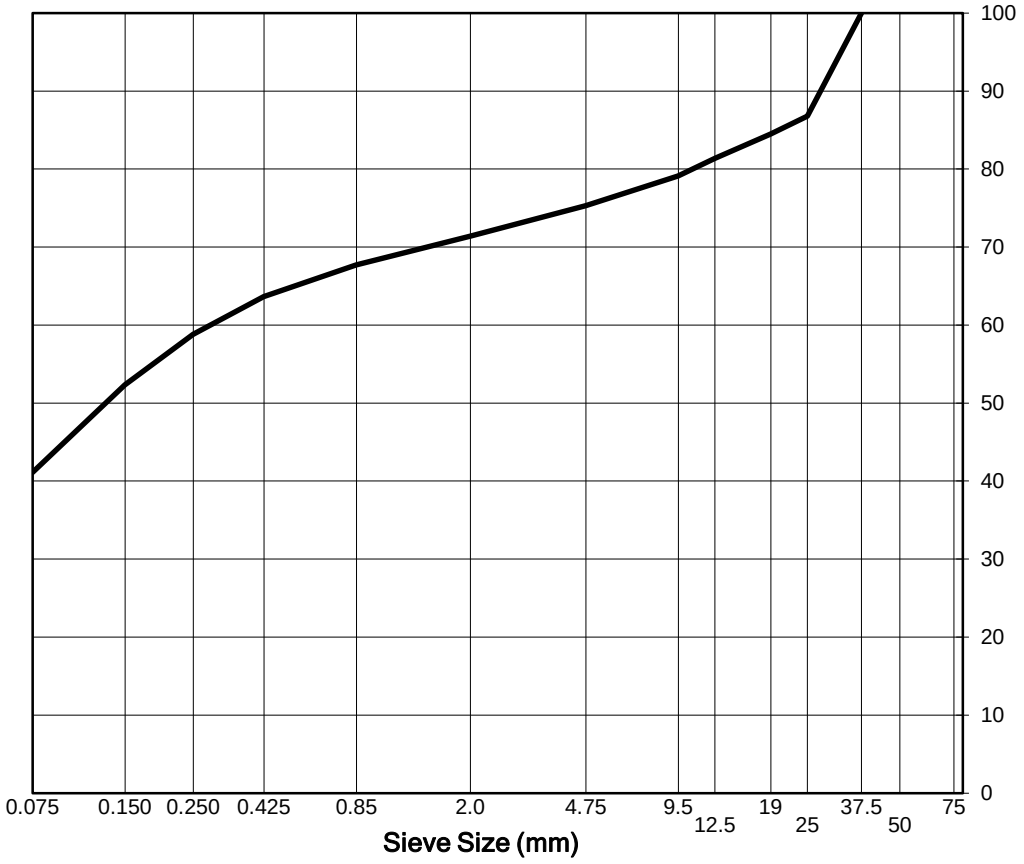
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-73-S1/S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 24, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	EP/LM
Attention:	Angie Arbaiza	Date Tested:	Jun 21, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by: JC	Office: Edmonton
Description:	SILT, sandy, gravelly	Moisture Content (as received):	2.1%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	D-B7 West	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	1.9 to 4.5 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	87
19	84
12.5	81
9.5	79
4.75	75
2.0	71
0.85	68
0.425	64
0.250	59
0.150	52
0.075	41.1



Remarks:

Reviewed By: _____ P.Eng.

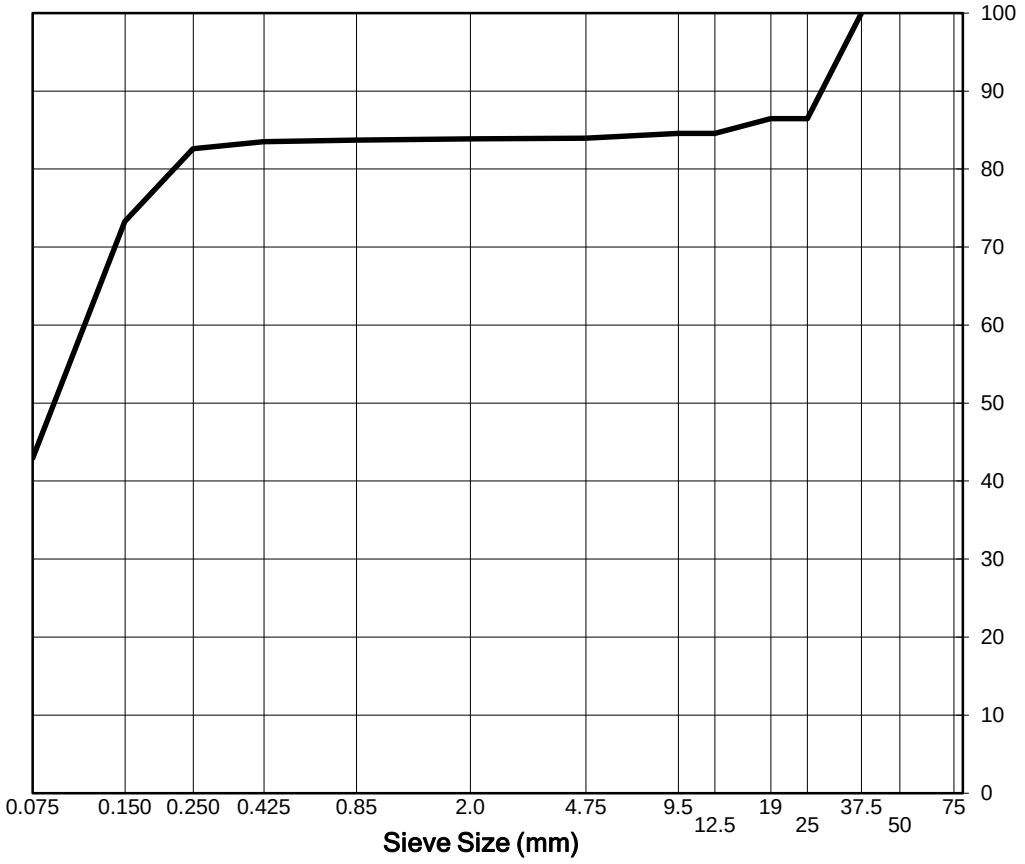
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-74-S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 25, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	LM
Attention:	Angie Arbaiza	Date Tested:	Jun 23, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	SILT and SAND, some gravel	Moisture Content (as received):	3.7%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	D-B7 North	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	3.0 to 3.5 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	86
19	86
12.5	85
9.5	85
4.75	84
2.0	84
0.85	84
0.425	83
0.250	83
0.150	73
0.075	43.0



Remarks:

Reviewed By: _____ P.Eng.

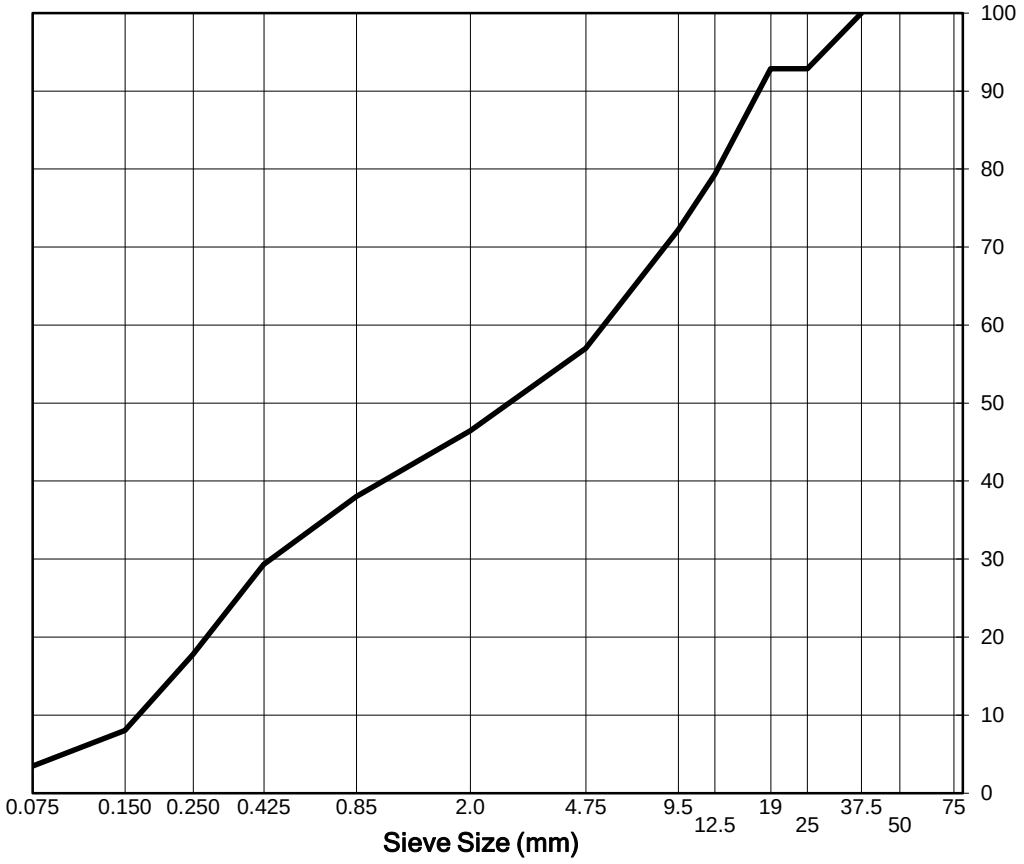
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-102-S1
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 23, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	EP
Attention:	Angie Arbaiza	Date Tested:	Jun 24, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	SAND and GRAVEL, trace silt	Moisture Content (as received):	1.8%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	B5 North Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	2.6 to 3.0 m		
Specification:			

Sieve Size	Percent Passing
37.5	100
25	93
19	93
12.5	79
9.5	72
4.75	57
2.0	46
0.85	38
0.425	29
0.250	18
0.150	8
0.075	3.5



Remarks:

Reviewed By: _____ P.Eng.

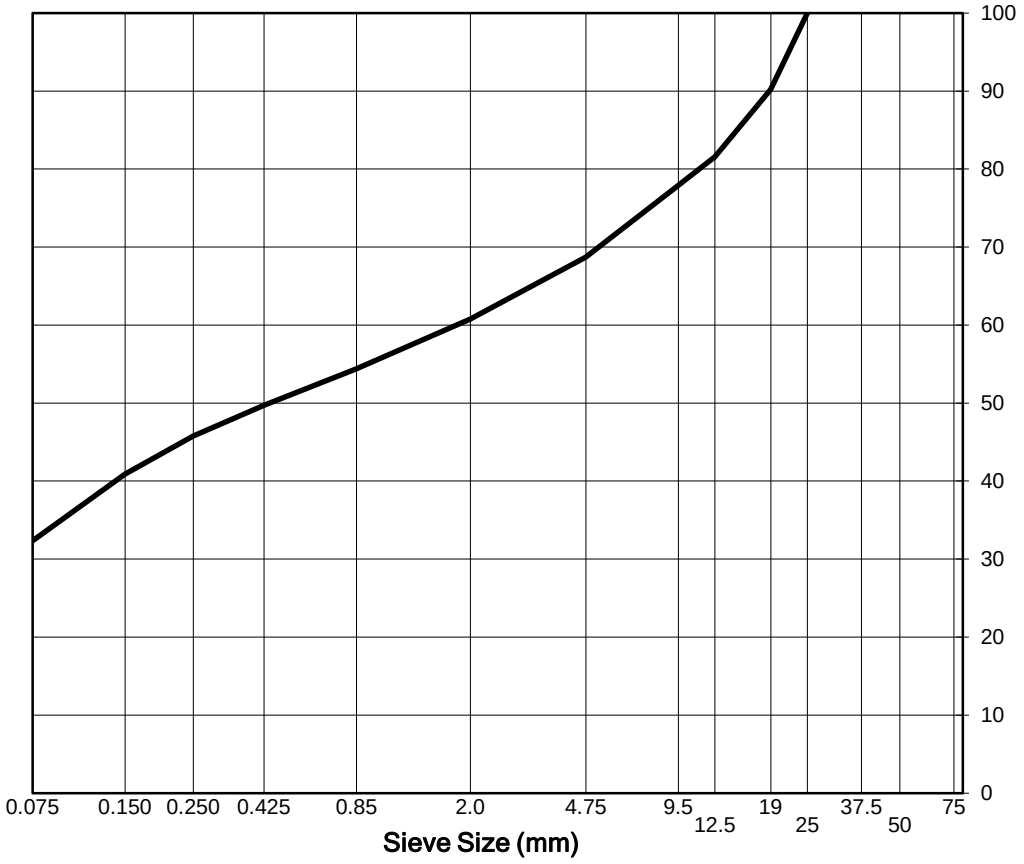
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.EARC03193-02	Sample No.:	GT21-102-S2
Project:	Spring 2021 Geotechnical Investigation	Date Sampled:	Apr 23, 2021
Client:	Agnico Eagle Mines Ltd.	Sampled by:	EP
Attention:	Angie Arbaiza	Date Tested:	Jun 18, 2021
Email:	angie.arbaiza@agnicoeagle.com	Tested by:	JC Office: Edmonton
Description:	SAND, silty, gravelly	Moisture Content (as received):	0.4%
		No. Crushed Faces:	Two (2) or Three (3)
Source:	B5 North Berm	By Particle Mass:	
Supplier:	Orbit Garant Drilling Inc.		
Sample Location:	2.6 to 3.0 m		
Specification:			

Sieve Size	Percent Passing
25	100
19	90
12.5	82
9.5	78
4.75	69
2.0	61
0.85	54
0.425	50
0.250	46
0.150	41
0.075	32.4



Remarks:

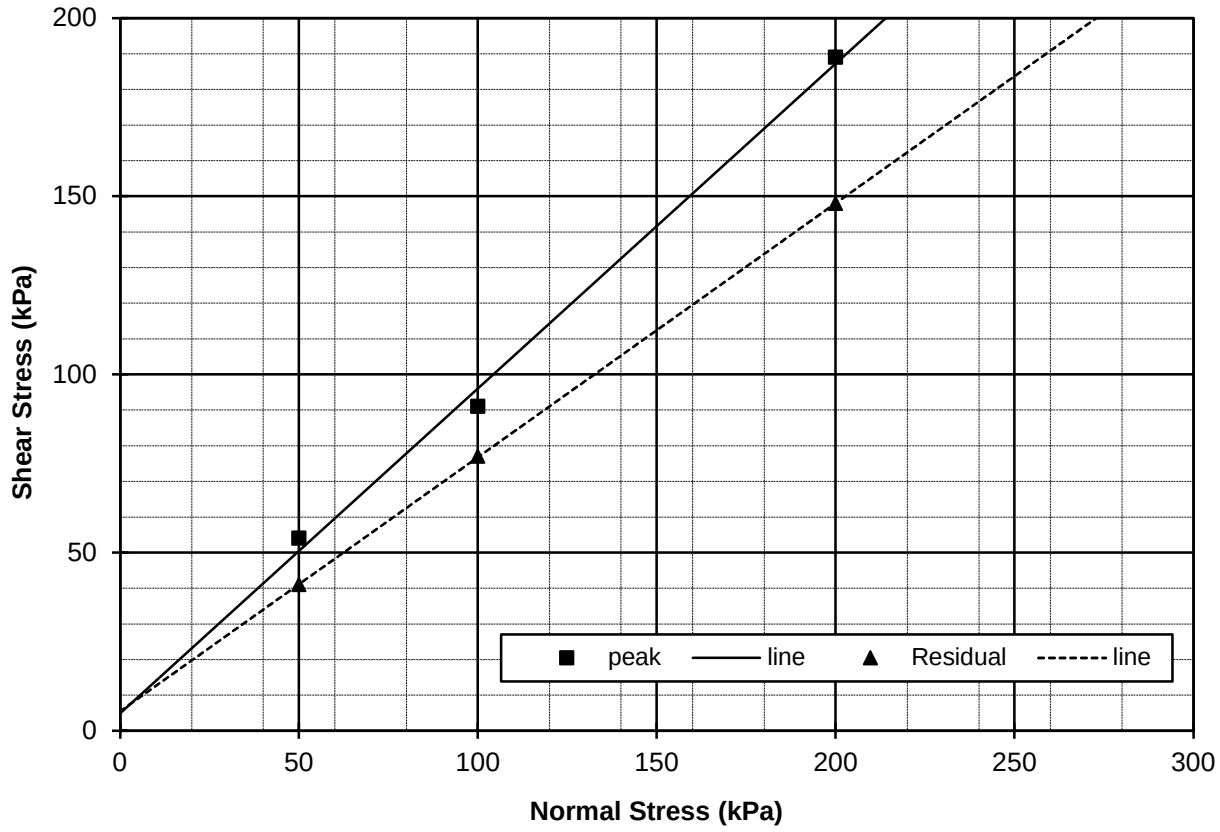
Reviewed By: IPR P.Eng.

TETRA TECH

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole:	GT21-61(36)-S1
Project No.:	ENG.EARC03193-02	Depth:	1.2 to 1.5 m
Client:	Agnico Eagle Mines Ltd.	Date:	Jun 2, 2021
Attention:	Angie Arbaiza	Tested By:	TD
Email:	angie.arbaiza@agnicoeagle.com	Office:	Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	**5**	**42.3**
Residual Strength:	**6**	**35.5**

Reviewed By: _____ P.Eng.

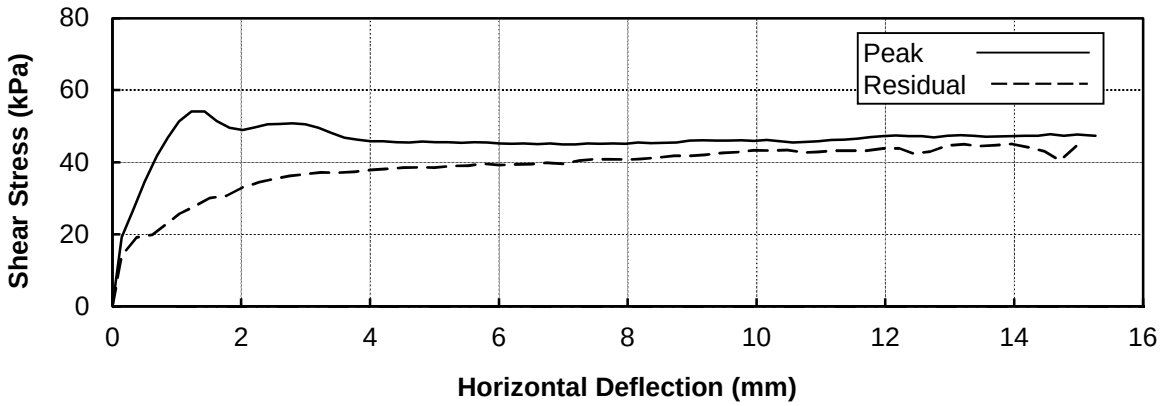
TETRA TECH

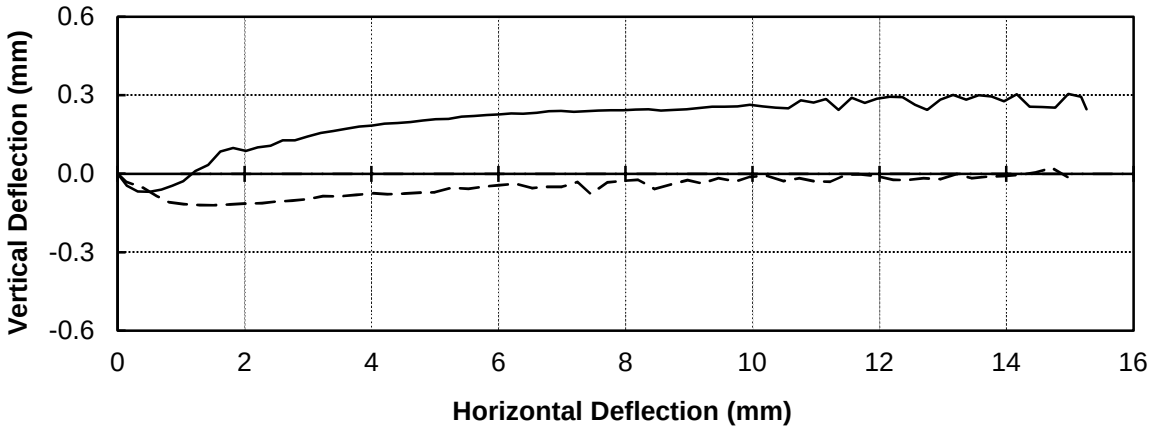
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-61(36)-S1
Project No.:	ENG.EARC03193-02	Depth:	1.2 to 1.5 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-1
Date Tested:	Jun 2, 2021	Machine:	3
Description:	SAND and SILT, some gravel	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	50	Moisture Content (%)	11.5	14.9
Peak Stress (kPa) =	54	Wet Density (Mg/m^3)	2.229	2.154
Residual Stress (kPa) =	41	Dry Density (Mg/m^3)	1.999	1.875





Remarks:

Reviewed By: IDR P.Eng.

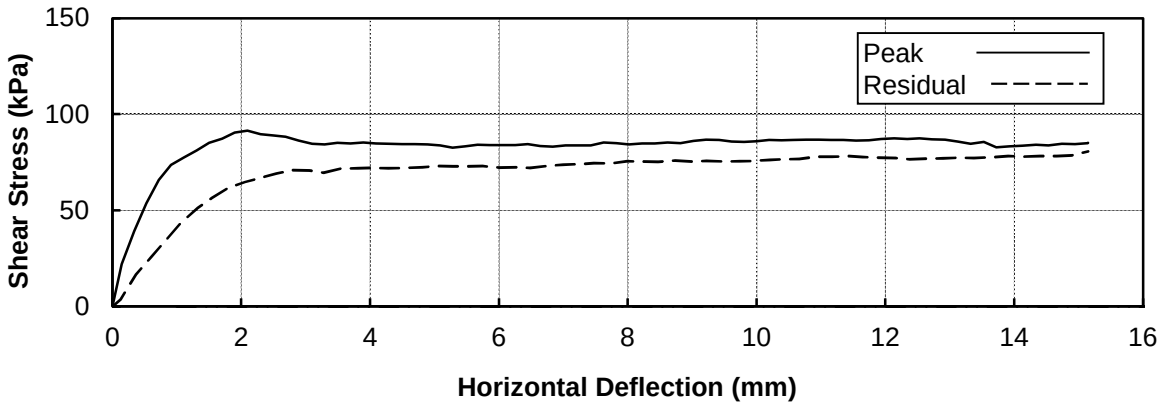
TETRA TECH

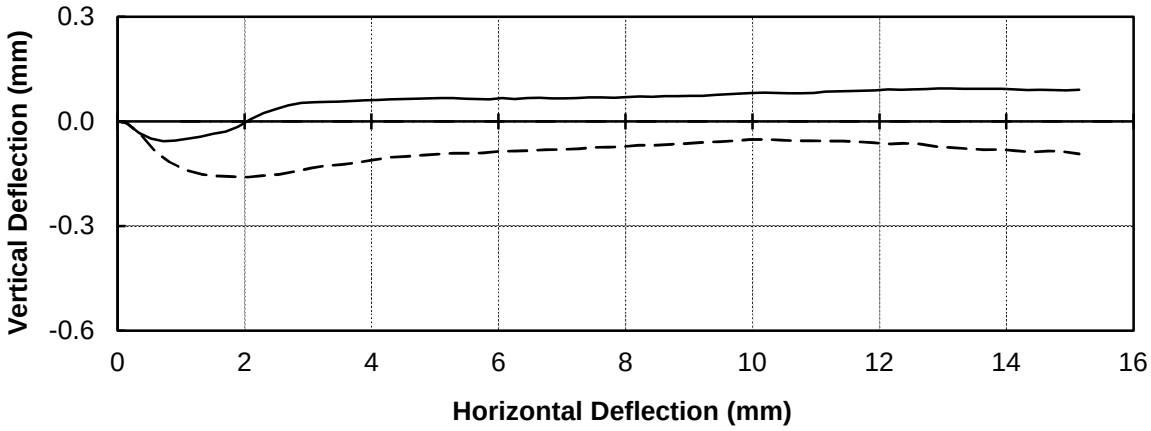
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-61(36)-S1
Project No.:	ENG.EARC03193-02	Depth:	1.2 to 1.5 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-2
Date Tested:	Jun 2, 2021	Machine:	2
Description:	SAND and SILT, some gravel	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	100	Moisture Content (%)	11.8	14.9
Peak Stress (kPa) =	91	Wet Density (Mg/m^3)	2.229	2.192
Residual Stress (kPa) =	77	Dry Density (Mg/m^3)	1.994	1.908





Remarks:

Reviewed By: _____ P.Eng.

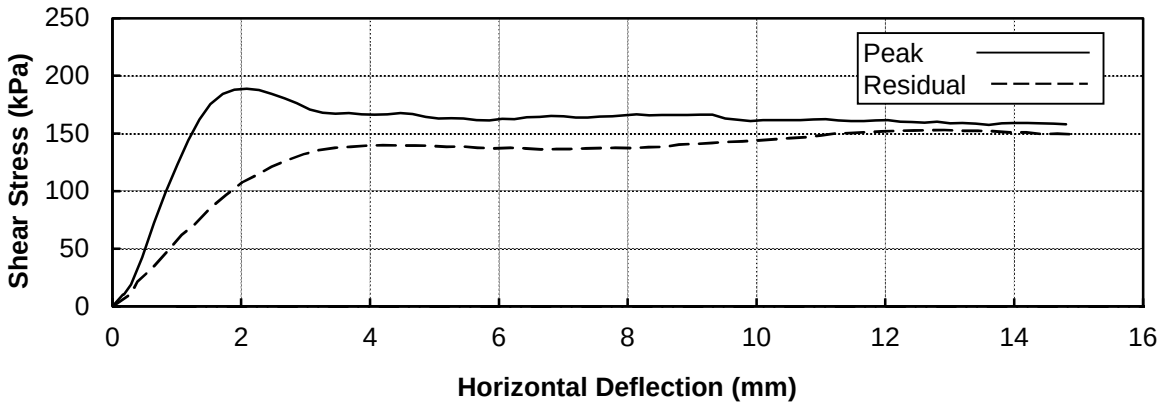
TETRA TECH

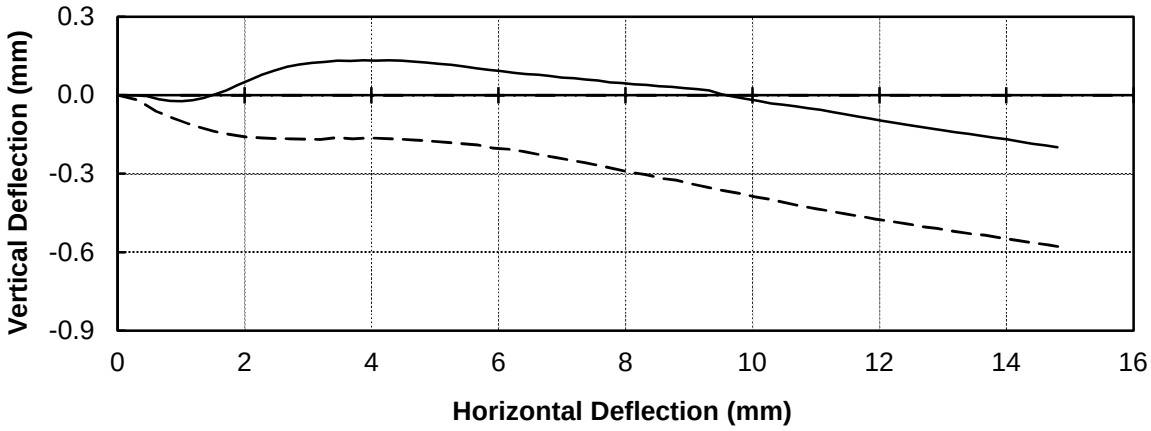
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-61(36)-S1
Project No.:	ENG.EARC03193-02	Depth:	1.2 to 1.5 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-3
Date Tested:	Jun 2, 2021	Machine:	1
Description:	SAND and SILT, some gravel	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	200	Moisture Content (%)	11.1	14.4
Peak Stress (kPa) =	189	Wet Density (Mg/m^3)	2.229	2.138
Residual Stress (kPa) =	148	Dry Density (Mg/m^3)	2.007	1.870





Remarks:

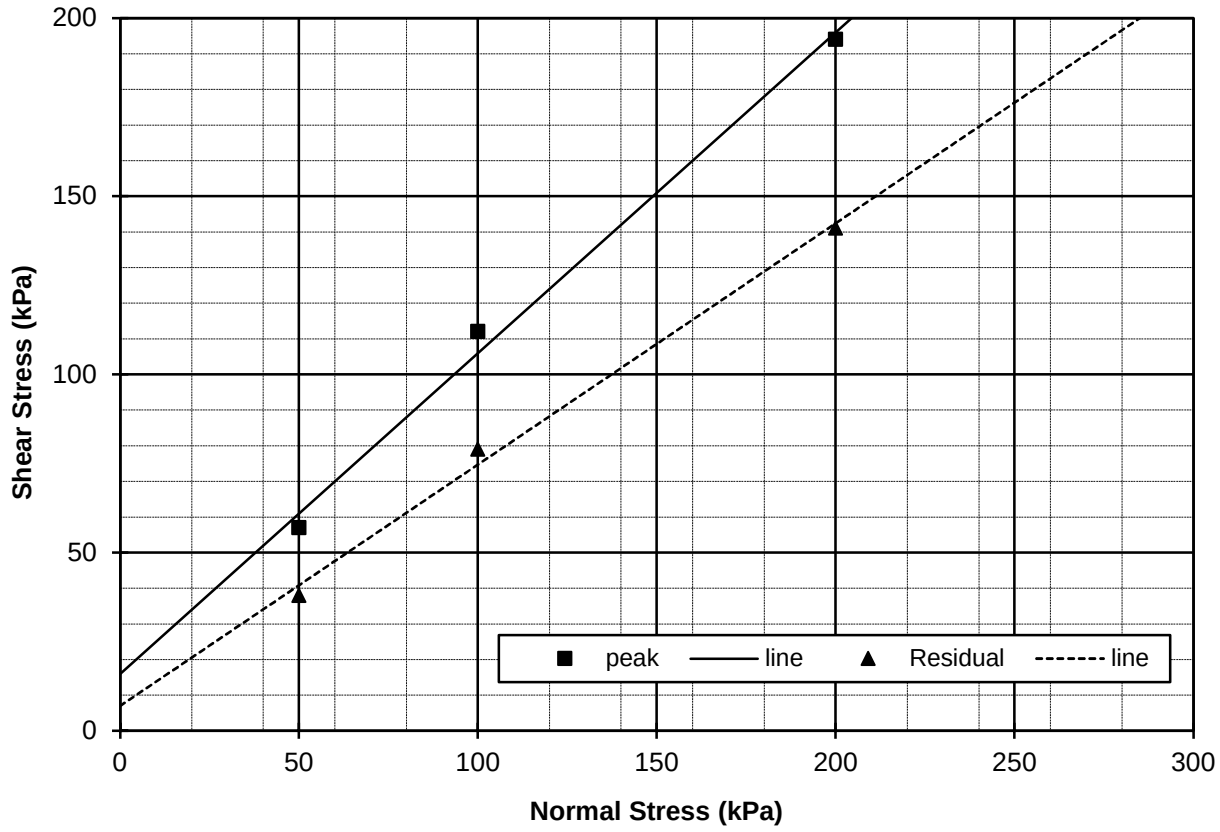
Reviewed By: _____ P.Eng.

TETRA TECH

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project:	Spring 2021 Geotechnical investigation	Test Hole:	GT21-61(36)-S3
Project No.:	ENG.EARC03193-02	Depth:	3.6 to 4.0 m
Client:	Agnico Eagle Mines Ltd.	Date:	Jun 9, 2021
Attention:	Angie Arbaiza	Tested By:	TD
Email:	Agnico Eagle Mines Ltd.	Office:	Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	**16**	**42.0**
Residual Strength:	**7**	**34.1**

Reviewed By: IDR P.Eng.

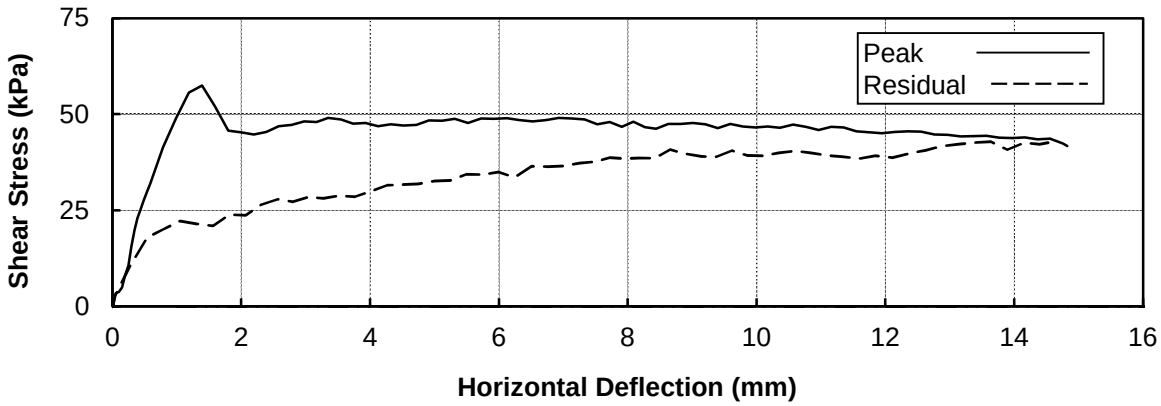
TETRA TECH

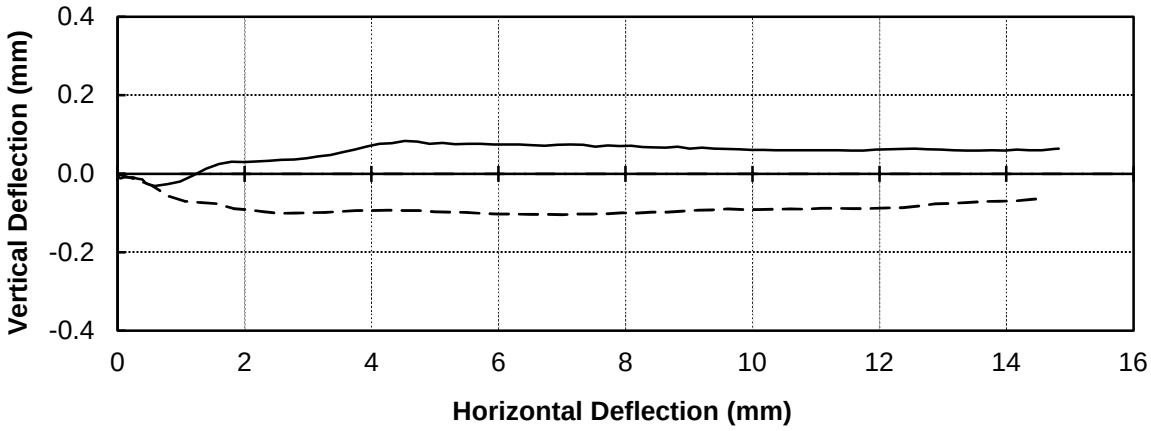
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-61(36)-S3
Project No.:	ENG.EARC03193-02	Depth:	3.6 to 4.0 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-4
Date Tested:	Jun 9, 2021	Machine:	3
Description:	GRAVEL, sandy, some silt	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	50	Moisture Content (%)	7.5	10.3
Peak Stress (kPa) =	57	Wet Density (Mg/m^3)	2.319	2.310
Residual Stress (kPa) =	38	Dry Density (Mg/m^3)	2.158	2.094





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: IDR P.Eng.

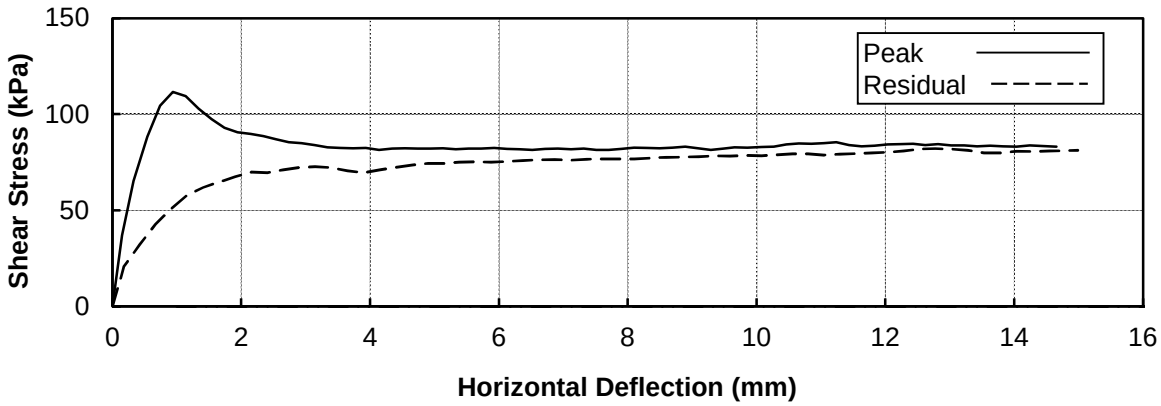
TETRA TECH

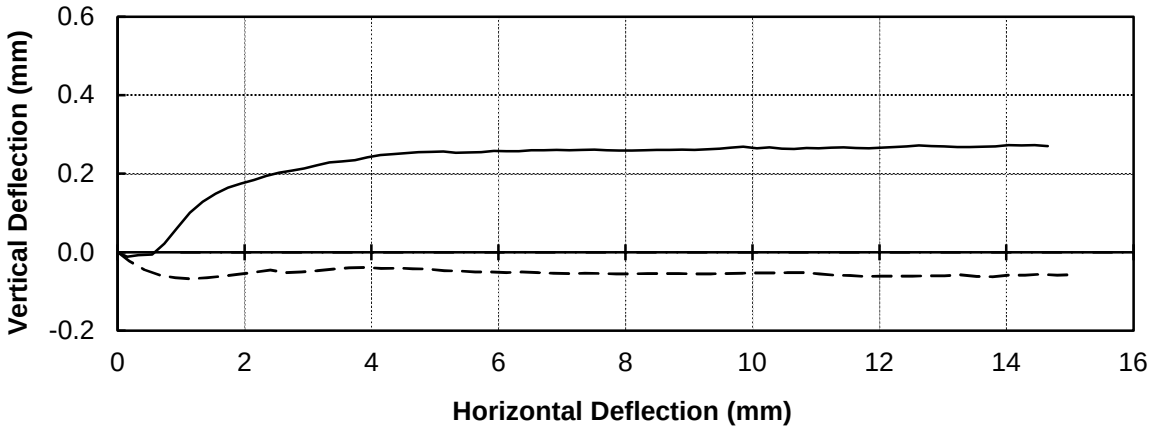
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-61(36)-S3
Project No.:	ENG.EARC03193-02	Depth:	3.6 to 4.0 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-5
Date Tested:	Jun 9, 2021	Machine:	2
Description:	GRAVEL, sandy, some silt	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	100	Moisture Content (%)	7.7	10.2
Peak Stress (kPa) =	112	Wet Density (Mg/m^3)	2.320	2.311
Residual Stress (kPa) =	79	Dry Density (Mg/m^3)	2.154	2.097





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: IDR P.Eng.

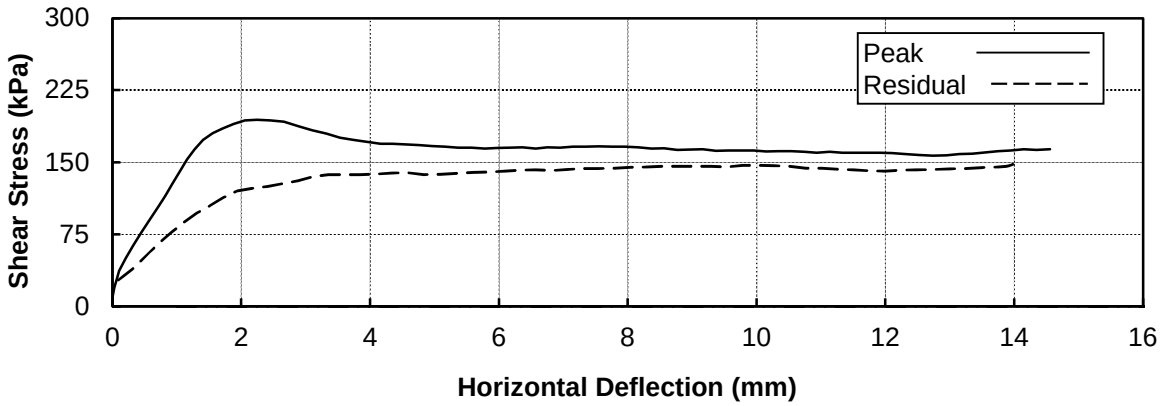
TETRA TECH

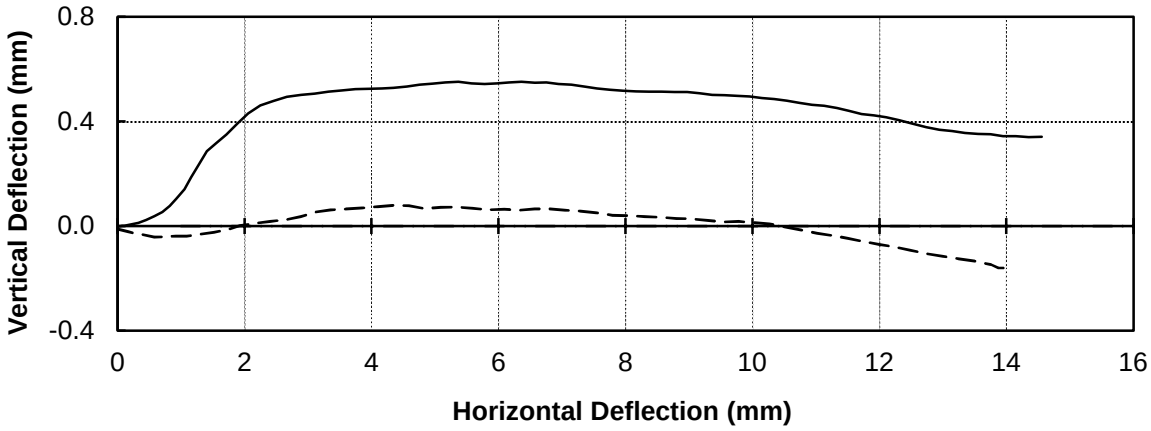
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-61(36)-S3
Project No.:	ENG.EARC03193-02	Depth:	3.6 to 4.0 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-6
Date Tested:	Jun 9, 2021	Machine:	1
Description:	GRAVEL, sandy, some silt	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	200	Moisture Content (%)	7.5	10.7
Peak Stress (kPa) =	194	Wet Density (Mg/m^3)	2.331	2.277
Residual Stress (kPa) =	141	Dry Density (Mg/m^3)	2.168	2.056





Remarks: Particle sizes greater than 5.0 mm removed from sample.

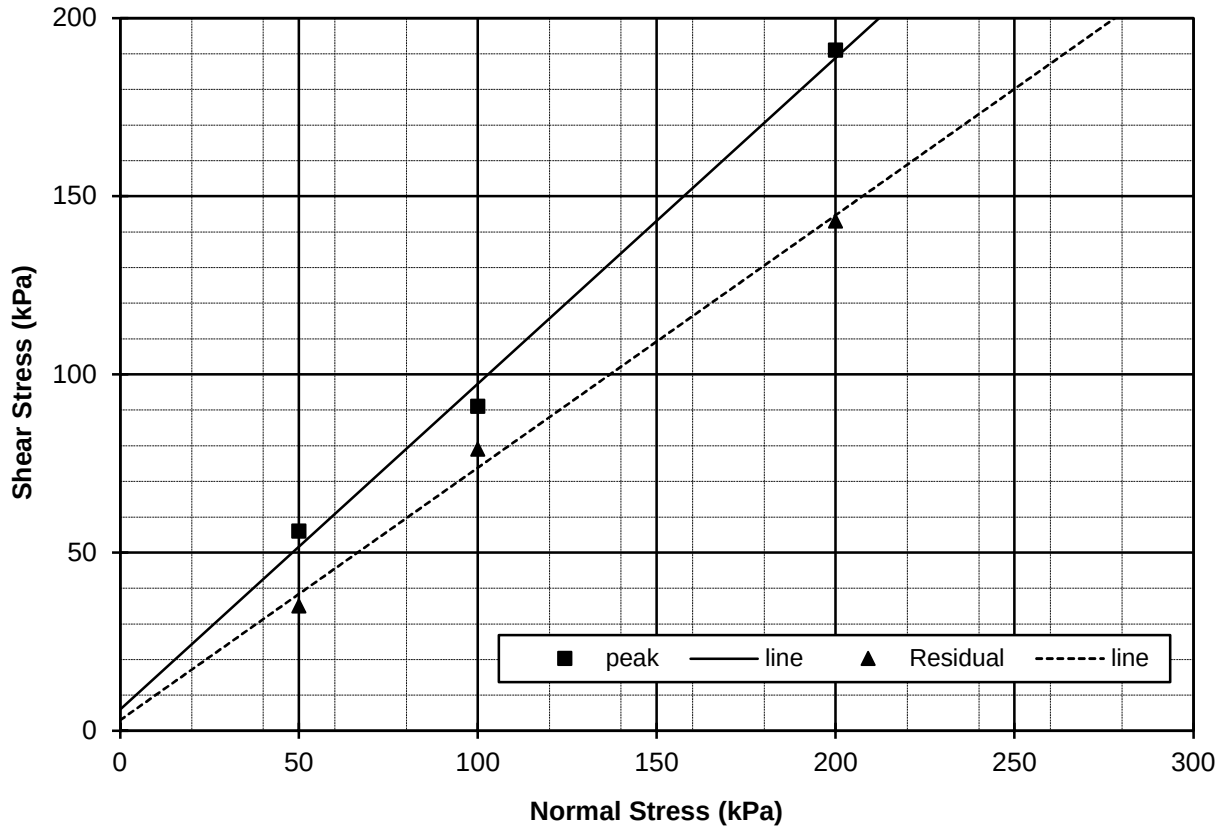
Reviewed By: _____ P.Eng.

TETRA TECH

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project:	Spring 2021 Geotechnical investigation	Test Hole:	GT21-63-S2
Project No.:	ENG.EARC03193-02	Depth:	1.2 to 2.3 m
Client:	Agnico Eagle Mines Ltd.	Date:	June 2, 2021
Attention:	Angie Arbaiza	Tested By:	TD
Email:	angie.arbaiza@agnicoeagle.com	Office:	Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	**6**	**42.4**
Residual Strength:	**3**	**35.3**

Reviewed By: _____ P.Eng.

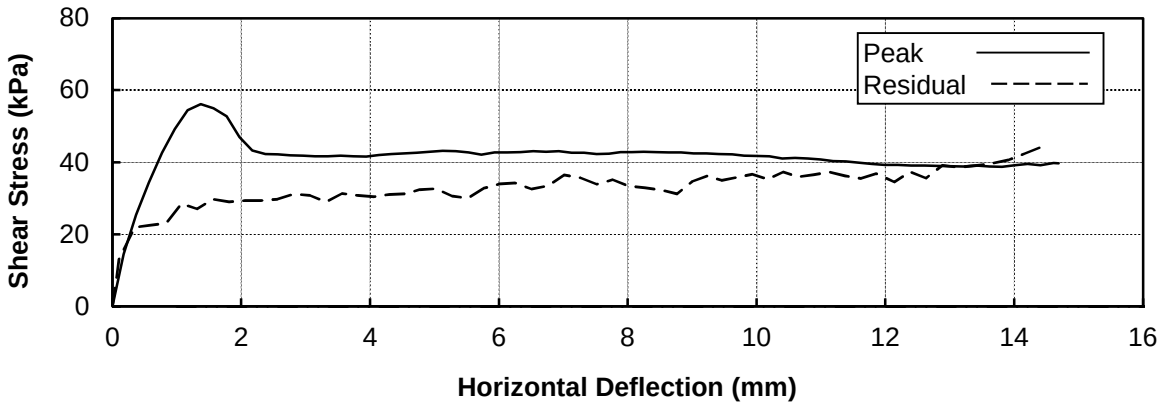
TETRA TECH

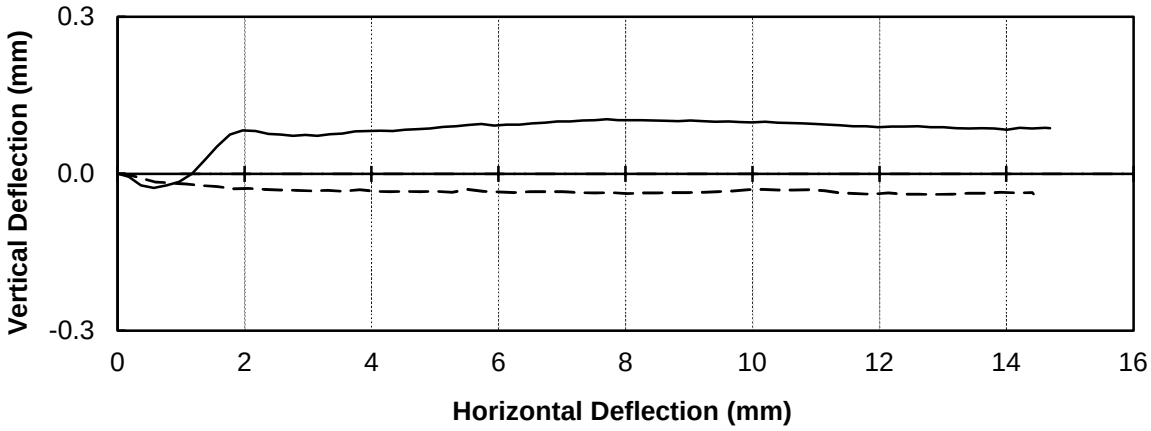
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-63-S2
Project No.:	ENG.EARC03193-02	Depth:	1.2 to 2.3 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-7
Date Tested:	Jun 7, 2021	Machine:	3
Description:	GRAVEL, sandy, silty	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	50	Moisture Content (%)	8.8	11.2
Peak Stress (kPa) =	56	Wet Density (Mg/m^3)	2.309	2.304
Residual Stress (kPa) =	35	Dry Density (Mg/m^3)	2.122	2.073





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: _____ P.Eng.

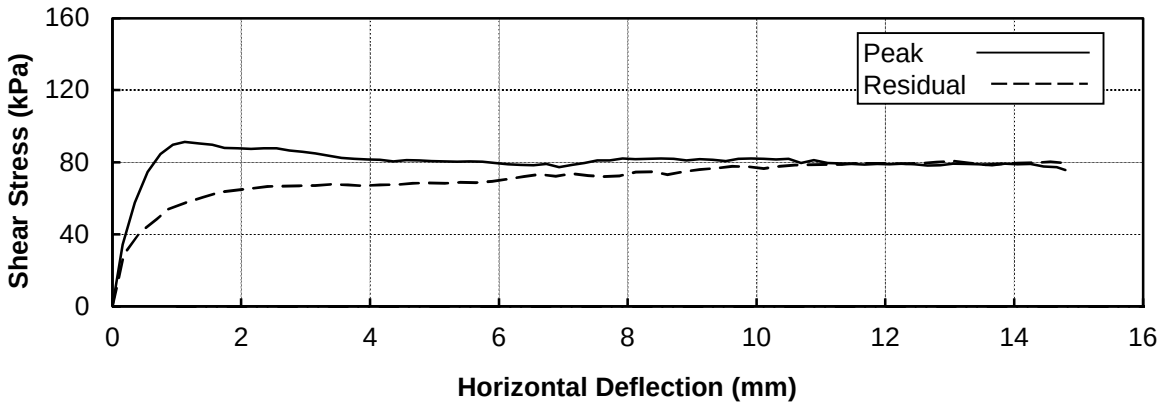
TETRA TECH

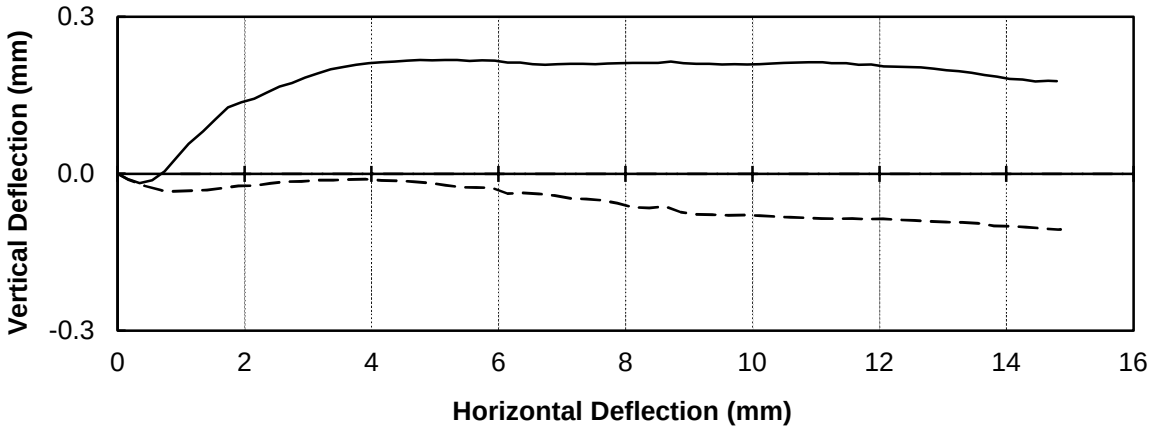
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-63-S2
Project No.:	ENG.EARC03193-02	Depth:	1.2 to 2.3 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-8
Date Tested:	Jun 7, 2021	Machine:	3
Description:	GRAVEL, sandy, silty	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	100	Moisture Content (%)	7.5	9.6
Peak Stress (kPa) =	91	Wet Density (Mg/m^3)	2.309	2.300
Residual Stress (kPa) =	79	Dry Density (Mg/m^3)	2.148	2.100





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: _____ P.Eng.

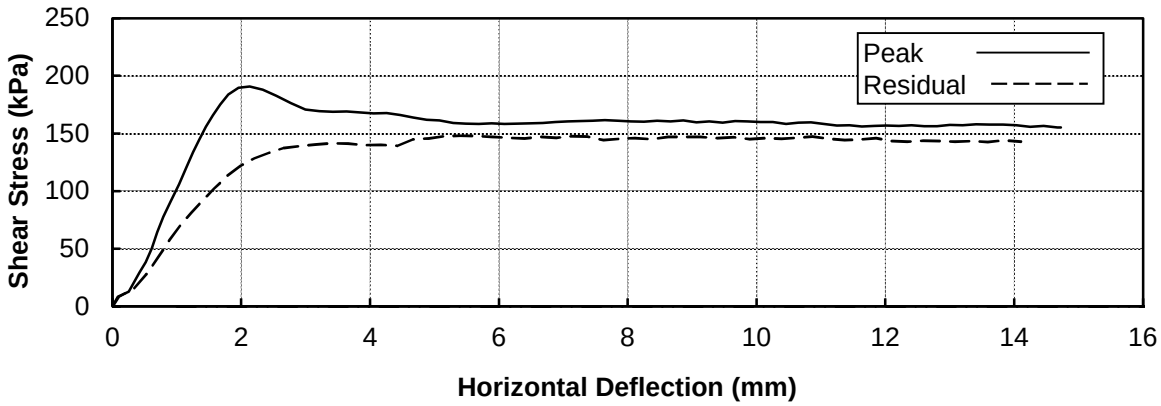
TETRA TECH

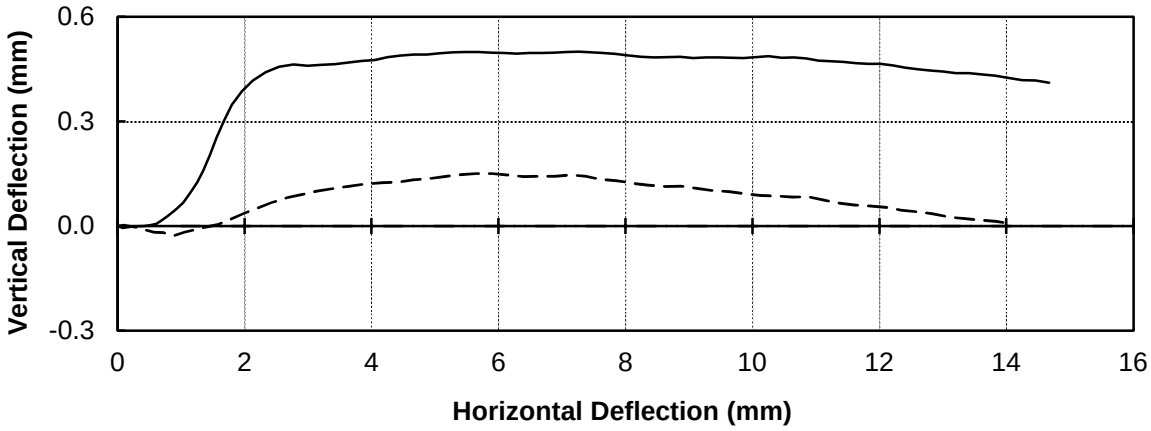
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-63-S2
Project No.:	ENG.EARC03193-02	Depth:	1.2 to 2.3 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-9
Date Tested:	Jun 7, 2021	Machine:	1
Description:	GRAVEL, sandy, silty	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	200	Moisture Content (%)	8.6	11.0
Peak Stress (kPa) =	191	Wet Density (Mg/m^3)	2.309	2.292
Residual Stress (kPa) =	143	Dry Density (Mg/m^3)	2.127	2.065





Remarks: Particle sizes greater than 5.0 mm removed from sample.

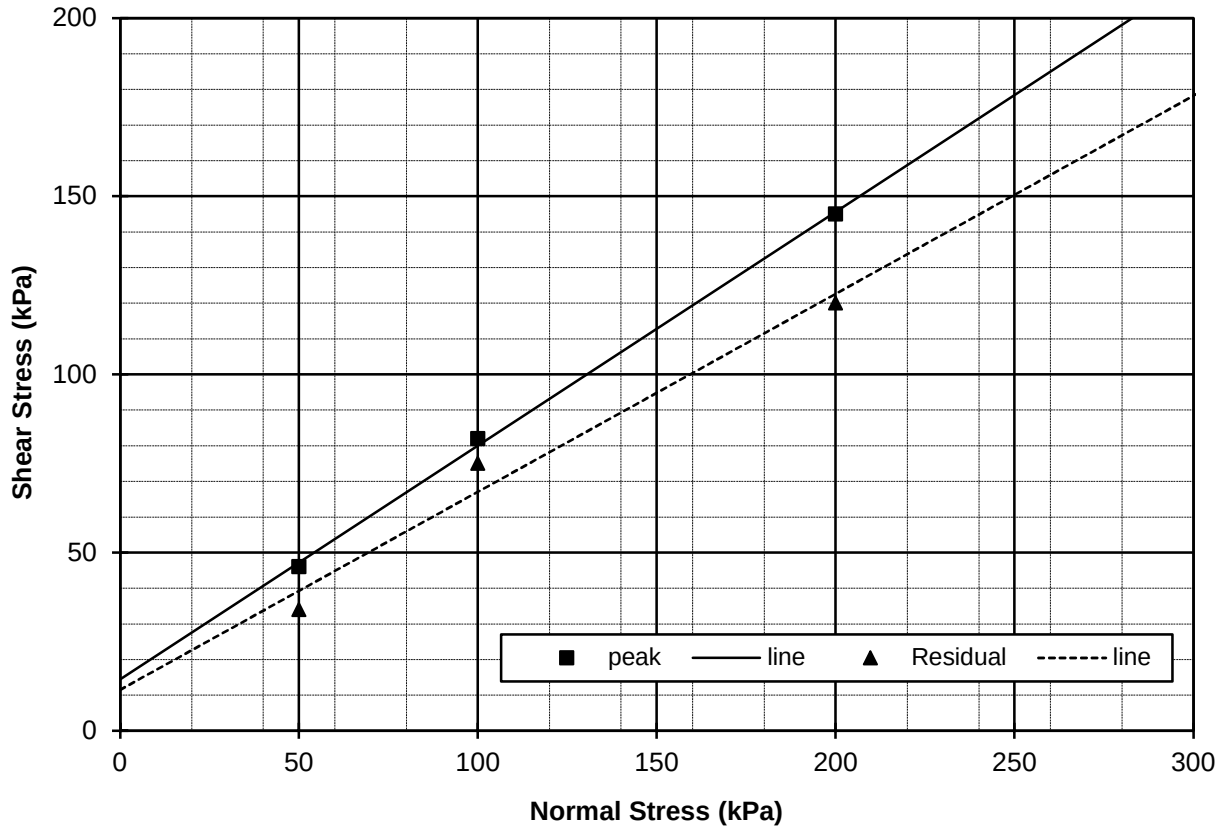
Reviewed By: _____ P.Eng.

TETRA TECH

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project:	Spring 2021 Geotechnical investigation	Test Hole:	GT21-66-S1
Project No.:	ENG.EARC03193-02	Depth:	0.2 to 0.9 m
Client:	Agnico Eagle Mines Ltd.	Date:	Jun 14, 2021
Attention:	Angie Arbaiza	Tested By:	TD
Email:	angie.arbaiza@agnicoeagle.com	Office:	Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	**15**	**33.3**
Residual Strength:	**12**	**29.1**

Reviewed By: JDR P.Eng.

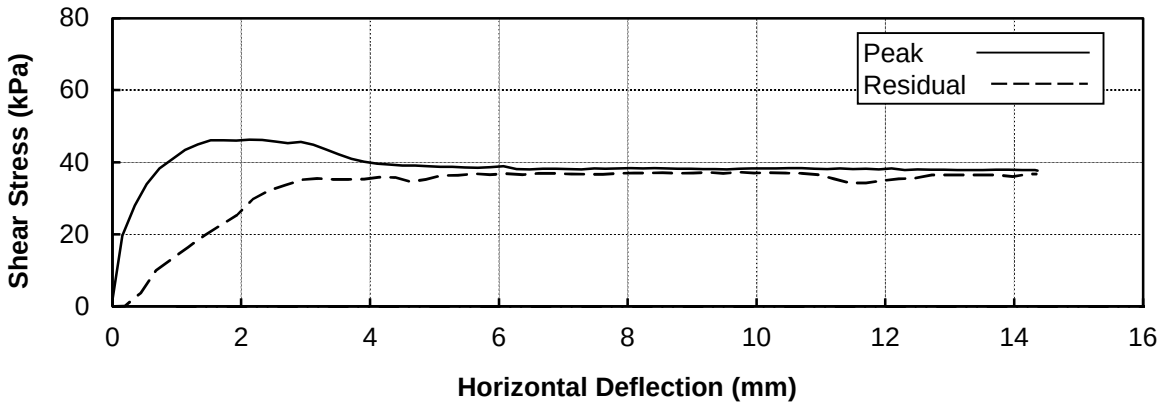
TETRA TECH

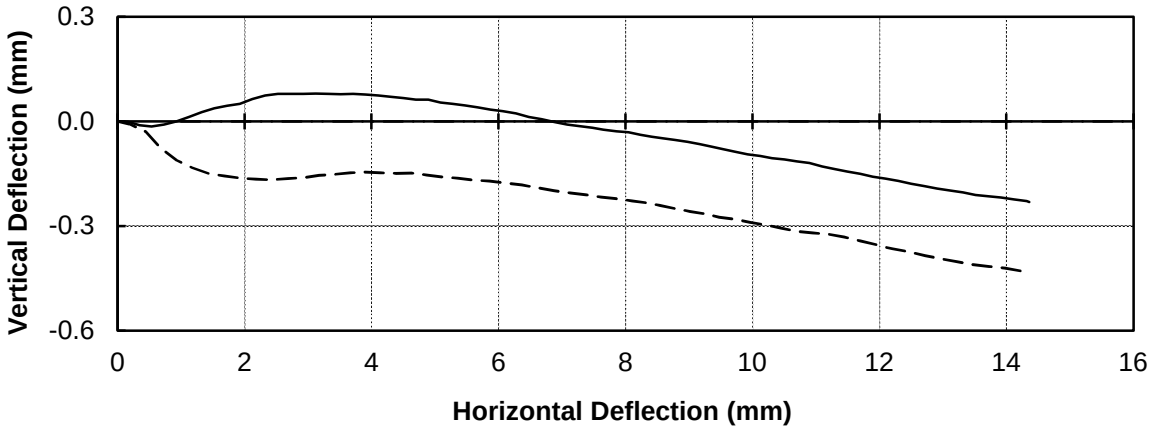
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-66-S1
Project No.:	ENG.EARC03193-02	Depth:	0.2 to 0.9 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-10
Date Tested:	Jun 14, 2021	Machine:	3
Description:	SAND and SILT, some gravel	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	50	Moisture Content (%)	11.5	16.3
Peak Stress (kPa) =	46	Wet Density (Mg/m^3)	1.979	2.004
Residual Stress (kPa) =	34	Dry Density (Mg/m^3)	1.774	1.723





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: _____ P.Eng.

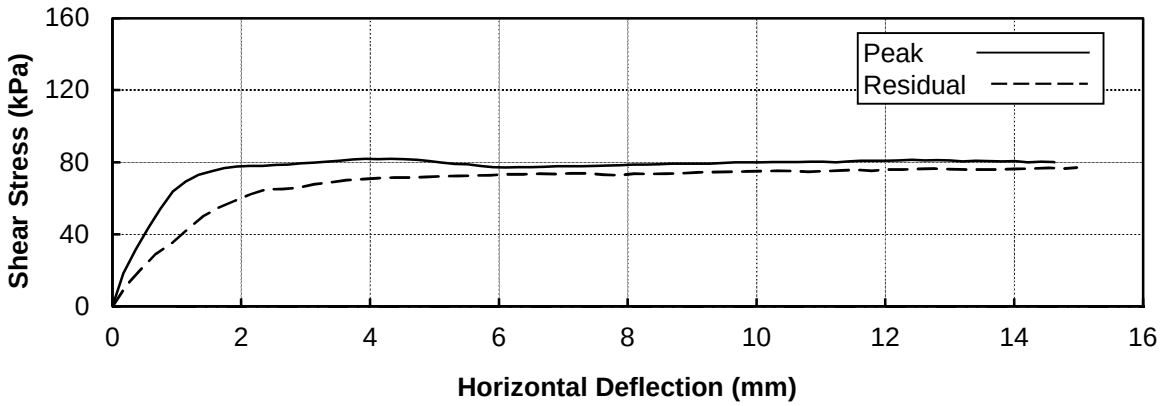
TETRA TECH

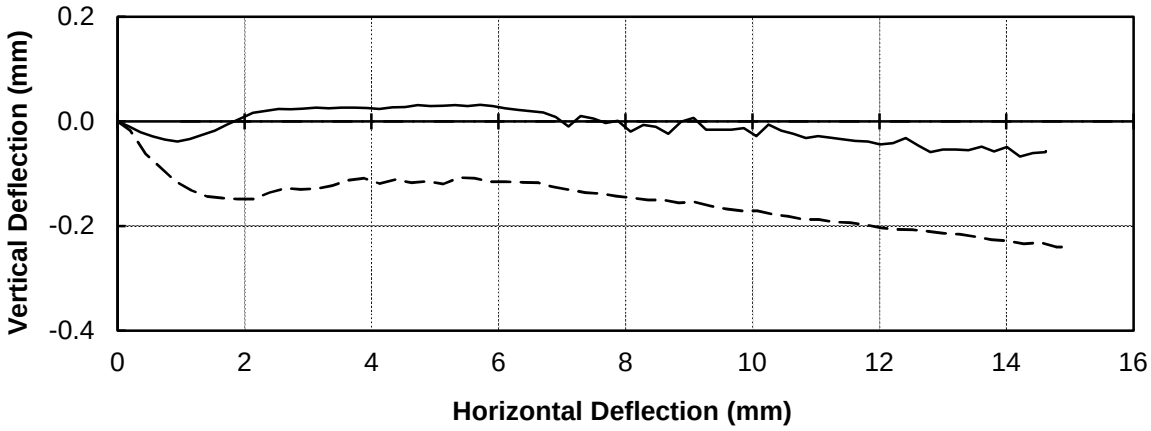
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-66-S1
Project No.:	ENG.EARC03193-02	Depth:	0.2 to 0.9 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-11
Date Tested:	Jun 14, 2021	Machine:	2
Description:	SAND and SILT, some gravel	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	100	Moisture Content (%)	11.6	16.5
Peak Stress (kPa) =	82	Wet Density (Mg/m^3)	1.979	1.998
Residual Stress (kPa) =	75	Dry Density (Mg/m^3)	1.773	1.716





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: _____ P.Eng.

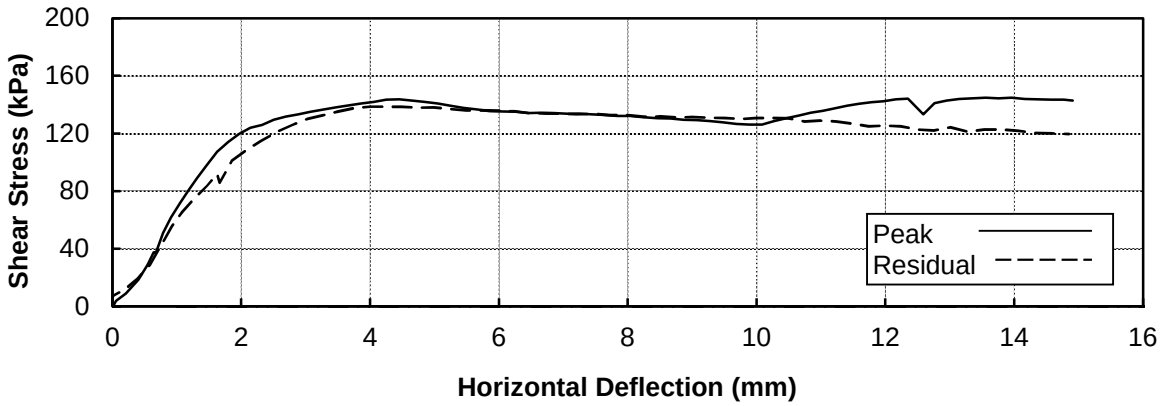
TETRA TECH

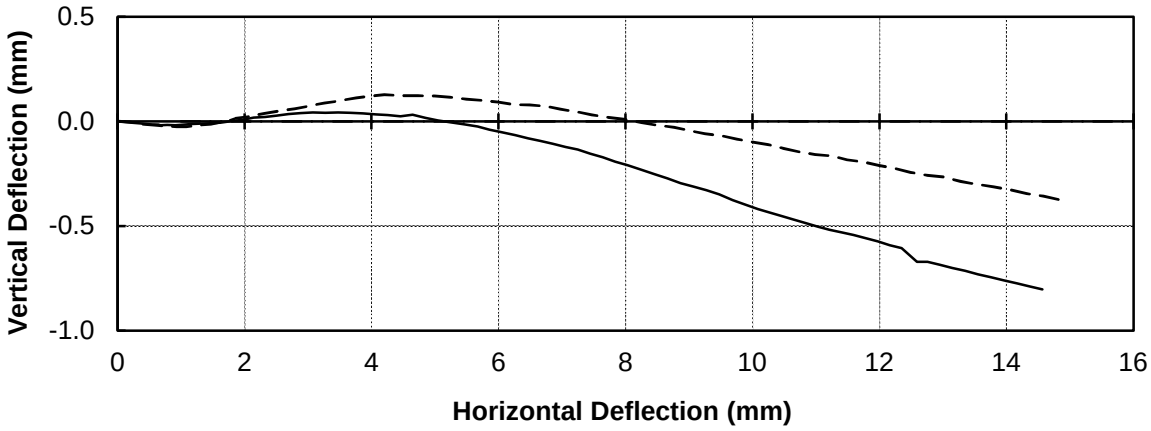
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-66-S1
Project No.:	ENG.EARC03193-02	Depth:	0.2 to 0.9 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-12
Date Tested:	Jun 14, 2021	Machine:	1
Description:	SAND and SILT, some gravel	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	200	Moisture Content (%)	11.5	16.9
Peak Stress (kPa) =	145	Wet Density (Mg/m^3)	1.979	1.836
Residual Stress (kPa) =	120	Dry Density (Mg/m^3)	1.775	1.570





Remarks: Particle sizes greater than 5.0 mm removed from sample.

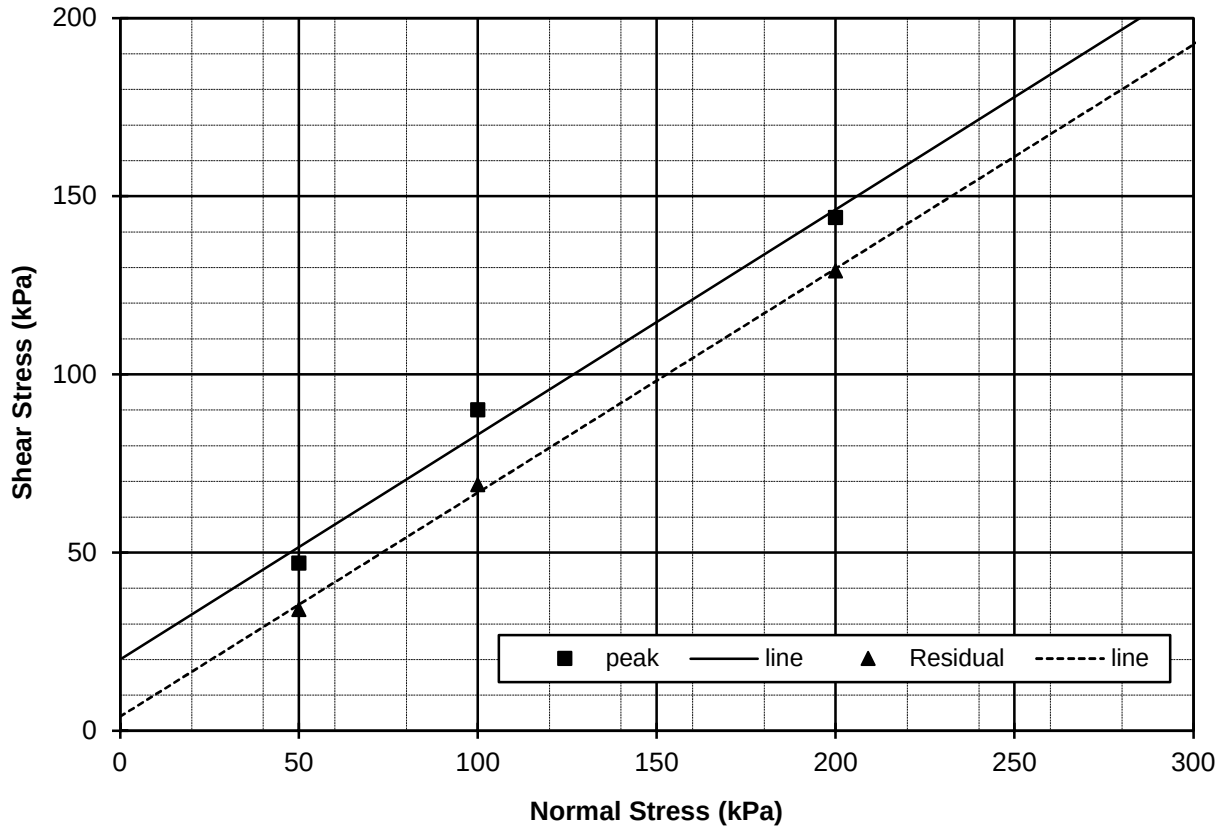
Reviewed By: _____ P.Eng.

TETRA TECH

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project:	Spring 2021 Geotechnical investigation	Test Hole:	GT21-74-S2
Project No.:	ENG.EARC03193-02	Depth:	3.0 to 3.5 m
Client:	Agnico Eagle Mines Ltd.	Date:	Jun 16, 2021
Attention:	Angie Arbaiza	Tested By:	TD
Email:	angie.arbaiza@agnicoeagle.com	Office:	Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	**20**	**32.3**
Residual Strength:	**4**	**32.2**

Reviewed By: IDR P.Eng.

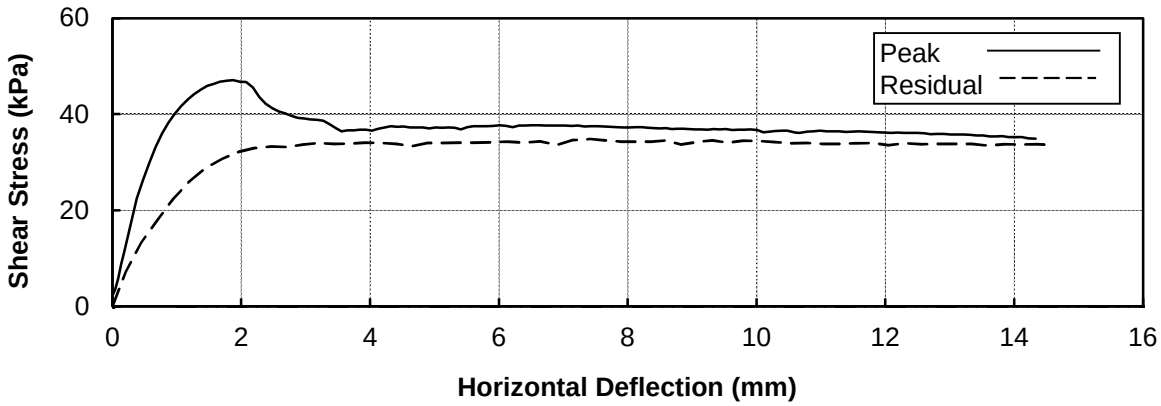
TETRA TECH

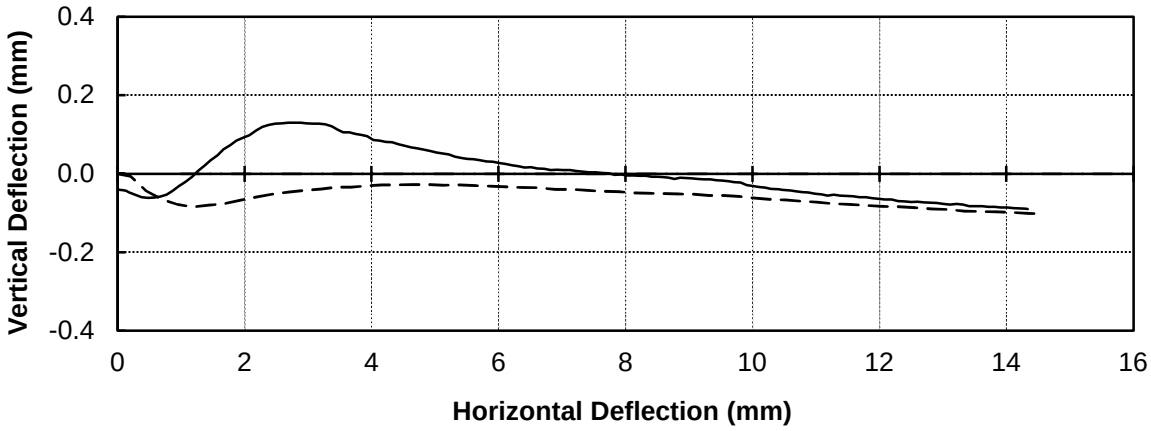
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-74-S2
Project No.:	ENG.EARC03193-02	Depth:	3.0 to 3.5 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-13
Date Tested:	Jun 16, 2021	Machine:	3
Description:	SILT and SAND, some gravel	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	50	Moisture Content (%)	12.0	18.4
Peak Stress (kPa) =	47	Wet Density (Mg/m^3)	1.925	1.958
Residual Stress (kPa) =	34	Dry Density (Mg/m^3)	1.719	1.653





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: _____ P.Eng.

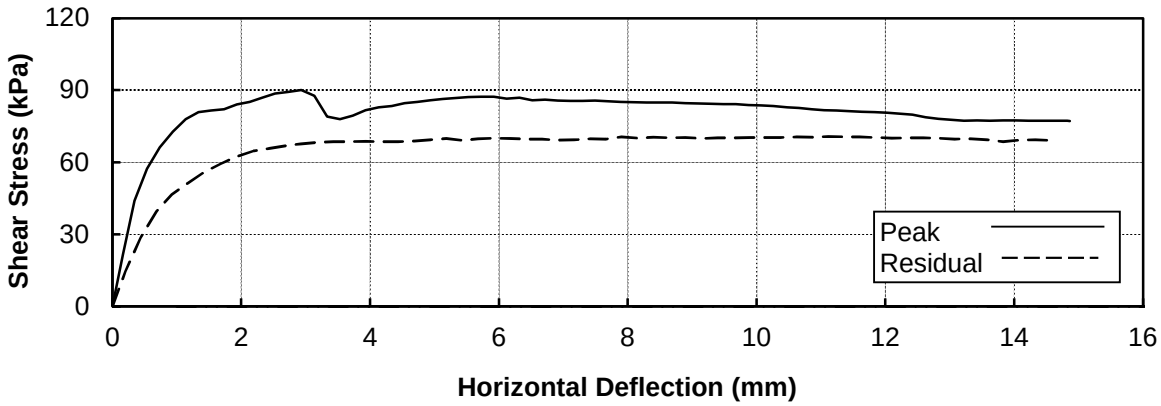
TETRA TECH

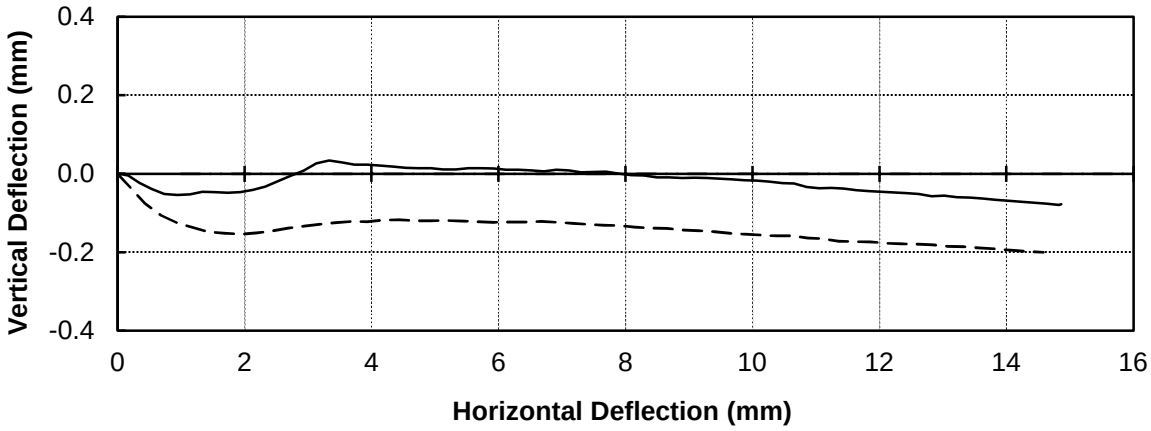
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-74-S2
Project No.:	ENG.EARC03193-02	Depth:	3.0 to 3.5 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-14
Date Tested:	Jun 16, 2021	Machine:	2
Description:	SILT and SAND, some gravel	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	100	Moisture Content (%)	12.1	18.4
Peak Stress (kPa) =	90	Wet Density (Mg/m^3)	1.925	1.974
Residual Stress (kPa) =	69	Dry Density (Mg/m^3)	1.718	1.668





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: _____ P.Eng.

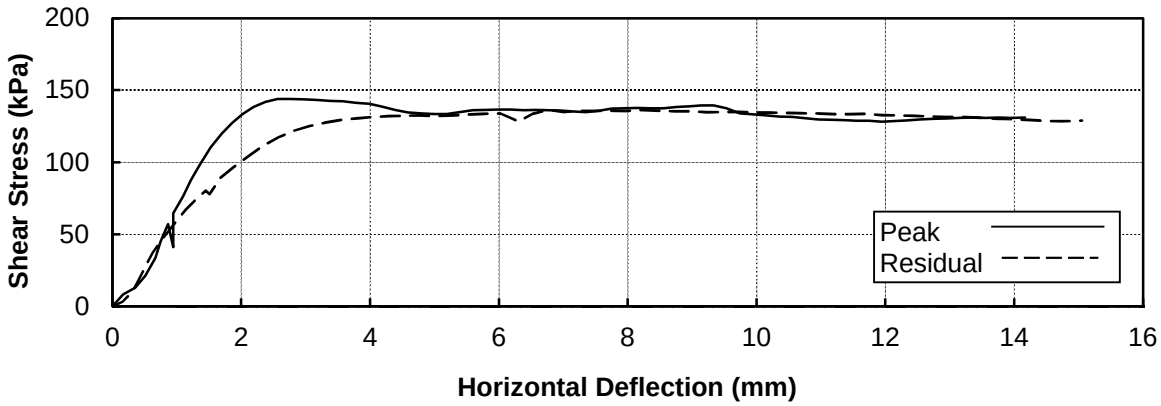
TETRA TECH

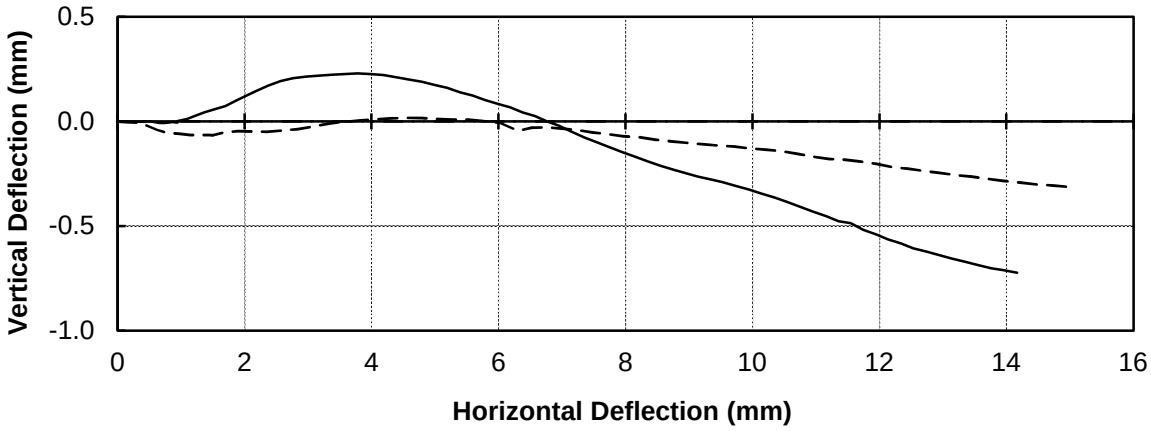
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-74-S2
Project No.:	ENG.EARC03193-02	Depth:	3.0 to 3.5 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-15
Date Tested:	Jun 16, 2021	Machine:	1
Description:	SILT and SAND, some gravel	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	200	Moisture Content (%)	12.2	19.2
Peak Stress (kPa) =	144	Wet Density (Mg/m^3)	1.925	1.602
Residual Stress (kPa) =	129	Dry Density (Mg/m^3)	1.716	1.343





Remarks: Particle sizes greater than 5.0 mm removed from sample.

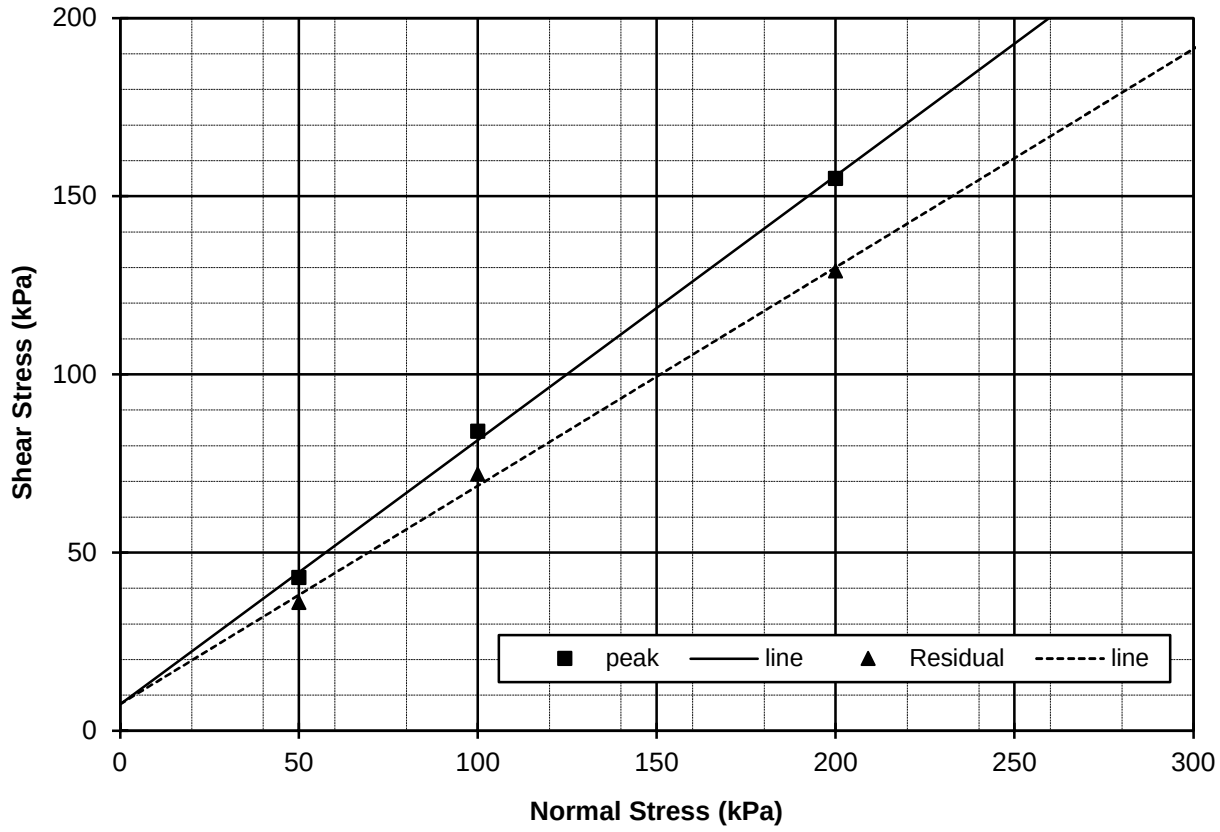
Reviewed By: _____ P.Eng.

TETRA TECH

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project:	Spring 2021 Geotechnical investigation	Test Hole:	GT21-102-S1
Project No.:	ENG.EARC03193-02	Depth:	2.6 to 3.0 m
Client:	Agnico Eagle Mines Ltd.	Date:	Jun 21, 2021
Attention:	Angie Arbaiza	Tested By:	TD
Email:	Agnico Eagle Mines Ltd.	Office:	Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	**8**	**36.6**
Residual Strength:	**8**	**31.5**

Reviewed By: _____ P.Eng.

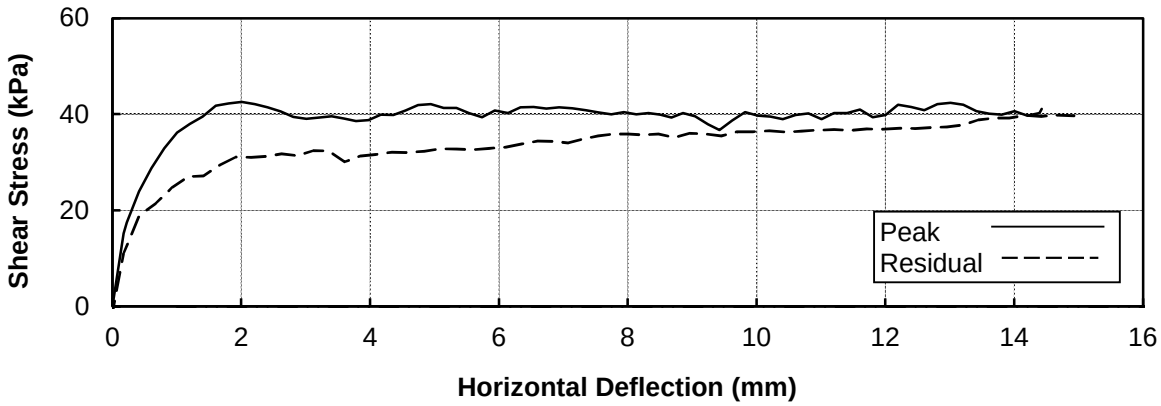
TETRA TECH

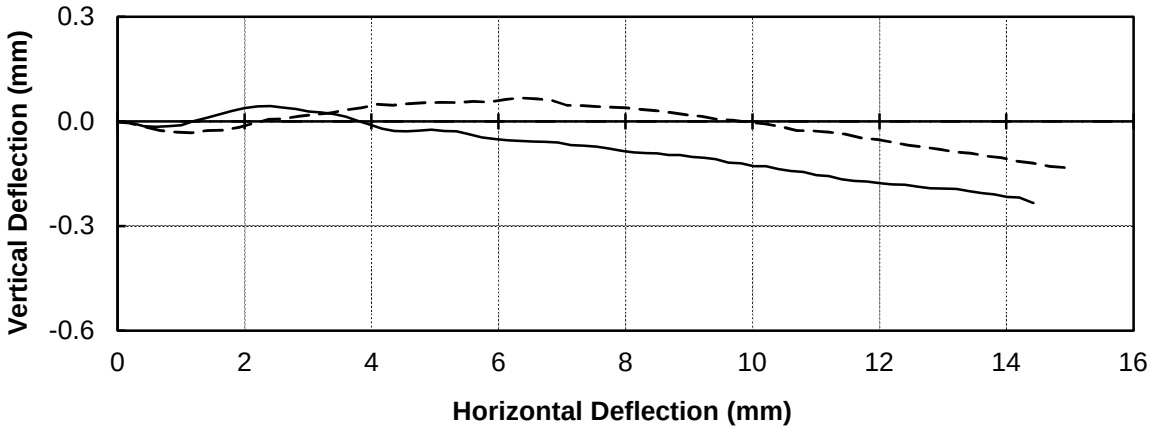
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-102-S1
Project No.:	ENG.EARC03193-02	Depth:	2.6 to 3.0 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-16
Date Tested:	Jun 21, 2021	Machine:	3
Description:	SAND and GRAVEL, trace silt	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	50	Moisture Content (%)	7.5	15.8
Peak Stress (kPa) =	43	Wet Density (Mg/m^3)	2.074	2.138
Residual Stress (kPa) =	37	Dry Density (Mg/m^3)	1.930	1.846





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: _____ P.Eng.

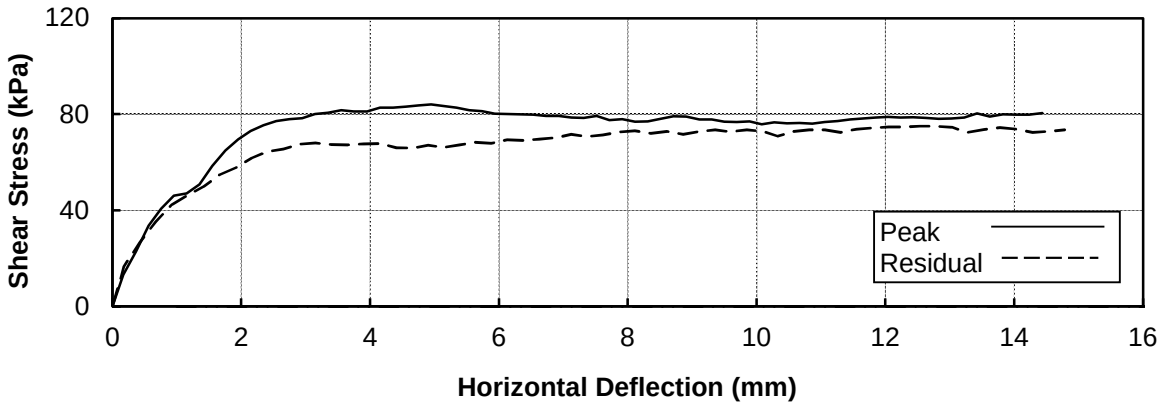
TETRA TECH

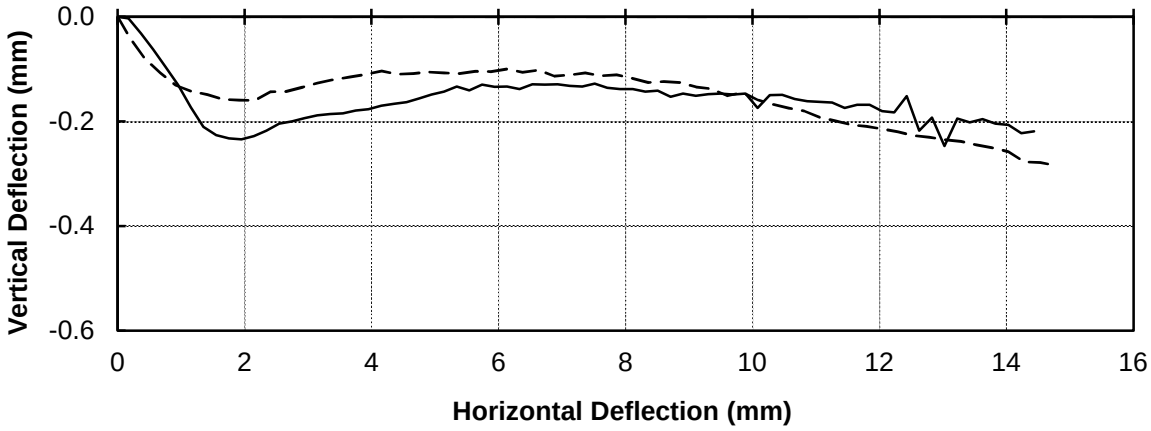
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-102-S1
Project No.:	ENG.EARC03193-02	Depth:	2.6 to 3.0 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-17
Date Tested:	Jun 21, 2021	Machine:	2
Description:	SAND and GRAVEL, trace silt	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	100	Moisture Content (%)	7.4	16.4
Peak Stress (kPa) =	84	Wet Density (Mg/m^3)	2.074	2.154
Residual Stress (kPa) =	72	Dry Density (Mg/m^3)	1.932	1.850





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: _____ P.Eng.

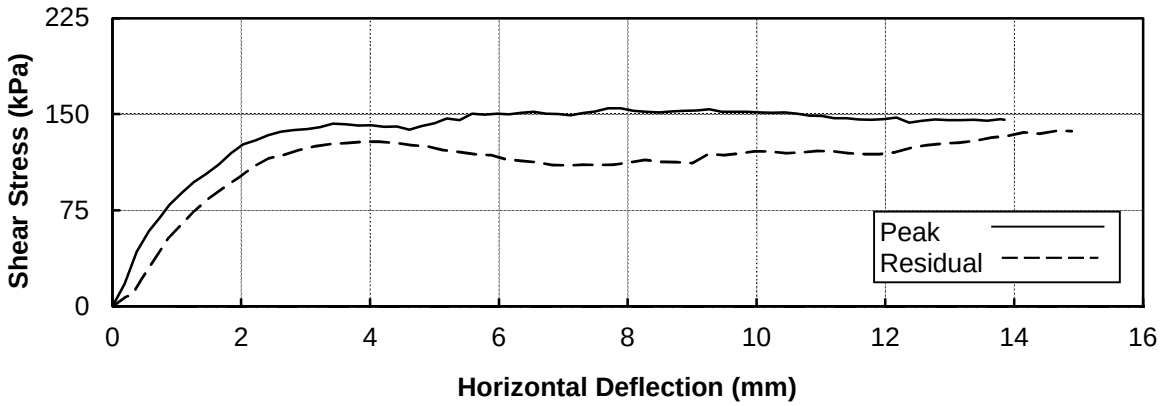
TETRA TECH

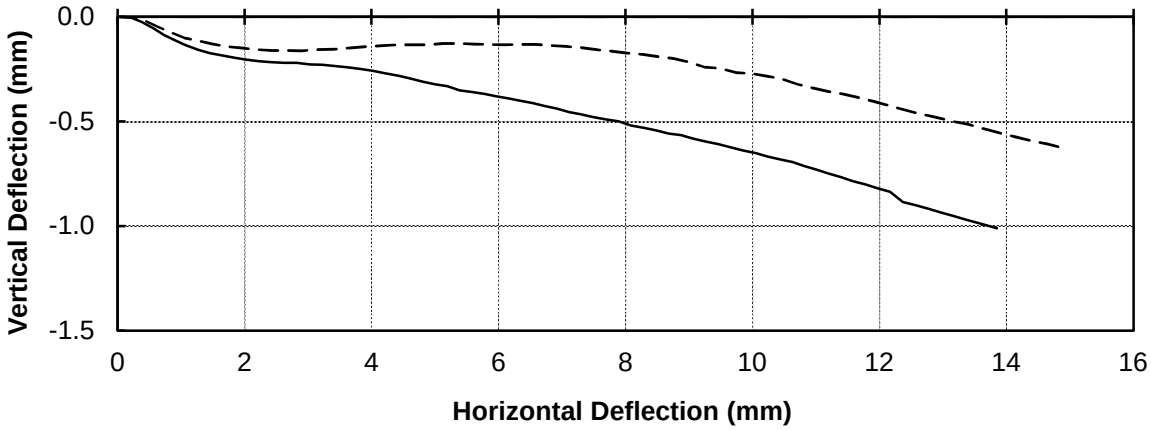
DIRECT SHEAR TEST

ASTM D3080

Project:	Spring 2021 Geotechnical Investigation	Test Hole No.:	GT21-102-S1
Project No.:	ENG.EARC03193-02	Depth:	2.6 to 3.0 m
Client:	Agnico Eagle Mines Ltd.	Test No.:	DS-18
Date Tested:	Jun 21, 2021	Machine:	1
Description:	SAND and GRAVEL, trace silt	Preparation:	Remolded

			Initial	Final
Normal Stress (kPa) =	200	Moisture Content (%)	7.3	14.6
Peak Stress (kPa) =	155	Wet Density (Mg/m^3)	2.074	2.068
Residual Stress (kPa) =	129	Dry Density (Mg/m^3)	1.933	1.804





Remarks: Particle sizes greater than 5.0 mm removed from sample.

Reviewed By: _____ P.Eng.

TETRA TECH

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

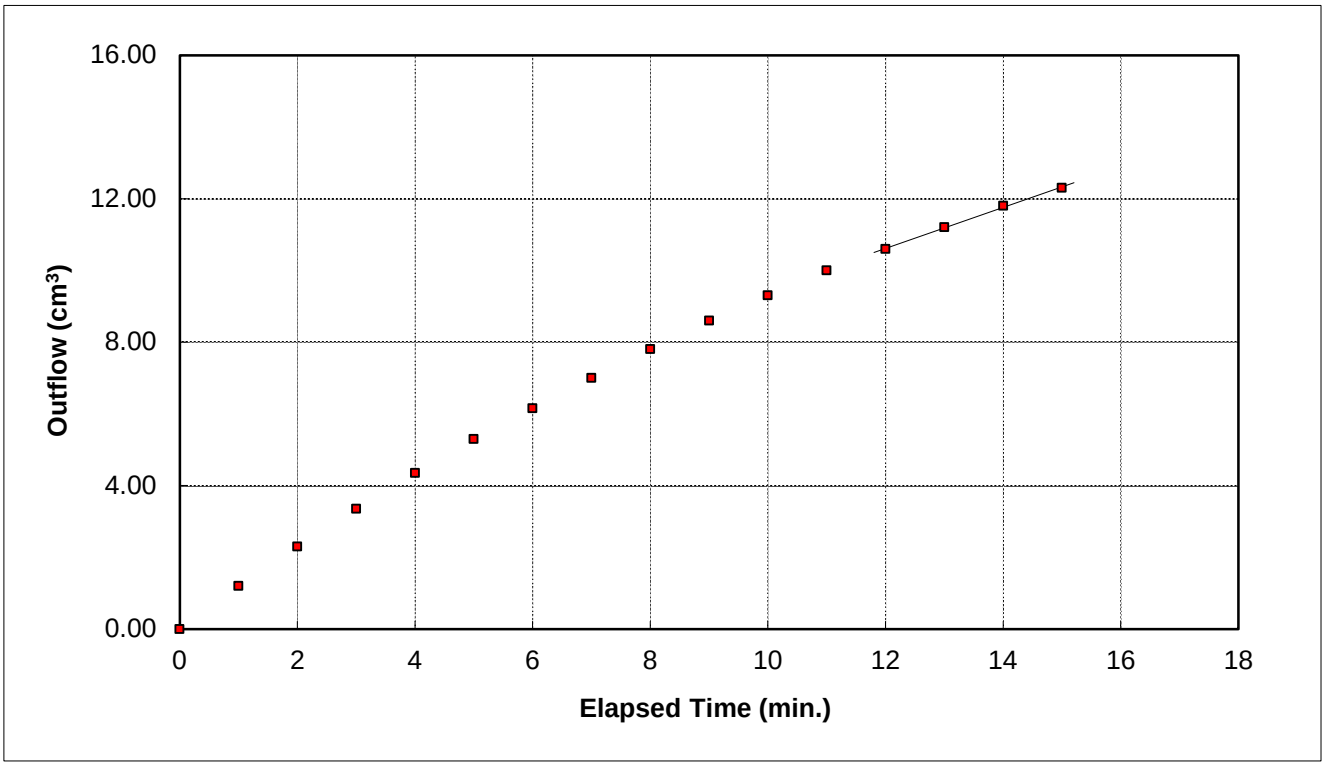
Project:	Spring 2021 Geotechnical Investigation	Test No.:	P-1
Project No.:	ENG.EARC03193-02	Borehole No.:	GT21-62(37)-S2
Client:	Agnico Eagle Mines Ltd.	Sample Depth:	2.2 to 2.4 m
Attention:	Angie Arbaiza	Date Tested:	Jun 1, 2021
		Tested By:	TD

Soil Description: SILT, trace sand

	Initial	Final
Moisture Content (%)	18.3	19.4
Dry Density (kg/m3)	1662	1662
Compaction SPD (if applicable)	NA	NA

Sample Height =	5.130	cm
Sample Diameter =	7.108	cm
Head Differential =	3	kPa
Flow Q =	9.4E-03	cm^3/sec
Hydraulic Gradient i =	5.97	
Area of Sample A =	39.68	cm^2

Hydraulic Conductivity k_{20} = **3.8E-05 cm/sec**



Remarks: Remolded sample

Particle sizes greater than 8.0 mm removed from sample.

Reviewed By: JDR P.Eng.

TETRA TECH

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

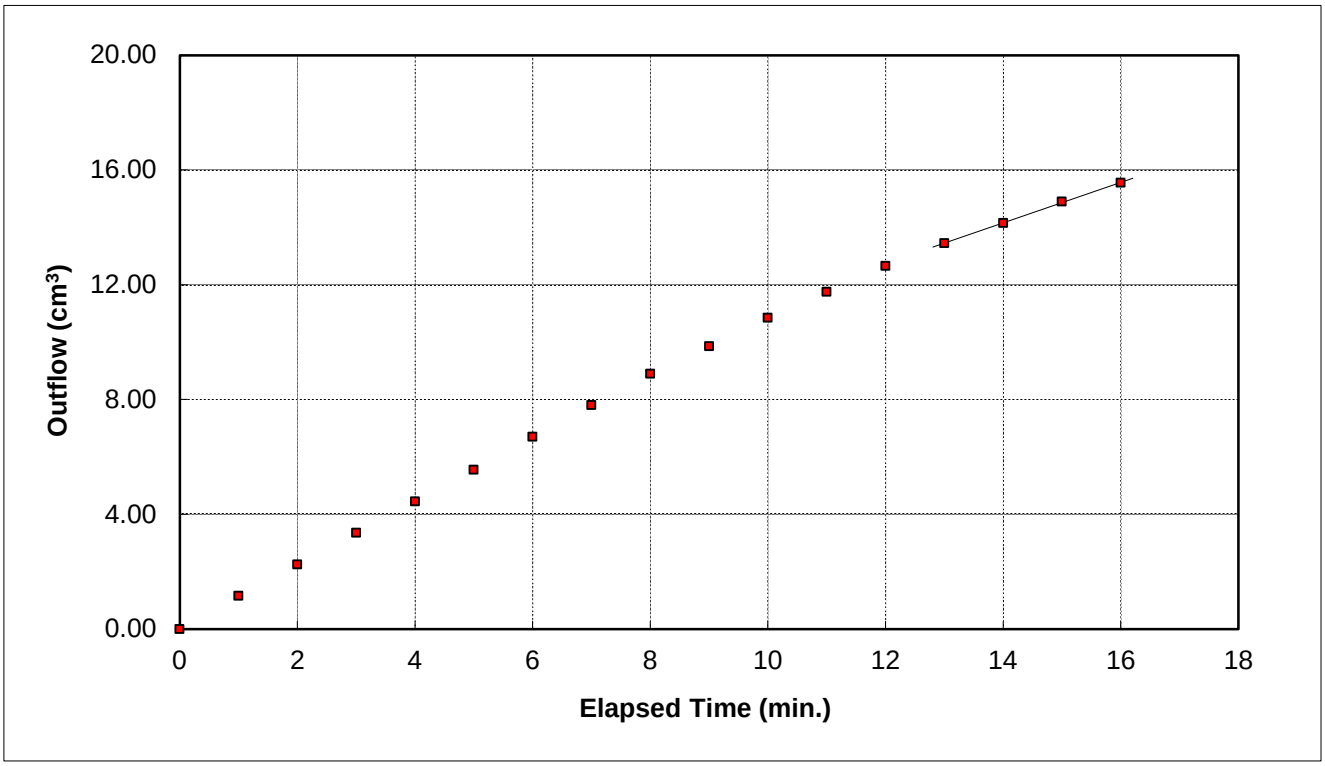
Project:	Spring 2021 Geotechnical Investigation	Test No.:	P-2
Project No.:	ENG.EARC03193-02	Borehole No.:	GT21-61(36)-S2
Client:	Agnico Eagle Mines Ltd.	Sample Depth:	1.8 to 2.4 m
Attention:	Angie Arbaiza	Date Tested:	Jun 3, 2021
		Tested By:	TD

Soil Description: SAND and SILT

	Initial	Final
Moisture Content (%)	13.9	23.4
Dry Density (kg/m3)	1519	1519
Compaction SPD (if applicable)	NA	NA

Sample Height =	5.152	cm
Sample Diameter =	7.048	cm
Head Differential =	3	kPa
Flow Q =	1.2E-02	cm^3/sec
Hydraulic Gradient i =	5.94	
Area of Sample A =	39.01	cm^2

Hydraulic Conductivity k_{20} = **5.0E-05** **cm/sec**



Remarks: Remolded sample

Particle sizes greater than 8.0 mm removed from sample.

Reviewed By: JDR P.Eng.

TETRA TECH

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

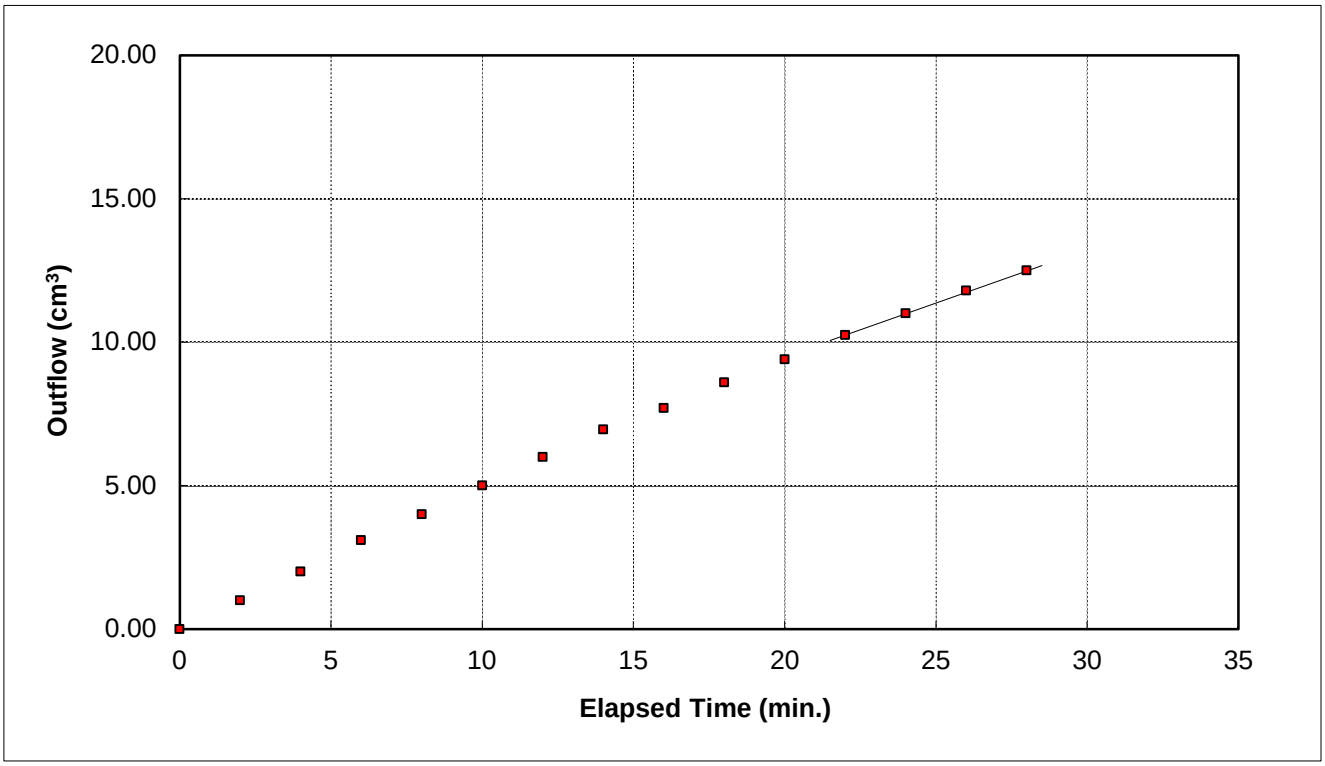
Project:	Spring 2021 Geotechnical Investigation	Test No.:	P-3
Project No.:	ENG.EARC03193-02	Borehole No.:	GT21-61(36)-S3
Client:	Agnico Eagle Mines Ltd.	Sample Depth:	3.6 to 4.0 m
Attention:	Angie Arbaiza	Date Tested:	Jun 3, 2021
		Tested By:	TD

Soil Description: GRAVEL, sandy, some silt

	Initial	Final
Moisture Content (%)	9.4	8.9
Dry Density (kg/m3)	2141	2158
Compaction SPD (if applicable)	NA	NA

Sample Height =	5.101	cm
Sample Diameter =	7.282	cm
Head Differential =	7	kPa
Flow Q =	6.2E-03	cm^3/sec
Hydraulic Gradient i =	14.00	
Area of Sample A =	41.64	cm^2

Hydraulic Conductivity k_{20} = **1.0E-05 cm/sec**



Remarks: Remolded sample

Particle sizes greater than 8.0 mm removed from sample.

Reviewed By: _____ P.Eng.

TETRA TECH

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

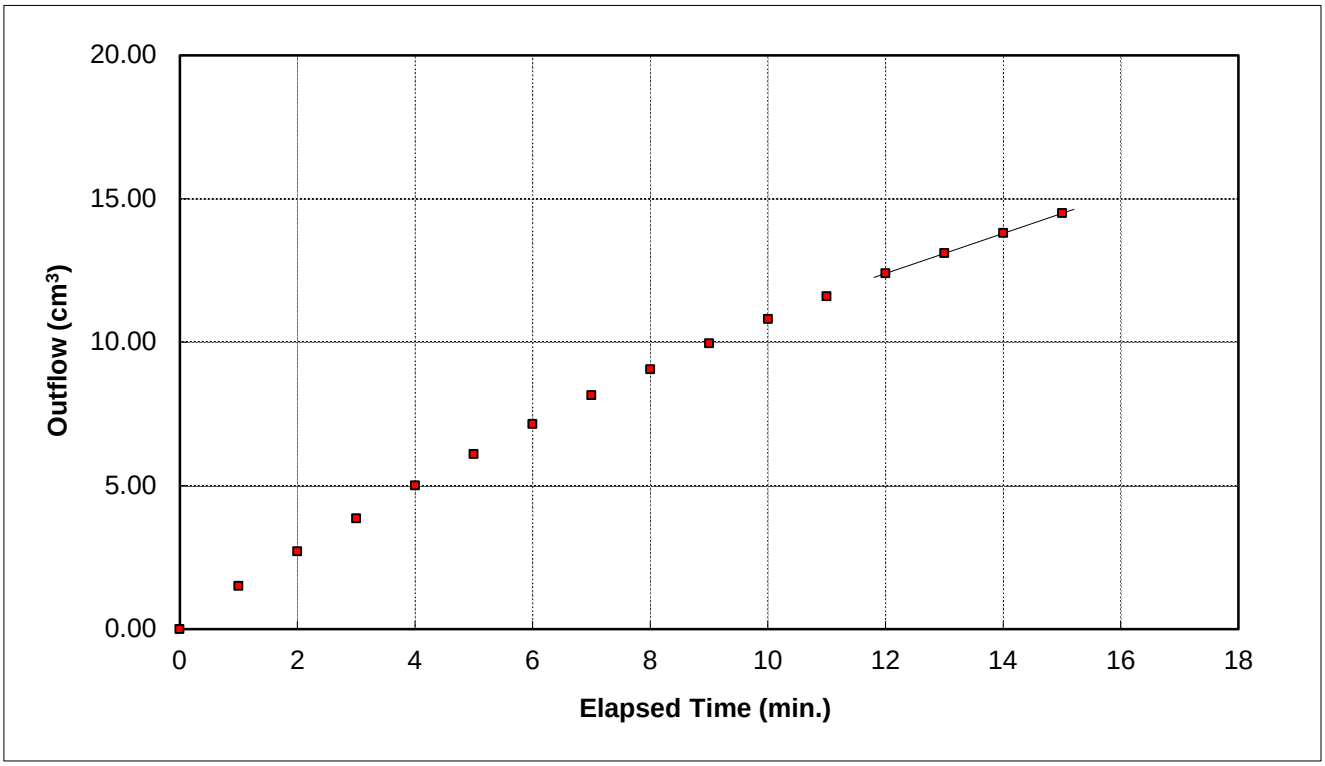
Project:	Spring 2021 Geotechnical Investigation	Test No.:	P-4
Project No.:	ENG.EARC03193-02	Borehole No.:	GT21-60(35)-S2
Client:	Agnico Eagle Mines Ltd.	Sample Depth:	3.6 to 4.1 m
Attention:	Angie Arbaiza	Date Tested:	Jun 9, 2021
		Tested By:	TD

Soil Description: GRAVEL, some sand, silt

	Initial	Final
Moisture Content (%)	6.8	11.6
Dry Density (kg/m3)	1978	1978
Compaction SPD (if applicable)	NA	NA

Sample Height =	5.138	cm
Sample Diameter =	7.110	cm
Head Differential =	3	kPa
Flow Q =	1.2E-02	cm^3/sec
Hydraulic Gradient i =	5.96	
Area of Sample A =	39.70	cm^2

Hydraulic Conductivity k_{20} = **4.8E-05 cm/sec**



Remarks: Remolded sample

Particle sizes greater than 8.0 mm removed from sample.

Reviewed By: JPR P.Eng.

TETRA TECH

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

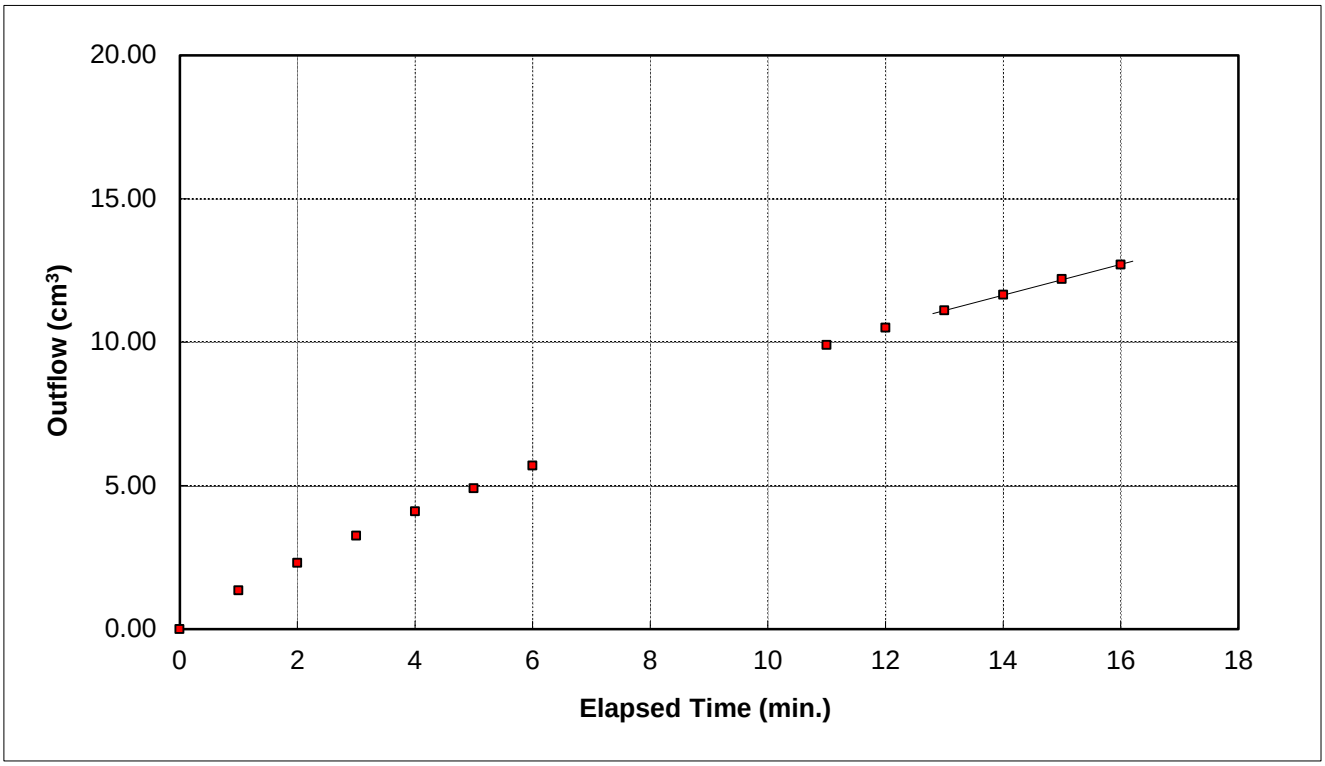
Project:	Spring 2021 Geotechnical Investigation	Test No.:	P-5
Project No.:	ENG.EARC03193-02	Borehole No.:	GT21-21-S1
Client:	Agnico Eagle Mines Ltd.	Sample Depth:	3.1 to 3.4 m
Attention:	Angie Arbaiza	Date Tested:	Jun 14, 2021
		Tested By:	TD

Soil Description: SILT, sandy, trace gravel

	Initial	Final
Moisture Content (%)	15.8	22.3
Dry Density (kg/m3)	1588	1588
Compaction SPD (if applicable)	NA	NA

Sample Height =	5.149	cm
Sample Diameter =	7.108	cm
Head Differential =	3	kPa
Flow Q =	8.9E-03	cm^3/sec
Hydraulic Gradient i =	5.94	
Area of Sample A =	39.68	cm^2

Hydraulic Conductivity k_{20} = **3.6E-05 cm/sec**



Remarks: Remolded sample

Particle sizes greater than 8.0 mm removed from sample.

Reviewed By: _____ P.Eng.

TETRA TECH

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

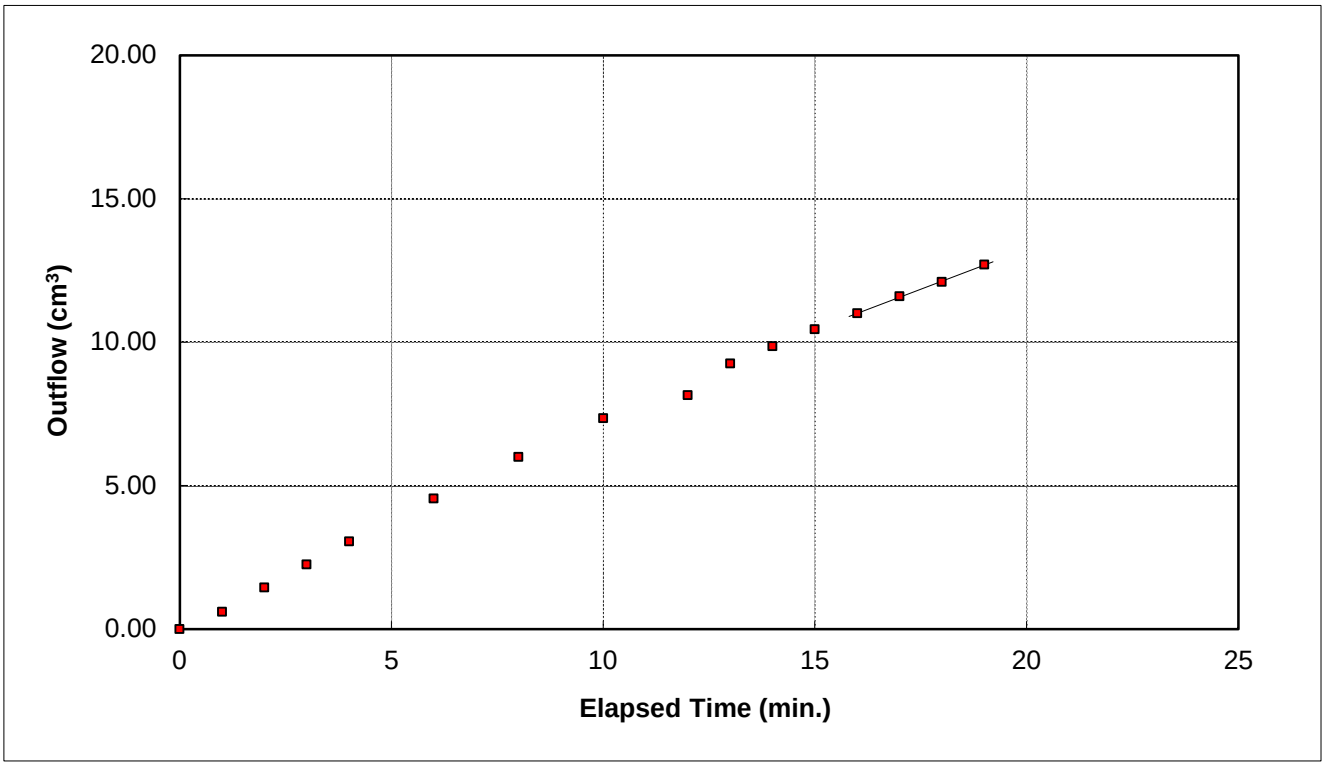
Project:	Spring 2021 Geotechnical Investigation	Test No.:	P-6
Project No.:	ENG.EARC03193-02	Borehole No.:	GT21-21-S2
Client:	Agnico Eagle Mines Ltd.	Sample Depth:	3.5 to 3.9 m
Attention:	Angie Arbaiza	Date Tested:	Jun 3, 2021
		Tested By:	TD

Soil Description: GRAVEL, silty, sandy

	Initial	Final
Moisture Content (%)	10.8	12.4
Dry Density (kg/m3)	2056	2056
Compaction SPD (if applicable)	NA	NA

Sample Height =	5.170	cm
Sample Diameter =	7.097	cm
Head Differential =	7	kPa
Flow Q =	9.4E-03	cm^3/sec
Hydraulic Gradient i =	13.81	
Area of Sample A =	39.55	cm^2

Hydraulic Conductivity k_{20} = **1.7E-05 cm/sec**



Remarks: Remolded sample

Particle sizes greater than 8.0 mm removed from sample.

Reviewed By: _____ P.Eng.

TETRA TECH

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

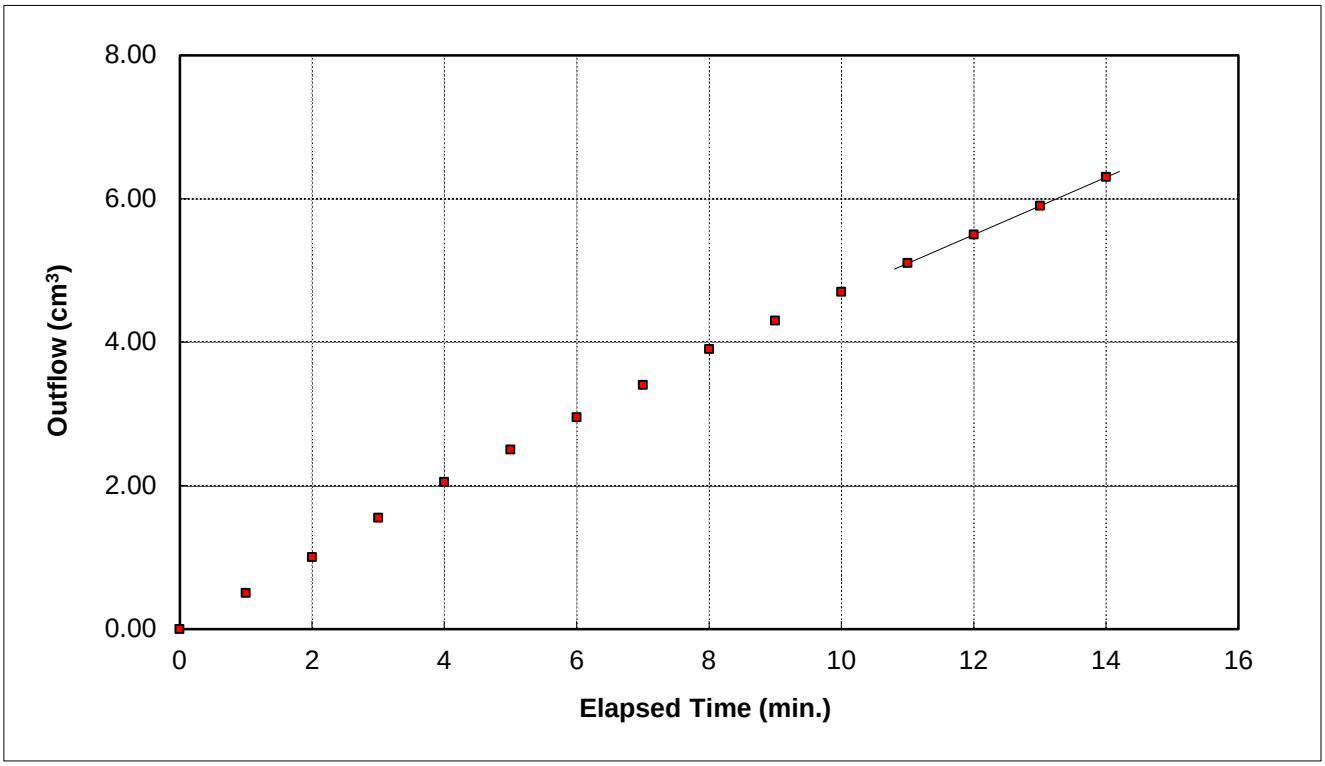
Project:	Spring 2021 Geotechnical Investigation	Test No.:	P-7
Project No.:	ENG.EARC03193-02	Borehole No.:	GT21-73-S2
Client:	Agnico Eagle Mines Ltd.	Sample Depth:	4.0 to 4.5 m
Attention:	Angie Arbaiza	Date Tested:	Jun 14, 2021
		Tested By:	TD

Soil Description: SILT and SAND, some gravel

	Initial	Final
Moisture Content (%)	8.7	11.6
Dry Density (kg/m3)	2058	2068
Compaction SPD (if applicable)	NA	NA

Sample Height =	5.146	cm
Sample Diameter =	7.133	cm
Head Differential =	3	kPa
Flow Q =	6.7E-03	cm^3/sec
Hydraulic Gradient i =	5.95	
Area of Sample A =	39.96	cm^2

Hydraulic Conductivity k_{20} = **2.7E-05 cm/sec**



Remarks: Remolded sample

Particle sizes greater than 8.0 mm removed from sample.

Reviewed By: _____ P.Eng.

TETRA TECH

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

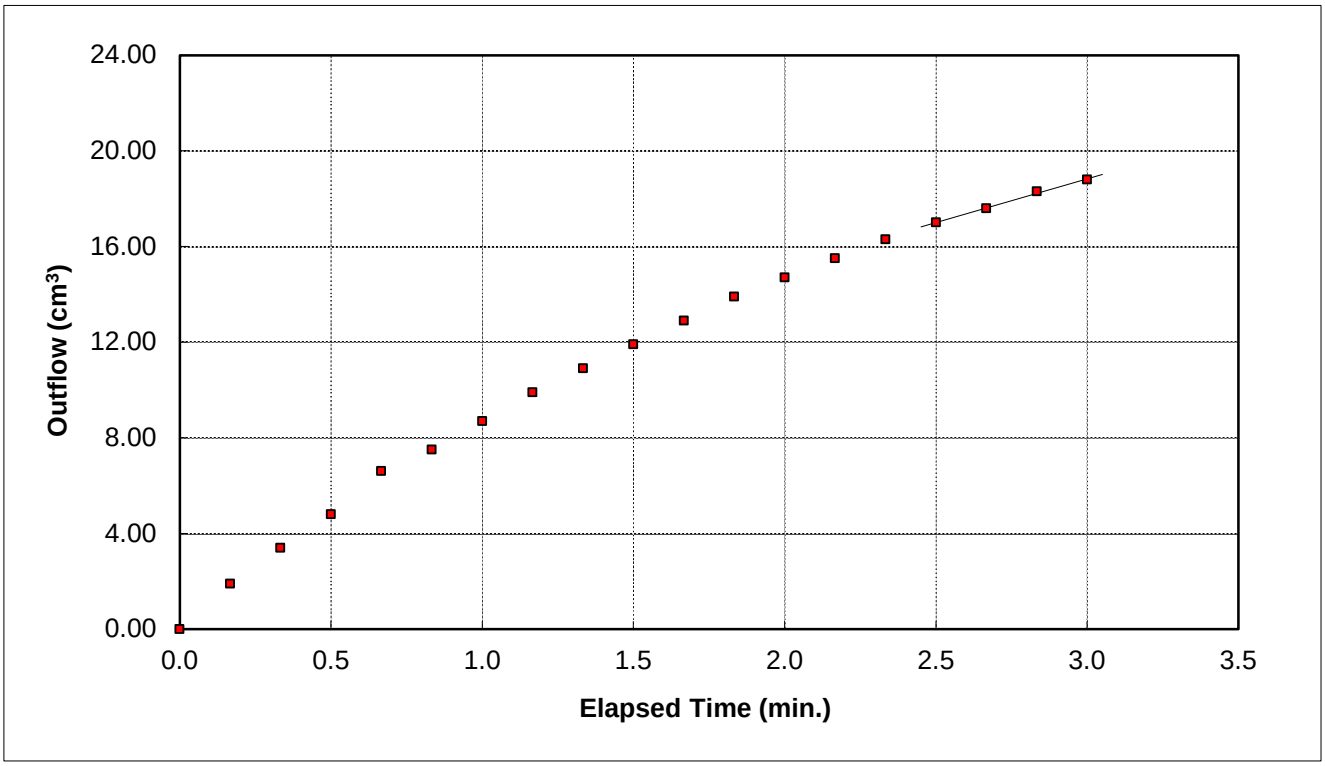
Project:	Spring 2021 Geotechnical Investigation	Test No.:	P-8
Project No.:	ENG.EARC03193-02	Borehole No.:	GT21-102-S1
Client:	Agnico Eagle Mines Ltd.	Sample Depth:	2.6 to 3.0 m
Attention:	Angie Arbaiza	Date Tested:	Jun 15, 2021
		Tested By:	TD

Soil Description: SAND and GRAVEL, trace silt

	Initial	Final
Moisture Content (%)	8.8	14.3
Dry Density (kg/m3)	1988	1988
Compaction SPD (if applicable)	NA	NA

Sample Height =	5.130	cm
Sample Diameter =	7.108	cm
Head Differential =	3	kPa
Flow Q =	6.0E-02	cm^3/sec
Hydraulic Gradient i =	5.97	
Area of Sample A =	39.68	cm^2

Hydraulic Conductivity k_{20} = **2.4E-04 cm/sec**



Remarks: Remolded sample

Particle sizes greater than 8.0 mm removed from sample.

Reviewed By: JPR P.Eng.

TETRA TECH

CONSTANT HEAD HYDRAULIC CONDUCTIVITY TEST REPORT

ASTM D5084

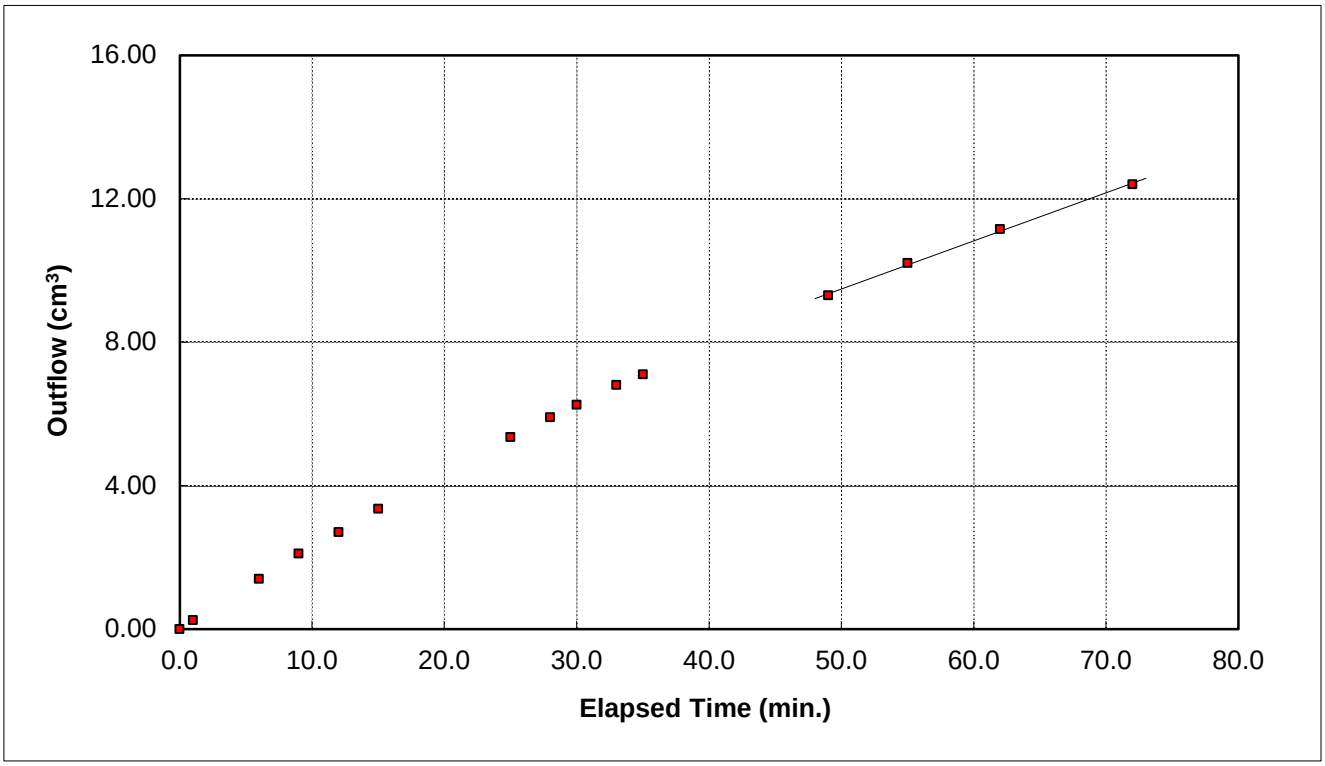
Project:	Spring 2021 Geotechnical Investigation	Test No.:	P-9
Project No.:	ENG.EARC03193-02	Borehole No.:	GT21-102-S2
Client:	Agnico Eagle Mines Ltd.	Sample Depth:	5.5 to 6.0 m
Attention:	Angie Arbaiza	Date Tested:	Jun 15, 2021
		Tested By:	TD

Soil Description: SAND, silty, gravelly

	Initial	Final
Moisture Content (%)	8.9	10.6
Dry Density (kg/m3)	2155	2155
Compaction SPD (if applicable)	NA	NA

Sample Height =	5.377	cm
Sample Diameter =	7.046	cm
Head Differential =	3	kPa
Flow Q =	2.2E-03	cm^3/sec
Hydraulic Gradient i =	5.69	
Area of Sample A =	38.99	cm^2

Hydraulic Conductivity k_{20} = **9.8E-06 cm/sec**



Remarks: Remolded sample

Particle sizes greater than 8.0 mm removed from sample.

Reviewed By: _____ P.Eng.

TETRA TECH

APPENDIX D

GTC INSTALLATION FIGURES AND MEASUREMENTS

SITE: MELIADINE MINE, NU

LOCATION: FZone Till Berm

COORDINATES: NORTHING: 6 986 081

EASTING: 542 271

GROUND ELEVATION: 59.9 m

CABLE LENGTH: 15.0 m

NUMBER OF BEADS: 16

CABLE SERIAL NO.: TT 2721

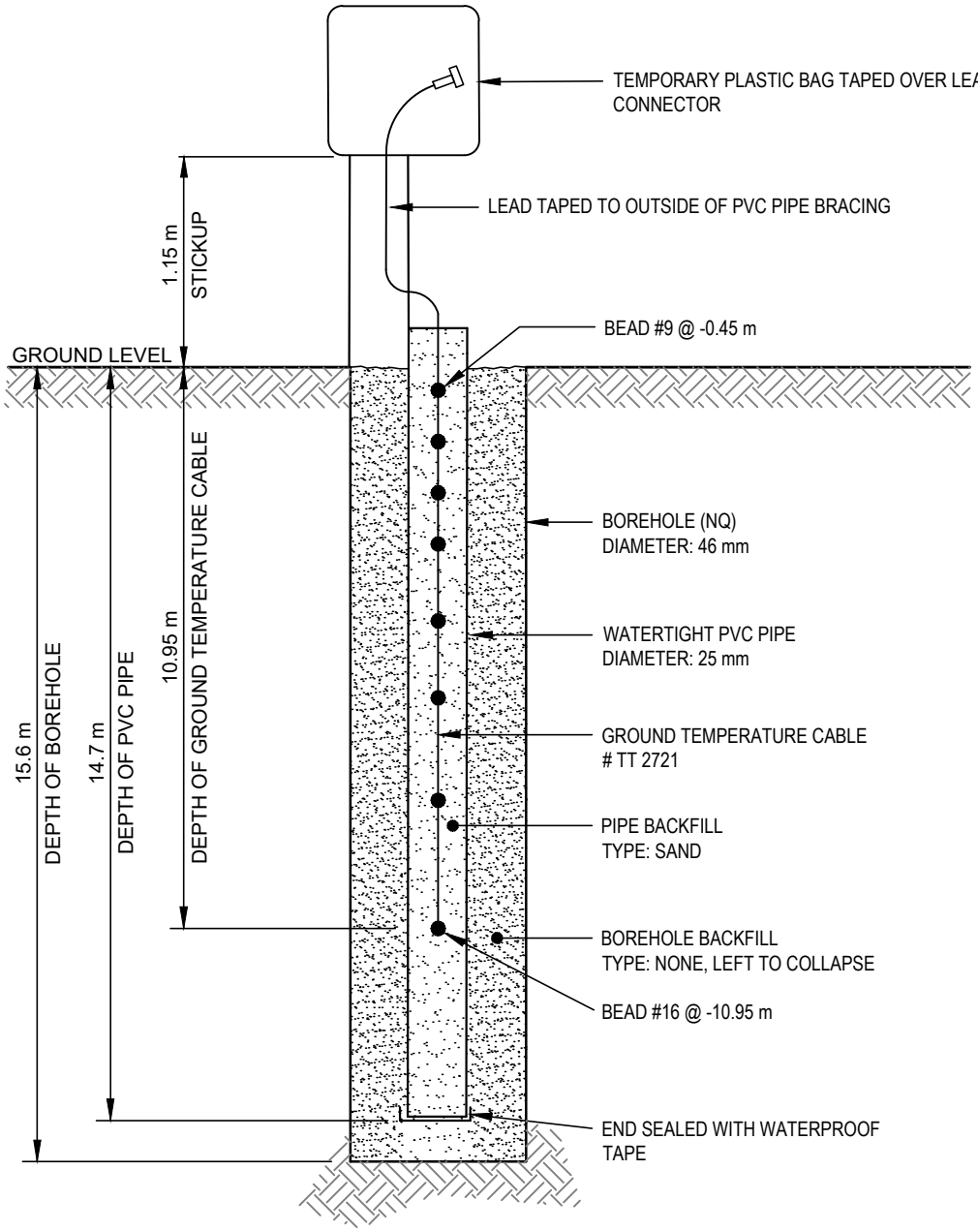
DRILLING DATE: April 15, 2021

INSTALLATION DATE: April 15, 2021

LEAD LENGTH: 1.5 m

1ST BEAD ELEVATION: 0.55 m

HOLE DEPTH: 15.6 m



BEAD NO.	DEPTH BELOW OG (m)
1	0.55
2	0.55
3	0.55
4	0.55
5	0.55
6	0.55
7	0.55
8	0.05
9	-0.45
10	-1.45
11	-2.45
12	-3.45
13	-4.95
14	-6.45
15	-8.45
16	-10.95

NOTES

1) LEAD LENGTH IS THE LENGTH OF GTC CABLE TO THE FIRST BEAD
2) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
3) DRAWING NOT TO SCALE

CLIENT

AGNICO EAGLE

TETRA TECH

MELIADINE SPRING 2021 GEOTECHNICAL INVESTIGATION
MELIADINE MINE, RANKIN INLET, NU

GROUND TEMPERATURE CABLE INSTALLATION REPORT
GT21-61 (36)

PROJECT NO.	DWN	CKD	REV
ENG.EARC03193-02	LM/DBD	HX	0

OFFICE	DATE
EDM	JUNE 2021

GT21-61 (36)

SITE: MELIADINE MINE, NU

LOCATION: D-B4 North

COORDINATES: NORTHING: 6 987 772

EASTING: 538 406

GROUND ELEVATION: 57.7 m

CABLE LENGTH: 15.0 m

NUMBER OF BEADS: 16

CABLE SERIAL NO.: TT 2724

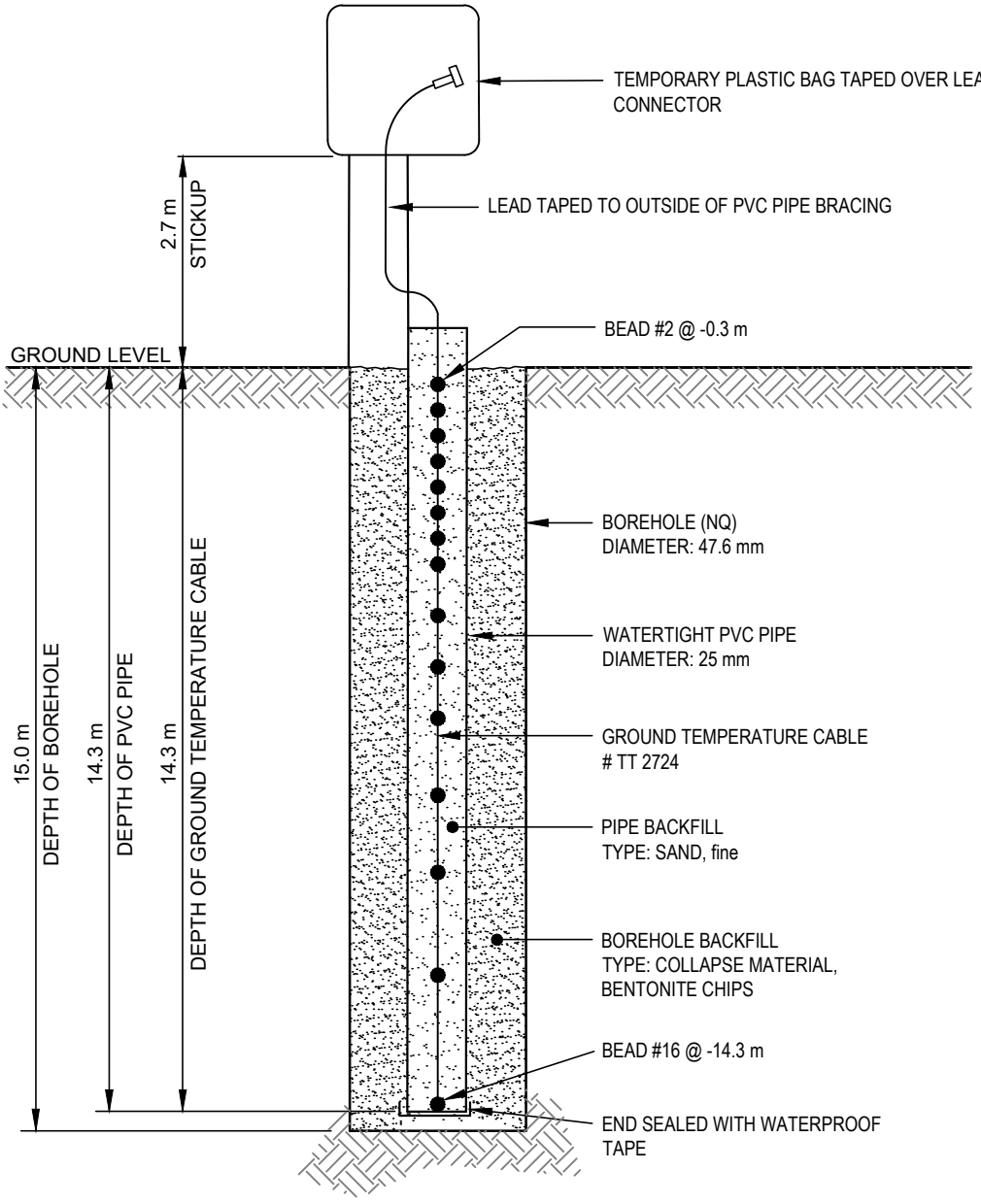
DRILLING DATE: April 21-22, 2021

INSTALLATION DATE: April 22, 2021

LEAD LENGTH: 1.5 m

1ST BEAD ELEVATION: +0.2 m

HOLE DEPTH: 15.0 m



BEAD NO.	DEPTH BELOW OG (m)
1	0.2
2	-0.3
3	-0.8
4	-1.3
5	-1.8
6	-2.3
7	-2.8
8	-3.3
9	-3.8
10	-4.8
11	-5.8
12	-6.8
13	-8.3
14	-9.8
15	-11.8
16	-14.3

NOTES

1) LEAD LENGTH IS THE LENGTH OF GTC CABLE TO THE FIRST BEAD
2) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
3) DRAWING NOT TO SCALE

CLIENT

AGNICO EAGLE

TETRA TECH

MELIADINE SPRING 2021 GEOTECHNICAL INVESTIGATION
MELIADINE MINE, RANKIN INLET, NU

GROUND TEMPERATURE CABLE INSTALLATION REPORT
GT21-16

PROJECT NO.	DWN	CKD	REV
ENG.EARC03193-02	LM/DBD	HX	0

OFFICE: EDM

DATE: JUNE 2021

GT21-16

SITE: MELIADINE MINE, NU

LOCATION: CP9 Berm

COORDINATES: NORTHING: 6 986 948

EASTING: 539 154

GROUND ELEVATION: 57.5 m

CABLE LENGTH: 15.0 m

NUMBER OF BEADS: 16

CABLE SERIAL NO.: TT 2722

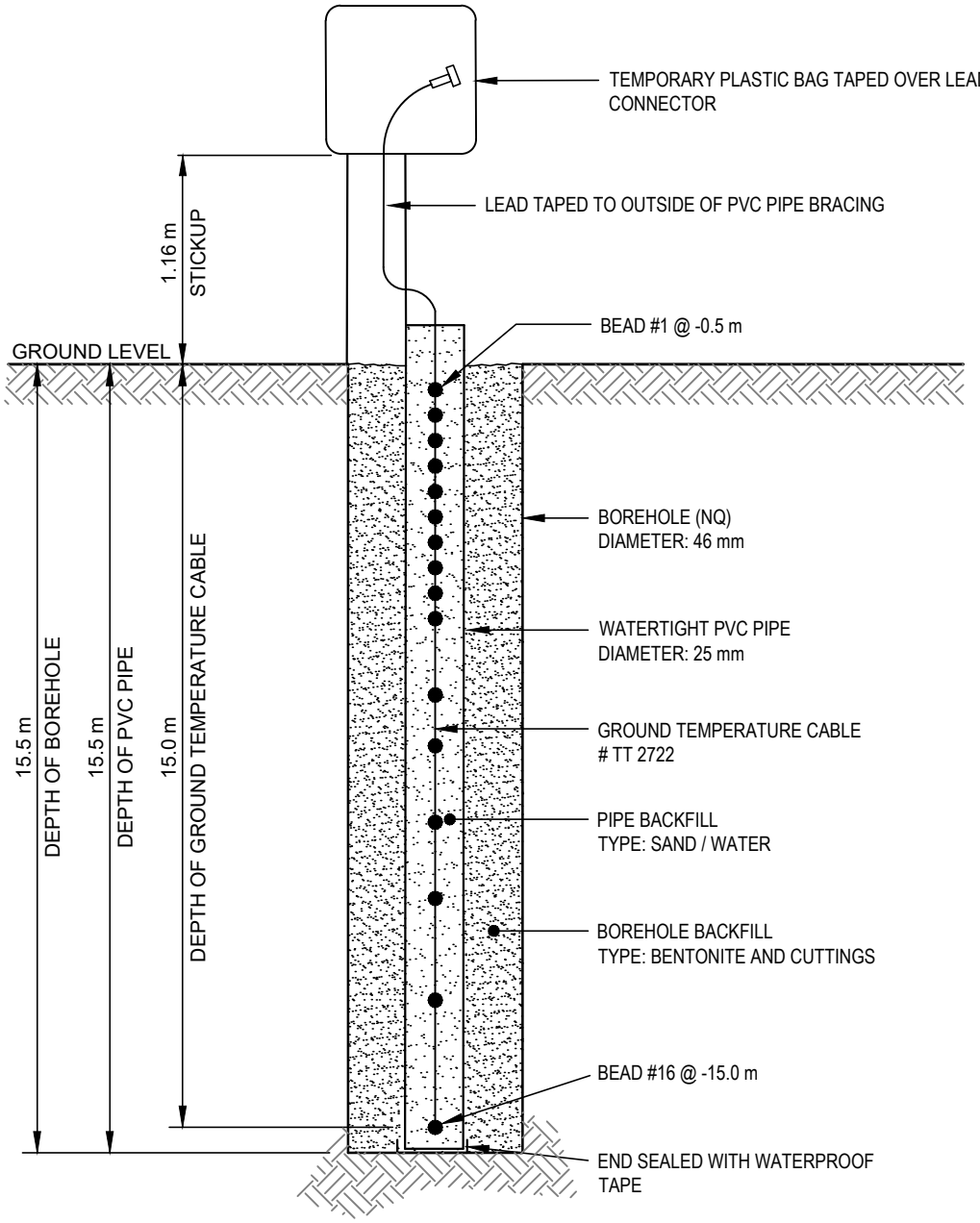
DRILLING DATE: April 18-19, 2021

INSTALLATION DATE: April 19, 2021

LEAD LENGTH: 1.5 m

1ST BEAD ELEVATION: -0.5 m

HOLE DEPTH: 15.5 m



BEAD NO.	DEPTH BELOW OG (m)
1	-0.5
2	-1.0
3	-1.5
4	-2.0
5	-2.5
6	-3.0
7	-3.5
8	-4.0
9	-4.5
10	-5.0
11	-6.5
12	-7.5
13	-9.0
14	-10.5
15	-12.5
16	-15.0

NOTES

1) LEAD LENGTH IS THE LENGTH OF GTC CABLE TO THE FIRST BEAD
2) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
3) DRAWING NOT TO SCALE

CLIENT

AGNICO EAGLE

TETRA TECH

MELIADINE SPRING 2021 GEOTECHNICAL INVESTIGATION
MELIADINE MINE, RANKIN INLET, NU

GROUND TEMPERATURE CABLE INSTALLATION REPORT
GT21-20

PROJECT NO.	DWN	CKD	REV
ENG.EARC03193-02	LM/DBD	HX	0

OFFICE: EDM

DATE: JUNE 2021

GT21-20

SITE: MELIADINE MINE, NU

LOCATION: D-B4 West

COORDINATES: NORTHING: 6 987 059

EASTING: 537 972

GROUND ELEVATION: 52.0 m

CABLE LENGTH: 15.0 m

NUMBER OF BEADS: 16

CABLE SERIAL NO.: TT 2723

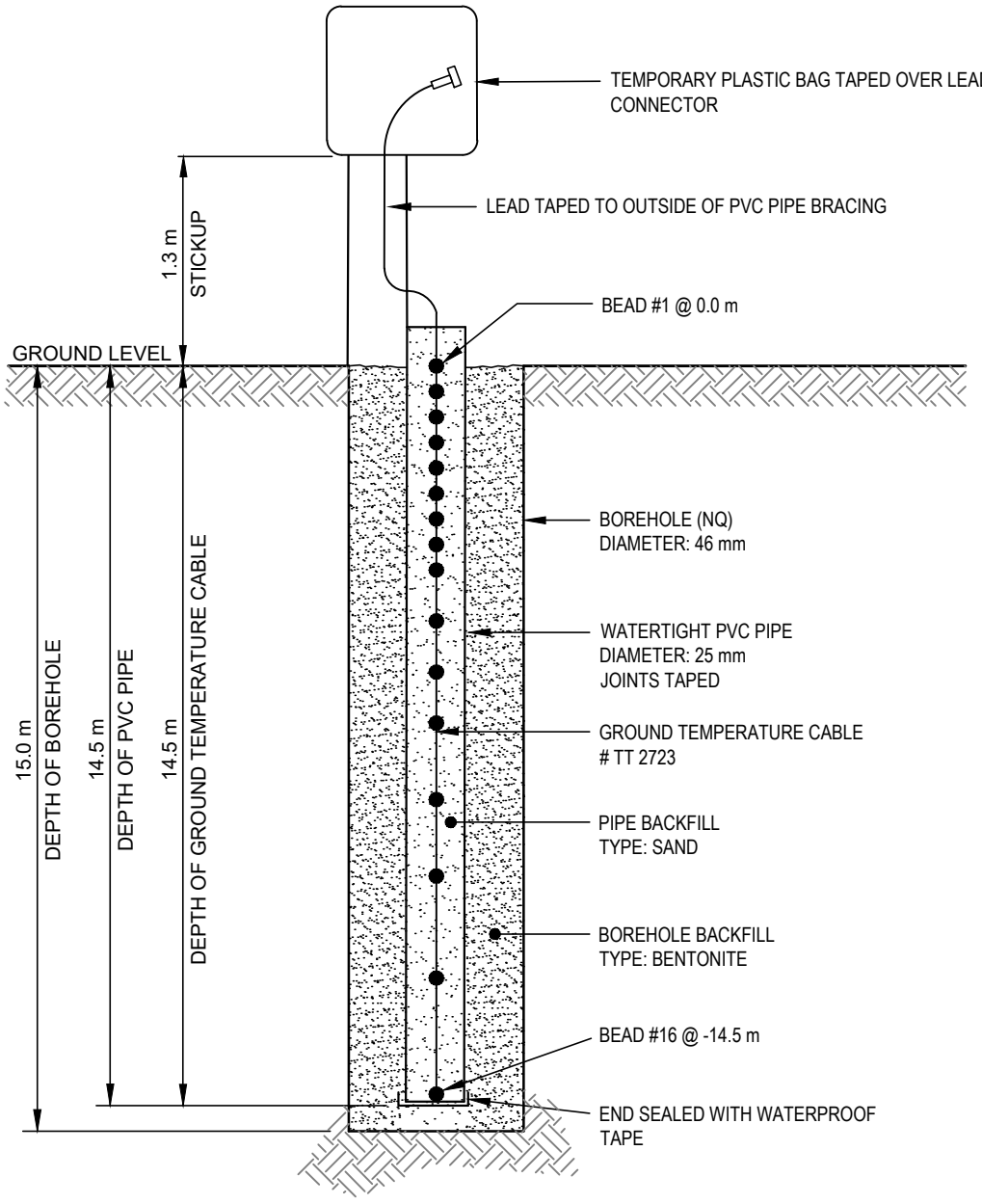
DRILLING DATE: April 21, 2021

INSTALLATION DATE: April 21, 2021

LEAD LENGTH: 1.5 m

1ST BEAD ELEVATION: 0.0 m (Ground Level)

HOLE DEPTH: 15.0 m



BEAD NO.	DEPTH BELOW OG (m)
1	0.0
2	-0.5
3	-1.0
4	-1.5
5	-2.0
6	-2.5
7	-3.0
8	-3.5
9	-4.0
10	-5.0
11	-6.0
12	-7.0
13	-8.5
14	-10.0
15	-12.0
16	-14.5

NOTES

1) LEAD LENGTH IS THE LENGTH OF GTC CABLE TO THE FIRST BEAD
2) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
3) DRAWING NOT TO SCALE

CLIENT

AGNICO EAGLE

TETRA TECH

MELIADINE SPRING 2021 GEOTECHNICAL INVESTIGATION
MELIADINE MINE, RANKIN INLET, NU

GROUND TEMPERATURE CABLE INSTALLATION REPORT
GT21-63

PROJECT NO.	DWN	CKD	REV
ENG.EARC03193-02	LM/DBD	HX	0

OFFICE	DATE
EDM	JUNE 2021

GT21-63

C:\Debashis\Office Projects\PROJECTS\704-ENG.EARC\ENG.EARC03193-02 GTC Installation\03_Acad\ENG.EARC03193-02 GTC Installation Reports_DD.dwg [GT21-63] June 25, 2021 - 11:09:19 am (BY: DAS, DEBASHIS)

SITE: MELIADINE MINE, NU

LOCATION: D-B7 West

COORDINATES: NORTHING: 6 989 381

EASTING: 537 818

GROUND ELEVATION: 62.8 m

CABLE LENGTH: 15.0 m

NUMBER OF BEADS: 16

CABLE SERIAL NO.: TT 2726

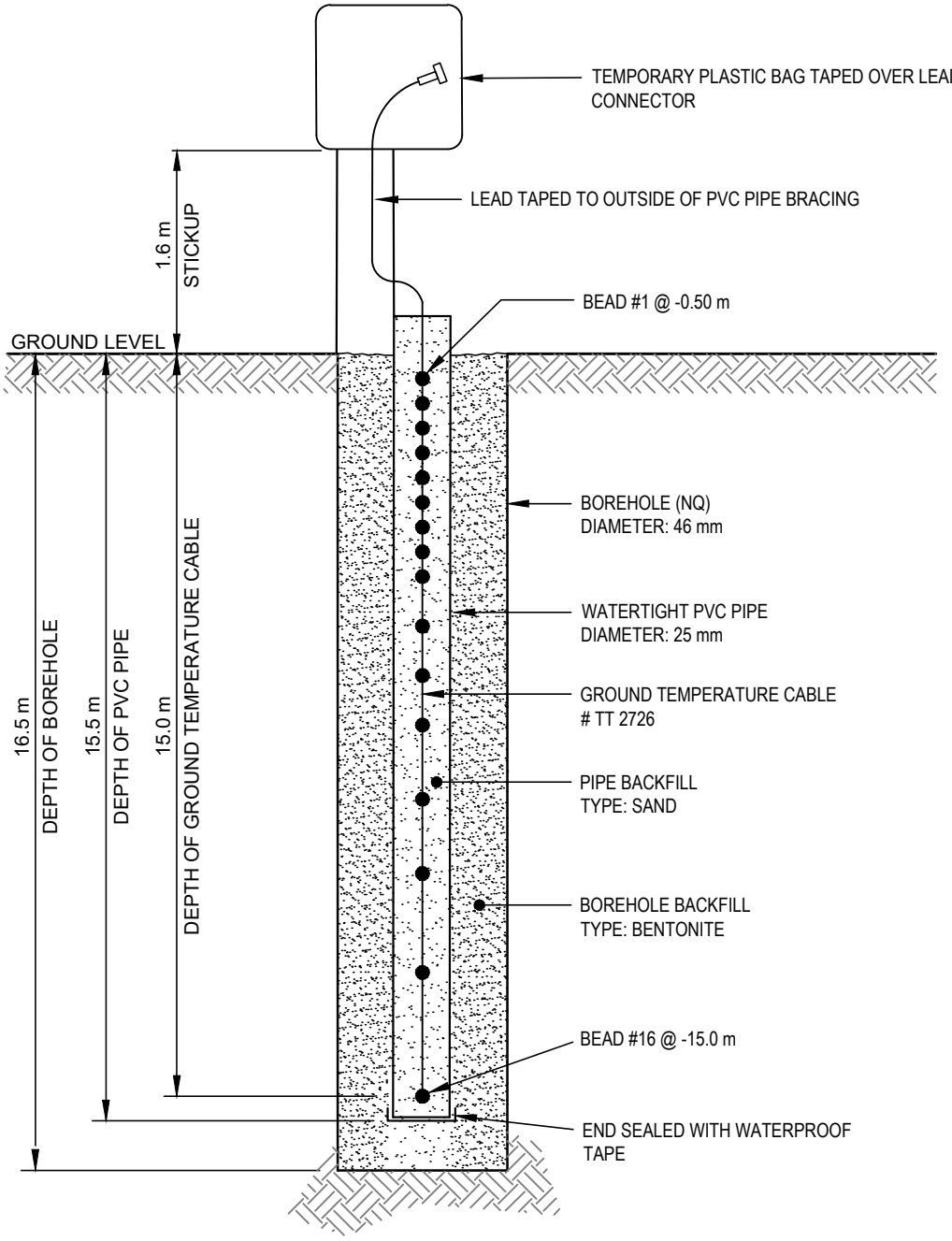
DRILLING DATE: April 24, 2021

INSTALLATION DATE: April 24, 2021

LEAD LENGTH: 1.5 m

1ST BEAD ELEVATION: -0.5 m

HOLE DEPTH: 16.5 m



BEAD NO.	DEPTH BELOW OG (m)
1	-0.5
2	-1.0
3	-1.5
4	-2.0
5	-2.5
6	-3.0
7	-3.5
8	-4.0
9	-4.5
10	-5.5
11	-6.5
12	-7.5
13	-9.0
14	-10.5
15	-12.5
16	-15.0

NOTES

1) LEAD LENGTH IS THE LENGTH OF GTC CABLE TO THE FIRST BEAD
2) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
3) DRAWING NOT TO SCALE

CLIENT

AGNICO EAGLE

TETRA TECH

MELIADINE SPRING 2021 GEOTECHNICAL INVESTIGATION
MELIADINE MINE, RANKIN INLET, NU

GROUND TEMPERATURE CABLE INSTALLATION REPORT
GT21-73

PROJECT NO.	DWN	CKD	REV
ENG.EARC03193-02	LM/DBD	HX	0

OFFICE	DATE
EDM	JUNE 2021

GT21-73

C:\Debashis\Office Projects\PROJECTS\704-ENG.EARC\ENG.EARC03193-02 GTC Installation\03_Acad\ENG.EARC03193-02 GTC Installation Reports_DD.dwg [GT21-73] June 25, 2021 - 1:18:22 pm (BY: DAS, DEBASHIS)

SITE: MELIADINE MINE, NU

LOCATION: D-B7 North

COORDINATES: NORTHING: 6 990 225

EASTING: 537 018

GROUND ELEVATION: 62.6 m

CABLE LENGTH: 15.0 m

NUMBER OF BEADS: 16

CABLE SERIAL NO.: TT 2727

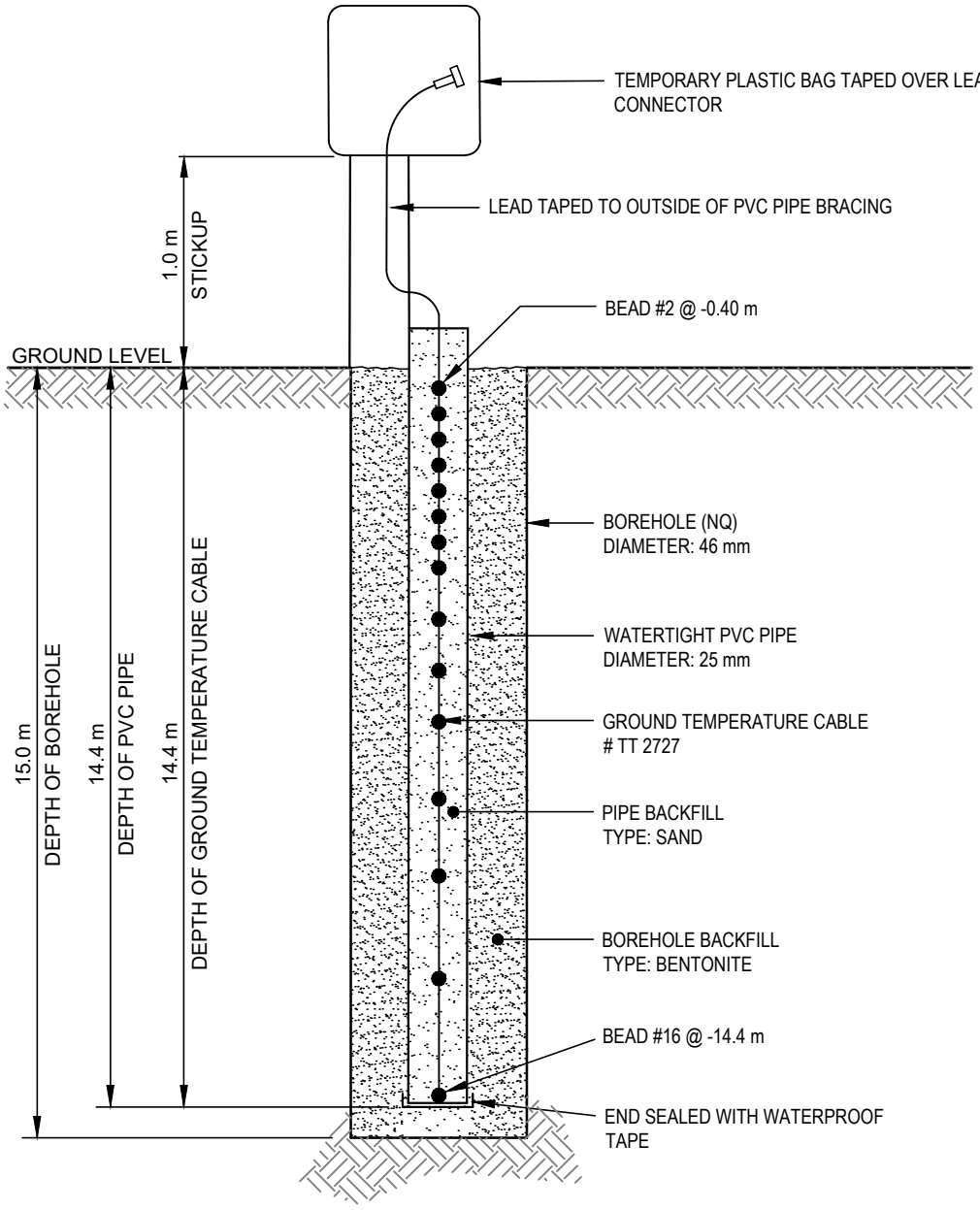
DRILLING DATE: April 24, 2021

INSTALLATION DATE: April 24, 2021

LEAD LENGTH: 1.5 m

1ST BEAD ELEVATION: 0.1 m

HOLE DEPTH: 15.0 m



BEAD NO.	DEPTH BELOW OG (m)
1	0.1
2	-0.4
3	-0.9
4	-1.4
5	-1.9
6	-2.4
7	-2.9
8	-3.4
9	-3.9
10	-4.9
11	-5.9
12	-6.9
13	-8.4
14	-9.9
15	-11.9
16	-14.4

NOTES

1) LEAD LENGTH IS THE LENGTH OF GTC CABLE TO THE FIRST BEAD
2) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
3) DRAWING NOT TO SCALE

CLIENT

AGNICO EAGLE

TETRA TECH

MELIADINE SPRING 2021 GEOTECHNICAL INVESTIGATION
MELIADINE MINE, RANKIN INLET, NU

GROUND TEMPERATURE CABLE INSTALLATION REPORT
GT21-74

PROJECT NO.	DWN	CKD	REV
ENG.EARC03193-02	LM/DBD	HX	0

OFFICE	DATE
EDM	JUNE 2021

GT21-74

C:\Debashis\Office Projects\PROJECTS\704-ENG.EARC\ENG.EARC03193-02 GTC Installation\03_Acad\ENG.EARC03193-02 GTC Installation Reports_DD.dwg [GT21-74] June 25, 2021 - 1:38:31 pm (BY: DAS, DEBASHIS)

SITE: MELIADINE MINE, NU

LOCATION: CP2 Berm

COORDINATES: NORTHING: 6 989 012

EASTING: 541 524

GROUND ELEVATION: 46.0 m

CABLE LENGTH: 16.0 m

NUMBER OF BEADS: 16

CABLE SERIAL NO.: TT 2761

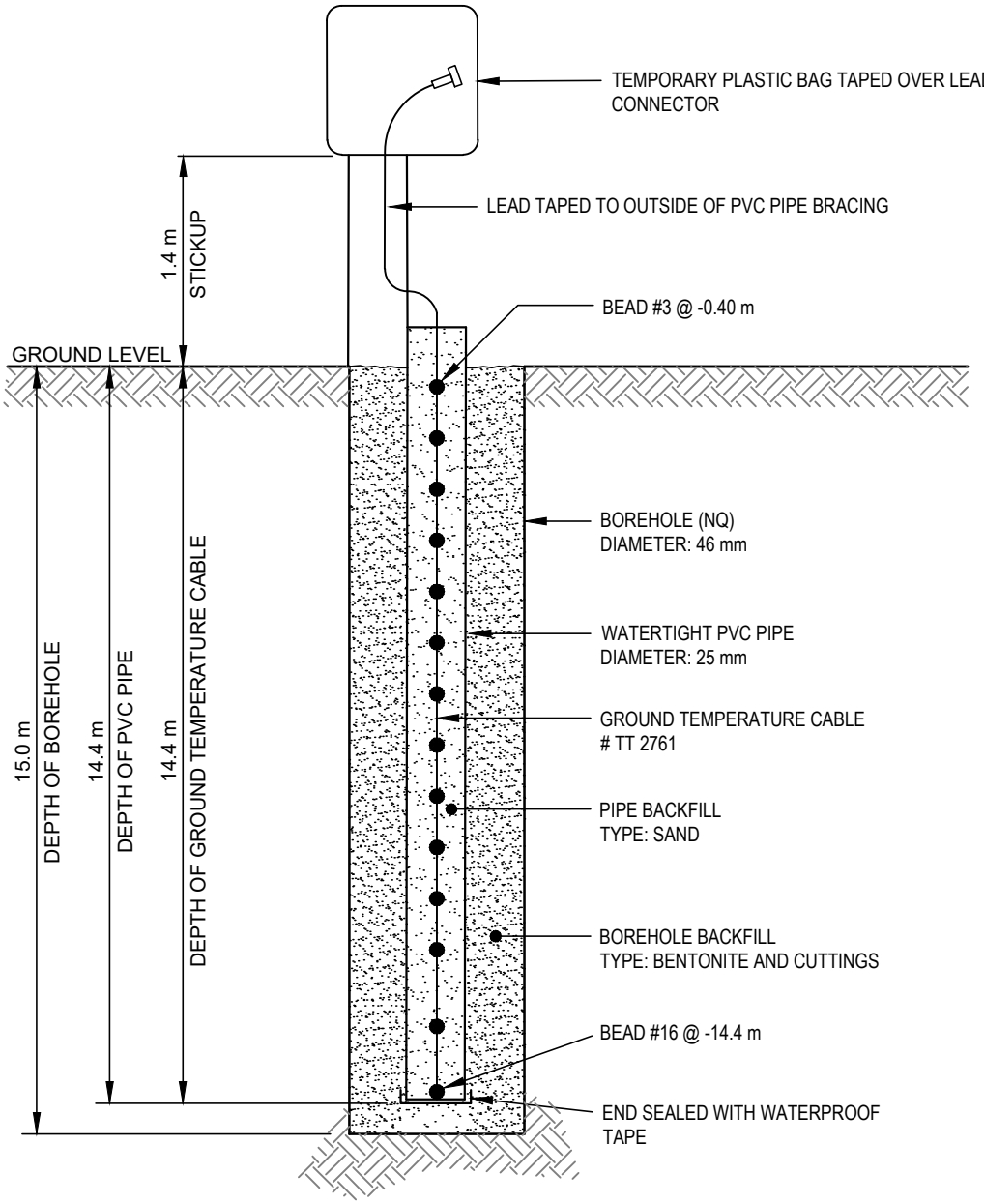
DRILLING DATE: April 26, 2021

INSTALLATION DATE: April 26, 2021

LEAD LENGTH: 3 m

1ST BEAD ELEVATION: 0.6 m

HOLE DEPTH: 15.0 m



BEAD NO.	DEPTH BELOW OG (m)
1	0.6
2	0.6
3	-0.4
4	-1.4
5	-2.4
6	-3.4
7	-4.4
8	-5.4
9	-6.4
10	-7.4
11	-8.4
12	-9.4
13	-10.4
14	-11.4
15	-12.9
16	-14.4

NOTES

1) LEAD LENGTH IS THE LENGTH OF GTC CABLE TO THE FIRST BEAD
2) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
3) DRAWING NOT TO SCALE

CLIENT

AGNICO EAGLE

TETRA TECH

MELIADINE SPRING 2021 GEOTECHNICAL INVESTIGATION
MELIADINE MINE, RANKIN INLET, NU

GROUND TEMPERATURE CABLE INSTALLATION REPORT
GT21-64

PROJECT NO.	DWN	CKD	REV
ENG.EARC03193-02	LM/DBD	HX	0

OFFICE	DATE
EDM	JUNE 2021

GT21-64

C:\Debashis\Office Projects\PROJECTS\704-ENG.EARC\ENG.EARC03193-02 GTC Installation\03_Acad\ENG.EARC03193-02 GTC Installation Reports_DD.dwg [GT21-64] June 25, 2021 - 2:25:48 pm (BY: DAS, DEBASHIS)

SITE: MELIADINE MINE, NU

LOCATION: WRSF3

COORDINATES: NORTHING: 6 988 736

EASTING: 541 295

GROUND ELEVATION: 58.0 m

CABLE LENGTH: 16.0 m

NUMBER OF BEADS: 16

CABLE SERIAL NO.: TT 2762

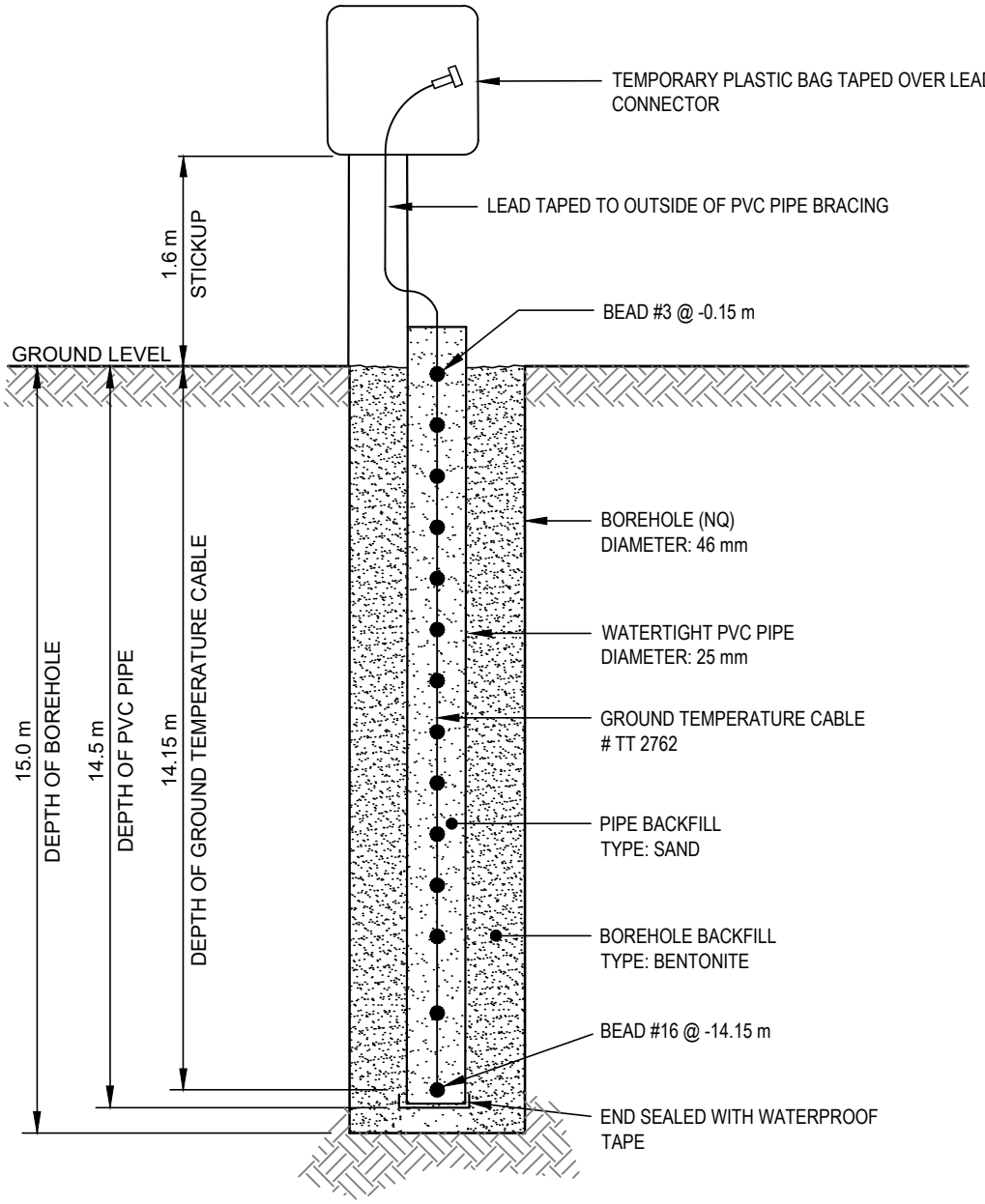
DRILLING DATE: April 26, 2021

INSTALLATION DATE: April 26, 2021

LEAD LENGTH: 3.0 m

1ST BEAD ELEVATION: 1.6 m

HOLE DEPTH: 15.0 m



BEAD NO.	DEPTH BELOW OG (m)
1	1.60
2	1.60
3	-0.15
4	-1.15
5	-2.15
6	-3.15
7	-4.15
8	-5.15
9	-6.15
10	-7.15
11	-8.15
12	-9.15
13	-10.15
14	-11.15
15	-12.65
16	-14.15

NOTES

1) LEAD LENGTH IS THE LENGTH OF GTC CABLE TO THE FIRST BEAD
2) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
3) DRAWING NOT TO SCALE

CLIENT

AGNICO EAGLE

TETRA TECH

MELIADINE SPRING 2021 GEOTECHNICAL INVESTIGATION
MELIADINE MINE, RANKIN INLET, NU

GROUND TEMPERATURE CABLE INSTALLATION REPORT
GT21-66

PROJECT NO.	DWN	CKD	REV
ENG.EARC03193-02	LM/DBD	HX	0

OFFICE	DATE
EDM	JUNE 2021

GT21-66

SITE: MELIADINE MINE, NU

LOCATION: B5 North Berm

COORDINATES: NORTHING: 6 988 362

EASTING: 537 974

GROUND ELEVATION: 60.0 m

CABLE LENGTH: 15.0 m

NUMBER OF BEADS: 16

CABLE SERIAL NO.: TT 2725

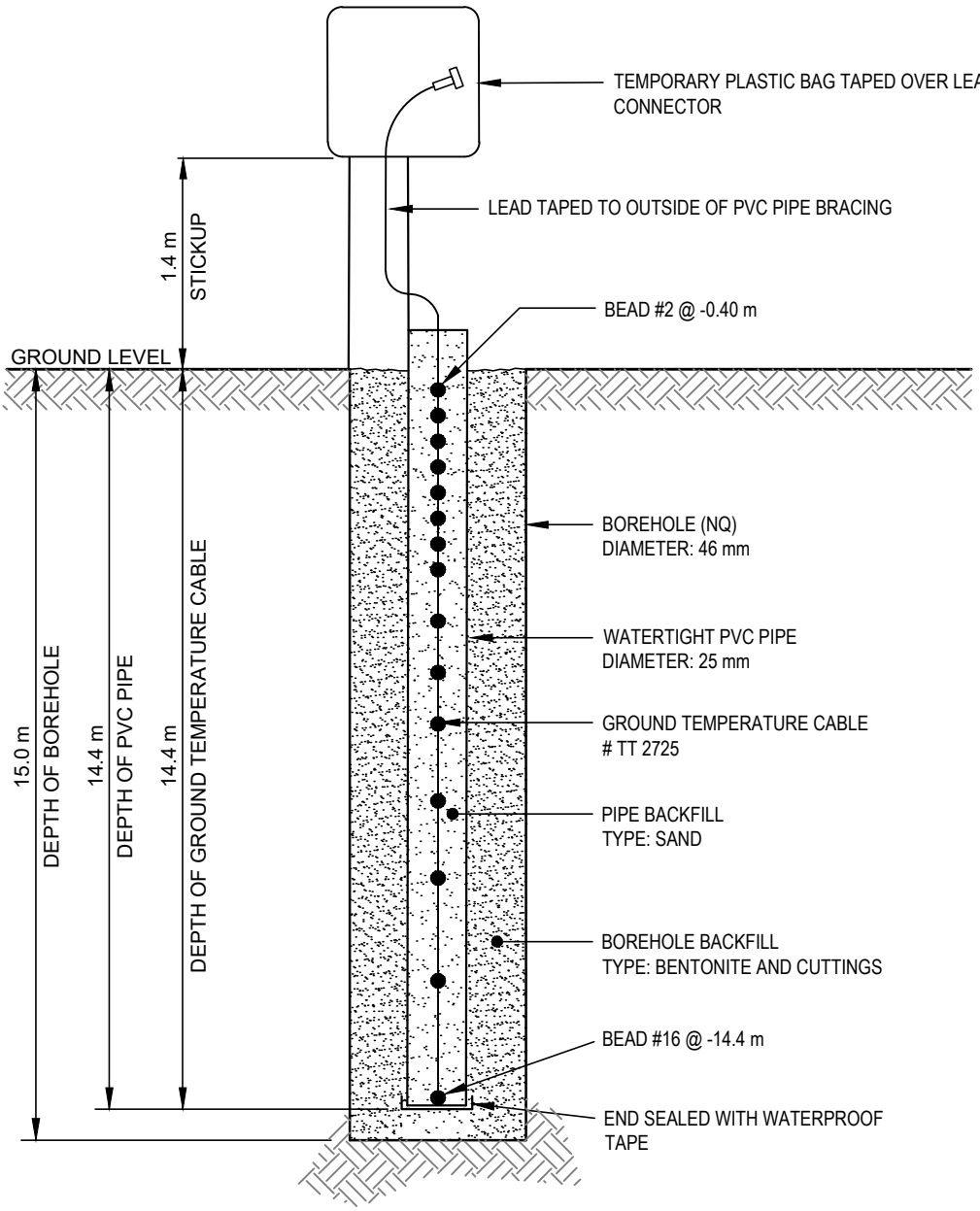
DRILLING DATE: April 23, 2021

INSTALLATION DATE: April 23, 2021

LEAD LENGTH: 1.5 m

1ST BEAD ELEVATION: 0.1 m

HOLE DEPTH: 15.0 m



BEAD NO.	DEPTH BELOW OG (m)
1	0.1
2	-0.4
3	-0.9
4	-1.4
5	-1.9
6	-2.4
7	-2.9
8	-3.4
9	-3.9
10	-4.9
11	-5.9
12	-6.9
13	-8.4
14	-9.9
15	-11.9
16	-14.4

NOTES

1) LEAD LENGTH IS THE LENGTH OF GTC CABLE TO THE FIRST BEAD
2) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
3) DRAWING NOT TO SCALE

CLIENT

AGNICO EAGLE

TETRA TECH

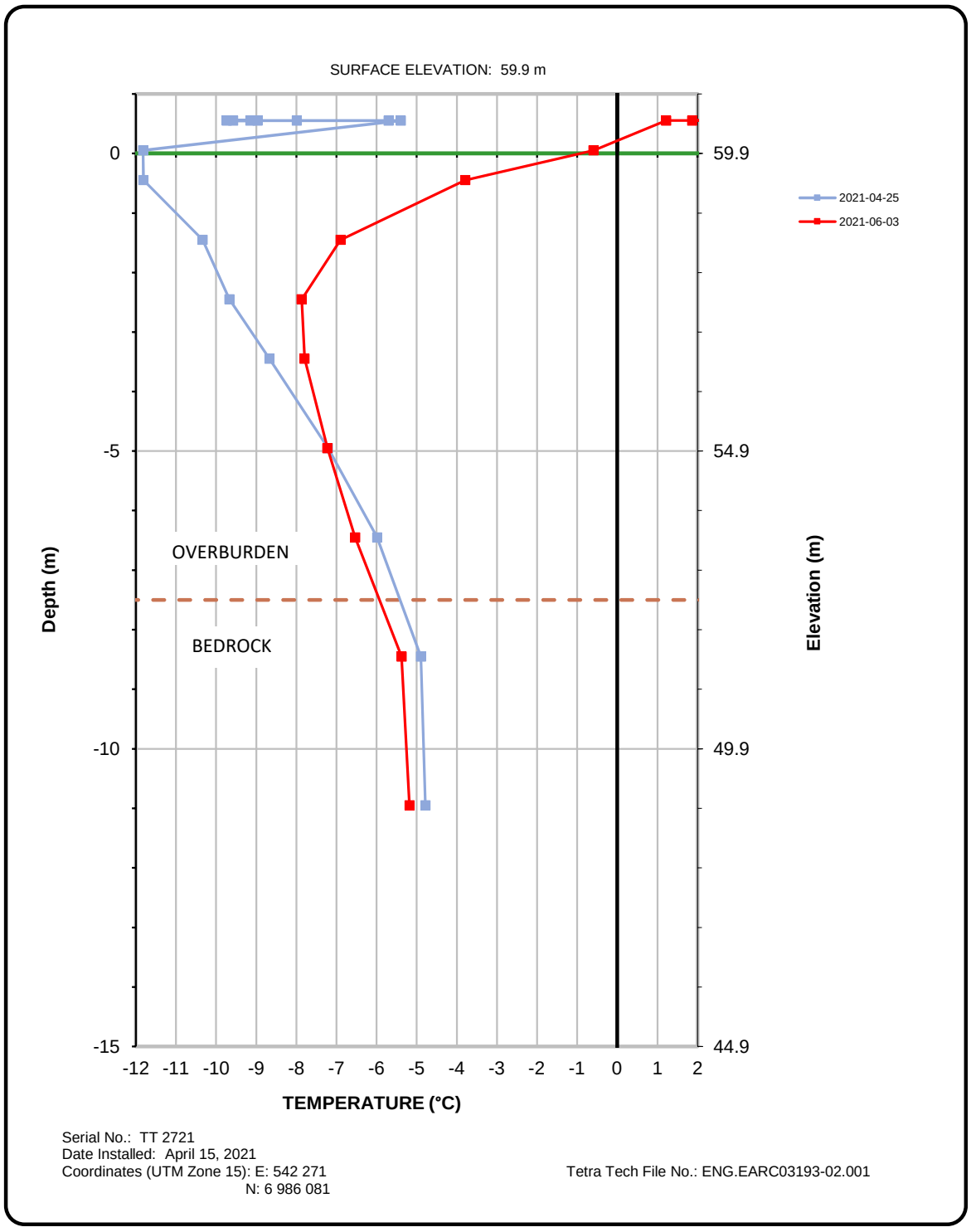
MELIADINE SPRING 2021 GEOTECHNICAL INVESTIGATION
MELIADINE MINE, RANKIN INLET, NU

GROUND TEMPERATURE CABLE INSTALLATION REPORT
GT21-102

PROJECT NO.	DWN	CKD	REV
ENG.EARC03193-02	LM/DBD	HX	0

OFFICE	DATE
EDM	JUNE 2021

GT21-102

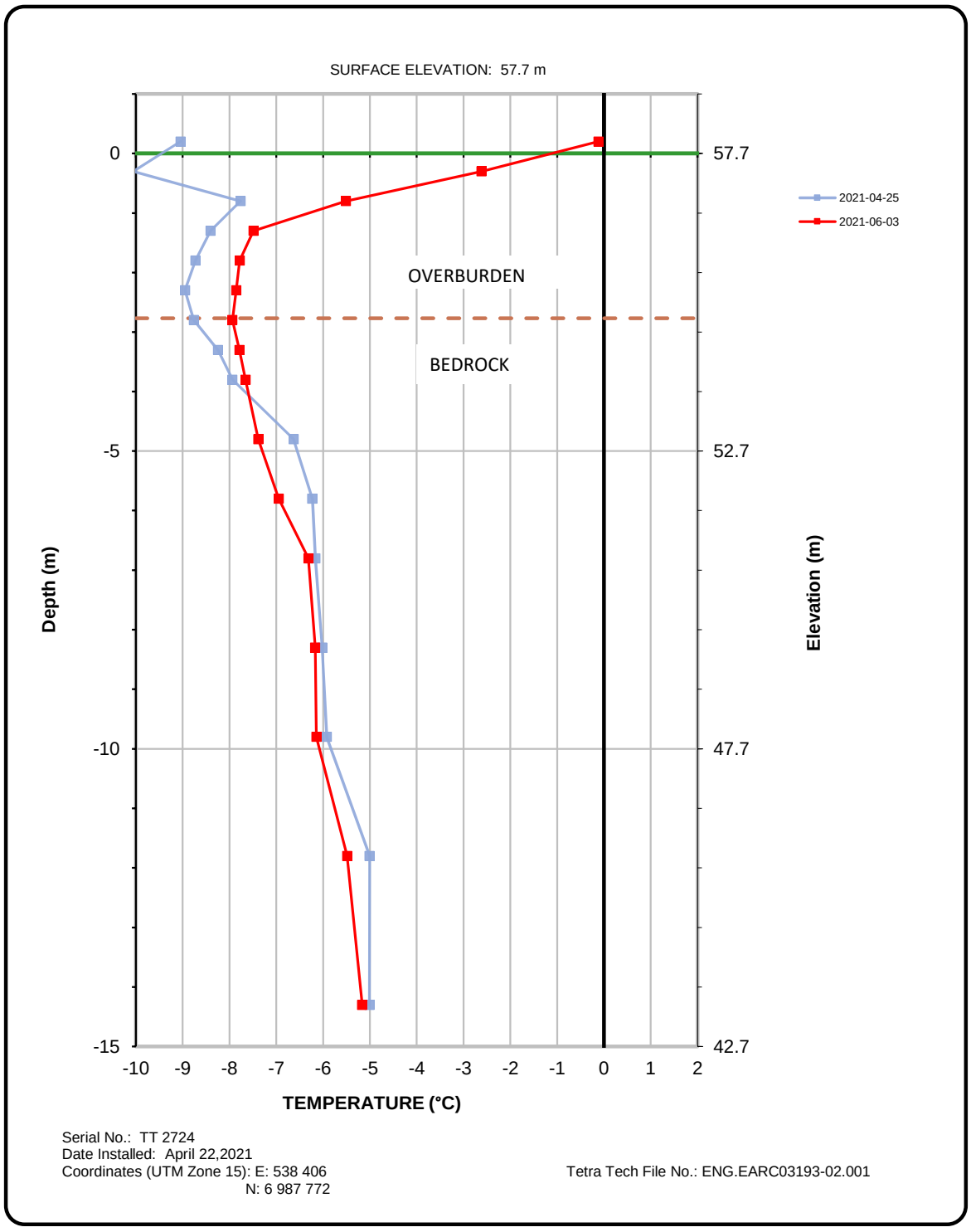


Serial No.: TT 2721
Date Installed: April 15, 2021
Coordinates (UTM Zone 15): E: 542 271
N: 6 986 081

Tetra Tech File No.: ENG.EARC03193-02.001

TETRA TECH

Ground Temperature Profile
FZone, Borehole GT21-61
Elevation: 59.9 m

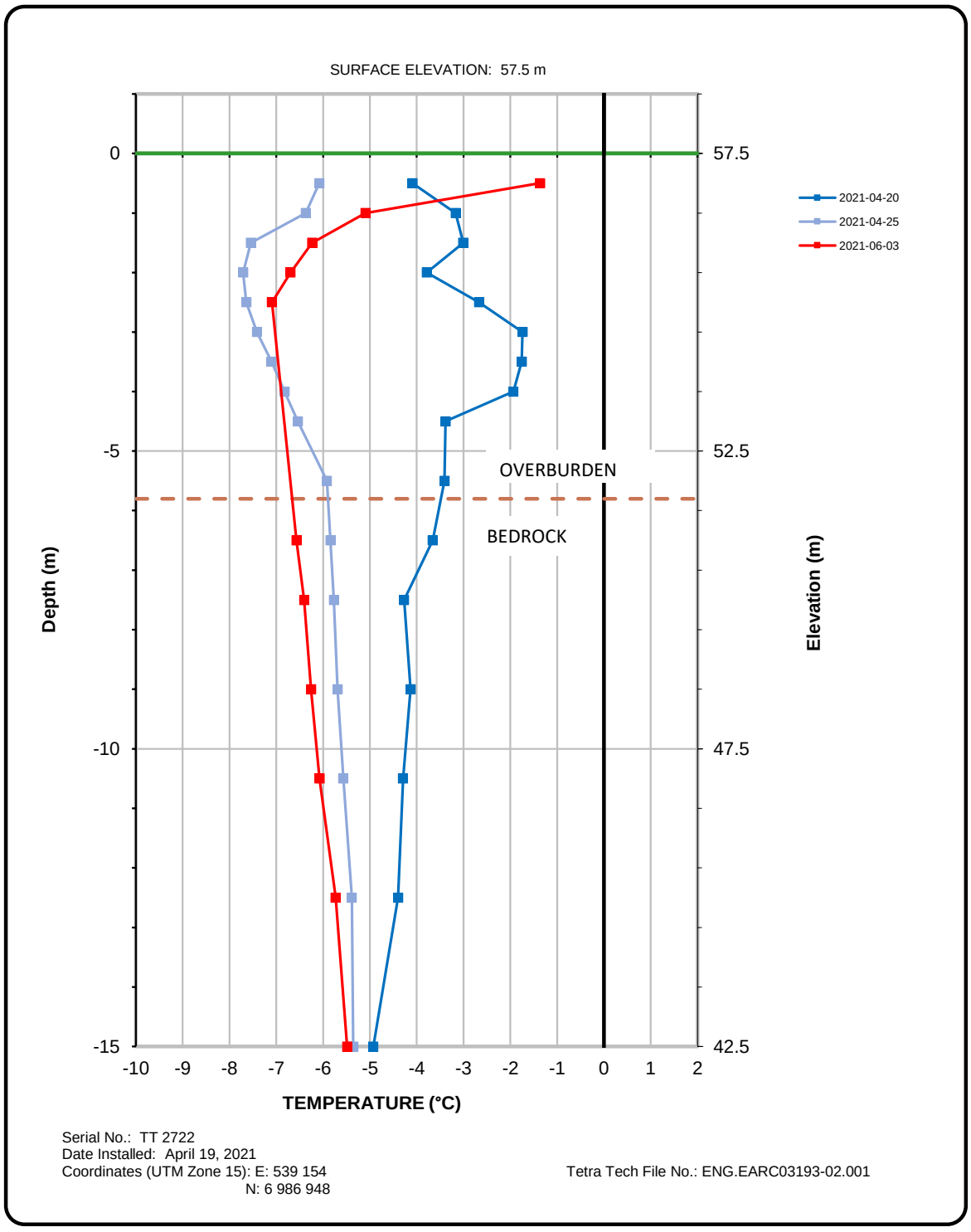


Serial No.: TT 2724
Date Installed: April 22,2021
Coordinates (UTM Zone 15): E: 538 406
N: 6 987 772

Tetra Tech File No.: ENG.EARC03193-02.001

TETRA TECH

Ground Temperature Profile
CP9North, Borehole GT21-16
Elevation: 57.7 m

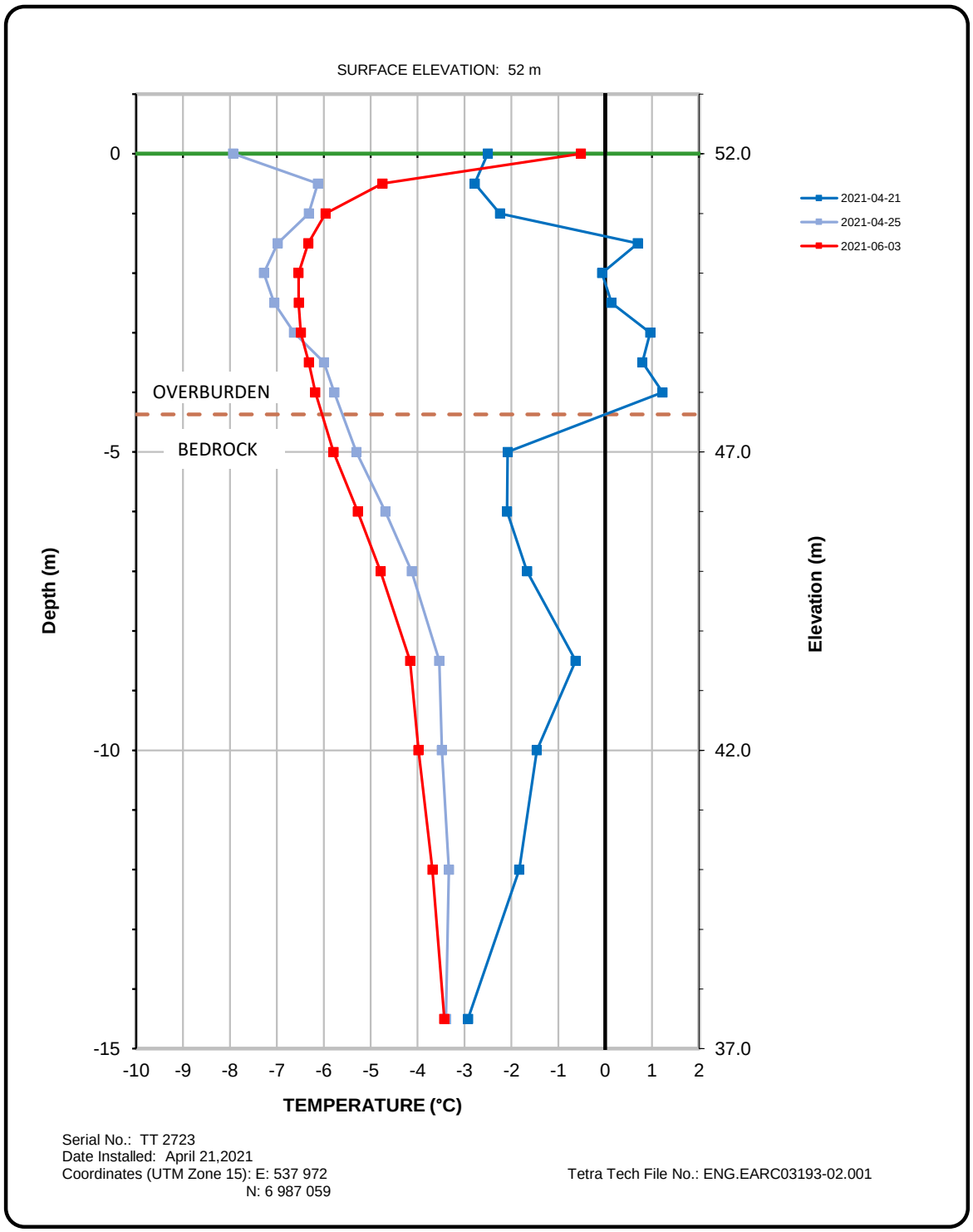


Serial No.: TT 2722
Date Installed: April 19, 2021
Coordinates (UTM Zone 15): E: 539 154
N: 6 986 948

Tetra Tech File No.: ENG.EARC03193-02.001

TETRA TECH

Ground Temperature Profile
CP9Berm, Borehole GT21-20
Elevation: 57.5 m

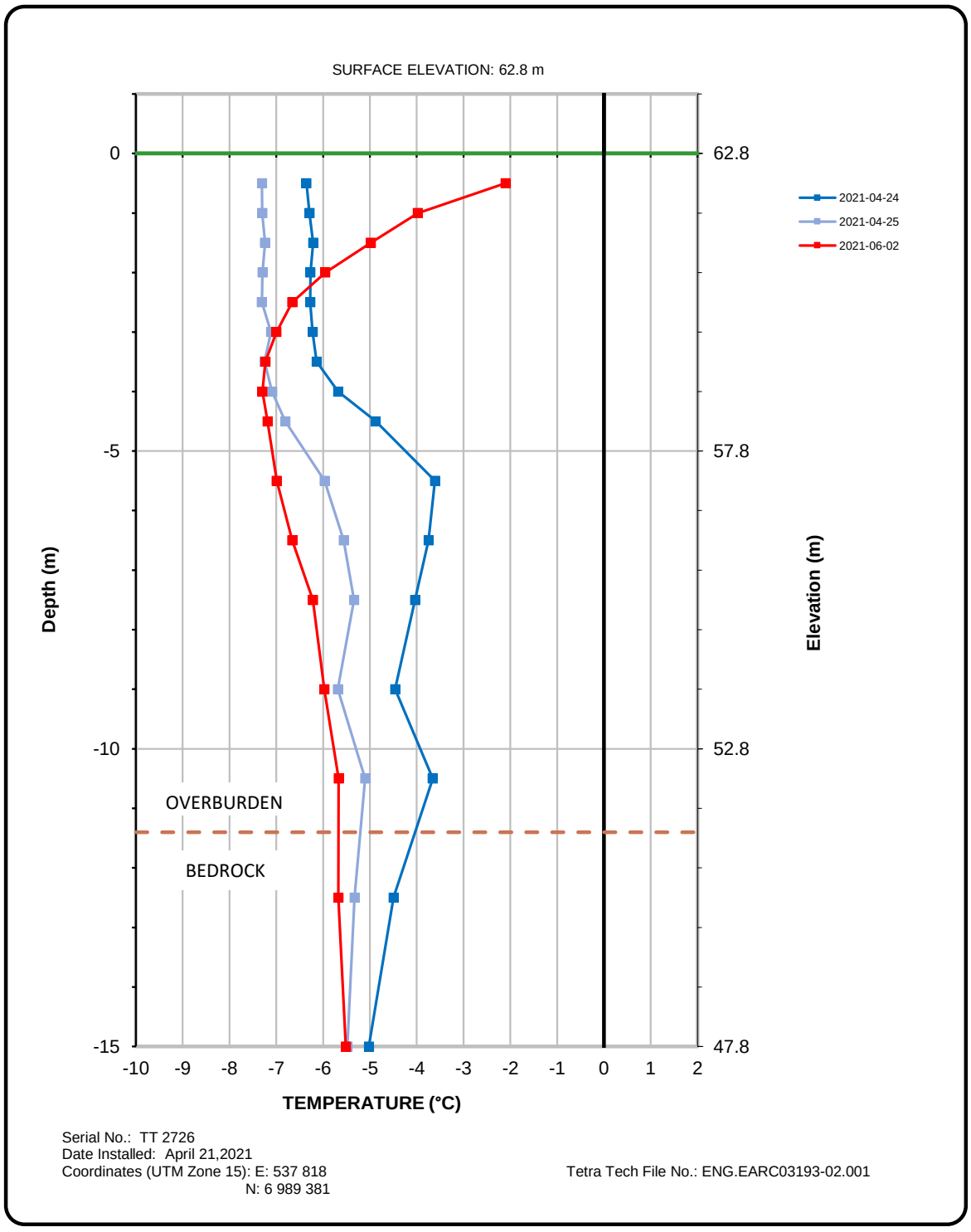


Serial No.: TT 2723
Date Installed: April 21,2021
Coordinates (UTM Zone 15): E: 537 972
N: 6 987 059

Tetra Tech File No.: ENG.EARC03193-02.001

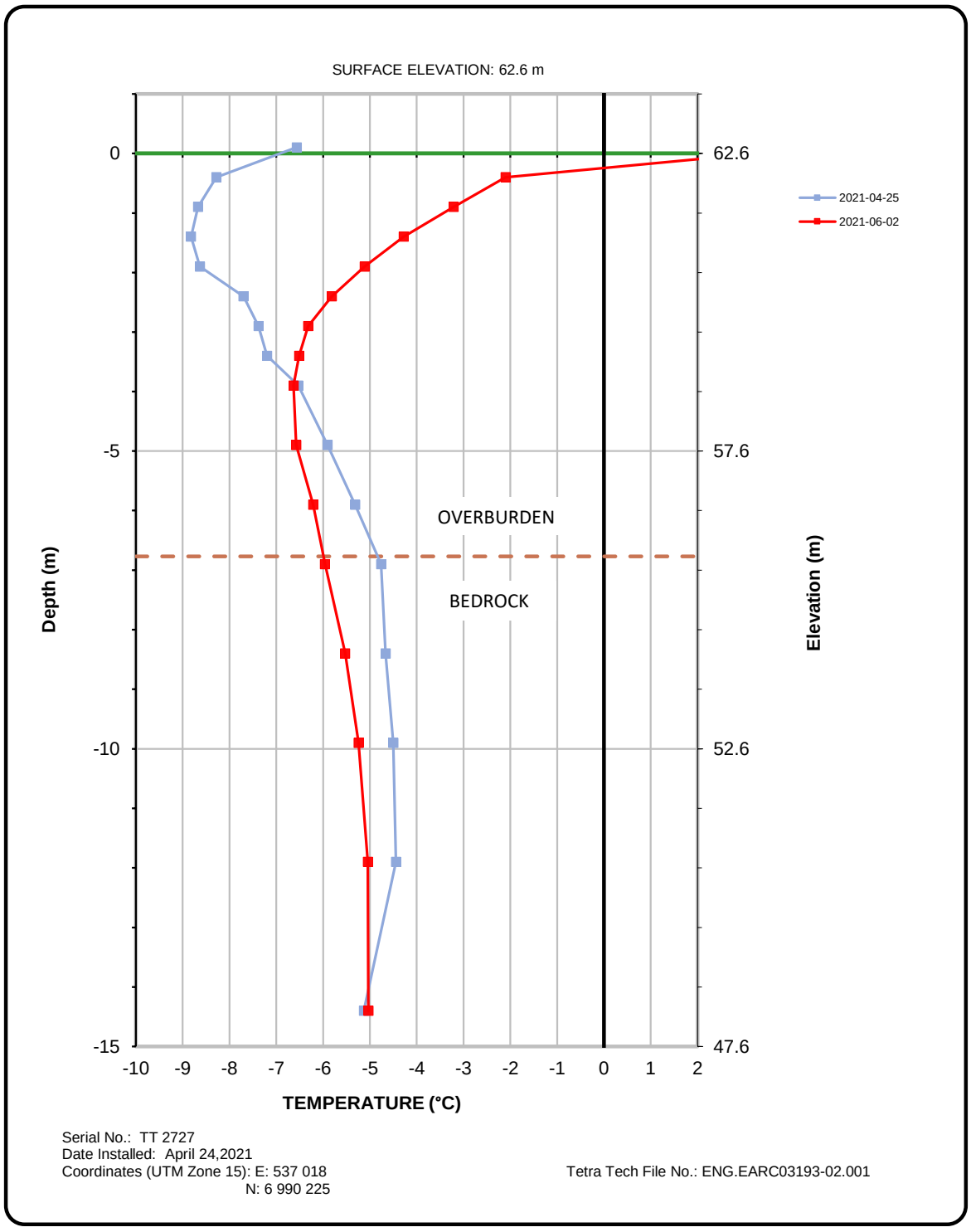
TETRA TECH

Ground Temperature Profile
FZone, Borehole GT21-63
Elevation: 52 m



TETRA TECH

Ground Temperature Profile
D-B7West, Borehole GT21-73
Elevation: 62.8 m

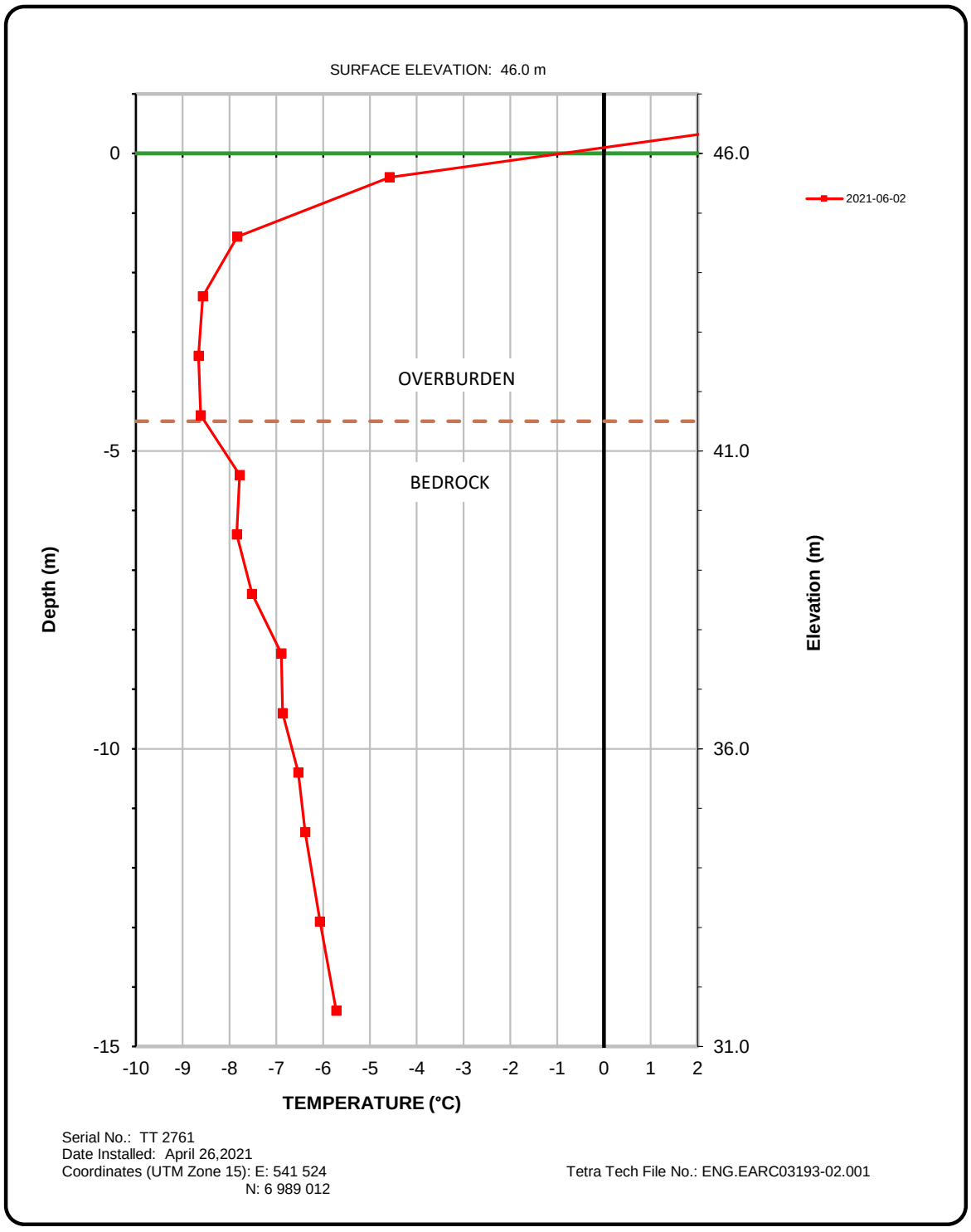


Serial No.: TT 2727
Date Installed: April 24,2021
Coordinates (UTM Zone 15): E: 537 018
N: 6 990 225

Tetra Tech File No.: ENG.EARC03193-02.001

TETRA TECH

Ground Temperature Profile
D-B7North, Borehole GT21-74
Elevation: 62.6 m

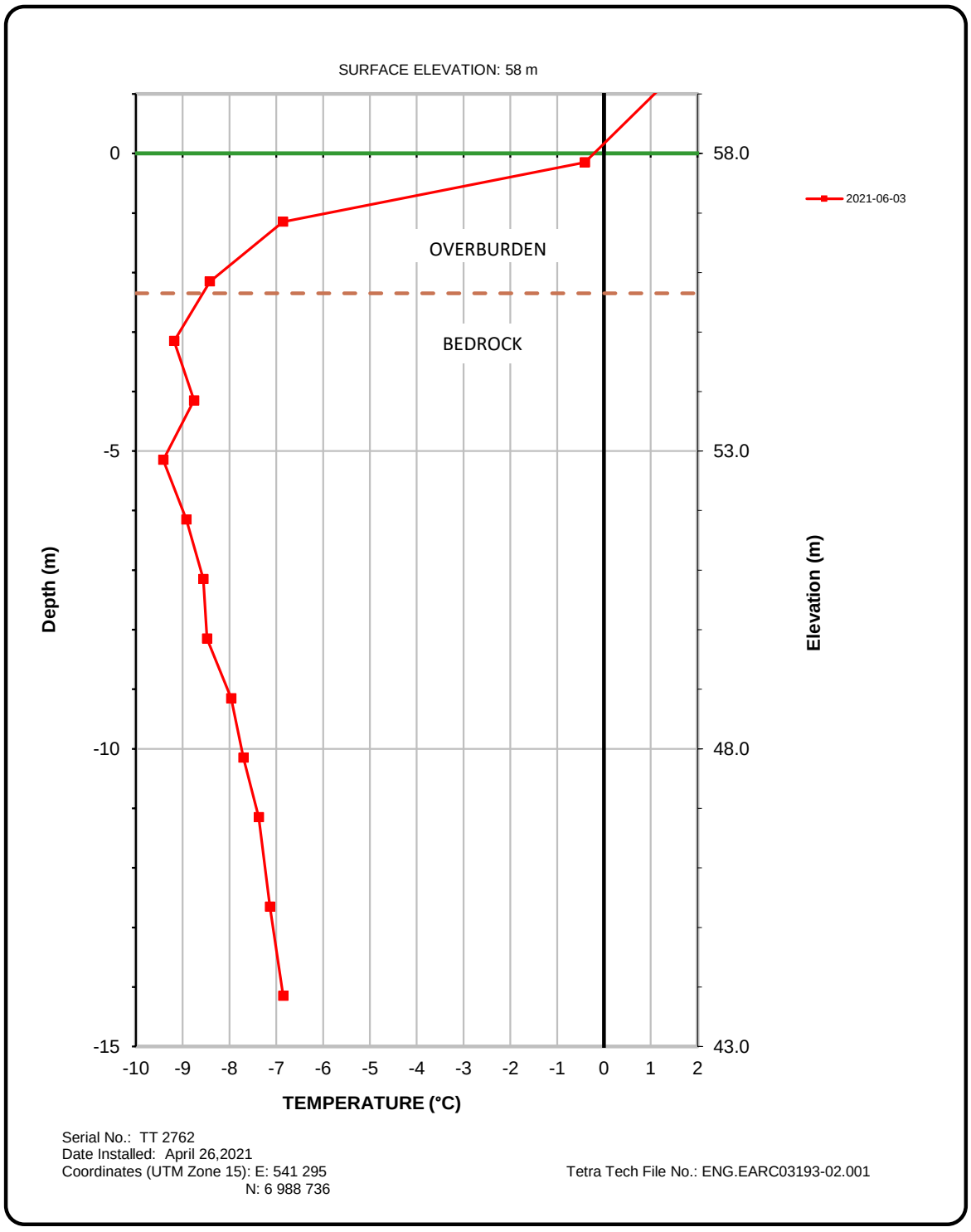


Serial No.: TT 2761
Date Installed: April 26,2021
Coordinates (UTM Zone 15): E: 541 524
N: 6 989 012

Tetra Tech File No.: ENG.EARC03193-02.001

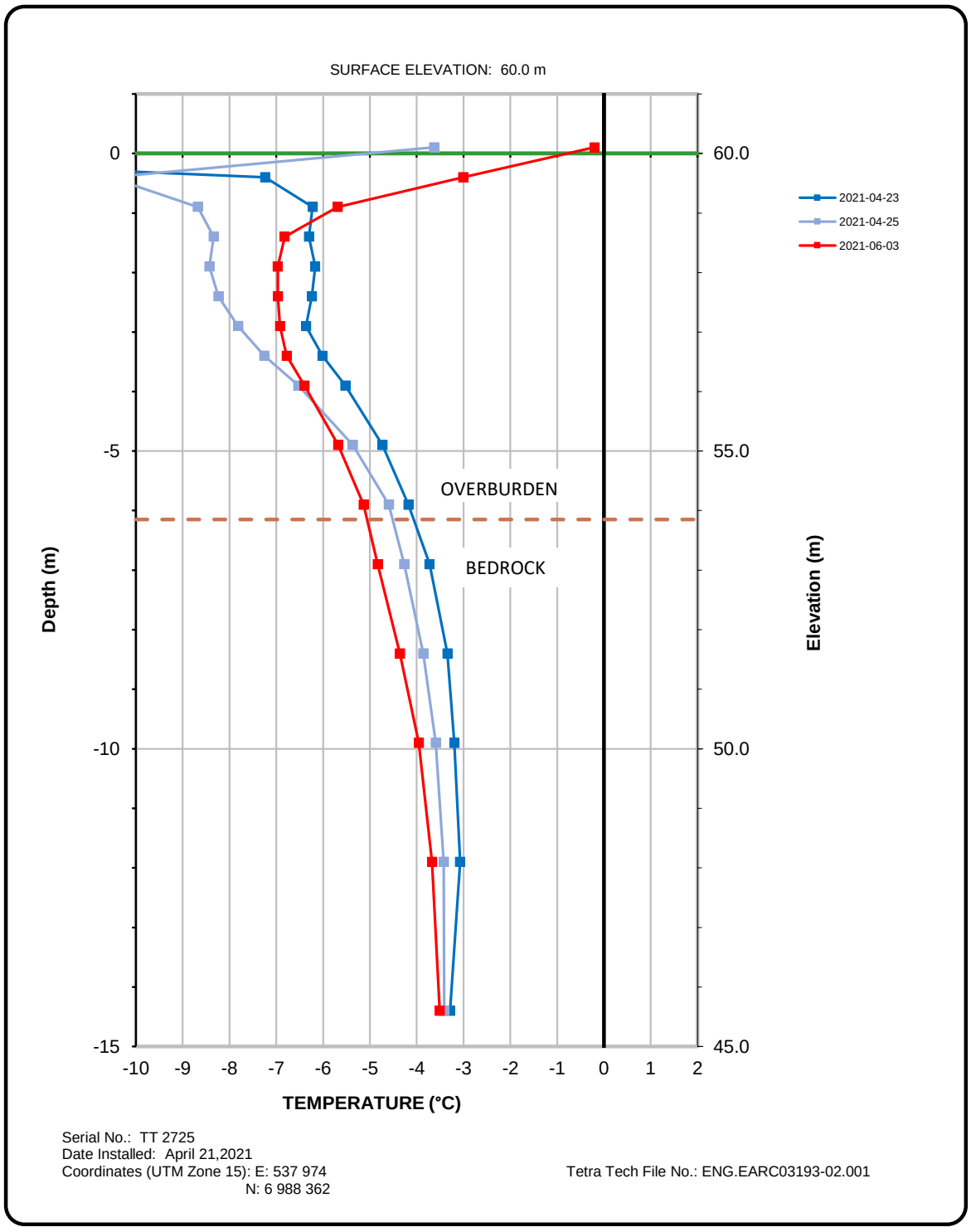
TETRA TECH

Ground Temperature Profile
CP2 Berm, Borehole GT21-64
Elevation: 46.0 m



TETRA TECH

Ground Temperature Profile
WRSF3, Borehole GT21-66
Elevation: 58 m



Serial No.: TT 2725
Date Installed: April 21,2021
Coordinates (UTM Zone 15): E: 537 974
N: 6 988 362

Tetra Tech File No.: ENG.EARC03193-02.001

TETRA TECH

Ground Temperature Profile
B5North Berm, Borehole GT21-102
Elevation: 60.0 m

APPENDIX E

PACKER TESTING RESULTS

Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

Client: AEM (Meliadine)
Project: Spring 2021 Geotech Investigation
Project #: ENG.EARC03193-02.001
Personnel: Ernest Palczewski

Collar El.: 59.3 m
Trend: - deg
Plunge: -90 deg
Date: 16-Apr-21

Hole #: GT21-60
Hole Size: NQ
Design Test Interval: 12.0-15.0 m
Test #: 1

Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1654.6900	-
1	30.0	1654.6935	0.0035
2		1654.6965	0.0030
3		1654.7000	0.0035
4		1654.7033	0.0033
5		1654.7066	0.0033
6		1654.7099	0.0033
7			
8			
9			
10			
Stable Ave.	30.0		0.0033

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1654.7140	-
1	40.0	1654.7195	0.0055
2		1654.7250	0.0055
3		1654.7305	0.0055
4		1654.7360	0.0055
5		1654.7415	0.0055
6			
7			
8			
9			
10			
Stable Ave.	40.0		0.0055

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1654.747	-
1	50	1654.754	0.0070
2		1654.761	0.0070
3		1654.768	0.0070
4		1654.775	0.0070
5		1654.782	0.0070
6			
7			
8			
9			
10			
Stable Ave.	50.0		0.0070

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1654.787	-
1	40	1654.793	0.0060
2		1654.799	0.0060
3		1654.8052	0.0062
4		1654.8114	0.0062
5		1654.8176	0.0062
6			
7			
8			
9			
10			
Stable Ave.	40.0		0.0062

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1654.821	-
1	30	1654.8257	0.0047
2		1654.8304	0.0047
3		1654.8351	0.0047
4		1654.8397	0.0046
5		1654.8443	0.0046
6			
7			
8			
9			
10			
Stable Ave.	30.0		0.0046

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Measurements

Depth to Water from Top of Stickup:	1.8	m toc
Top of Packer Interval:	12.00	m ah*
Bottom of Packer Interval (or Bottom of Hole):	15.00	m ah
Packer Inflation Pressure:	220	psi
Rod Stickup Height:	1.70	m ags
Water Flushed (Vol./Time/Until Clean):		
Packer Pipe ID/ or Drill Rod ID (circle one):	47.6	
Borehole Outside Diameter:	75.7	mm
Vertical height of gauge above ground:	0.50	m ags

* m ah - metres along hole

Measurement Units

Volume:	m^3
Pressure:	kPa (psi for packer inflation)
Length:	m

Time

Start Flushing:	12:15 PM
End Flushing:	12:25 PM
Start Packer Testing:	2:10 PM
End Packer Testing:	2:42 PM

FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

Additional Comments:

TETRA TECH

Hole #: GT21-60
Test #: 1

TETRA TECH

Calculation Input Parameters

Top of Packer Test Interval (mah):	12.0
Bottom of Packer Test Interval (mah):	15.0
L: Length of Test Interval (mah)	3.0
Test Interval Midpoint (mah):	13.5
s: Casing Stickup Height (mah):	1.70
a: Pressure Gauge Height (m above ground	0.50
DTW: Depth to Water Table (mah):	1.80
Borehole Diameter (mm):	75.7
r: Borehole Radius (m):	0.03785
A: Angle From Horizontal (deg):	-90
λ: Specific Weight of Water	1

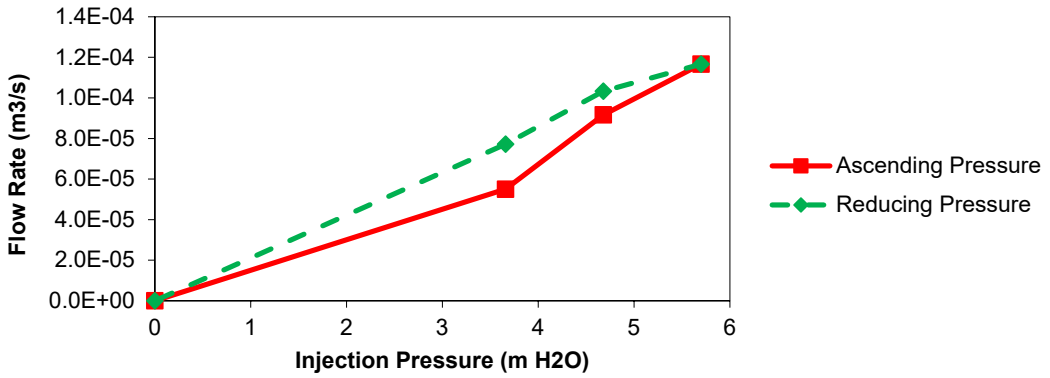
* mah indicates "meters along hole"

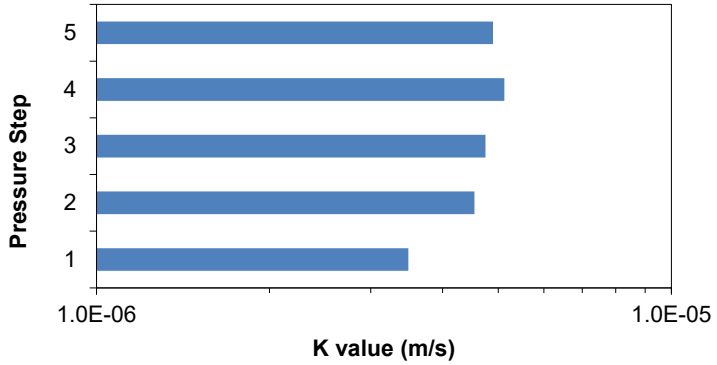
$$K = \frac{Q\ ln\left(\frac{L}{r}\right)}{2\ \pi\ L\ dH}$$

$$dH = (DTW - s + a)\sin(A) + \frac{p}{\lambda}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m^3/s):	Hydraulic Conductivity K (m/s)
1	4.4	30.0	3.1	3.7	5.5E-05	3.5E-06
2	5.8	40.0	4.1	4.7	9.2E-05	4.5E-06
3	7.3	50.0	5.1	5.7	1.2E-04	4.7E-06
4	5.8	40.0	4.1	4.7	1.0E-04	5.1E-06
5	4.4	30.0	3.1	3.7	7.7E-05	4.9E-06
					Geo Mean	**4.5E-06**

Diagnostic Plots





Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

Client: AEM (Meliadine)
Project: Spring 2021 Geotech Investigation
Project #: ENG.EARC03193-02.001
Personnel: Ernest Palczewski

Collar El.: 57.5 m
Trend: - deg
Plunge: -90 deg
Date: 19-Apr-21

Hole #: GT21-20
Hole Size: NQ
Design Test Interval: 11.0-15.5 m
Test #: 2

Packer Setup Type: Single

Measurements

Depth to Water from Top of Stickup:	1.7	m toc
Top of Packer Interval:	11.00	m ah*
Bottom of Packer Interval (or Bottom of Hole):	15.50	m ah
Packer Inflation Pressure:	220	psi
Rod Stickup Height:	1.70	m ags
Water Flushed (Vol./Time/Until Clean):		
Packer Pipe ID/ or Drill Rod ID (circle one):	47.6	
Borehole Outside Diameter:	75.7	mm
Vertical height of gauge above ground:	1.10	m ags

* m ah - metres along hole

Measurement Units

Volume:	m^3
Pressure:	kPa (psi for packer inflation)
Length:	m

Time

Start Flushing:	
End Flushing:	
Start Packer Testing:	2:20 PM
End Packer Testing:	2:55 PM

Pressure Interval 1

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0		1655.4785	-
1	300.0	1655.4800	0.0015
2		1655.4816	0.0016
3		1655.4821	0.0005
4		1655.4844	0.0023
5		1655.4860	0.0016
6		1655.4874	0.0014
7			
8			
9			
10			
Stable Ave.	300.0		0.0015

Pressure Interval 2

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0		1655.4890	-
1	340.0	1655.4924	0.0034
2		1655.4957	0.0033
3		1655.4989	0.0032
4		1655.5024	0.0035
5		1655.5058	0.0034
6			
7			
8			
9			
10			
Stable Ave.	340.0		0.0034

Pressure Interval 3

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0		1655.5090	-
1	380	1655.5151	0.0061
2		1655.5213	0.0062
3		1655.5274	0.0061
4		1655.5337	0.0063
5		1655.5399	0.0062
6			
7			
8			
9			
10			
Stable Ave.	380.0		0.0062

Pressure Interval 4

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0		1655.5425	-
1	340	1655.5456	0.0031
2		1655.5487	0.0031
3		1655.5519	0.0032
4		1655.5550	0.0031
5		1655.5582	0.0032
6			
7			
8			
9			
10			
Stable Ave.	340.0		0.0032

Pressure Interval 5

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0		1655.5590	-
1	300	1655.5595	0.0005
2		1655.5600	0.0005
3		1655.5605	0.0005
4		1655.5610	0.0005
5		1655.5615	0.0005
6			
7			
8			
9			
10			
Stable Ave.	300.0		0.0005

Pressure Interval 6

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

Additional Comments: No flow until ~300 kPa

TETRA TECH

Hole #: GT21-20
Test #: 2

TETRA TECH

Calculation Input Parameters

Top of Packer Test Interval (mah):	11.0
Bottom of Packer Test Interval (mah):	15.5
L: Length of Test Interval (mah)	4.5
Test Interval Midpoint (mah):	13.3
s: Casing Stickup Height (mah):	1.70
a: Pressure Gauge Height (m above ground	1.10
DTW: Depth to Water Table (mah):	1.70
Borehole Diameter (mm):	75.7
r: Borehole Radius (m):	0.03785
A: Angle From Horizontal (deg):	-90
λ: Specific Weight of Water	1

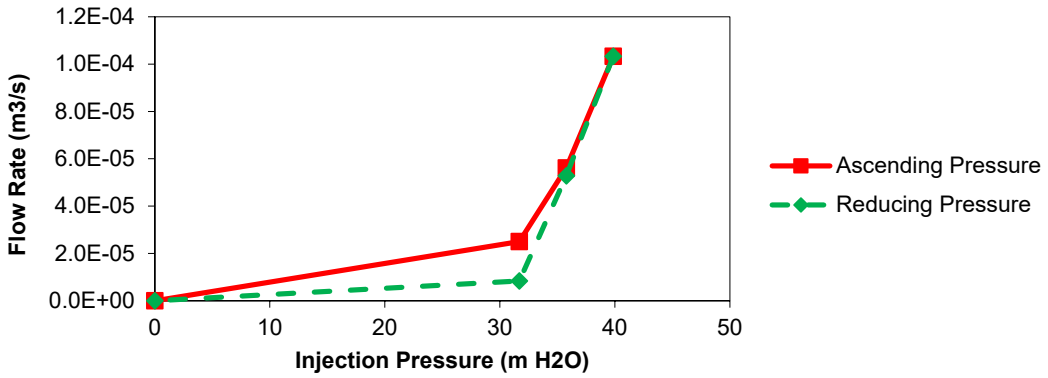
* mah indicates "meters along hole"

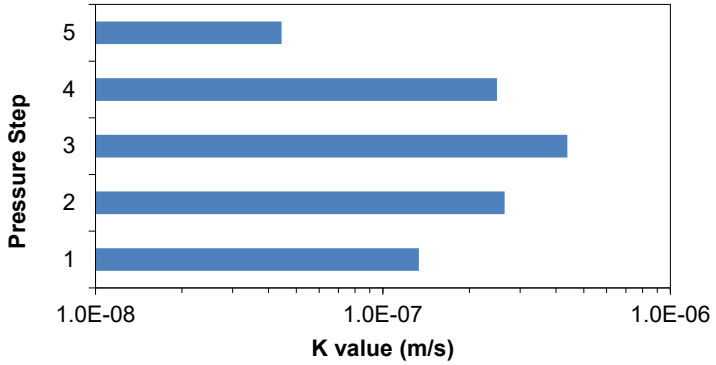
$$K = \frac{Q\ ln\left(\frac{L}{r}\right)}{2\ \pi\ L\ dH}$$

$$dH = (DTW - s + a)\sin(A) + \frac{p}{\lambda}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m^3/s):	Hydraulic Conductivity K (m/s)
1	43.5	300.0	30.6	31.7	2.5E-05	1.3E-07
2	49.3	340.0	34.7	35.8	5.6E-05	2.7E-07
3	55.1	380.0	38.8	39.9	1.0E-04	4.4E-07
4	49.3	340.0	34.7	35.8	5.3E-05	2.5E-07
5	43.5	300.0	30.6	31.7	8.3E-06	4.4E-08
					Geo Mean	**1.8E-07**

Diagnostic Plots





Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

Client: AEM (Meliadine)
Project: Spring 2021 Geotech Investigation
Project #: ENG.EARC03193-02.001
Personnel: Ernest Palczewski

Collar El.: 57.7 m
Trend: - deg
Plunge: -90 deg
Date: 22-Apr-21

Hole #: GT21-100
Hole Size: NQ
Design Test Interval: 9.0-12.0 m
Test #: 3

Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1655.7390	-
1	30.0	1655.7555	0.0165
2		1655.7720	0.0165
3		1655.7880	0.0160
4		1655.8045	0.0165
5		1655.8210	0.0165
6		1655.8375	0.0165
7			
8			
9			
10			
Stable Ave.	30.0		0.0165

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1655.8500	-
1	40.0	1655.8685	0.0185
2		1655.8865	0.0180
3		1655.9050	0.0185
4		1655.9230	0.0180
5		1655.9415	0.0185
6			
7			
8			
9			
10			
Stable Ave.	40.0		0.0183

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1655.9550	-
1	50.0	1655.9760	0.0210
2		1655.9970	0.0210
3		1656.0180	0.0210
4		1656.0390	0.0210
5		1656.0600	0.0210
6			
7			
8			
9			
10			
Stable Ave.	50.0		0.0210

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1656.0880	-
1	40.0	1656.0985	0.0105
2		1656.1170	0.0185
3		1656.1355	0.0185
4		1656.1540	0.0185
5			
6			
7			
8			
9			
10			
Stable Ave.	40.0		0.0185

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1656.1660	-
1	30.0	1656.1825	0.0165
2		1656.2000	0.0175
3		1656.2155	0.0155
4		1656.2320	0.0165
5		1656.2480	0.0160
6		1656.2645	0.0165
7			
8			
9			
10			
Stable Ave.	30.0		0.0163

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Measurements

Depth to Water from Top of Stickup:	1.8	m toc
Top of Packer Interval:	9.00	m ah*
Bottom of Packer Interval (or Bottom of Hole):	12.00	m ah
Packer Inflation Pressure:	220	psi
Rod Stickup Height:	1.65	m ags
Water Flushed (Vol./Time/Until Clean):		
Packer Pipe ID/ or Drill Rod ID (circle one):	47.6	
Borehole Outside Diameter:	75.7	mm
Vertical height of gauge above ground:	1.30	m ags

* m ah - metres along hole

Measurement Units

Volume:	m^3
Pressure:	kPa (psi for packer inflation)
Length:	m

Time

Start Flushing:	
End Flushing:	
Start Packer Testing:	4:35 PM
End Packer Testing:	5:00 PM

FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

Additional Comments:

TETRA TECH

Hole #: GT21-100
Test #: 3

TETRA TECH

Calculation Input Parameters

Top of Packer Test Interval (mah):	9.0
Bottom of Packer Test Interval (mah):	12.0
L: Length of Test Interval (mah)	3.0
Test Interval Midpoint (mah):	10.5
s: Casing Stickup Height (mah):	1.65
a: Pressure Gauge Height (m above ground	1.30
DTW: Depth to Water Table (mah):	1.75
Borehole Diameter (mm):	75.7
r: Borehole Radius (m):	0.03785
A: Angle From Horizontal (deg):	-90
λ: Specific Weight of Water	1

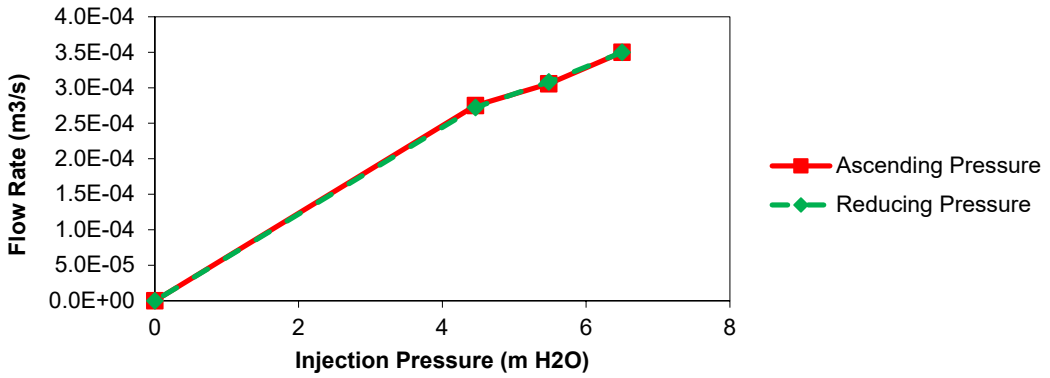
* mah indicates "meters along hole"

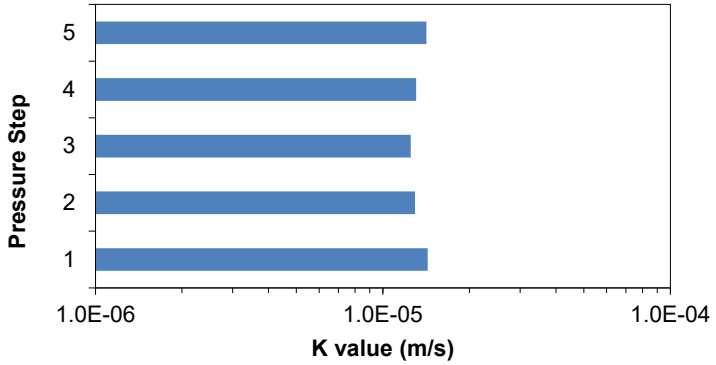
$$K = \frac{Q\ ln\left(\frac{L}{r}\right)}{2\ \pi\ L\ dH}$$

$$dH = (DTW - s + a)\sin(A) + \frac{p}{\lambda}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m^3/s):	Hydraulic Conductivity K (m/s)
1	4.4	30.0	3.1	4.5	2.8E-04	1.4E-05
2	5.8	40.0	4.1	5.5	3.1E-04	1.3E-05
3	7.3	50.0	5.1	6.5	3.5E-04	1.2E-05
4	5.8	40.0	4.1	5.5	3.1E-04	1.3E-05
5	4.4	30.0	3.1	4.5	2.7E-04	1.4E-05
					Geo Mean	**1.3E-05**

Diagnostic Plots





Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

Client: AEM (Meliadine)
Project: Spring 2021 Geotech Investigation
Project #: ENG.EARC03193-02.001
Personnel: Ernest Palczewski

Collar El.: 62.8 m
Trend: - deg
Plunge: -90 deg
Date: 24-Apr-21

Hole #: GT21-73
Hole Size: NQ
Design Test Interval: 13.5-16.5 m
Test #: 4

Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1656.5000	-
1	40.0	1656.5050	0.0050
2		1656.5100	0.0050
3		1656.5150	0.0050
4		1656.5200	0.0050
5		1656.5250	0.0050
6			
7			
8			
9			
10			
Stable Ave.	40.0		0.0050

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1656.5435	-
1	75.0	1656.5480	0.0045
2		1656.5530	0.0050
3		1656.5575	0.0045
4		1656.5625	0.0050
5		1656.5675	0.0050
6			
7			
8			
9			
10			
Stable Ave.	75.0		0.0048

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0		1656.5700	-
1	100.0	1656.5750	0.0050
2		1656.5795	0.0045
3		1656.5845	0.0050
4		1656.5890	0.0045
5		1656.5940	0.0050
6			
7			
8			
9			
10			
Stable Ave.	100.0		0.0048

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			0.0000
2			0.0000
3			0.0000
4			0.0000
5			
6			
7			
8			
9			
10			
Stable Ave.	#DIV/0!		0.0000

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			0.0000
2			0.0000
3			0.0000
4			0.0000
5			0.0000
6			0.0000
7			
8			
9			
10			
Stable Ave.	#DIV/0!		0.0000

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Measurements

Depth to Water from Top of Stickup:	1.6	m toc
Top of Packer Interval:	13.50	m ah*
Bottom of Packer Interval (or Bottom of Hole):	16.50	m ah
Packer Inflation Pressure:	220	psi
Rod Stickup Height:	1.60	m ags
Water Flushed (Vol./Time/Until Clean):		
Packer Pipe ID/ or Drill Rod ID (circle one):	47.6	
Borehole Outside Diameter:	75.7	mm
Vertical height of gauge above ground:	1.30	m ags

* m ah - metres along hole

Measurement Units

Volume:	m^3
Pressure:	kPa (psi for packer inflation)
Length:	m

Time

Start Flushing:	
End Flushing:	
Start Packer Testing:	11:20 AM
End Packer Testing:	11:45 AM

FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

Additional Comments: Gauge is bouncing, taking average

TETRA TECH

Hole #: GT21-73
Test #: 4

TETRA TECH

Calculation Input Parameters

Top of Packer Test Interval (mah):	13.5
Bottom of Packer Test Interval (mah):	16.5
L: Length of Test Interval (mah)	3.0
Test Interval Midpoint (mah):	15.0
s: Casing Stickup Height (mah):	1.60
a: Pressure Gauge Height (m above ground	1.30
DTW: Depth to Water Table (mah):	1.60
Borehole Diameter (mm):	75.7
r: Borehole Radius (m):	0.03785
A: Angle From Horizontal (deg):	-90
λ: Specific Weight of Water	1

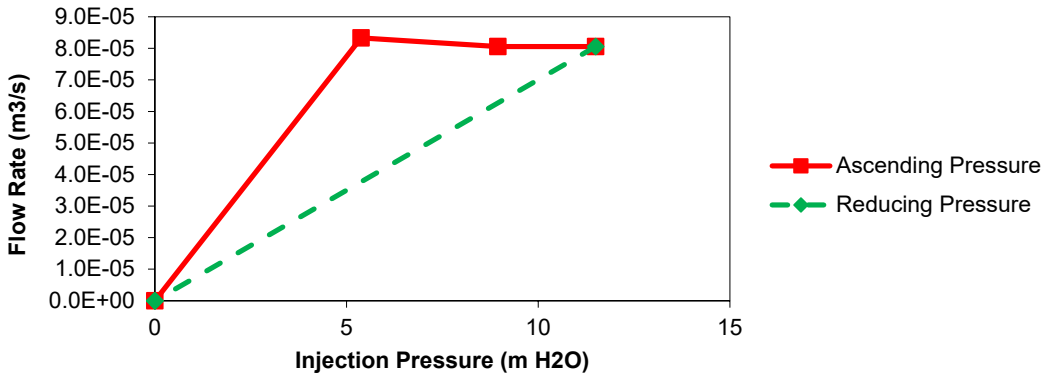
* mah indicates "meters along hole"

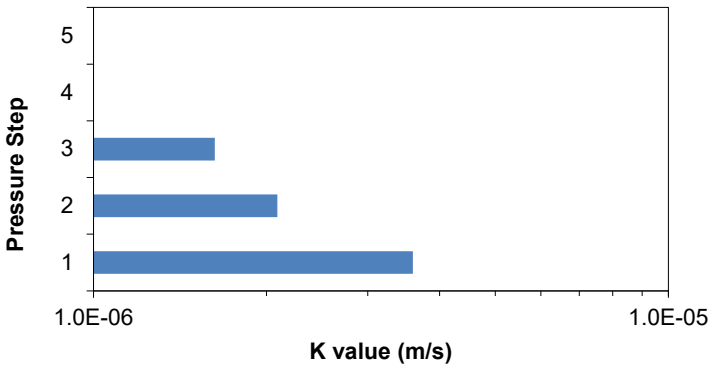
$$K = \frac{Q\ ln\left(\frac{L}{r}\right)}{2\ \pi\ L\ dH}$$

$$dH = (DTW - s + a)\sin(A) + \frac{p}{\lambda}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m^3/s):	Hydraulic Conductivity K (m/s)
1	5.8	40.0	4.1	5.4	8.3E-05	3.6E-06
2	10.9	75.0	7.6	8.9	8.1E-05	2.1E-06
3	14.5	100.0	10.2	11.5	8.1E-05	1.6E-06
4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0E+00	#DIV/0!
5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0E+00	#DIV/0!
					Geo Mean	**2.3E-06**

Diagnostic Plots





Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

Client: AEM (Meliadine)
Project: Spring 2021 Geotech Investigation
Project #: ENG.EARC03193-02.001
Personnel: Ernest Palczewski

Collar El.: 60.0 m
Trend: - deg
Plunge: -90 deg
Date: 23-Apr-21

Hole #: GT21-102
Hole Size: NQ
Design Test Interval: 12.0-15.0 m
Test #: 5

Packer Setup Type: Single

Measurements

Depth to Water from Top of Stickup:	1.9	m toc
Top of Packer Interval:	12.00	m ah*
Bottom of Packer Interval (or Bottom of Hole):	15.00	m ah
Packer Inflation Pressure:	220	psi
Rod Stickup Height:	1.90	m ags
Water Flushed (Vol./Time/Until Clean):		
Packer Pipe ID/ or Drill Rod ID (circle one):	47.6	
Borehole Outside Diameter:	75.7	mm
Vertical height of gauge above ground:	1.60	m ags

* m ah - metres along hole

Measurement Units

Volume:	m^3
Pressure:	kPa (psi for packer inflation)
Length:	m

Time

Start Flushing:	
End Flushing:	
Start Packer Testing:	1:30 PM
End Packer Testing:	2:20 PM

Pressure Interval 1

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0		1656.4091	-
1	50.0	1656.4095	0.0004
2		1656.4099	0.0004
3		1656.4101	0.0003
4		1656.4105	0.0004
5		1656.4108	0.0004
6			
7			
8			
9			
10			
Stable Ave.	50.0		0.00032

Pressure Interval 2

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0		1656.4120	-
1	75.0	1656.4129	0.0009
2		1656.4138	0.0009
3		1656.4147	0.0009
4		1656.4157	0.0009
5		1656.4166	0.0010
6			
7			
8			
9			
10			
Stable Ave.	75.0		0.0009

Pressure Interval 3

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0		1656.4175	-
1	100.0	1656.4189	0.0014
2		1656.4202	0.0013
3		1656.4219	0.0017
4		1656.4235	0.0016
5		1656.4251	0.0016
6			
7			
8			
9			
10			
Stable Ave.	100.0		0.0016

Pressure Interval 4

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0		1656.4263	-
1	75.0	1656.4269	0.0006
2		1656.4271	0.0002
3		1656.4273	0.0002
4		1656.4275	0.0002
5		1656.4276	0.0001
6			
7			
8			
9			
10			
Stable Ave.	75.0		0.0002

Pressure Interval 5

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0			-
1	50.0	NO FLOW	
2			
3			
4			
5			
6			
7			
8			
9			
10			
Stable Ave.	50.0		#DIV/0!

Pressure Interval 6

Minutes	Pressure kPa	Volume m3	Δ Volume m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

Additional Comments: Gauge is bouncing

TETRA TECH

Hole #: GT21-102
Test #: 5

TETRA TECH

Calculation Input Parameters

Top of Packer Test Interval (mah):	12.0
Bottom of Packer Test Interval (mah):	15.0
L: Length of Test Interval (mah)	3.0
Test Interval Midpoint (mah):	13.5
s: Casing Stickup Height (mah):	1.90
a: Pressure Gauge Height (m above ground	1.60
DTW: Depth to Water Table (mah):	1.90
Borehole Diameter (mm):	75.7
r: Borehole Radius (m):	0.03785
A: Angle From Horizontal (deg):	-90
λ: Specific Weight of Water	1

* mah indicates "meters along hole"

$$K = \frac{Q\ ln\left(\frac{L}{r}\right)}{2\ \pi\ L\ dH}$$

$$dH = (DTW - s + a)\sin(A) + \frac{p}{\lambda}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m^3/s):	Hydraulic Conductivity K (m/s)
1	7.3	50.0	5.1	6.7	5.3E-06	1.8E-07
2	10.9	75.0	7.6	9.2	1.6E-05	3.9E-07
3	14.5	100.0	10.2	11.8	2.7E-05	5.4E-07
4	10.9	75.0	7.6	9.2	2.8E-06	7.0E-08
5	7.3	50.0	5.1	6.7	#DIV/0!	#DIV/0!
					Geo Mean	**3.4E-07**

Diagnostic Plots