APPENDIX C

GROUND TEMPERATURE PROFILES

Table 4: DCP-1 Horizontal Ground Temperature Cables (HGTCs) Bead Locations

Point ID	Bead Number	Easting (m)	Northing (m)	Point Elevation (m)	Station
HGTC1-1	1	540208.64	6989613.85	66.33	1+562
HGTC1-2	2	540207.75	6989614.13	65.32	1+562
HGTC1-3	3	540206.78	6989614.44	64.22	1+562
HGTC1-4	4	540205.60	6989614.87	63.66	1+562
HGTC1-5	5	540202.58	6989612.18	63.28	1+556
HGTC1-6	6	540200.30	6989607.76	62.8	1+552
HGTC1-7	7	540197.87	6989603.41	62.34	1+547
HGTC1-8	8	540196.71	6989598.64	61.82	1+542
HGTC1-9	9	540196.25	6989593.67	61.45	1+537
HGTC1-10	10	540195.91	6989588.69	61.18	1+532
HGTC1-11	11	540195.50	6989583.71	61.04	1+527
HGTC1-12	12	540195.06	6989578.73	60.96	1+523
HGTC1-13	13	540194.62	6989573.77	60.88	1+518
HGTC1-14	14	540194.23	6989568.89	60.81	1+513
HGTC-2-1	1	540175.66	6989310.18	62.15	1+254
HGTC-2-2	2	540174.76	6989310.28	61.06	1+254
HGTC-2-3	3	540173.19	6989310.34	60.95	1+254
HGTC-2-4	4	540171.69	6989310.45	60.97	1+254
HGTC-2-5	5	540170.32	6989310.59	60.99	1+254
HGTC-2-6	6	540168.98	6989311.04	60.99	1+254
HGTC-2-7	7	540169.65	6989315.99	60.94	1+259
HGTC-2-8	8	540169.93	6989320.98	60.87	1+264
HGTC-2-9	9	540170.25	6989325.97	60.83	1+269
HGTC-2-10	10	540170.62	6989330.96	60.77	1+274
HGTC-2-11	11	540170.92	6989335.95	60.71	1+279
HGTC-2-12	12	540171.17	6989340.94	60.68	1+284
HGTC-2-13	13	540171.54	6989345.93	60.64	1+289
HGTC-2-14	14	540172.04	6989350.90	60.65	1+294
HGTC-2-15	15	540172.40	6989355.89	60.63	1+299
HGTC-2-16	16	540172.77	6989360.87	60.62	1+304
HGTC-3-1	1	540187.57	6989450.77	60.83	1+394
HGTC-3-2	2	540186.52	6989450.96	60.03	1+394
HGTC-3-3	3	540185.05	6989451.22	59.93	1+394
HGTC-3-4	4	540183.56	6989451.35	59.90	1+394
HGTC-3-5	5	540182.07	6989451.19	59.90	1+394
HGTC-3-6	6	540181.28	6989450.18	59.95	1+393
HGTC-3-7	7	540181.18	6989445.19	60.07	1+388
HGTC-3-8	8	540181.11	6989440.19	60.22	1+383
HGTC-3-9	9	540181.07	6989435.19	60.22	1+379
HGTC-3-10	10	540180.71	6989430.21	60.22	1+373
HGTC-3-11	11	540180.26	6989425.23	60.19	1+368
HGTC-3-12	12	540179.70	6989420.25	60.15	1+363
HGTC-3-13	13	540179.55	6989415.26	60.13	1+359
HGTC-3-14	14	540179.26	6989410.27	60.05	1+353
HGTC-3-15	15	540178.86	6989405.28	60.08	1+349
HGTC-3-16	16	540178.29	6989400.32	59.99	1+343
HGTC-4-1	1	540196.97	6989538.56	61.67	1+482
HGTC-4-2	2	540196.00	6989538.66	60.66	1+482
HGTC-4-3	3	540194.51	6989538.83	60.63	1+482
HGTC-4-4	4	540193.02	6989538.98	60.63	1+482
HGTC-4-5	5	540191.52	6989539.10	60.63	1+482
HGTC-4-6	6	540190.78	6989538.04	60.62	1+481
HGTC-4-7	7	540190.06	6989533.09	60.58	1+477
HGTC-4-8	8	540189.58	6989528.12	60.56	1+472
HGTC-4-9	9	540189.04	6989523.15	60.56	1+467
HGTC-4-10	10	540188.50	6989518.17	60.59	1+462
HTGC-4-11	11	540187.94	6989513.21	60.59	1+457
HGTC-4-12	12	540187.50	6989508.23	60.5	1+452
HGTC-4-13	13	540186.97	6989503.26	60.43	1+447
HGTC-4-14	14	540186.52	6989498.28	60.38	1+442
HGTC-4-15	15	540186.20	6989493.29	60.39	1+437
HGTC-4-16	16	540185.64	6989488.21	60.40	1+432
HGTC-5-1	1	540129.42	6989182.72	64.96	1+117
HGTC-5-2	2	540128.20	6989183.59	64.95	1+117
HGTC-5-3	3	540126.98	6989184.47	64.93	1+117
HGTC-5-4	4	540125.77	6989185.35	64.92	1+117
HGTC-5-5	5	540124.56	6989186.24	64.90	1+117
HGTC-5-6	6	540123.34	6989187.11	64.91	1+117
HGTC-5-7	7	540119.82	6989189.60	63.21	1+117
HGTC-5-8	8	540116.75	6989192.78	63.23	1+117
HGTC-5-9	9	540119.66	6989196.84	63.03	1+123
HGTC-5-10	10	540122.53	6989200.93	62.90	1+128
HGTC-5-11	11	540125.28	6989205.10	62.74	1+133
HGTC-5-12	12	540128.01	6989209.29	62.62	1+138
HGTC-5-13	13	540130.76	6989213.47	62.53	1+143
HGTC-5-14	14	540133.42	6989217.69	62.35	1+148
HGTC-5-15	15	540135.89	6989222.04	62.21	1+153
HGTC-5-16	16	540138.42	6989226.34	62.03	1+158

Table 5: DCP-1 Vertical Ground Temperature Cables (VGTCs) Bead Locations

Cable :	VGTC1
Easting:	540163.19
Northing:	6989335.44
Station:	1+278

Bead Number	Point Elevation (m)
1	67.34
2	66.84
3	66.34
4	65.84
5	65.34
6	64.84
7	64.34
8	63.84
9	63.34
10	62.34
11	61.34
12	60.34
13	59.34
14	58.34
15	57.34
16	56.34

Cable :	VGTC2
Easting:	540181.98
Northing:	6989336.62
Station:	1+280

Bead Number	Point Elevation (m)
1	66.10
2	65.60
3	65.10
4	64.60
5	64.10
6	63.60
7	63.10
8	62.60
9	62.10
10	61.10
11	60.10
12	59.10
13	58.10
14	57.10
15	56.10
16	55.10

Cable :	VGTC3
Easting:	540174.98
Northing:	6989517.82
Station:	1+460

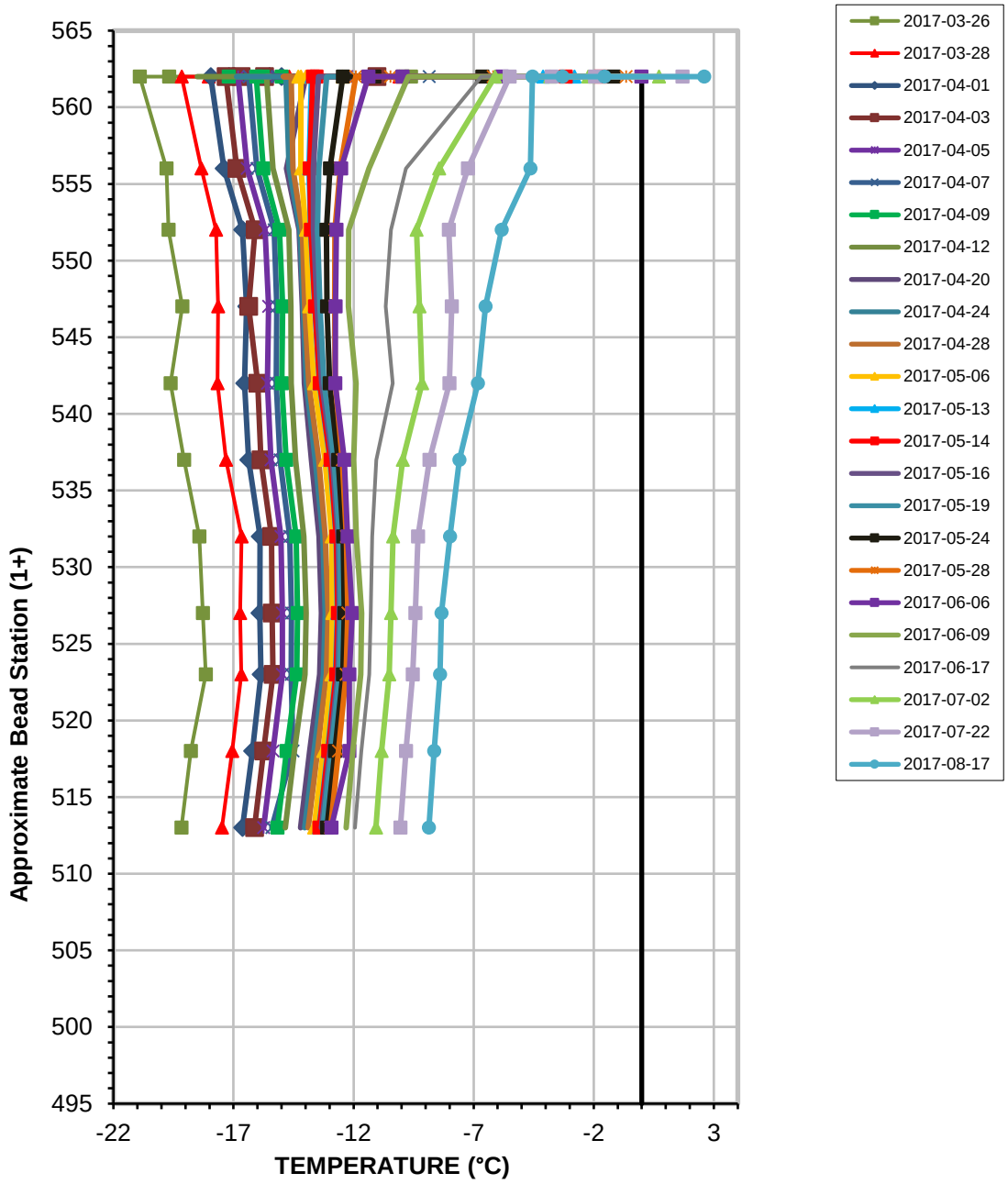
Bead Number	Point Elevation (m)
1	66.44
2	65.94
3	65.44
4	64.94
5	64.44
6	63.94
7	63.44
8	62.94
9	62.44
10	61.44
11	60.44
12	59.44
13	58.44
14	57.44
15	56.44
16	55.44

Cable :	VGTC4
Easting:	540196.11
Northing:	6989515.87
Station:	1+460

Bead Number	Point Elevation (m)
1	65.77
2	65.27
3	64.77
4	64.27
5	63.77
6	63.27
7	62.77
8	62.27
9	61.77
10	60.77
11	59.77
12	58.77
13	57.77
14	56.77
15	55.77
16	54.77

Cable :	VGTC5
Easting:	540174.52
Northing:	6989357.06
Station:	1+300

Bead Number	Point Elevation (m)
1	66.31
2	65.81
3	65.43
4	65.24
5	65.06
6	64.87
7	64.68
8	64.5
9	64.31
10	63.94
11	63.57
12	63.19
13	62.82
14	62.58
15	62.58
16	62.58

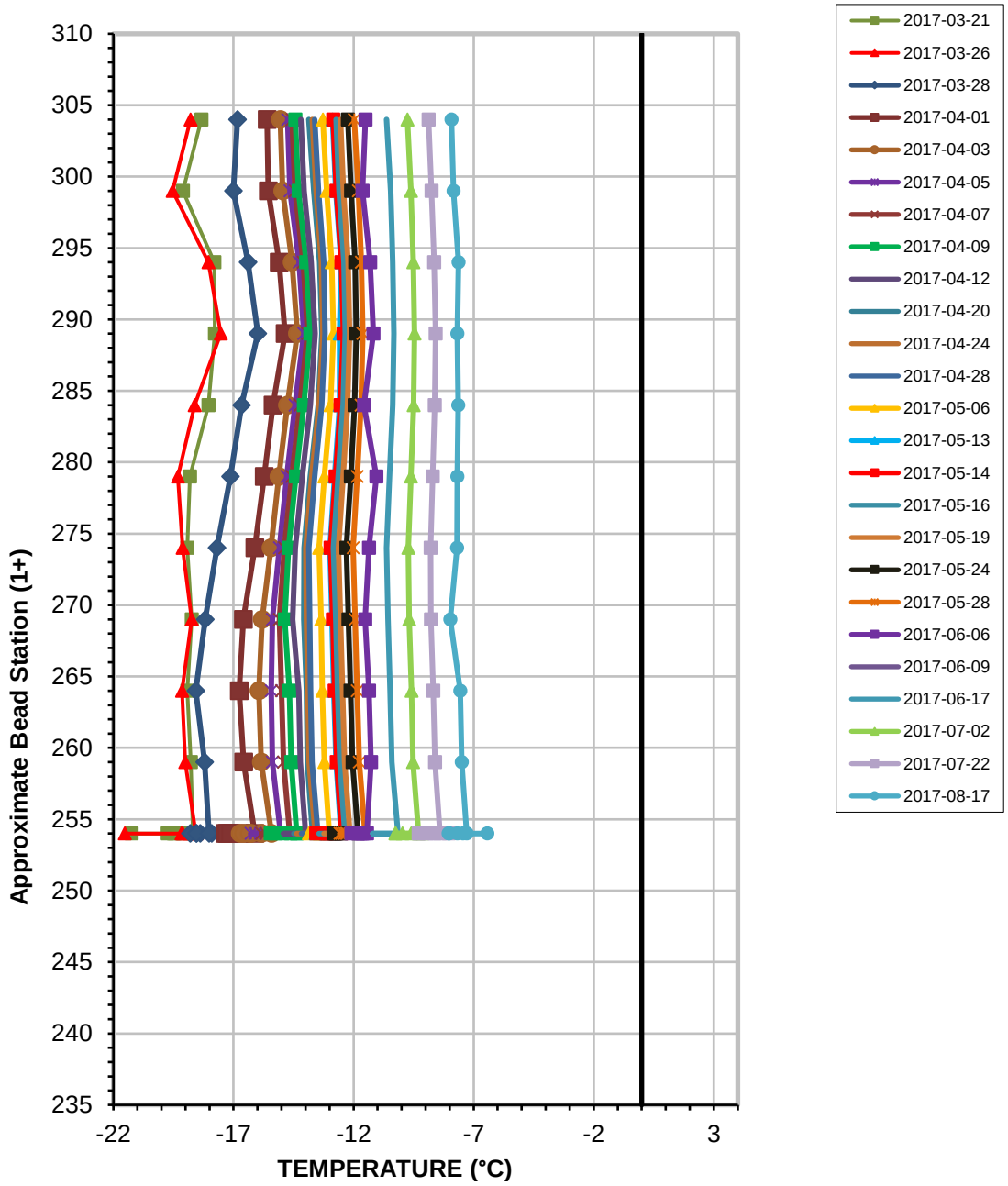


Serial No.: 2595
Date Installed: March 24, 2017

EBA File No: E14103230.01-023

Horizontal Ground Temperature Profile for Cable HGTC-01
Dike D-CP1

TETRA TECH

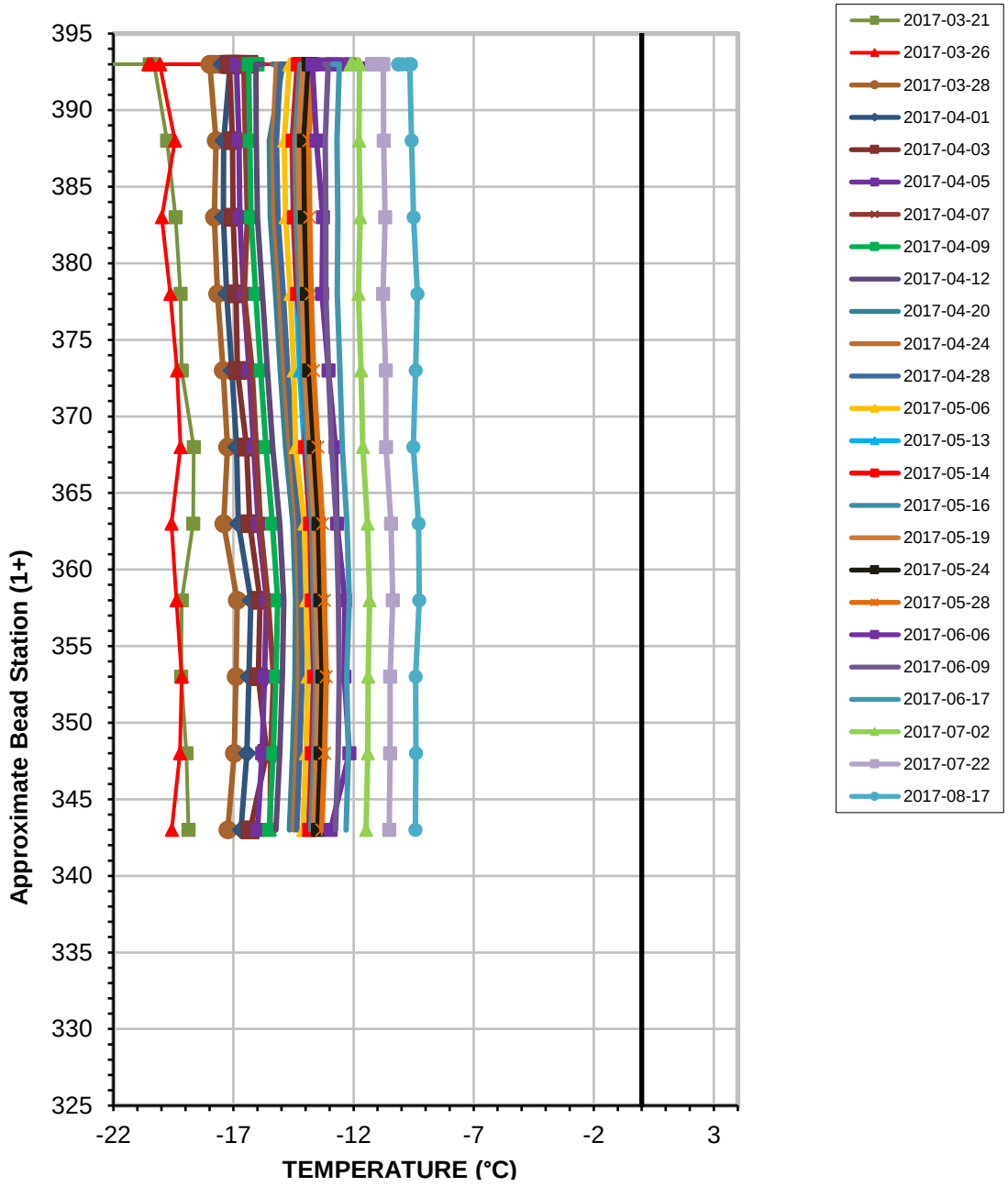


Serial No.: 2596
Date Installed: March 3, 2017

EBA File No: E14103230.01-023

Horizontal Ground Temperature Profile for Cable HGTC-02
Dike D-CP1

TETRA TECH

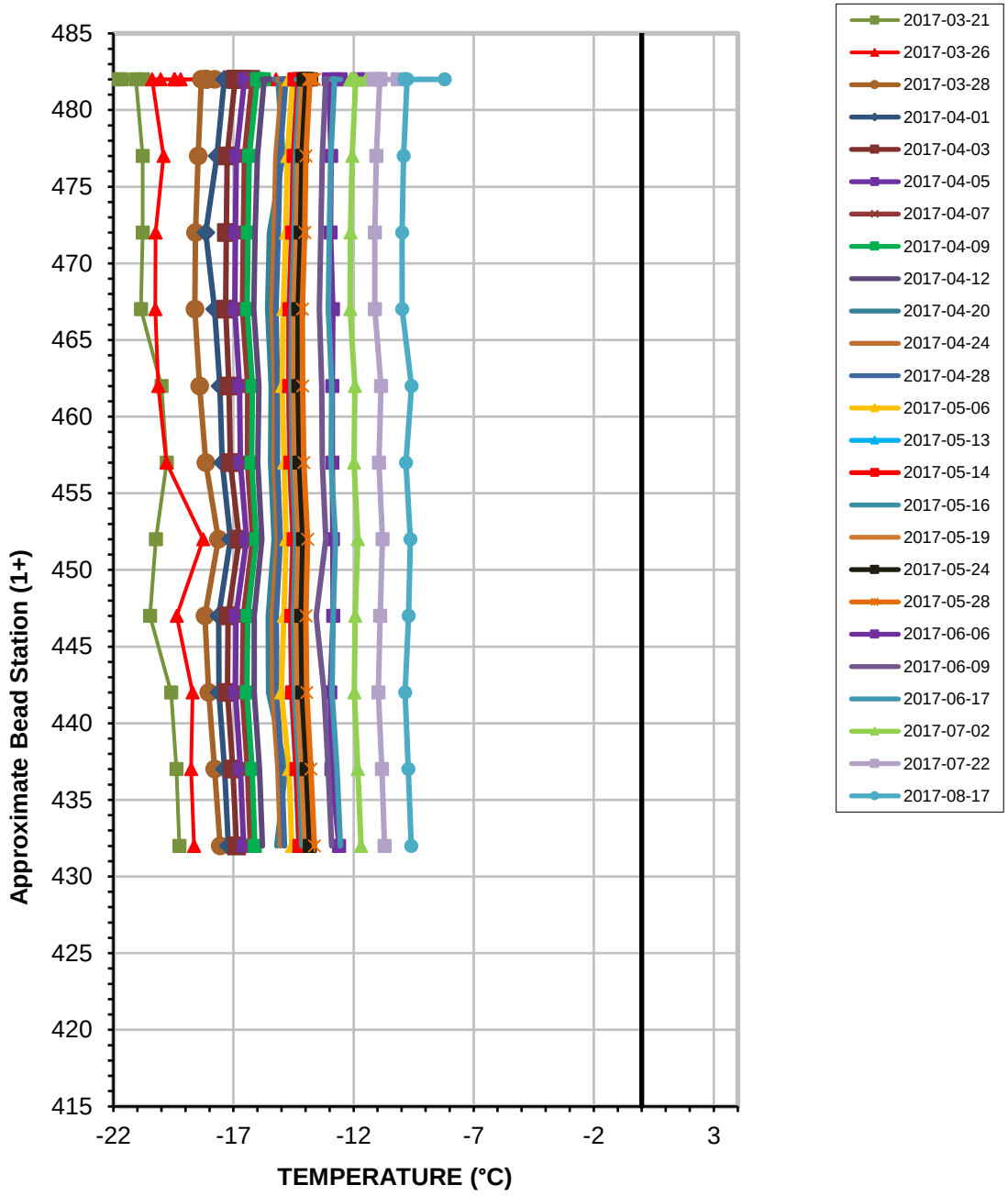


Serial No.: 2597
Date Installed: March 14, 2017

EBA File No: E14103230.01-023

Horizontal Ground Temperature Profile for Cable HGTC-03
Dike D-CP1

TETRA TECH

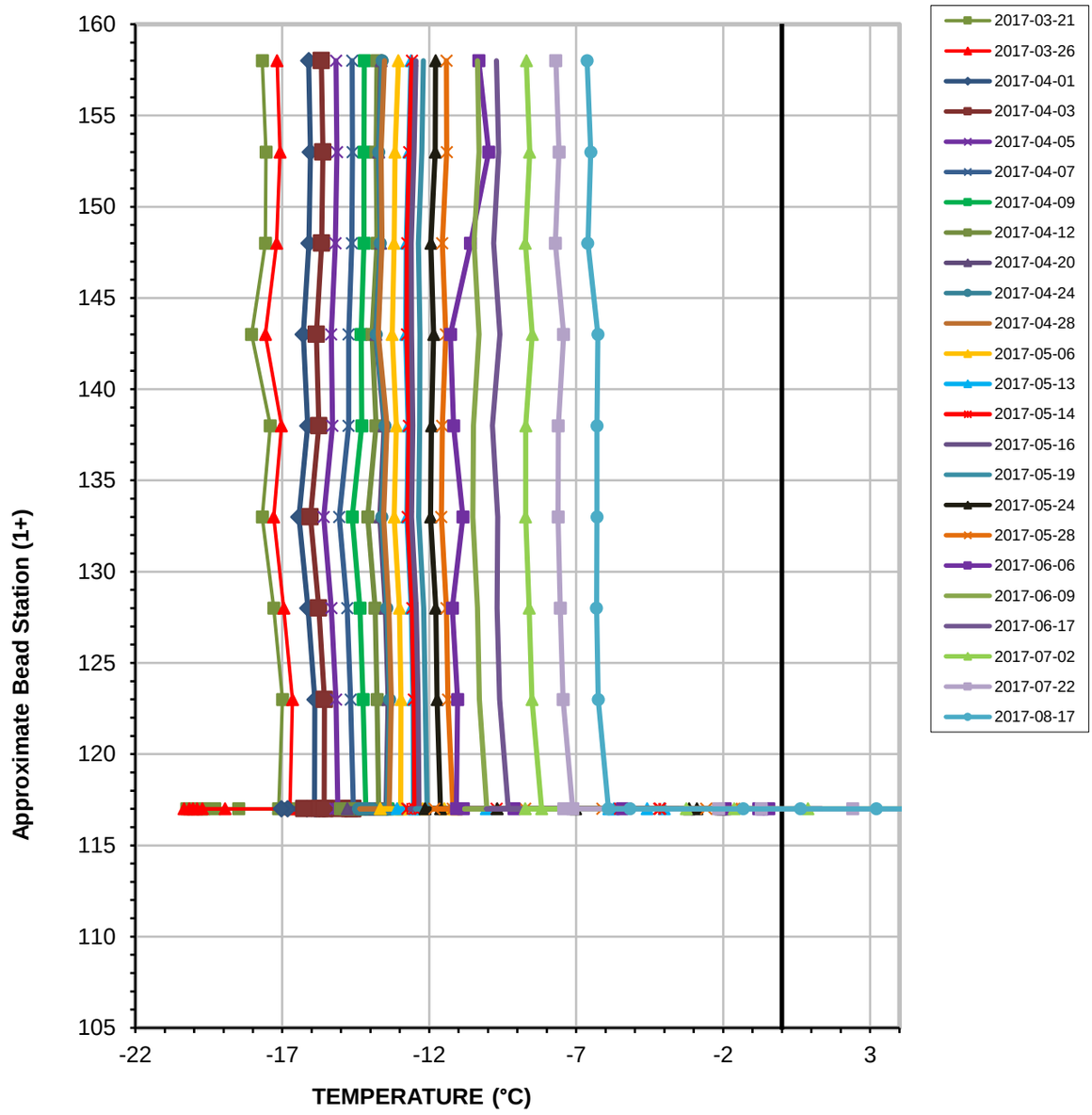


Serial No.: 2598
Date Installed: March 16, 2017

EBA File No: E14103230.01-023

Horizontal Ground Temperature Profile for Cable HGTC-04
Dike D-CP1

TETRA TECH

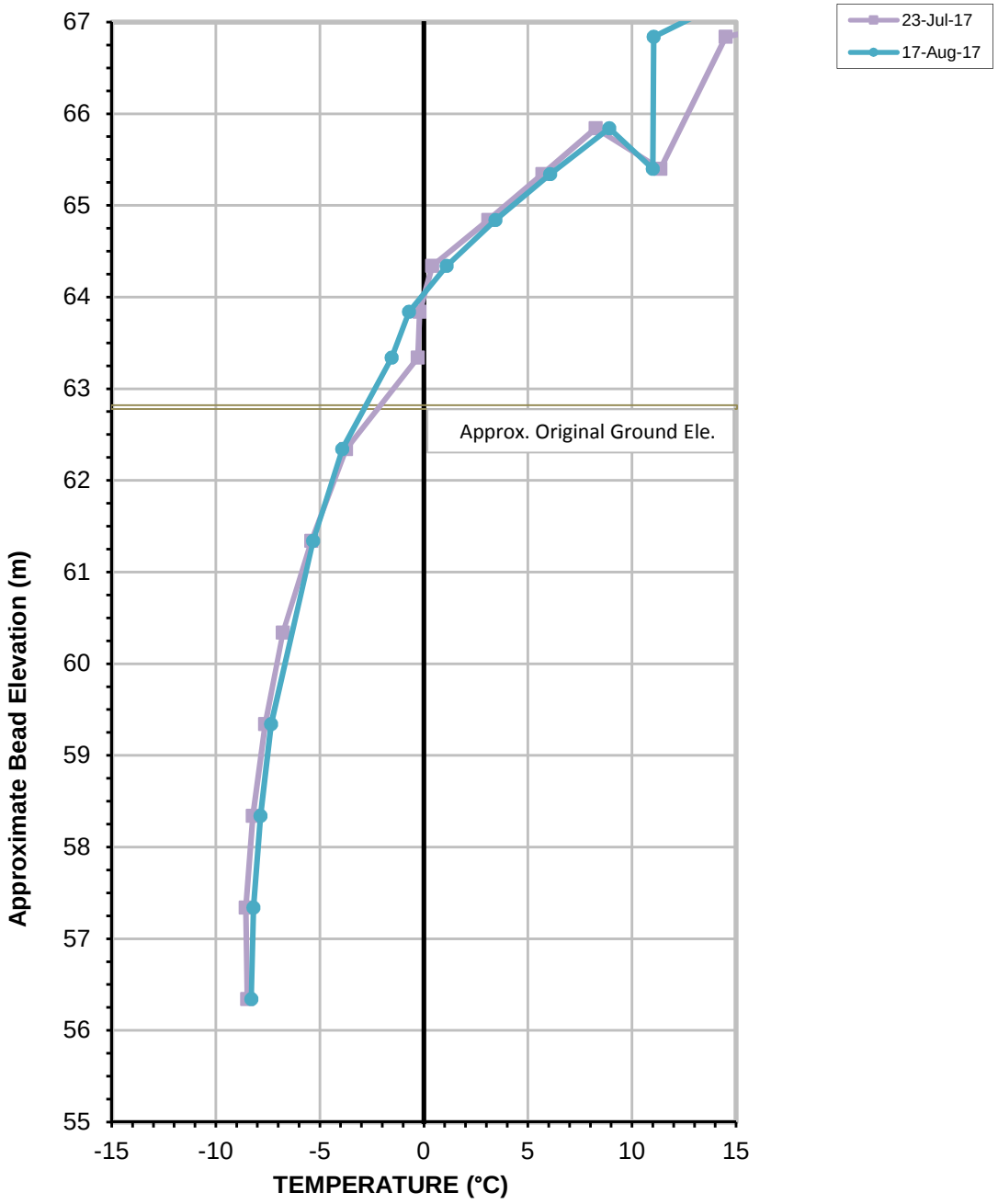


Serial No.: 2599
Date Installed: March 2, 2017

EBA File No: E14103230.01-023

Horizontal Ground Temperature Profile for Cable HGTC-05
Dike D-CP1

TETRA TECH

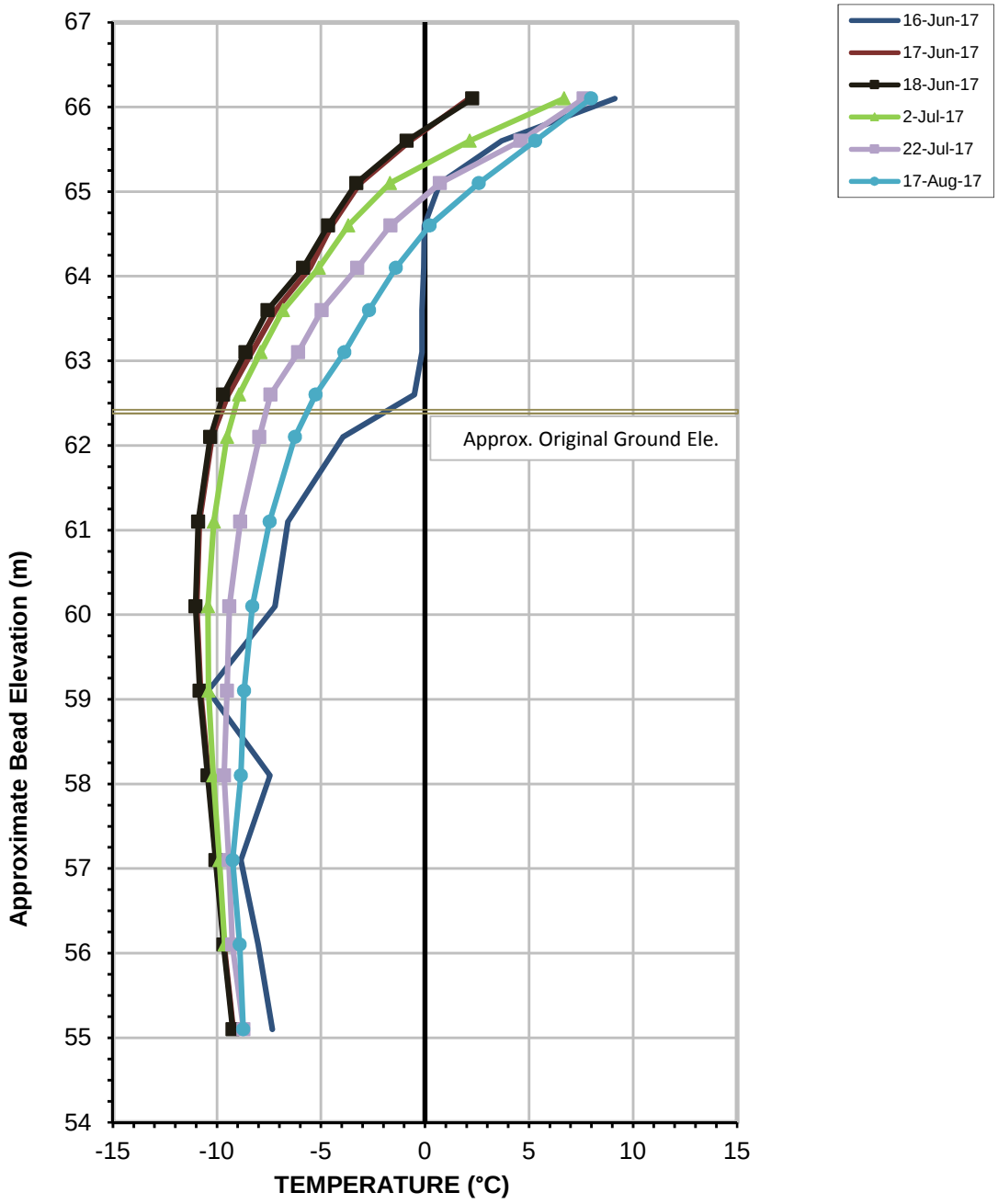


Serial No.: 2626
Date Installed: July 22, 2017

EBA File No: E14103230.01-023

Vertical Ground Temperature Profile for Cable VGTC-01
Dike D-CP1

TETRA TECH

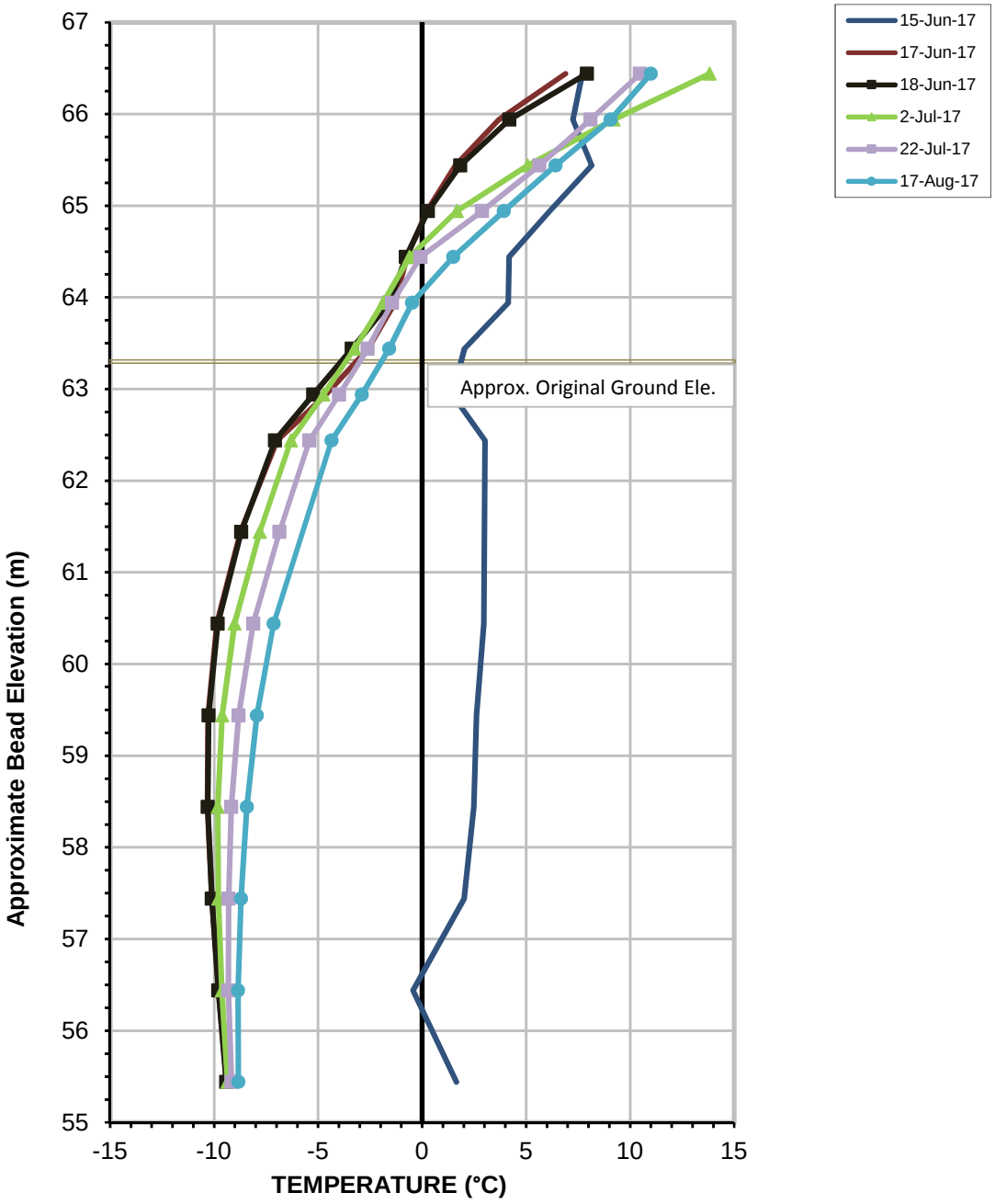


Serial No.: 2627
Date Installed: June 16, 2017

EBA File No: E14103230.01-023

Vertical Ground Temperature Profile for Cable VGTC-02
Dike D-CP1

TETRA TECH

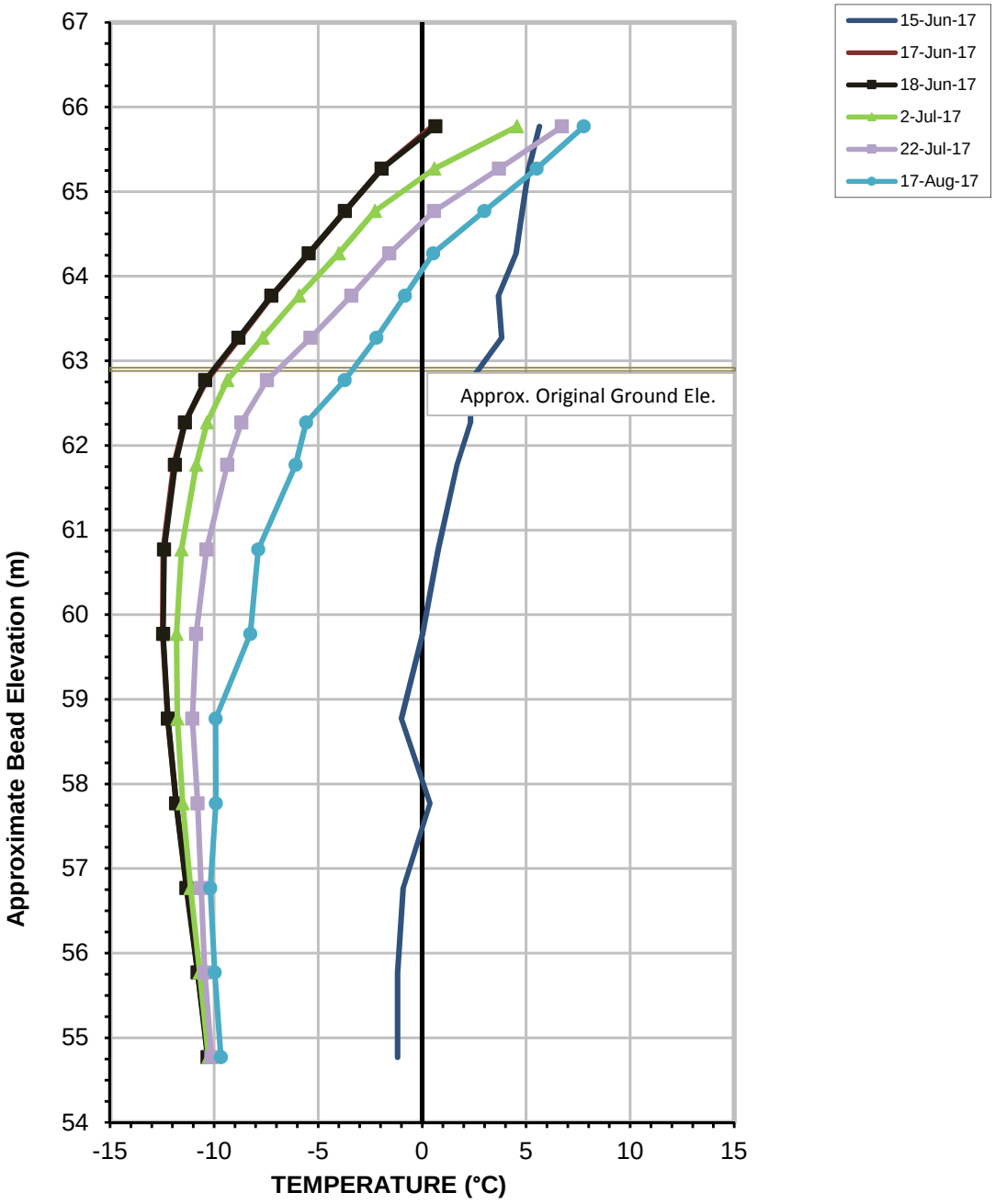


Serial No.: 2628
Date Installed: June 15, 2017

EBA File No: E14103230.01-023

Vertical Ground Temperature Profile for Cable VGTC-03
Dike D-CP1

TETRA TECH

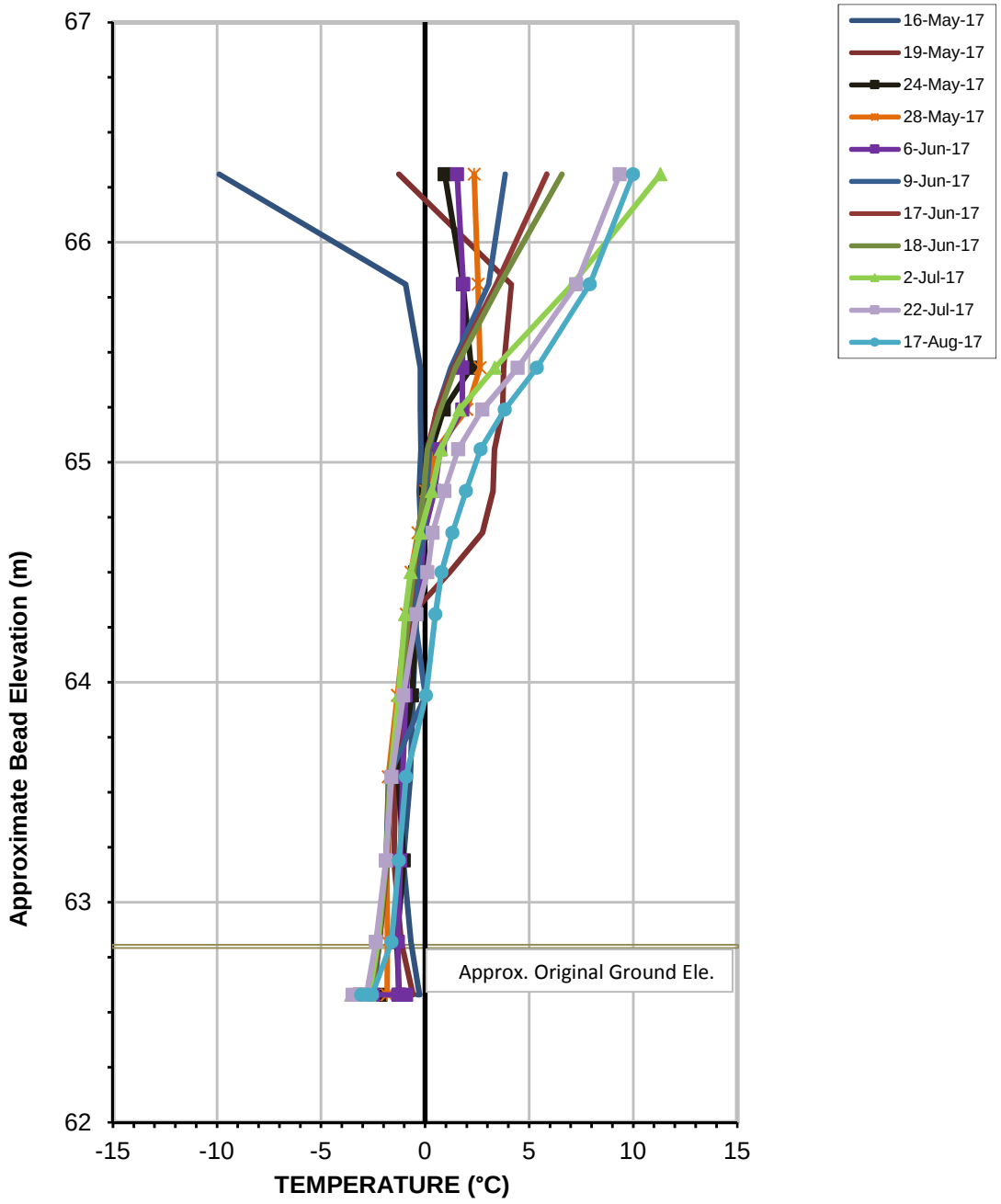


Serial No.: 2629
Date Installed: June 15, 2017

EBA File No: E14103230.01-023

Vertical Ground Temperature Profile for Cable VGTC-04
Dike D-CP1

TETRA TECH



Serial No.:
Date Installed: May 16, 2017

EBA File No: E14103230.01-023

Vertical Ground Temperature Profile for Cable VGTC-05
Dike D-CP1

TETRA TECH

APPENDIX D1

REQUEST FOR INFORMATION (RFI)

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_003 Rev: 0
Meliadine Project

Site RFI Initiator: Matt Gallant Date: 2016-10-09

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
D-CP1 Typical Sections and Quantities R1	65-685-230-208 R1	0
Geotechnical Specifications for Construction of Dike D-CP1 R0	6515-E-132-007-132-SPT-002_R0	

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND CONTRACTOR'S PROPOSED SOLUTION :

The Dike cross sections shows Type H fill on the upstream side of the dike. As per the specifications, the maximum lift thickness of the Type H fill is 300mm.

The existing ground is uneven, wet and very soft. Our concern is that we will loss the material in the tundra once we start placing fill on the tundra.

We propose changing material from Type H to CL-A for the first lift.

Prepared by: Matt Gallant Signature: Matt Gallant Date: 2016-10-09

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

It is normal and expected that some of Type H material during the first lift or even second lift of initial placement over the tundra will fill in the uneven tundra surface and may be partially lost in the soft ground. This may occur, no matter which type of the fill material is used for the initial lift over the soft unfrozen tundra.

Based on information received from Jennifer Pyliuk today, it is understood that the "CL-A" refers to the material excavated from natural borrow sites (eskers), which has a maximum particle size of 600 mm. Depending on actual particle size gradation, this material may be too coarse and has high hydraulic conductivity that may not meet the dike design intent, especially when a high percentage of large particles exist. Therefore, the "CL-A (0 to 600 mm) should not be directly used to replace Type H for the first lift over the tundra for D-CP1 construction.

We recommend to keep the Type H material as in the original design. If this is not practical or preferred, an alternative would be to use Type B (0 to 150 mm) Material in the first lift only (no more than 0.5 m thick). The Type B Material should be sourced from rock without residual salts. The second alternative would be to use the selected "CL-A" (0 to 150 mm) with the oversized particles greater than 150 mm being removed. The selected "CL-A" (0 to 150 mm) should be well graded and have a majority of smaller particles less than 75 mm (including fines) such that its hydraulic conductivity is similar to that for Type H after compaction.

It is noted that the Contractor still referred previous versions of construction drawings and specifications. The latest construction drawings and specifications for D-CP1 and D-CP5:

- Revision 1 (R1) of Construction Drawings # 65-685-230-204 to 65-685-230-213 (a total of 12 drawings) for D-CP1, issued on September 26, 2016;
- Revision 0 (R0) of Document # 6515-E-132-SPT-002 – Geotechnical specifications for construction of Dike D-CP1, issued on September 28, 2016
- Revision 0 (R0) of Construction Drawings # 65-685-230-214 to 65-685-230-222 (a total of 10 drawings) for D-CP5, issued on August 15, 2016;
- Revision 0 (R0) of Document # 6515-E-132-SPT-003 – Geotechnical specifications for construction of Dike D-CP5, issued on September 28, 2016

Please use these documents for the construction of D-CP1 and D-CP5.

Engineering : Gordon Zhang Signature: Date: October 11, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

Deviation Request: ☐ No ☐ Yes

Name	Signature	Date

Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_004 Rev: 0
Meliadine Project

Site RFI Initiator: Matt Gallant Date: 2016-10-11

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
		0

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND CONTRACTOR'S PROPOSED SOLUTION :

Please Specify the horizontal tolerances that will be acceptable for lift placement.

Prepared by: Matt Gallant Signature: Matt Gallant Date: 2016-10-11

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

In general, the acceptable horizontal tolerances are from -0.1 m to +0.1 m for fill lift placement during dike construction. However, the compacted liner bedding layer that is immediately below the liner should have smooth surface without sudden slope changes.

Engineering : Gordon Zhang Signature: Date: October 12, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

Ndofor, Fai

From: Zhang, Guangwen (Gordon)
Sent: Monday, October 17, 2016 12:01 PM
To: 'Duy Nguyen'
Cc: Jack Dutil; Pyliuk, Jennifer; Ndofor, Fai; Construction Regional; EBA.Tt.Meliadine.Block007
Subject: Responses - RE: 6515-C-230-007-RFI-005_materiel

Importance: High

Hi Duy,

Our responses to 6515-C-230-007-RFI-005 are summarized below:

1) **3D models to show all crests and surfaces**: Tetra Tech originally developed the dike drawings based on Civil3D modelling. However, based on AEM's drawing procedures, the CAD drawings to AEM should be in CAD format but not Civil3D format. To meet AEM's drawing procedures, we purposely exploded the Civil3D modelling in generating the CAD drawings submitted to AEM. As a result, all the Civil 3D features were gone after these modifications. Therefore, the CAD drawings that the Contractor received from AEM are not the right format for the Contractor to generate 3D drawings. We plan to send a complete set of dike drawings in Civil3D format to the Contractor so that they can have all 3D features including all crest lines and 3D surfaces. Before I send the drawings to you and the Contractor through our large file transfer system, could you please send me a distribution list of emails for the Civil3D drawing?
2) **Key Trench Excavation and Liner**: First of all, I do not fully understand what the Contractor is planning to do. Do they plan to over-excavate the key trench to a further 30 m wide beyond the design key trench? If this is the case. This is absolutely NO. I need to know exactly the Contractor is planning to do and need drawings or detail plans to show their proposed key trench excavation for my approval. Before the start of the key trench excavation with any changes proposed by the Contractor, I need to review their plan and make decision (approval or rejection) thereafter. I believe that the Contractor will have a better understanding on the design details of the key trench and liner installation after they receive and review our Civil3D drawings.

Regards

Gordon

Guangwen (Gordon) Zhang, Ph.D., P.Eng. | Principal Specialist, Arctic Region
Direct **+1 (780) 451-2130 x501** | Business **+1 (780) 451-2121** | Mobile **+1 (587) 985-2371** | GuangwenGordon.Zhang@tetratech.com

Tetra Tech EBA
14940 - 123 Ave., Edmonton, AB, T5V 1B4 | tetratech.com | eba.ca

From: Duy Nguyen [mailto:duy.nguyen@agnicoeagle.com]
Sent: Sunday, October 16, 2016 7:08 PM
To: Zhang, Guangwen (Gordon) <GuangwenGordon.Zhang@tetratech.com>
Cc: Jack Dutil <jack.dutil@agnicoeagle.com>; Pyliuk, Jennifer <Jennifer.Pyliuk@tetratech.com>
Subject: FW: 6515-C-230-007-RFI-005_materiel

Hi Gord,

Could you provide these answer for MT KSL,

Thank you

Duy Nguyen

From: Yan Bergeron [mailto:Yanb@nunalogistics.com]
Sent: Friday, October 14, 2016 2:23 PM
To: Duy Nguyen
Subject: RE: 6515-C-230-007-RFI-005_materiel

For example
I need the crest of type h materiel because I don't know where it start it's between cross section 1+050 and 1+075. And I don't know where the direction change for the crest, we don't have the line for each materiel on the plan view, we just have the final slope of the dyke and the key trench.
It's the same for each materiel. For the type B I need to have crest point because I don<t have the information where to adjust, because I always start from the alignment.
I know that we are going to adjust the liner in the field to have the liner to be the most straight at possible, because we can't have it moving to mush to make the welding possible.
We plane to excavate may be 30 m further to correct the slope before install the liner.

You can call me at 3973 and we can discuss with the pdf.

Yan Bergeron
Project coordinator
Meliadine
Site 819-759-3555 ext 3973

Kivalliq Services Ltd.
19– 41 Street South, PO Box 809
NUNA LOGISTICS LIMITED
9839 – 31 Avenue, Edmonton, AB. T6N 1C5
MeliadineSurvey@nunalogistics.com
www.nunalogistics.com
www.Kivalliqservices.com

From: Duy Nguyen [mailto:duy.nguyen@agnicoeagle.com]
Sent: Friday, October 14, 2016 12:58 PM
To: Yan Bergeron <Yanb@nunalogistics.com>
Subject: RE: 6515-C-230-007-RFI-005_materiel

Could you send me a pdf what you want to build so I can help

Duy Nguyen, MPM, MBA, Eng.
Concrete, Civil and Structural Lead
C: 819 355 0425
T: 819.759.3555 Ext 8067
Agnico Eagle Mines Limited
1075, 3e Avenue Est

Val D'Or, Québec, Canada
J9P 0J7

AGNICO EAGLE

From: Yan Bergeron [mailto:Yanb@nunalogistics.com]
Sent: Friday, October 14, 2016 1:39 PM
To: Duy Nguyen
Cc: Mike Price; Boyd Barstad; Jack Dutil; Mark Long; Gramoz Rexhepi; Michael Love; Larry Chabot; Sylvain Chartier; Greg Smith; Daniel Seguin; Matt Gallant
Subject: RE: 6515-C-230-007-RFI-005_materiel

Hi Duy

I forgot to send you the explanation

I try to build 3d model with the cross section and I have not enough information on the plan to do it, and the cross section are at each 25 m, so I can just made straight line between each cross section

Yan Bergeron
Project coordinator
Meliadine
Site 819-759-3555 ext 3973

Kivalliq Services Ltd.
19– 41 Street South, PO Box 809
NUNA LOGISTICS LIMITED
9839 – 31 Avenue, Edmonton, AB. T6N 1C5
MeliadineSurvey@nunalogistics.com
www.nunalogistics.com
www.Kivalliqservices.com

From: Yan Bergeron
Sent: Friday, October 14, 2016 12:16 PM
To: 'Duy Nguyen' <duy.nguyen@agnicoeagle.com>
Cc: Mike Price <mikepr@nunalogistics.com>; Boyd Barstad <boydb@nunalogistics.com>; 'Jack Dutil' <jack.dutil@agnicoeagle.com>; 'Mark Long' <mark.long@agnicoeagle.com>; Gramoz Rexhepi <GramozR@nunalogistics.com>; Michael Love <MichaelLove@nunalogistics.com>; 'Larry Chabot' <larry.chabot@agnicoeagle.com>; 'Sylvain Chartier' <sylvain.chartier@agnicoeagle.com>; Greg Smith <GregS@nunalogistics.com>; 'Daniel Seguin' <daniel.seguin@agnicoeagle.com>; Matt Gallant <mattg@nunalogistics.com>
Subject: 6515-C-230-007-RFI-005_materiel

Hi Duy,
See attached RFI.

Yan Bergeron
Project coordinator
Meliadine
Site 819-759-3555 ext 3973

Kivalliq Services Ltd.
19– 41 Street South, PO Box 809
NUNA LOGISTICS LIMITED
9839 – 31 Avenue, Edmonton, AB. T6N 1C5
MeliadineSurvey@nunalogistics.com
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www.Kivalliqservices.com

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Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_006 Rev: 0
Meliadine Project

Site RFI Initiator: Mike Price Date: 2016-10-24

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
Geotechnical Specifications for Construction of Dike D-CP1	6515-E-132-SPT-002	0

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND CONTRACTOR'S PROPOSED SOLUTION :

The specifications for Nearly –Saturated Backfill (Type –C) call for 85% - 95% saturation after its placement and compaction. MTKSL has concern that the Type C material properties will not allow for the level of saturation specified to be achieved following placement and compaction.

Please confirm / advise;

- Has the mix design been validated to ensure that the saturation level of sandy material (0.20mm) can be maintained during placement and compaction as per multi-lift construction methods?
- Has testing been conducted on the Type C material to verify that this is achievable?
- If the properties of the Type C material do not allow for the level of saturation to be achieved is it foresee that blending of materials or an alternate material will be required?

Prepared by: Mike Price Signature: Mike Price Date: 2016-10-24

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

So far no confirmation or validation testing has been conducted on the Nearly-Saturated Backfill. This confirmation or validation testing is better to be conducted in the field conditions by the Contractor, before starting the backfilling operation using the Nearly-Saturated Backfill in the key trench. Nevertheless, 20 mm minus materials with similar specified gradation limits of Type C material had been successfully used in the past for construction of nearly-saturated cores of frozen core dikes/dams in the Arctic. Therefore, if Type C meets the specified gradation and placed in relatively thin, horizontal lifts over relatively level surfaces, the required saturation after compaction is likely achievable.

It is strongly recommended that trial mixing (Type C material and hot water), placing and compacting testing of the Nearly-Saturated Backfill be conducted in the field by the Contractor to confirm whether the required saturation can be maintained after its placement and compaction. This trial program should be done well ahead of the backfilling operation.

If the field trial testing indicates that the required saturation cannot be maintained after the placement and compaction of the Nearly-Saturated Backfill, one of the following alternative source materials can then be used to produce the Nearly-Saturated Backfill, instead of using the originally specified Type C material with 4% to 10% of a fines content:

1) Option 1: using rejected Type C (20 mm minus) that has a higher fines (<0.075 mm) content of 15% to 30%;
2) Option 2: using rejected natural esker sand and gravel with higher fines content (15% to 30%) as a source for crusher feed to produce the 20 mm minus material having a final fines content of 15% to 30%; or
3) Option3: using selected natural till material (with a fines content of 20% to 50%) as a source for crusher feed to produce the 20 mm minus till, and then blending it with the originally specified Type C to produce a targeted material having a final fines content of 15% to 30%.

We are updating the construction specifications for D-CP1 and D-CP5 to include additional sections for the Nearly-Saturated Backfill. The updated construction specifications will be available this week.

Engineering : Gordon Zhang Signature: _____ Date: November 7, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

1Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_008 Rev: 1
Meliadine Project

Site RFI Initiator: Matt Gallant Date: 2016-10-30

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
D-CP1 Profiles	65-685-230-206	1

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND CONTRACTOR'S PROPOSED SOLUTION :

Please confirm that the top crest of the liner is meant to slope up from Elevation 67.5 m to 69.5 m at the North end of the dike (Station 1+560 to 1+590).

Rev: 1

The contractor proposes to modify stations 1+560 to 1+590 and beyond to match the horizontal reflection of the design from stations 1+000 to 1+030, utilizing the intersection of the max, water elevation and the original ground as critical alignment points.

The reflected design would be inclusive of the key trench, thermal cover and all other associated information design.

See attached sketch.

Prepared by: Matt Gallant Signature: Matt Gallant Date: 2016-11-01

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

There are major differences between the north abutment and the south abutment of D-CP1. The north abutment is on a small hill with relatively steep slope. We purposely designed to "over-excavate" the key trench further into the abutment to increase the seepage path for the north abutment. The dike south abutment is located on a flat ground on both the upstream and downstream sides; therefore, the natural seepage path is long so we do not need to extend. By the way, we have already reached the highest original ground location on the south end. In addition, we have limited space on the south end of the D-CP1 because there will be a haul road immediately on the south end.

In summary, we CANNOT adopt the south abutment dike design and use it for the north abutment design. They are different.

Engineering : Gordon Zhang Signature: Date: November 2, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

Deviation Request: ☐ No ☐ Yes

Name Signature Date

Superintendent:			
c.c. Contract Administrator:			

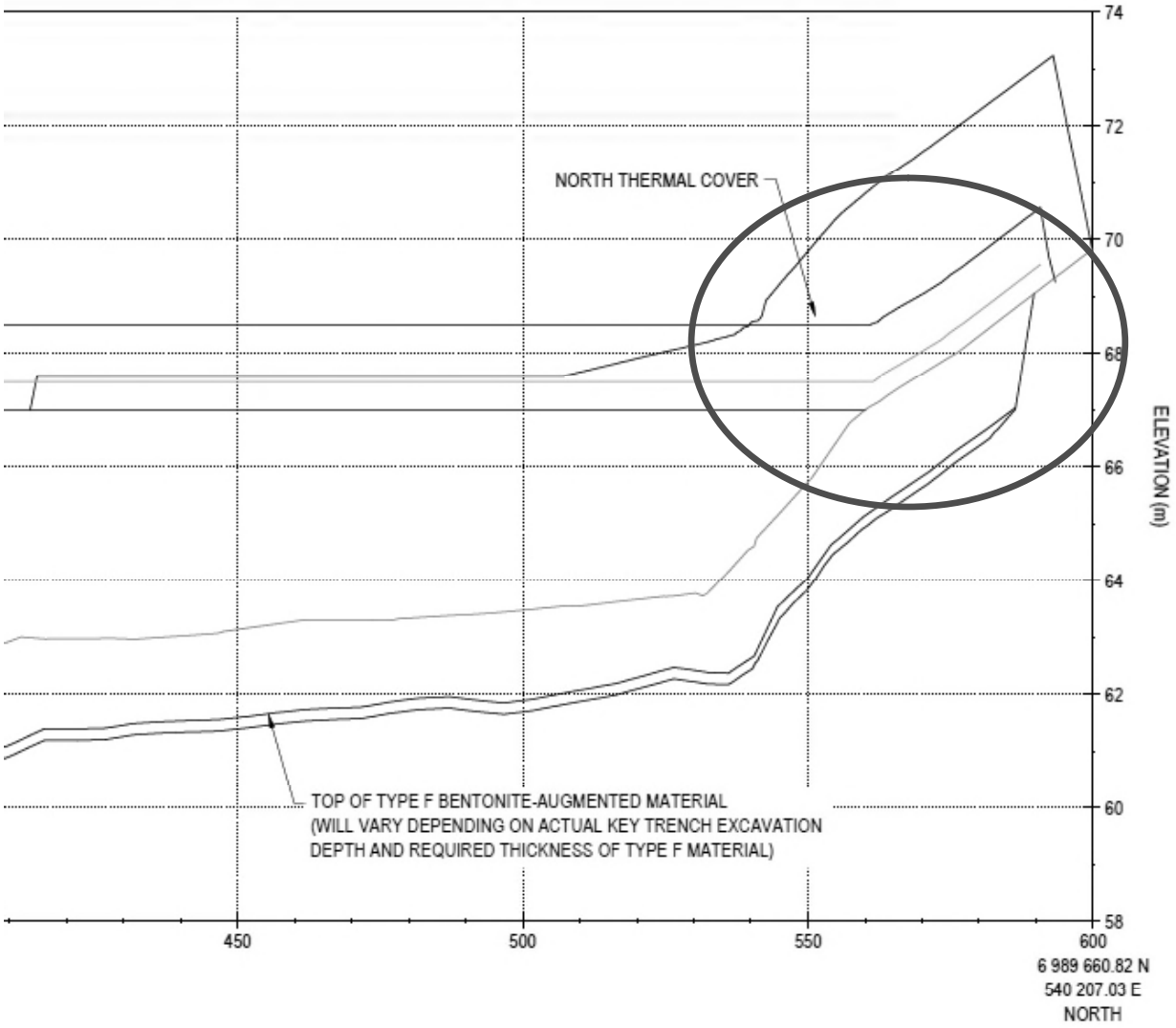

Figure 1- Drawing 65-685-230-206

Request For Information

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Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_009 Rev: 0
Meliadine Project

Site RFI Initiator: David Morley Date: 2016-11-01

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
Geotechnical Specifications for Construction of Dike D-CP1, Meliadine Gold Project, NU, September 28,2016	AEM Document Number: 6515-E-132-SPT-002	0

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND CONTRACTOR'S PROPOSED SOLUTION :

Section 1006: General Fill Placement
1.1.7 reads:

"All fills shall be placed and compacted in horizontal lifts from the bottom up over the slope."

The contractor proposes to modify this section to read as follows:
"All fills shall be placed and compacted in horizontal lifts from the bottom up over the slope, with the exception of the Type B and Type C material under the Geomembrane Liner, and the Type C material over the Geomembrane liner, which may be placed parallel to the Geomembrane Liner as shown in the attached sketches."

Please see attached sketches.

Prepared by: David Morley Signature: David Morley Date: 2016-11-01

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

If the Contractor can properly place the Type C and Type B materials under the geomembrane liner from bottom up over the 2.5:1 slope for each lift without material segregation, and compact each lift of the materials to meet the required density, it is OK to construct the Type C and Type B materials under the geomembrane liner in lifts that are parallel to the 2.5:1 slope, as proposed by the Contractor. However, for each lift, the Type C or Type B material should be placed from bottom up. The materials should not be dumped on the top and pushed down over the slope.

We do NOT agree with the construction method proposed by the Contractor for the Type C layer above the geomembrane liner (Dike Construction Part2 – Place Type C in parallel lifts to the Coletanche). To protect the geomembrane liner from damage during construction, no direct mechanical compaction of the Type C layer above the liner is required. The Type C should be placed from bottom up and in horizontal lifts slightly ahead of the placement of the upstream Type H and Type A lifts. The Type C material will be indirectly compacted when the nearby Type H lifts are compacted.

In summary, we agree ""All fills shall be placed and compacted in horizontal lifts from the bottom up over the slope, with the exception of the Type B and Type C material under the Geomembrane Liner, which may be placed from bottom up in each lift that can be parallel to the slope, as long as the materials meet the specifications after placement and compaction."

Engineering : Gordon Zhang	Signature:	Date: November 2, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

	Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_010 Rev: 0
Meliadine Project

Site RFI Initiator: David Morley Date: 2016-11-01

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
Definitions for D-CP1 and D-CP5 Construction	"To AEM_Definitions and Key Trench Excavation Details for D-CP1 and D-CP5 Construction_Sep07_2016.pdf"	0

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND CONTRACTOR'S PROPOSED SOLUTION :

MTKSL is requesting further clarification on Scenario 3B & 3C: Key Trench Excavation (2.8m, Ice Rich Soil)

Proposed Solution:

In areas where excavation depth greater than 1.8 m is required, MTKSL is proposing to sub-excavate to the required depth with vertical walls from the design 1.8m trench toes (see attached sketch).

Please confirm that this approach for sub-excavation is acceptable.

Prepared by: Matt Gallant Signature: Matt Gallant Date: 2016-11-04

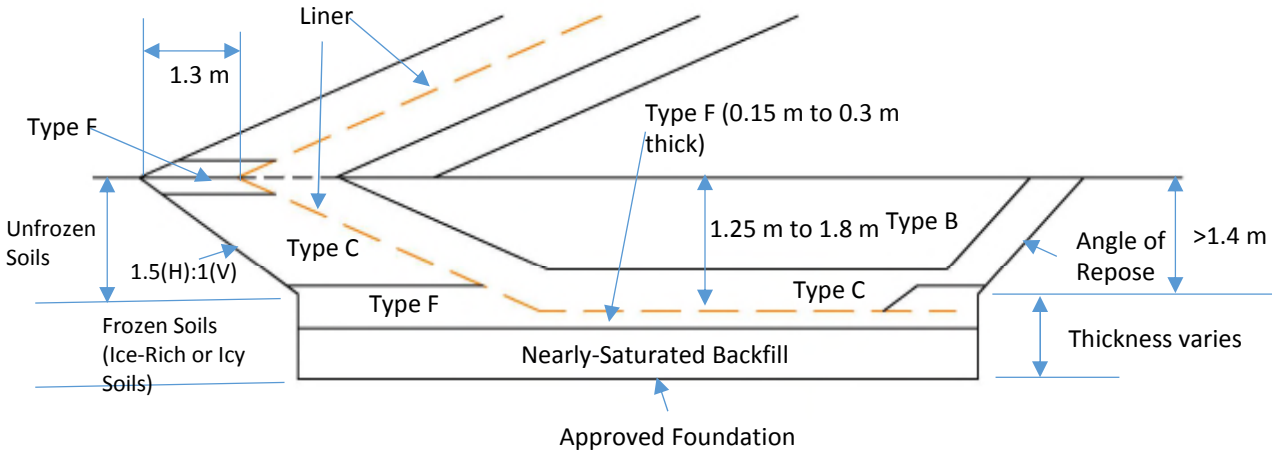
3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

We do NOT agree with the upstream side slope of 2.5(H):1(V) for the key trench that was proposed by the Contractor. This slope is too flat and is not consistent with the design intent.

The designed key trench side slopes (both upstream and downstream) were "angle of repose". In the construction drawings, the key trench side slopes with "angle of repose" were assumed to be 1.5(H):1(V). Based on the current field conditions, the actual "angle of repose" is steeper than 1.5(H):1(V). To reduce overall key trench excavation and backfill, we propose the following:

1) 1.5(H):1(V) for upstream key trench side slope, which is the same as shown in the construction drawings; it is also acceptable if the upstream key trench side slope is slightly steeper than 1.5(H):1(V).
2) The actual "angle of repose" for the downstream key trench side slope, which is steeper than 1.5(H):1(V), as proposed by the Contractor.
3) Nearly vertical wall excavation below the toes of the upstream and downstream key trench slopes within the unfrozen active layer zone (1.4 to 1.8 m). This is generally consistent with the plan proposed by the Contractor.

The sketch below presents the general key trench excavation and backfill concept for D-CP1 and D-CP5:



Please see other details (liner, liner bedding, Type F, etc.) in the construction drawings and specifications.

Engineering : Gordon Zhang Signature: Date: November 8, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

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Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_011 Rev: 0
Meliadine Project

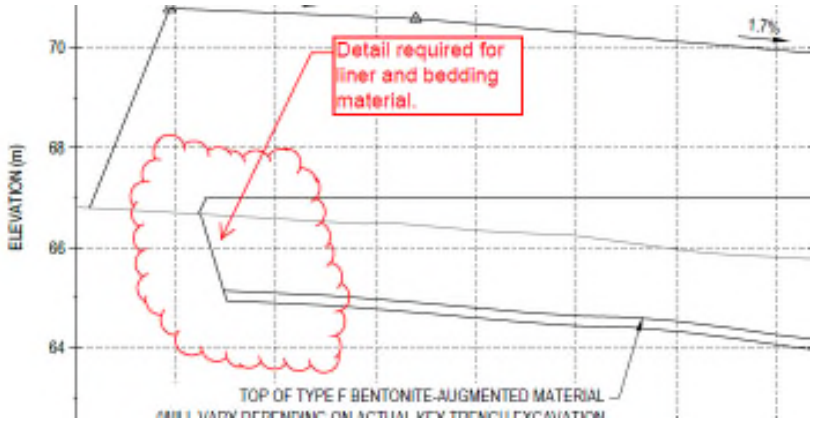
Site RFI Initiator: Mike Price Date: 2016-11-16

1. Reference Documents :

Title(s):	*Number:*	*Revision:*
D-CP1 and D-CP5 IFC Drawings Package		

2. Description , Justification of the RFI and Contractor's Proposed Solution :

MTKSL is requesting tie in details for the termination points at either end of the key trench for DCP 1 and 5, more specifically related to requirements for the liner and bedding material in the area.



Prepared by: Mike Price Signature: Mike Price Date: 2016-11-016

3. Technical Response from Engineering and/or Validation of Proposed Solution :

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For either end of the key trench for D-CP1 and D-CP5, the following construction details should be followed:

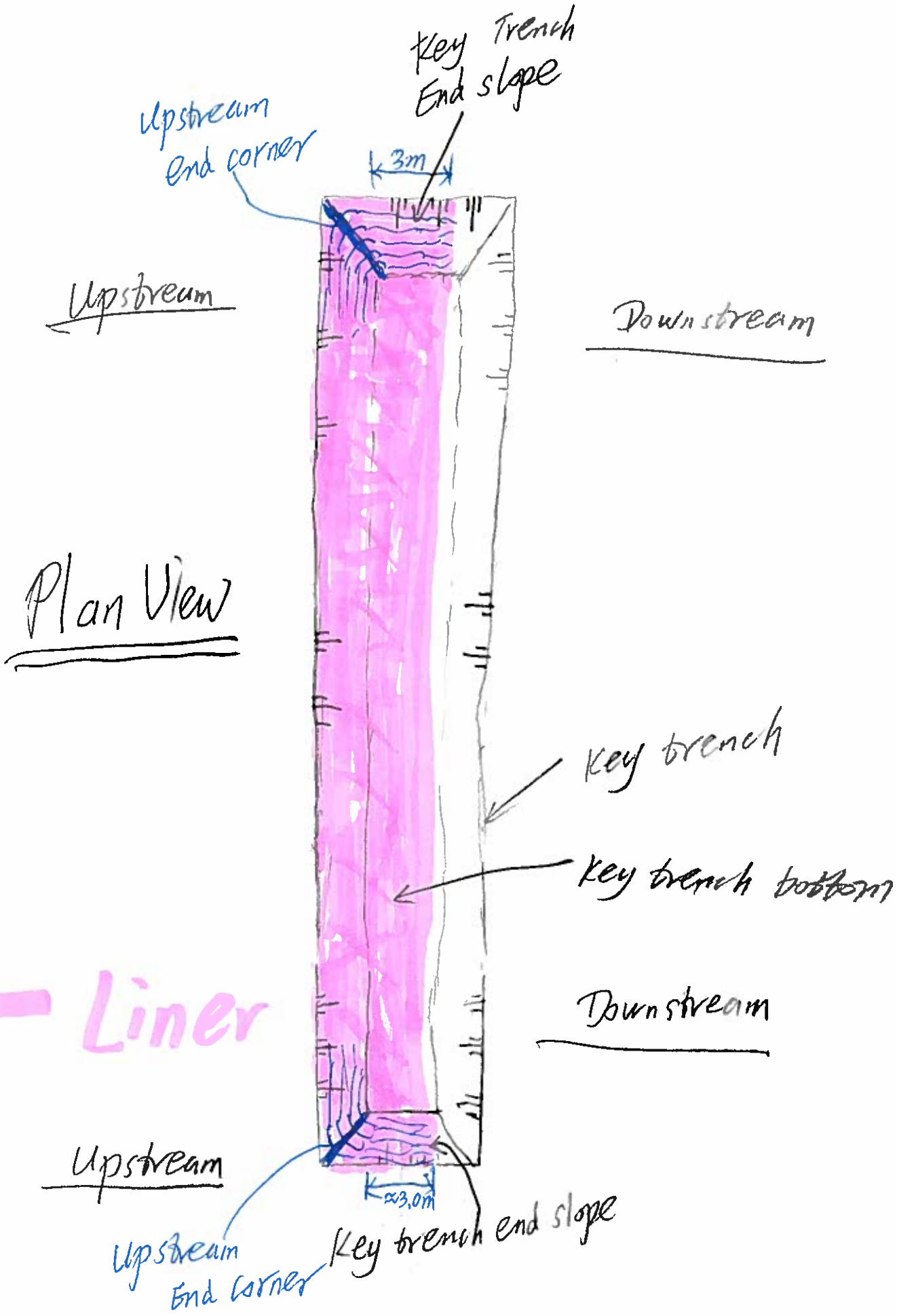
1) Place a liner bedding layer of Type F (mixture of Type C and bentonite) over the entire excavated slope at the end of the key trench and compact the Type F layer to form a smooth surface for liner installation over the end slope. The minimum thickness of the compacted Type F over the key trench end slope would be 0.2 m;
2) Place and compact extra Type F over the key trench (upstream side) end corner to form a rounded corner for liner installation;
3) Extend the typical liner in the key trench towards the key trench (upstream side) end corner, curve (wrap) over the key trench (upstream side) end corner, and then further extend a minimum of 3 m downstream over the compacted Type F layer on the end slope of the key trench. The liner over the key trench end slope should be welded together with the liner at the key trench bottom;
4) Place a layer of Type C as an upper bedding over the completed liner area at the end of the key trench. The thickness (perpendicular to the slope) of Type C should be about 0.5 m. No mechanical compaction is required for the Type C layer immediately over the liner; and
5) Backfill the remaining key trench end area with Type B, similar to the typical section.

A hand sketch is attached for information.

Engineering : Gordon Zhang Signature: Date: November 17, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

		Deviation Request: ☐ No ☐ Yes	
	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			


Key Trench End slope
Upstream End corner
3m
Upstream
Downstream
Plan View
Key trench
Key trench bottom
Liner
Downstream
Upstream
≈3,0m
Upstream End corner
Key trench end slope

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Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_012 Rev: 0
Meliadine Project

Site RFI Initiator: Matt Gallant Date: 2016-11-29

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
D-CP1 and D-CP5 Material Specifications		

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND CONTRACTOR'S PROPOSED SOLUTION :

MTKSL is requesting Confirmation of Material Acceptance for all the materials produced to date from contract 6515-C-235-003 for the Water Management Dikes will be suitable for construction of the D-CP1 and D-CP5.

Specifically:

- Type B1: Transition Rockfill (150mm Minus) produced by processing material obtained from the saline pond excavation.
- Type C: Granular Fill or Esker Sand (20mm Minus) produced by processing material obtained from the esker borrow sources
- Type H: Esker Sand and Gravel (75mm Minus) produced by processing material obtained from the esker borrow sources.

Prepared by: Matt Gallant Signature: Matt Gallant Date: 2016-11-29

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

Type B1: a total of 4 sieve tests were conducted by the dike earthwork QC team during the period of November 9 to 13, 2016. The results (a summary table and a chart) are attached with this file. The average gradation of Type B1 produced so far generally meets the requirements. The percentages passing a sieve size of 5 mm for the last three tests slightly exceed the specifications but is tolerable.

Type C: a total of 40 sieve tests were conducted by the dike earthwork QC team during the period of October 22 to December 5, 2016. The results (a summary table and a chart) are attached with this file. The average gradation of Type C produced so far generally meets the requirements, except for 6 samples that were significantly outside of the specifications. The 6 out-of-spec samples included three samples with higher fines content (<0.08 mm) of 18% to 23% and three samples with higher percentage passing 0.63 mm sieve (48% to 77%). After the tests, the dike QA/QC team had instructed the Contractor to stockpile the rejected Type C in a separate area for other site uses. It is also noted that the recently produced Type C had high natural moisture content of up to 14.4% because the esker source reached the permafrost table. This is not acceptable. The source esker should be excavated well above the permafrost table to have a relatively low natural moisture content. It is understand that more Type C will be produced for the dike construction. It is strongly recommended that the esker source for Type C should be excavated in shallow depths well above the permafrost table to have a relatively low natural moisture content.

Type H: a total of 5 sieve tests were conducted by the dike earthwork QC team during the period of October 22 to December 1, 2016. The results (a summary table and a chart) are attached with this file. The average gradation of Type H produced so far generally meets the requirements. . It is understand that very limited quantity of Type H has been produced so far and a significant volume of Type H is to be produced for the dike construction. It is strongly recommended that the esker source for Type H should be excavated in shallow depths well above the permafrost table to have a relatively low natural moisture content.

Engineering : Gordon Zhang Signature: Date: December 9, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

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Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_013 Rev: 0
Meliadine Project

Site RFI Initiator: David Morley Date: 2016-12-01

1. REFERENCE DOCUMENTS :

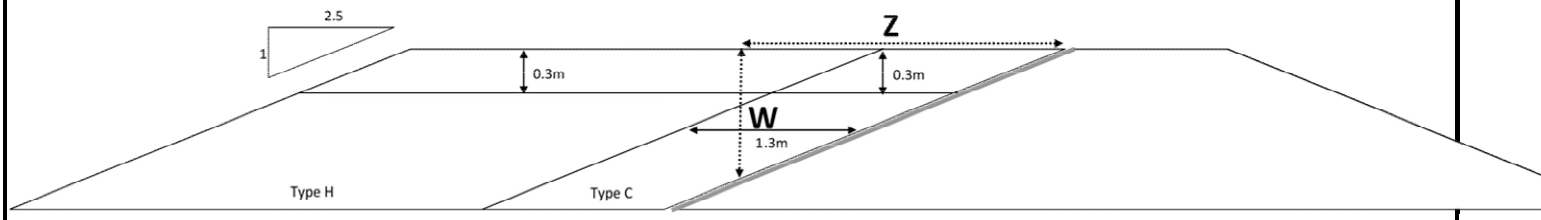
Title(s):	*Number:*	*Revision:*
D-CP1 IFC Drawings	65-685-230_DCP1	1
RFI 6515-C-230-007_009	6515-C-230-007_009	0
Geotechnical Specifications for Construction of Dike D-CP1	6515-E-132-007-132-SOT-002	1

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND CONTRACTOR'S PROPOSED SOLUTION :

The contractor has concerns that packing the Type H material to the downstream edge (the point of contact with type C) as lifts are installed may result in damage to the Coletanche liner.

As the specified lift thickness of Type H is 300mm, the vertical distance from the liner at the downstream edge of the type H material is only 0.52 m. As Type H requires a minimum of 98% density the contractor believes that utilizing a 10 ton roller will be required.

Please clarify the minimum vertical distance (shown as W) below that is needed to be maintained from the 10 ton roller. This is turn will result in a horizontal offset (shown as Z) that will not be compacted by the roller. This zone will be compacted indirectly be the compaction of upper lifts.



Prepared by: David Morley Signature: David Morley Date: 2016-12-01

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

As suggested by Duy in his email to Matt on Dec. 2, it is a good idea that the Contractor checks with liner supplier and installation team to get a recommendation. Otherwise, the following suggestions for the 10 ton compactor (CAT CS563) used at the site can be followed:

1) Without vibration (static load only) turning on of the compactor, a minimum vertical fill thickness (W) of 0.6 m above the liner should be fine. Based on 2.5:1 slope of the liner, this is equivalent to a minimum horizontal distance (Z) from the liner of 1.5 m or the minimum horizontal distance of 0.2 m to the interface of Type H and Type C (1.3 m horizontal width of Type C).
2) It is recommended that vibration feature of the compactor be turned on when the vertical fill thickness (W) above the liner is more than 1.5 m or the horizontal distance (Z) from the liner is more than 3.8 m.

Engineering : Gordon Zhang	Signature:	Date: December 9, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

	Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_014 Rev: 0
Meliadine Project

Site RFI Initiator: Jennifer Pyliuk Date: 2016-12-09

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
D-CP1 Typical Section and Quantities	65-685-230-208	1
D-CP5 Typical Section and Quantities	65-685-230-218	1
Geotechnical Specifications for Construction of DCP-1 (Tetra Tech EBA, Issued for Use November 9, 2016)	6515-E-132-007-132-SPT-002	1
Geotechnical Specifications for Construction of DCP-5 (Tetra Tech EBA, Issued for Use November 9, 2016)	6515-E-132-007-SPT-003	1

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND PROPOSED SOLUTION :

The estimated material quantities of Type A1 (sourced from Saline Water Pond) required to complete construction of both dikes (in place plus the recommended 25% to account for material wasting, overbuild, bulking factor and potential foundation settlement) are 27,044 m3 (D-CP1) and 3,850 m3 (D-CP5), for a total of 30,894 m3.

Current placed quantities of Type A1 material are 4,985 m3 (D-CP1) and 1,071 m3 (D-CP5), for a total of 6,056 m3. When the placed quantities are subtracted from the estimated required amounts, the remaining quantities are 22,059 m3 (D-CP1) and 2,779 m3 (D-CP5), for a total of 24,838 m3.

The latest stockpile survey of Type A1 material (conducted November 13) by Hamel Arpentage calculated volume of 28,550 m3. However, this volume does not account for the presence of oversize material within the stockpile, believed to be in the range of 15% to 40%. The total remaining volume of Type A1 material is expected to be in the range of 24,268 m3 (15% oversize in pile) to 17,130 m3 (40% oversize). It is therefore highly probable that there will not be sufficient quantities of Type A1 material to complete the construction of both dikes to design.

Possible design solutions to optimize the remaining quantities of Type A1 material are proposed to include elimination of further Type A1 material at D-CP5; placement of only two lifts (1.8 m) of Type A1 at D-CP1 and strategic placement of remaining Type A1 around most critical key trench locations of D-CP-1 based on encountered ground conditions within the key trench (ie. where no bedrock encountered). An examination of the design placement of the Type A1 material is requested in order to appropriately use the expected remaining quantities.

Prepared by: Jennifer Pyliuk Signature: _____ Date: 2016-12-09

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

Instead of using Type A rockfill (waste rock from underground operation), Type A1 rockfill (clean rockfill from saline pond excavation) was designed to be used in the dike downstream zone over the key trench area for each of D-CP1 and D-CP5. The design intent was to reduce the risk of potential salts from the Type A rockfill to get into the key trench and increase the pore water salinity of the soils in the key trench and underneath foundations.

If all of the rock (without oversize issue) from the saline pond excavation could be used for the dike construction, the rock quantity would be adequate for the Type A1 rockfill to be used for both D-CP1 and D-CP5 construction. Unfortunately, poor blasting operation during the saline pond excavation generated 15% to 40% of oversized boulders that cannot be used as Type A1 rockfill.

At this stage of dike construction, opening a new quarry to obtain additional clean rockfill is not feasible, which leaves one practical option – using the Type A rockfill to balance the material quantity for the dike construction. Of course, this will increase the risk of the potential salts from the Type A rockfill to get into the key trench and underneath foundations. The potential consequence would be that the risk of the seepage through the dike foundation soils could be increased.

To minimize the risk, the Type A rockfill can be used in the less critical dike (D-CP5) and less sensitive zone (higher elevation away from the key trench) in the dikes. Table below presents the overall plan, depending on the percentage of the oversize boulders in the Type A1 stockpile:

Type A1 Stockpile Volume (m3)	Percentage of Oversize Boulders (%)	Useable Type A1 for Dike Construction (m3)	Balance of Type A1 to be Used for D-CP1 (m3)	Balance of Type A1 to be Used for D-CP5 (m3)	Additional Type A to be Used for D-CP1 (m3)	Additional Type A to be Used for D-CP5 (m3)
28,550	15%	24,268	22,059	2,209	0	571
28,550	20%	22,840	22,059	781	0	1,998
28,550	25%	21,413	21,413	0	647	2,779
28,550	30%	19,985	19,985	0	2,074	2,779
28,550	35%	18,558	18,558	0	3,502	2,779
28,550	40%	17,130	17,130	0	4,929	2,779

The overall plan is to place as much as possible of Type A1 in the bottom zone of D-CP1 (high priority) or D-CP5 until no more useable Type A1 is available; and then place the balance of the required Type A in the upper zone over the placed Type A1, if applicable. This plan is easy for construction.

For example, for the 30% oversize case, the Type A1 rockfiil can be placed to an estimated top elevation of 66.2 m for the entire dike length in the design Type A1 zone of D-CP1. After that only a final lift of Type A material can be placed in the upper zone from 66.2 m to 67.0 elevations over the placed Type A1 zone. Similarly, for the extreme 40% oversize case, the Type A1 rockfill can be placed to an estimated elevation of 65.5 m for the entire dike length in the design Type A1 zone of D-CP1. The remaining upper zone from 65.5 m to 67.0 m can be placed using Type A material.

Engineering : Gordon Zhang Signature: Date: December 22, 2016

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

Deviation Request: ☐ No ☐ Yes

Name Signature Date

Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_016 Rev: 0
Meliadine Project

Site RFI Initiator: Michael Love Date: Jan 5, 2017

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
Geotechnical Specifications for Construction of DCP-1 (Tetra Tech EBA, Issued for Use November 9, 2016)	6515-E-132-007-132-SPT-002	R1

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND PROPOSED SOLUTION :

On Dec 20, 2016 Type C was mixed with heated water from Orbit's water heating system in a mixing pit at the south end of DCP-1 to produce Type K. Due to the winter conditions the material was frozen before it reached the key trench excavation of DCP-1 (3 loads of Type K mixed using this method were placed at DCP-1 and had to be removed).

This demonstrates our current methodology for producing Type K is insufficient in temperatures at -36C and below. Type K was previously manufactured using this methodology successfully in temperatures ranging from -2C to -15C from Nov 26, 2016 to Dec 5, 2016 (with an average temperature of -6C). Forecasted temperatures are approximately -30C over the next 14 days and MTKSL do not believe our current methodology will achieve acceptable results in those temperatures.

During preliminary discussions on site with AEM and Tetra Tech between Dec 20 and 23 mention was made of heating the aggregate. MTKSL do not believe the infrastructure is available to support this method of producing Type K in a manner which supports productive placement.

We suggest placing the Type C in specified lift thicknesses, adding the required amount of heated water to achieve "Nearly Saturated Backfill" and compacting the "Nearly Saturated Backfill" immediately after the heated water is applied. Similar material was placed successfully using this method in similar temperatures last March - during construction of the P1 Dikes at Meliadine. This would require a variance to the specification as Section 1005 1.4.7.b states:

"The Type K material shall be pre-mixed with water and Type C material or other approved material (20 mm minus) before being placed and compacted. It is preferred that pre-mixing be done in a pug mill. If not available, pre-mixing in a dedicated pit or container close to the construction site can be done after approval from the Engineer. It is not allowed that in situ mixing of the Type K material is done in the area where the material is to be placed."

Be advised Type K placement is presently our only available work front and until a plan is in place – or other work fronts become available – we will not be remobilizing our dike construction crews to site.

Prepared by: Michael Love Signature: Michael Love Date: Jan 5, 2017

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

Unsuccessful Past Experience for In-situ Mixing to Produce Nearly-saturated Backfill

As I know, our Edmonton Arctic Group has involved in the design and construction QA/QC for the majority (if not all) of the frozen core dikes/dams that have been constructed in Northern Canada. Similar to the Type K material (nearly-saturated backfill) for the dike (D-CP1) construction at the Meliadine site, unfrozen nearly-saturated backfill was used to construct the frozen cores of these dikes/dams in cold winter conditions. During the early stage of construction for some of the frozen cores, trials with in-situ mixing to produce nearly-saturated backfill proved to be unsuccessful. As a result, the in-situ mixing method was not adopted in construction of these frozen cores. The major issues with the in-situ mixing include the following:

- Water ponding on the lift surface and not being able to penetrate down to the bottom of the lift before the water froze; as a result, ice layers formed on the surface and the under-saturated bottom lift had low ice/water saturation;
- Difficulty in controlling final water content of the material; tending to generate either ice-rich or under-saturated material with various saturation conditions, which does not meet the design intent and requirements;
- Under cold air temperatures, sprayed water tended to freeze quickly before mixing and compaction.

Based on this past experience, we specified in the D-CP1 Construction Specifications that in-situ mixing method should be avoided for mixing the Type K Material.

Regarding the "frozen core" construction of the P1 Area temporary dikes (DP1-A, DP1-B, DP2-A and DP3-A) at the Meliadine site, the "frozen core" construction of the P1 Area temporary dikes cannot be referred to justify using the in-situ mixing method for the D-CP1 dike Type K material for the following reasons:

- The P1 Area dikes were constructed to temporarily control the water in the P1 area during the 2016 spring freshet and had much less stringent engineering requirements than those for the permanent dikes (D-CP1 and D-CP5);
- Many unsuccessful trials using the in-situ mixing method were made during the early stage of the "frozen core" construction, which resulted in loss of some valuable construction time and partially led to final cancellation of using nearly-saturated fill as construction material for the dike cores. In the end, only several lifts of the bottom cores in DP1-A and DP3-A were constructed using the nearly-saturated backfill. The remaining majority of the cores in DP1-A and DP3-A were constructed using the 0 – 30 mm material only – no mixing with water. The entire cores for DP1-B and DP2-A were constructed using the 0 – 30 mm material only – no mixing with water. Therefore, the P1 Area temporary dikes are not "frozen core" dikes.
- The core construction for the P1 Area dikes started on March 26, 2016 when the air temperatures ranged from -10°C to -25°C. Under these relatively mild temperatures, I would say that pre-mixing in a pit may achieve a better result.
- The core material for the P1 Area dikes was the crushed 0-30 mm rockfill, which had low natural ice/water content (about 3%), which is different from the Type C (0-20mm) used for the D-CP1 construction. The latter (Type C) has a high natural moisture content of 7% to 14%, which would need more heat to thaw the existing ice during mixing.

Construction Schedule and Plan

As noted in Construction Drawing 65-685-230-208 for Dike D-CP1, it was assumed during the design that the key trench excavation and backfill would be conducted from late September to November 2016 for D-CP1 to avoid the extreme cold temperatures in December to February. Unfortunately, this was not achieved due to the late start of the D-CP1 construction and slow progress in construction.

It is understood that the Contractor together with AEM is responsible for developing proper construction schedules/plans and adopting relevant construction techniques and methodology to meet the design intent and final completion schedule of D-CP1 and D-CP5.

The following preliminary construction plan is provided for further consideration and discussion:

- Focus on excavation of the key trenches for D-CP1 and D-CP5 during the extreme cold weather period;
- Temporarily suspend the Type K material placement during the extreme cold weather period;
- Further re-adjust the current in-pit mixing method to produce unfrozen Type K material under cold weather conditions; consideration can be given to increasing the water temperature for mixing, selecting the Type C material with less natural moisture content as the source for mixing, pre-heating the Type C material before mixing, stockpiling the selected Type C in a warming tent, pre-heating the mixing pit, or covering the mixing pit with a heated tent, etc.

Based on the discussions mentioned earlier, it is not recommended to adopt the in-situ mixing method that was proposed by the Contractor. Nevertheless, if the Contractor together with AEM would like to take time and effort to investigate the in-situ mixing method, they can first conduct a trial mixing/placement in a test strip at a selected site away from the dike key trench:

- Remove snow/ice and other non-suitable surface material to form a relatively level base for the trial mixing;
- Place the Type C in a loose lift (no compaction) with a maximum lift thickness of 75 mm or 100 mm;
- Spray hot water uniformly over the lift surface to target the desired water saturation after compaction;
- Compact the Type C before the water freezing;
- Take several core samples from the test strip to determine the water saturation and its variation over depth.

If the trail mixing and test results suggest that the in-situ mixing is working, the Contractor may conduct more trials to develop final procedures to be used for mixing and placing the Type K material for the dike construction:

- Follow the procedures developed during the trial mixing;
- Take core samples after compaction to verify the water saturation and its variation over depth for each lift;
- If the placed Type K does not meet the design requirements, the lift should be removed.

Engineering : Gordon Zhang Signature: _____ Date: January 9, 2017

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

		Deviation Request: ☐ No ☐ Yes	
	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_018 Rev: 0
Meliadine Project

Site RFI Initiator: Fai Ndofor Date: 2017-01-19

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
D-CP1 Typical Section and Quantities	65-685-230-208	1
Geotechnical Specifications for Construction of DCP-1 (Tetra Tech EBA, Issued for Use November 9, 2016)	6515-E-132-007-132-SPT-002	1

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND PROPOSED SOLUTION :

Since the unsuccessful attempt at mixing/placing Type K material occurred on December 20, 2016, two further attempts to mix/place Type K within the key trench at D-CP1 have been made. A summary of the QA/QC observations from these attempts is as follows:

1. January 17: Ambient temperature = -12°C; Mix water temperature = ~40°C; Aggregate temperature = -35°C; Temperature of Type K after mixing = -6°C to -8°C; Amount of aggregate = 6 level 345 buckets; Amount of added water = 13 minutes (approximately 2,200 L); Mix time = 5 minutes. The mix moisture content was 14.2%, it was observed as dry and frozen and was not placed within the key trench.
2. January 18:

- Mix water temperatures = ~63°C; Aggregate temperature = -24°C; Temperature of Type K after mixing = -7°C to -8°C; Amount of aggregate = 6 level 345 buckets; Amount of added water = 19 minutes (approximately 3,150 L); Mix time = 5 minutes. The mix moisture content was 17.5%, it was observed as damp, frozen and was not placed within the key trench. The mix was spread in a 200 mm thick lift close to the mix station and compacted (2 static and 5 vibrating passes) with the 10 ton compactor. Cracks and loose material were observed on most of the compacted surface indicating non-saturated and frozen material.
- Heating aggregate will not be possible until mid-February at the earliest using the on-site batch plant facilities.
- Recommend placing 0.15 to 0.30 m thick Type F directly on base of key trench at the approved depths (approximately 2.8 m) and lowering the liner for remainder of D-CP1 from Stations 0+310 to 0+580 – all other overliner design elements will remain.
- This will increase liner, Type B, Type F (bentonite mix) and Type C materials quantities. The changes in materials quantities have not been quantified to date.

Prepared by: Fai Ndofor Signature: Fai Ndofor Date: 2017-01-19

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

It is understood that the Contractor could not produce the Type K material (nearly-saturated backfill by mixing the Type C with hot water) that meets the required specifications under the current climate conditions and available facilities at the site:

1) The maximum water temperature for mixing is limited to about 60 C and could not be higher due to limitation of the available water heating facility;
2) Cold temperature (as cold as -35 C) of the Type C material for mixing;
3) Relatively high natural ice content in the Type C material for mixing;
4) No facility or equipment is available to pre-heat the Type C for mixing;
5) Cold air temperatures in January; and
6) Mixing in a cold pit in the natural ground that is open to cold ambient air temperatures.

The option to lower the liner bottom elevation in the key trench is a technically feasible solution to eliminate the use of the Type K material in the remaining portion of the D-CP1 key trench. This option will result in the following changes and associated construction cost increases:

a) Additional liner is required and may need to be shipped in by air;
b) Additional excavation in the key trench downstream side is required to meet the design liner bottom length in the key trench; and
c) More backfill materials (Type B, Type F (including bentonite), and Type C) are required.

Sketches to compare the original design and the option are attached with this file.

Based on the sketches (typical sections with 2.8 m key trench depth), the material quantity changes are roughly estimated for planning, assuming the changes for the option will be applied to Stations 0+310 to 0+580 (about 270 m):

Estimated in-place quantity changes:

Type B: 2,940 m3 (increase);
Type C: 1,690 m3 (increase);
Type F: 210 m3 (increase); therefore, bentonite increase: approximately 42 tonnes
Type K: -2,170 m3 (decrease); therefore, the total Type C will slightly decrease (1690+210-2170 = -270 m3);
Liner (ES3): 909 m2 (increase), including overlapping; and
Key trench excavation: 2,670 m3 (increase).

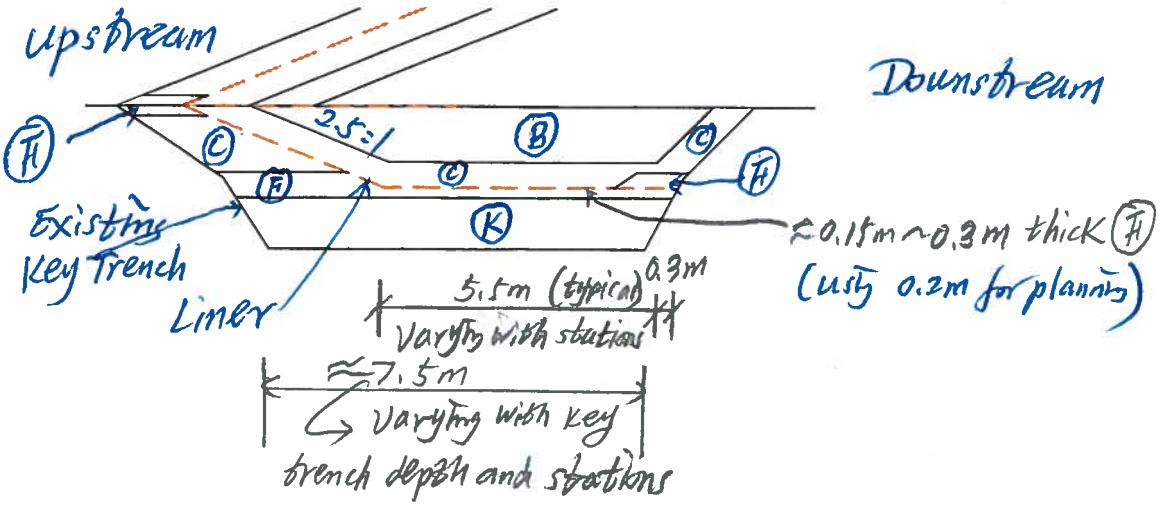
The estimated quantity changes are provided for AEM's planning and decision making. The actual quantities will depend on the actual construction details and could be different.

Prepared by:	Gordon Zhang	Signature:		Date:	January 20, 2017

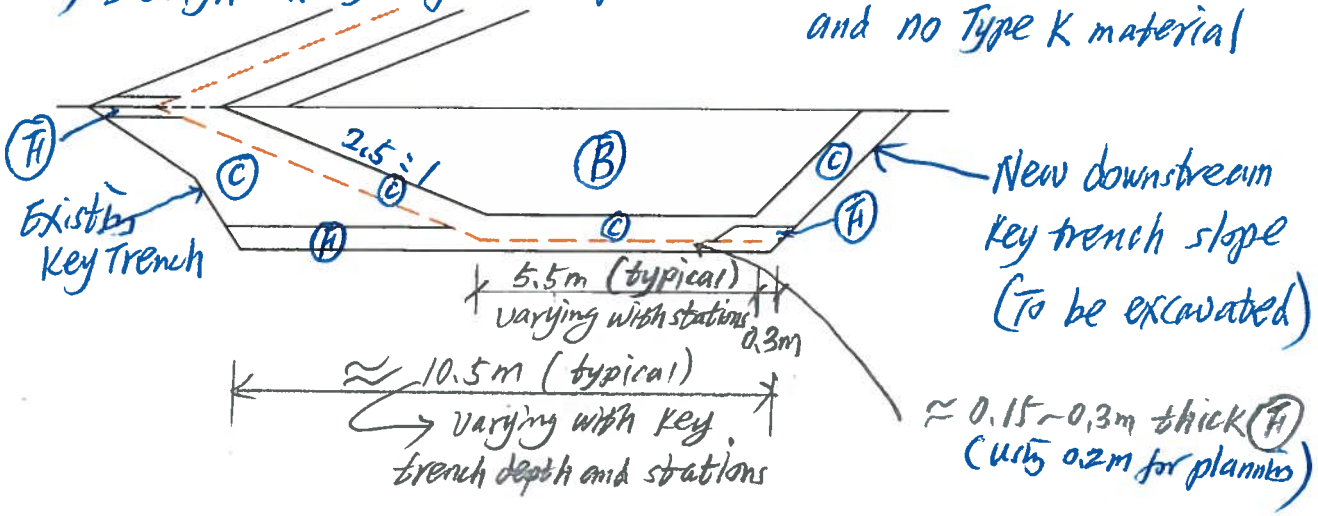
4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

		Deviation Request: ☐ No ☐ Yes	
	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

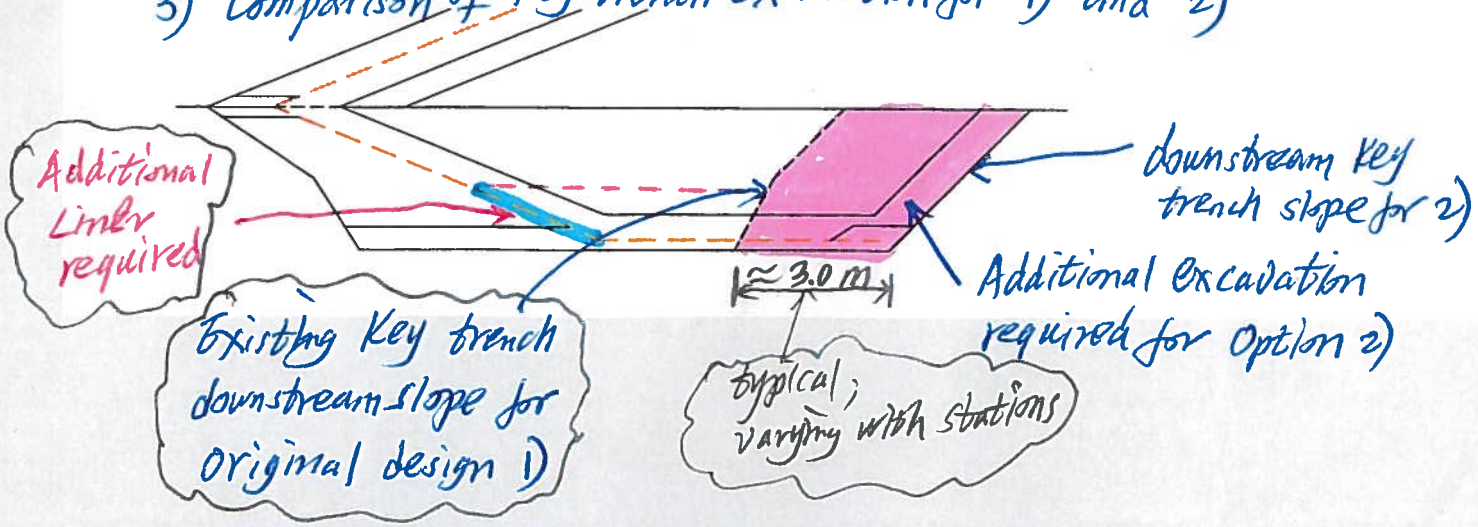
1) Original Design in Dike Key Trench for D-CP1



2) Design Changes for the option with lower Liner bottom elevation and no Type K material



3) Comparison of Key trench excavation for 1) and 2)



AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_019 Rev: 0
Meliadine Project

Site RFI Initiator: Michael Price Date: Jan 22, 2017

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
RFI No: 6515-C-230-007_018		

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND PROPOSED SOLUTION :

The original volume MTKSL calculated and provided for the additional excavation required to incorporate lowering the liner at DCP01 was based on the assumption that the vertical box cut would be held from -2.8 to -1.8m and the 1:1 slope would begin from that point. Upon review of RFI 018 response the details appear to have a 1:1 slope projected back from the new toe location. The attached detail outlines the additional volumes associated with the different slope options, proceeding with the 1:1 slope from the new toe location would result in an increase of approximately 550m^3 and 4 days of duration to the excavation activity.

Please confirm the required slope for the DS face of the additional excavation.

- Option 1 = 1:1 slope down to -1.8m transition to box cut down to final toe.
- Option 2 = 1:1 Slope beginning at the new toe location.

Prepared by: Michael Price Signature: Mike Price Date: Jan 22, 2017

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

The Option 2 (downstream slope beginning at the new toe location) was shown in the sketch in the responses to the RFI 018 to illustrate the general concept of lowering the liner in the key trench of D-CP1. This is just a preferred option that has a uniform downstream slope. Nevertheless, other excavation options, such as Option 1 proposed by MTKSL, can be considered.

Instead of a uniform sloping wall, Option 1 adopts a vertical downstream side wall in the lower portion (from -1.8 m to the final bottom) of the downstream key trench, which would result in less key trench excavation/backfill. Since Option 1 would result in lower dike construction cost and still meet the overall dike design intent, this option is acceptable.

Engineering : Gordon Zhang Signature: Date: January 22, 2017

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_020 Rev: 0
Meliadine Project
Site RFI Initiator: Michael Love Date: Jan 23, 2017

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
RFI No: 6515-C-230-007_018 RFI No: 6515-C-230-007_019		

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND PROPOSED SOLUTION :

Does RFI 18 and the pending response to RFI 19 apply to DCP-5 also?

Prepared by: Michael Love Signature: Michael Love Date: Jan 23, 2017

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

Engineering : _____ Signature: _____ Date: _____

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_021 Rev: 0
Meliadine Project
Site RFI Initiator: Michael Price Date: Jan 24, 2017

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
RFI No: 6515-C-230-007_018		

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND PROPOSED SOLUTION :

In an effort to reduce duration and costs associated with the path forward to lower the liner elevation within D-CP01 MTKSL has prepared the below scenarios for consideration;

With the current design the additional excavation required = 1500m^3

Option 1: Reduce liner horizontal distance along the bottom of the key trench from the design width of 5.5m

- 5.0m would result in a reduction of 275 m^3 of excavation, requiring a total additional excavation volume of 1225m^3
- 3.52m would eliminate the need for any excavation.

Option 2: Revise lower liner slope from the design slope of 2.5:1

- A slope of 2.0:1 would result in a reduction of 987 m^3 of excavation, requiring a total additional excavation volume of 513m^3

Option 3: Revise lower liner slope from the design slope of 2.5:1 and reduce liner horizontal distance along the bottom of the key trench from the design width of 5.5m.

- A slope of 2.0:1 and a width of 5.15 would eliminate the need for any excavation.

Note distances and changes in all options were taken as a starting point to identify potential savings, any possible reduction between design and what we have outline here would be a welcome change to reduce both duration and cost.
Please advise if any or a combination of these options are an acceptable alternative for the construction of D-CP01.

Prepared by: Michael Price Signature: Mike Price Date: Jan 24, 2017

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

MTKSL proposed these options in trying to reduce the downstream key trench excavation quantity of D-CP1. Actually, similar options had been previously considered but rejected when we initially designed the dike and again recently prepared the responses to the RFI 018.

Yes. Reducing the bottom liner width or steepening the liner slope would reduce the excavation quantity. However, these changes would not meet the dike design intent and requirements. The liner bottom width of 5.5 m (in areas with low original ground elevation for D-CP1) was selected based on the design water head. Reducing the liner bottom width will proportionally increase the seepage gradient and potential risk of high seepage rate through the foundation. The design geomembrane liner slope of 2.5 (H):1 (V) was adopted based on our past design and construction experience for lined dikes/dams in permafrost regions. Steeper liner slope (such as 2:1) would make the installation and welding of the liner more difficulty, be detrimental to liner performance due to increased risk of liner panel shifting and movement during installation and welding, and increase the risk of slipping and falling of the liner installer, especially during current icy winter conditions. In addition, steepening the liner slope will also negatively decrease the Type C material thickness below the liner in the upstream key trench slope area.

In summary, we recommend to keep the original design liner bottom width and slope unchanged and not to adopt any of the options proposed.

Engineering : Gordon Zhang	Signature:	Date: January 25, 2017

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

	Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_022 Rev: 0
Meliadine Project

Site RFI Initiator: Michael Price Date: Jan 27, 2017

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND PROPOSED SOLUTION :

For areas of D-CP05 where the excavation is required to extend down to -2.8m, please confirm that the upstream slope will continue at the slope of 1.5:1.

As an alternate option to reduce the excavation and Type F quantity MTKSL is proposing to use the existing minimum cover and slope parameters from the IFC design to create a step in the slope at the 1.8m elevation where the design key trench floor was planned to be encountered. (per attached detail) potential saving = 1.1m3/Ln.m of excavation and 0.5 m3/Ln.m Type F.

Please confirm approved up stream slope detail for D-CP05.

Prepared by: Michael Price Signature: Mike Price Date: Jan 26, 2017

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

First of all, none of the final key trench depths for the stations excavated so far at D-CP5 has reached 2.8 m from the original ground surface. Actually, almost all of the final key trench depths that have been approved by the QA/QC team are around 1.8 m or less:

Stations 0+000 to 0+020: final depth around 1.8 m (see daily report on January 24);

Stations 0+140 to 0+200: bedrock encountered at 1.3 m to 1.8m (see daily report on January 24);

Stations 0+070 to 0+080: positive results from jar test results at 1.8 m; may be approved after the QA inspection today.

Based on the two boreholes drilled in the 2016 geotechnical site investigation, shallow bedrock (about 1.5 m from ground surface) was encountered in areas around Station 0+170 and Station 0+220. Note that the D-CP5 is shorter and key trench is about 290 m (0+000 to 0+0290).

In summary, with possibly no or limited length of the D-CP5 key trench that needs to be excavated beyond a depth of 1.8 m, the potential saving of excavation for the scheme proposed by MTKSL is limited.

Technically, we do not recommend the key trench excavation option that was proposed by MTKSL in this RFI for the following reasons:

1) If the key trench needs to be excavated below 1.8 m to up to 2.8 m, that means the foundation soils below the 1.8 m depth must be either ice-rich or icy soils. If these soils are thawed, potential thaw induced settlements would be relatively great.
2) To reduce the potential risk of detrimental thaw settlement below the critical portion of the line, the ice-rich or icy soils below the critical portion of the liner system should be removed and replaced with thaw-stable backfill.

Based on MTKSL's original sketch, notes are made in the attached sketch to show the recommended excavation plan for the case with a required key trench depth of up to 2.8 m.

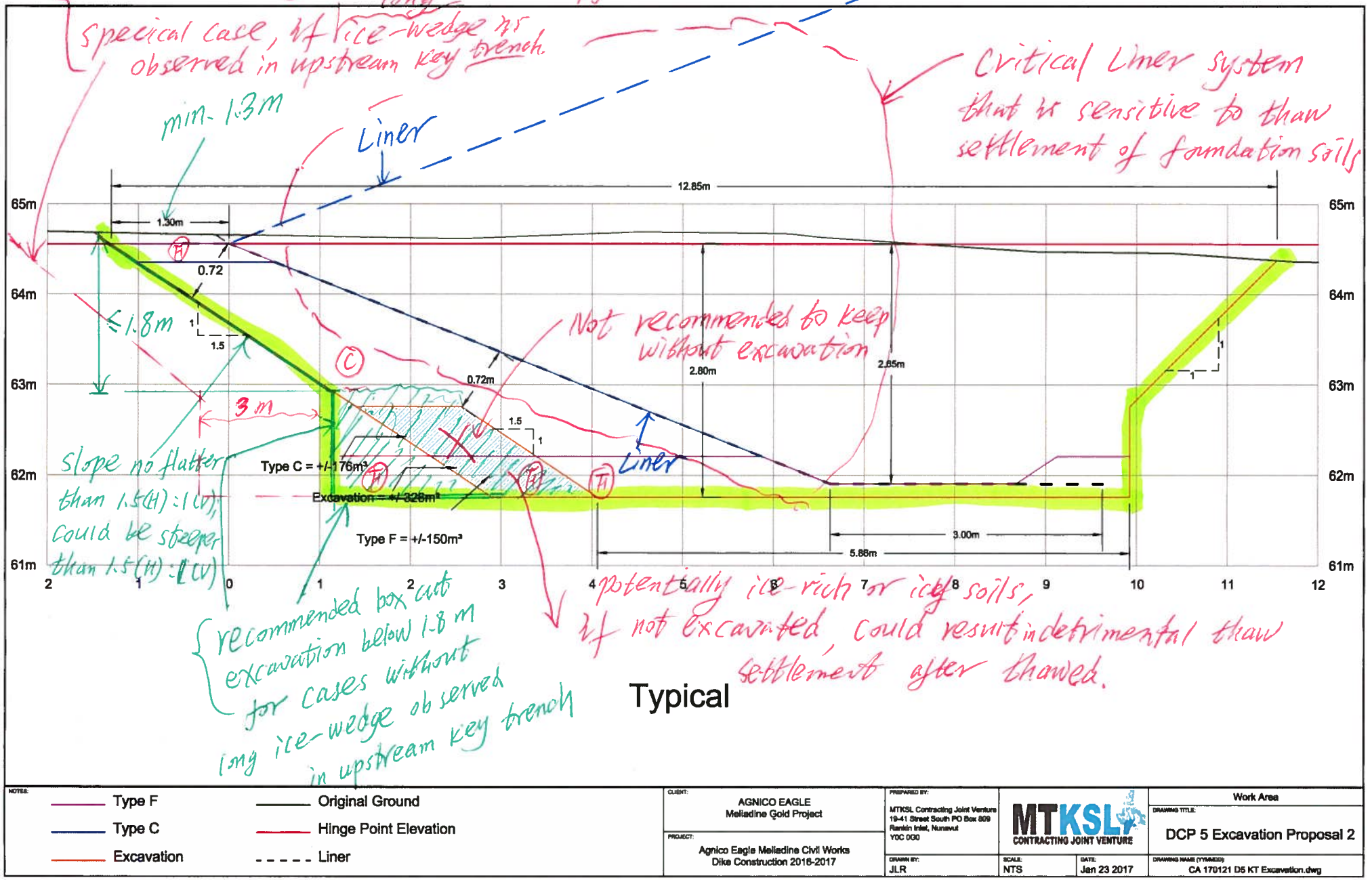
AGNICO EAGLE

Request For Information

Engineering : Gordon Zhang	Signature:	Date:	January 27, 2017

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

		Deviation Request: ☐ No ☐ Yes	
	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			



Typical

NOTES:

Type F — Original Ground
Type C — Hinge Point Elevation
Excavation — Liner

CLIENT: AGNICO EAGLE Meliadine Gold Project

PROJECT: Agnico Eagle Meliadine Civil Works Dike Construction 2016-2017

PREPARED BY: MTKSL Contracting Joint Venture, 19-41 Street South PO Box 809, Rankin Inlet, Nunavut, Y0C 0G0

MTKSL CONTRACTING JOINT VENTURE

DRAWN BY: JLR | SCALE: NTS | DATE: Jan 23 2017

Work Area

DRAWING TITLE: DCP 5 Excavation Proposal 2

DRAWING NAME (YYMMDD): CA 170121 D5 KT Excavation.dwg

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_023 Rev: 0
Meliadine Project
Site RFI Initiator: Michael Price Date: Jan 28, 2017

1. REFERENCE DOCUMENTS :

Title(s):	*Number:*	*Revision:*
Geotechnical Specifications for Construction of DCP-1 (Tetra Tech EBA, Issued for Use November 9, 2016)	6515-E-132-007-132-SPT-002	1

2. DESCRIPTION , JUSTIFICATION OF THE RFI AND PROPOSED SOLUTION :

Type H material specification currently require that the material particle size distribution fall between 0 and 75 mm. Is there an opportunity to relax this specification and increase the particle size to between 0 and 125mm? Doing so will allow the material to be produced with the Jaw only, removing the need for the cone crusher that has shown to be more problematic with the esker material in winter conditions due to material freeze / build ups within the unit. These conditions were not originally planned for during the production of this material as it was originally schedule to take place prior to cold temperatures setting in. Considering the tight schedule for production it would be best to remove the potential for further delay.

In addition with recent changes to the liner elevation it has been noted that if Type B quantities become exhausted Type H will be used in its place. Where Type H material replaces Type B can the material gradation of H be increased to that of B, 0-150mm?

Prepared by: Michael Price Signature: Mike Price Date: Jan 28, 2017

3. TECHNICAL RESPONSE FROM ENGINEERING AND/OR VALIDATION OF PROPOSED SOLUTION :

Background Information

During the dike design stage, Agnico Eagle indicated that there were a lot of natural esker sand and gravel materials that are available for the dike construction and would be sourced from many esker borrow sites at the Meliadine site. The esker sand and gravel materials were referred as "Type H" Material in the D-CP1 dike specifications and drawings. Based on some available previous sieve test results for unfrozen esker sand and gravel samples taken from various borrow sites at the Meliadine site, the particle size distribution limits for Type H were established. Therefore, it is expected that the unfrozen natural esker sand and gravel materials excavated from the borrow sites during the summer time would generally meet the required specifications with no or little processing (crushing) requirement. As specified in the dike Construction Specifications, the esker sand and gravel materials should be stockpiled in summer to drain the excess in situ moisture before it is used as Type H for winter construction, and frozen chunks of Type H should not be directly used as fill for the dike construction before the ice bonding of the particles is broken by mechanical means.

Unfortunately, little quantity of the Type H material was produced in the summer time last year. The majority of the Type H material for the D-CP1 construction has not been produced so far and will be produced from the frozen esker sand and gravel to be excavated from the borrow sites in this cold winter period. Two major potential issues are associated with the winter production of the Type H material: 1) frozen chunks of finer particles, which cannot be directly used for the dike construction, and 2) high ice content (excess water cannot be drained in the winter time), especially for the fully ice-saturated materials excavated from the permafrost ground below the active layer.

MTKSL's Option to Increase the Maximum Particle Size for Type H from 75 mm to 125 mm

Because the Type H will be sourced from the natural esker sand and gravel materials that would have a low percentage of boulders greater than 75 mm in size, increase in the maximum allowable particle size to 125 mm would have little impacts on its final overall particle size distribution.

It is OK to increase the maximum particle size of the Type H from 75 mm to 125 mm as long as the following conditions are met:

1) The allowable particle size of up to 125 mm is only applicable to any individual boulder but not applicable to any frozen chunk of finer particles;
2) No frozen chunks of finer particles are allowed in the final Type H for the dike construction;
3) The fines (<0.076 mm) content in the Type H (based on laboratory sieve tests in its unfrozen state) should be no greater than 10%;
4) The particle distribution for the final Type H in both its frozen and unfrozen conditions should be similar and be well graded; and
5) The Type H should be sourced from the esker material with a natural moisture content (based on laboratory moisture content tests) of no greater than 10% to limit its ice content and potential thaw settlement.

Note that the cone crusher may be still required to crush the frozen chunks of finer particles even though the maximum allowable particle size for boulders is increased to 125 mm.

Type H to Replace a Portion of Type B in Key Trench Backfill

The option to replace a portion of Type B with Type H is mainly applicable to the key trench backfill for D-CP5 after Type B quantities become exhausted. The use of Type H to replace Type B for the D-CP1 key trench backfill should be minimized. The Type B zone between the Type C and Type A1 (or Type A) below the upper liner system that is above the key trench should not be replaced with Type H for either D-CP1 or D-CP5.

Similar to the comments mentioned above in response to "MTKSL's Option to Increase the Maximum Particle Size for Type H from 75 mm to 125 mm", it is OK to increase the maximum particle size to 150 mm as long as the similar conditions mentioned above are met. Again, because the Type H will be sourced from the natural esker sand and gravel materials that are generally much finer than Type B, simply increasing the maximum allowable particle size to 150 mm for Type H would have little impacts on its final overall particle size distribution; and therefore, the Type H (without any frozen chunks of finer particles) would be generally finer than Type B.

Engineering : Gordon Zhang	Signature:	Date: January 30, 2017

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

	Deviation Request: ☐ No ☐ Yes

	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			

AGNICO EAGLE

Request For Information

Project No: 6515 Contract No: C-007 RFI No: 6515-C-230-007_024 Rev: 0
Meliadine Project
Site RFI Initiator: Michael Price Date: Feb 20, 2017

1. Reference Documents :

Title(s):	Number:	Revision:
Geotechnical Specifications for Construction of D-CP1 (Tetra Tech EBA, Issued for Use November 9, 2016)	6515-E-132-007-132-SPT-002	1

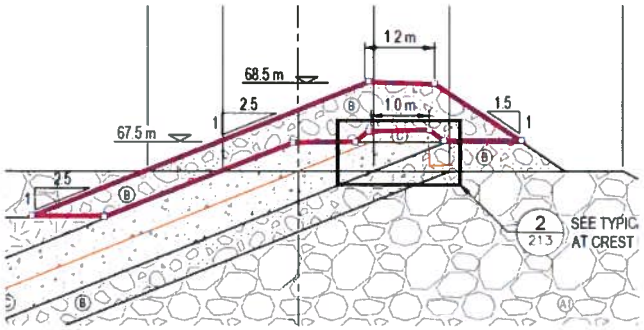
2. Description , Justification of the RFI and Proposed Solution :

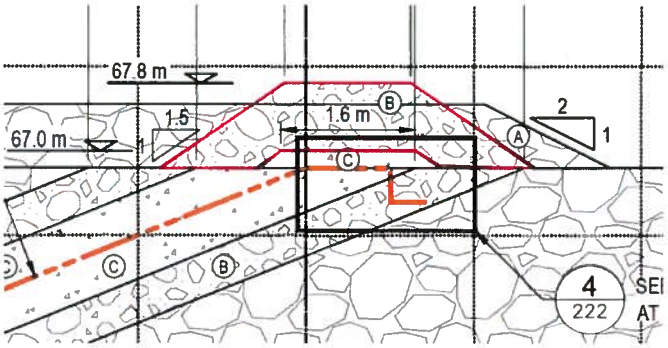
Based on survey data and approved design changes MTKSL has calculated the neat line volume of Type B to be 16,191 m^3. This volume considers D-CP1 to be constructed with no substitutions where Type B is required (including the additional excavation) and D-CP5 to maintain Type B as per design above OG and a minimum thickness of 300mm from OG down within the Key Trench. The remainder of D-CP5 Key Trench Type B will be substituted with Type H.

The current stockpile of Type B = 15,100 m^3 leaving us short of material which would require the substitution of Type H within the D-CP01 Key Trench. The current supply of Type H material on hand is not acceptable for the key due to high moister content and the production of additional Type H is delayed pending a blasting program to produce the feed material as ripping will not produce material in the time frame required.

In an effort to prevent any delay MTKSL is proposing / requesting one of 3 options;

1. Replace the Type B material within the very top cover portion of the Dikes with Type B material produced from UG ROM as this location is already adjacent to Type A material. (see below)
2. Replace the Type B material within the very top cover portion of the Dikes with the 0-125mm Type H (see below)
3. Produce an additional quantity of clean Type B from the A1 supply which is not ideal as the quantities are already tight for this material.





Prepared by: Michael Price Signature: Mike Price Date: Feb 20, 2017

3. Technical Response from Engineering and/or Validation of Proposed Solution :

As indicated by MTKSL, Option 3 to produce Type B from Type A1 (ROM from the saline pond excavation) is not practical because of a shortage of qualified Type A1 due to a large percentage of oversized boulders produced during the saline pond excavation. Depending on the percentage of oversized boulders in the Type A1 ROM, the estimated quantity of the actual Type A1 (after removing oversized boulders) that is currently available at the site may not be adequate for the required quantity of Type A1 for construction of D-CP1 and D-CP5. Therefore, Option 3 is not feasible.

Option 2 to replace Type B with Type H (esker sand and gravel) has two issues. The esker sand and gravel (Type H) is susceptible to surface erosion and therefore, is not a suitable material to be placed over the dike crest. Secondly, the majority of Type H required for construction of D-CP1 has not been produced at this stage. The availability of additional, qualified Type H is uncertain.

Option 1 to use the UG ROM to produce an alternative of Type B is not ideal but is a practical option. The UG ROM contains salts that would increase the pore water salinity of the dike fills. Nevertheless, since the material will be placed over the dike crest (as shown within the red lines in MTKSL's sketches above) that is relatively away from the critical component (key trench) of the dikes, the potential risk of the salt impacts to the dike's overall performance is manageable. Option 1 is a practical solution since the UG ROM quantity is adequate and readily available at site.

In summary, Option 1 is the most practical option among the three options proposed by MTKSL. At this stage and tight construction schedule, we have no other practical alternatives but to adopt Option 1.

It should be emphasized that the Type B using the UG ROM as a source should be only placed within the dike crest zones as shown within the red lines in MTKSL's sketches above. The Type B in other dike zones should use the rockfill without salts (from the saline pond excavation).

Engineering : Gordon Zhang	Signature:	Date:	February 21, 2017

4. IF NOT TECHNICAL RFI VALIDATION OF PROPOSED SOLUTION BY SITE SUPERVISION

		Deviation Request: ☐ No ☐ Yes	
	Name	Signature	Date
Superintendent:			
c.c. Contract Administrator:			