

**Baffinland Iron Mines LP
Mary River Expansion Project
Construction Summary Report: Pond 1A**







						
2019-03-31	0	Approved for Use	G. Peace, P.Eng	K. Campbell	B. Chaput	T. Atiba
Date	Rev.	Status	Prepared By	Checked By	Approved By	Approved By
HATCH						Client

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1. Facility Description

1.1 Purpose and Design Basis

The Milne Port settling pond No.1A retains excess run-off water from Pond No. 1 due to the expansion of Stockpile #1. This is enabled through an overflow spillway from the existing settlement Pond No. 1. Each summer a portable pump will be set up in the pond and, following water testing to confirm the water satisfies the environmental discharge design criteria, the water will be pumped over the pond berm into the environment.

The pond will hold overflow water from settling pond No. 1 due to the extension of Stockpile #1 pad. A storm water cut-off drain was installed on the South and East sides of the new settling pond to capture clean storm water run-off from the sloping embankment.

1.2 Location and Base Elevations

The Milne Port settling Pond No. 1A is located between northing 7976350 and 7976450, and easting 503100 and 503200. The pond bottom elevation is at EL.2.700 compared to a design elevation at EL 2.250. The berm top elevation is at EL.5.000. The overflow spillway from settling pond No. 1 is at elevation EL.4.400. The overflow spillway to the environment (from Pond 1) is at elevation EL 4.800 m. Due to the survey error for the Pond 1A bottom elevation it was determined that the as-built containment of the two ponds did not meet the required volume of 6,750 m³ (Port Surface Water Management Plan H353004-40000-200-066-0001 Rev 0). In order to attain the required volume the overflow spillway to the environment was raised to 4.825 m. This results in a combined volume for the two ponds of 6,784 m³. Refer to Appendix B as-built drawing H353004-40000-228-272-0008-0001, Rev. 3.

1.3 Geometry and Access

The pond is constructed with a berm not steeper than 3H:1V and the berm top width is 2.0 m.

2. Construction Activity Summary

Construction activities on the Port Site settling pond 1A started in October 2018 and carried on through to February 2019. Installation of the pond liner took place in February 2019. The modification to the Pond 1 overflow spillway to the environment was done from March 22 to March 24, 2019.

The following summarizes the construction activities for the pond:

- Drill and blast
- Clear original ground
- Build berm
- Excavate key trench
- Place type 5 material

- Install non-woven geotextile layer
- Install HDPE liner
- Backfill key trench
- Build stormwater cut-off drain
- Modify Pond 1 overflow spillway to the environment by cutting the existing liner revising the grade to EL.4.825 and rewelding the liner.

3. QA/QC

Quality Assurance (QA) was performed by the Hatch Construction Supervisor during daily audits with the Allnorth surveyor and Allnorth Geotech as well as the NUNA Supervisor as applicable.

During liner installation the quality assurance and quality control (QA/QC) was conducted by Layfield.

An inspection of the soil subgrade was conducted prior to installing the geo-membrane and a Certificate of acceptance of soil subgrade surface was signed by the Hatch project coordinator and Layfield installer.

- Daily installation reports prepared by Layfield describe the work performed, labour onsite and weather conditions.
- A Certificate of final inspection and acceptance was signed by Layfield and the Hatch project coordinator.

For documents of the preparation for the subgrade, installation and final inspection of completed liner, see Appendix A.

4. Photographic Records



Pattern Drilling Initiated



Blast Pattern Drilling Ongoing



Emulsion and Blast Preparation for First Blast



Blast Mat Positioning



Removing Blasted Material



Extension Area Blast at 4 PM



Mat Blast



Hauling Blast Material to Quarry



Ripping Frozen Material from Backslope Southeast



Trimming Slope and Pond Floor



Placing Type 5 in Slope



Placing Type 5 Pond General View



Placing Type 5 Material Pond Floor View from Floor Level



Started Placing Type 9



Sand Placed at Bottom of Pond 1A General View



Pond 1A Layfield Seacan and Heater at Site



Preparing for Liner Installation Pond 1A



Placing Type 9 in Key Trench



Pond 1A Backfill Key Trench with Type 5 and Trimming Backslope

5. As-built Drawings

As-built drawings are attached in Appendix B and requests for information are attached in Appendix G. These drawings are representative of the final as-built drawings.

6. Field Decisions

The following section describes the most relevant field decisions made during construction:

- In conjunction with Engineering acceptance of the pond bottom elevation 450 mm higher than design and the subsequent decision to raise the level of the overflow spillway to the environment for Pond 1.

7. Performance Evaluation

Not done.

8. Vibration Monitoring and Quarrying Activity

Drilling and blasting was required at the pond site in order to reach the required pond elevations. Type 5 and type 9 material was sourced from existing stockpiles.

9. Environmental Monitoring

Environmental monitoring during the construction of the Port Site settling Pond 1A was conducted as per the Environmental Protection Plan (EPP), Baffinland document number BAF-PH1-830-P16-0008.

In addition to the EPP, construction follows the requirements of the Environmental Health and Safety Management Framework, Baffinland document number BAF-PH1-830-STD-0001. The Baffinland on-site Environmental Management Team was responsible for environmental monitoring at all sites during construction and following-up with the construction team(s) if there were any reported environmental incidents or non-conformances.

The Port site settling Pond 1A construction was also required to follow the requirements of the Surface Water and Aquatic Ecosystems Management Plan, BAF-PH1-830-P16-0026. This Management Plan outlines the best management practices implemented to limit the potential for adverse impacts to receiving waters, aquatic ecosystems, fish and fish habitat used during construction. In addition this plan details the systems in place to mitigate and manage drainage and runoff at the building sites, address point and non-point discharges to surface waters and assess those discharges on water quality and quantity relative to their receiving water systems.

The Spill Contingency Plan, BAF-PH1-830-P16-0036, in conjunction with the Emergency Response Plan, BAF-PH1-830-P16-0007, provides guidance and instructions for first responders and Baffinland Management in the event of a spill event or other emergency such as fire or accident.

The risks to the water quality in the respective rivers and streams as a result of construction of the Port Site settling Pond 1A would originate from the following sources based on construction methodology:

- Spills from equipment.
- Increase in sediment load in the water.

As construction took place during the winter any risks to the environment would only be from spills from equipment. There were some minor spills reported from equipment used at the construction site during construction. Reports are included in Appendix D.

10. Earthworks Data

For the earthworks turnover package, see Appendix C.

11. Unanticipated Observations

Inclement weather resulted in a number of delays to construction.

The pond bottom at EL 2.700 is 450 mm higher than design due to a survey error. This has resulted in a decrease in capacity of the pond. The required overall volume for Pond 1 and Pond 1A is 6,750 m³. In order to meet this containment volume the elevation of the Pond 1 overflow spillway to the environment was raised from 4.8 m to 4.825 m.

12. Surface Monitoring

Not applicable.

13. Required Maintenance

Not applicable.

14. Adaptive Management

Not applicable.

15. Concordance with Type “A” Water Licence

BaffinLand’s Type A Water Licence, Schedule D, outlines the requirements for Construction Summary/Monitoring Reports. The following table provides a concordance of this report with the requirements of Schedule D.

Table 15-1: Table of Concordance for Schedule D

Schedule D Item No.	Schedule D Description	Corresponding Section in this Report
1a	description of all infrastructure and facilities designed and constructed to contain, withhold, divert or retain Water and/or Waste;	1
1b	a summary of construction activities including photographic records before, during and after construction of the facilities and infrastructure designed to contain, withhold, divert or retain Water and/or Waste;	2, 3, 4
1c	as-built drawings and design for facilities and infrastructure, in Item 1(a) of this schedule, designed and constructed to contain, withhold, divert or retain Water and/or Waste;	Appendix B
1d	documentation of field decisions that deviate from the original plans and any data used to support or developed facilities and infrastructure to withhold, divert or retain Water and/or Waste;	6
1e	a comparison of measured versus predicted performance of infrastructure and facilities;	7
1f	any blast vibration monitoring and control for quarrying activity carried out in close proximity to fish bearing waters;	8
1g	monitoring conducted for sediment and explosives residue release from construction areas;	9
1h	monitoring undertaken in accordance with Part D of the during the Construction Phase of the Project;	8, 9
1i	details confirming that the requirements of the CCME guidance document entitled “Aboveground Storage Tank Systems for Petroleum and Allied Petroleum Products (2003)” have been met by the Licensee;	N/A
1j	data collected from instrumentation used to monitor earthworks and the interpretation of that data;	10
1k	a discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk during construction;	11
1l	an overview of any method including frequency used to monitor deformations, seepage and geothermal responses;	12

Schedule D Item No.	Schedule D Description	Corresponding Section in this Report
1m	a summary of maintenance work undertaken as a result of settlement or deformation of dikes and dams;	13
1n	a summary of adaptive management principles and practices applied during the relevant phases of the Project and their overall effectiveness.	14

16. Concordance with Commercial Lease Requirements

The following table provides a concordance of this report with the requirements of the Commercial Lease for As-Built reporting.

Table 16-1: Table of Concordance for Commercial Lease As-Built Requirements

Component	Minimum Information Requirements	Corresponding Section in this report
1	The name and contact information of the person and company responsible for completing the construction, construction monitoring and preparing the As-Built Report	Appendix F
2	The name and contact information of the Baffinland representatives(s) that QIA can contact should it have any questions or comments regarding the As-Built Report	Appendix F
3	An introduction to the infrastructure or facilities including but not limited to the construction background, concept and construction history	1,2
4	Construction records including As-Built drawings signed and stamped by a professional engineer detailing surveys, planar and cross sections that illustrate all designed components. This should be provided in PDF format and if requested the native file (e.g. CAD, .dxf, etc.)	Appendices A, B,
5	Detailed description of any deviations from the For Construction Design. Deviations that should be noted include, but are not limited to, changes in design and construction materials, construction methodology or monitoring	6
6	Observed performance of the construction including a comparison to predicted performance. Recommendations for performance monitoring based on observations during construction if applicable	NA
7	A description and list of instrumentation installed, if applicable, and results of construction monitoring including all environmental data. Recommendations for additional performance or environmental monitoring based on observations and monitoring results, if applicable.	NA
8	A summary of quality assurance testing results, if applicable, and comparison of these results to construction/design requirements to ensure performance of the infrastructure or facilities.	3 Appendix A

Component	Minimum Information Requirements	Corresponding Section in this report
9	A summary of adaptive management principles and practices related to environmental management and monitoring applied during the relevant phases of the Project and their overall effectiveness	NA
10	Photographic records before, during and after construction of the facilities or infrastructure.	4
11	Map(s) to illustrate the completed construction in relation to Lease boundaries and water bodies. The minimum distance from completed or modified facilities and infrastructure to the surveyed boundary of the Property, surveyed boundary of the Impact Area, and the original high water mark should be provided.	Appendix E

Appendix A

Preparation and Inspection of Liner

A.1 Feb 02/19

Pond 1A: On hold today. Top lift of type 9 sand in progress.

A.2 Feb 6/19

Pond 1A: Snow removal Inspection requested: The entire area was cleared of snow and OK to complete the final lift of type 9 sand. A light frost was also present but did not pose a concern for removal. The type 9 sand is to be compacted using placement equipment as directed for all previous lifts of subgrade materials. This lift was partially installed January 29, 2019, on the base and along and part of the north-west side.



A.3 Feb 7/19

Pond 1A: Completion of type 9 sand ongoing. Survey on site verifying final grades and required touch-ups to be completed. Type 9 is out of specification but has been approved for use as the sand generally meets specification but is running coarse (refer to related emails). The type 9 was compacted using placing equipment.



A.4 Feb 9/19

Pond 1A: Allnorth surveyors are working out issues with the liner trench, completed topo and still needs work to define the liner trench to design specs.

A.5 Feb 10/19

Pond 1A: Allnorth Survey working out issues with the liner trench, still needs work to define the liner trench to design specs, another check identified that work to date is still not cut deep enough around the perimeter. Cut of 0.1 m - 0.25 m on the south side, cut of 0.45 m- 0.75 m along the south side, operator should have those areas completed by mid day tomorrow and ready for sand bedding in the trench bottom. See attached photos of Pond 1A.



A.6 Feb 11/19

Pond 1A crest trench is just about ready for sand placement just needs a topo survey with plans to start the sand on the night shift.

Requested they run the plate tamper over the base of the trench before sand placement, but cannot get it running, not overly concerned where its type 5 (32 mm minus) on the base and leveled out with hand rakes, compacted with excavator bucket.

No fines to compact and everything is frozen. They would only be consolidating the stone it to make it flat for the liner/sand layer to have a consistent 100 mm bedding for liner protection in the crest trench.



Type 5 in Base of Crest Trench Compacted

A.7 Feb 13/19

Checked Pond 1A 100 mm sand placement in base of crest trench, looks good just need survey to topo and ready for liner placement after Hatch approval. Layfield laid out first run of liner by end of day. Pond 1A and bedding placed, approved and liner to start this afternoon.



A.8 Feb 14/19

Continue liner placement today in Pond 1A, 3 lengths placed in total so far, north heading south. Continue liner placement today in Pond 1A, 3 lengths placed in total so far, north heading south.

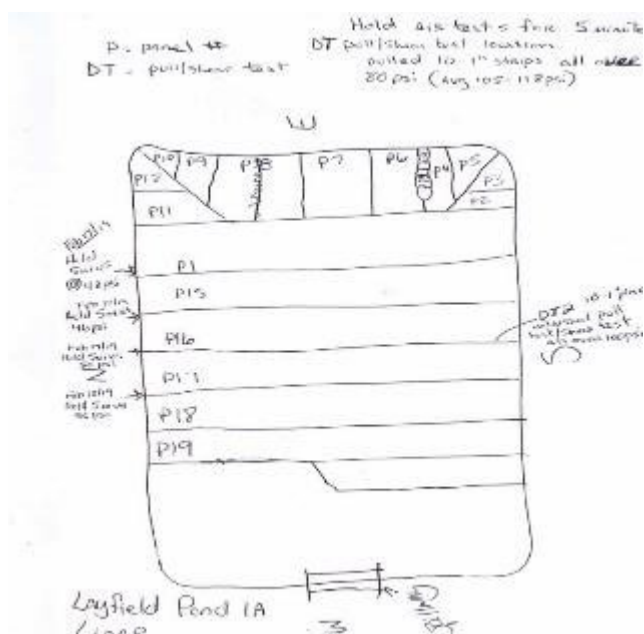
**A.9 Feb 18/19**

Liner placement to continue in Pond 1A. Spoke to Layfield after I received the ITP today, they just received it themselves and have only been overlapping the geo-fabric by 300 mm and the ITP calls for 1000 mm. Brought it to Dave Burry's attention, they are seam sealing the geo-fabric, the entire length of the seams. Hold each test for 5 minutes at 40-50 psi, only require 30 psi. Air testing each seam of liner and destructive test every 150 liner meters of seam. Liner placement to continue in Pond 1A by Layfield. Spoke to Layfield after receiving the ITP today from others, Layfield just received it themselves and have only been overlapping the geo-fabric by 300 mm. The ITP calls for 1000 mm overlap. Issue was brought to Hatch's attention, they are seam sealing the geo-fabric, the entire length of the seams. Hold each test for 5 minutes at 40-50 psi, only require 30 psi. Air testing each seam of liner and destructive test every 150 liner meters of seam.



A.10 Feb 19/19

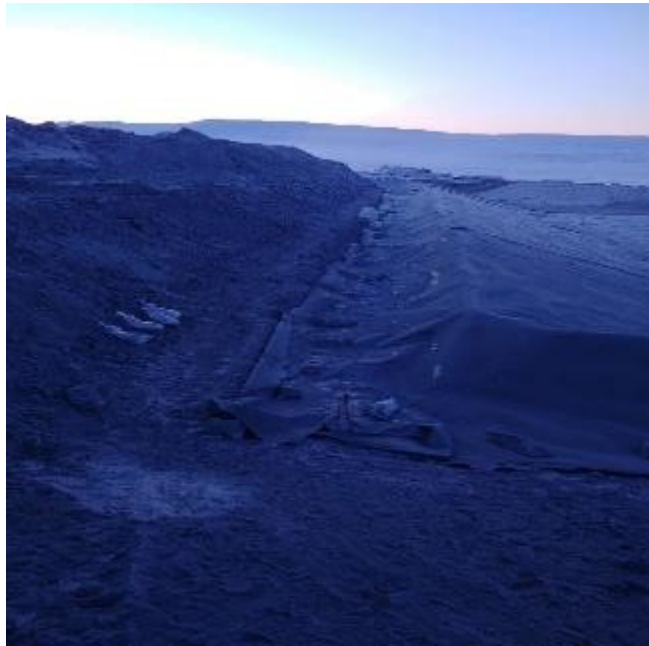
Liner placement continuing today, witnessed air tests and pull tests/destructive test. Starting at Panel 1 welded to Panel 15, test info in sketch. First 14 short panels around east slope were welded and tested before Allnorth was requested to witness the testing. A sketch and record of the tests witnessed attached. Times and pressures on each panel tested to date. Layfield will provide a complete QC package at the end of the project including pressure tests and tensile tests. Allnorth witnessed pull/shear test of DT2 today, 10-1" strips pulled from inside and outside of weld, as well as a shear from both sides, minimum is 80 psi and each one of the 10 strips recorded over 100 psi. Air tests require to hold 30 psi minimum for 5 minutes but Layfield aim for 45+ psi for each air test, all were good from what was witnessed to date.



A.11 Feb 20/19

Liner placement held off again today due to temperatures, the anchor trench is not completed as designed but has been approved with RFI for the change by Nick Mills

Helped Survey layout Pond 1A ditch.



A.12 Feb 21/19

Spill way at Pond 1A was cut out to grade and type 9 was placed last night, picked up topo with Survey. Bucket packed the type 9 on the spill way. Layfield to continue liner and testing of seams today if temperatures cooperate. Spill way at Pond 1A was cut out and type 9 was placed last night, picked up topo with Alex. Bucket packed the type 9 on the spill way. Layfield to continue liner and testing of seams today if temperatures cooperate.



Spillway Cut Out



Air Test

A.13 Feb 22/19

Pond 1A: Liner crew air tested a seam yesterday but too cold for liner fusing today. Spill way is ready just need temperature to cooperate. Can only fuse the seams up to -37 degrees.



A.14 Feb 23/19

Layfield working west slope of Pond 1A liner placement and fusing.

A.15 Feb 24/19

Continued with liner placement. Allnorth was at another location for the day and did not witness site activities at Pond 1A.

A.16 Feb 25/19

Working on spillway slope today with geo-fabric placement and berm around perimeter.



A.17 Feb 26/19

Pond 1A: Layfield completed Liner placement with exception to finish air testing the seams around the spill way, continuing with type 8 and type 5 aggregate at east and west sides, and 20m at the south end to the spill way.

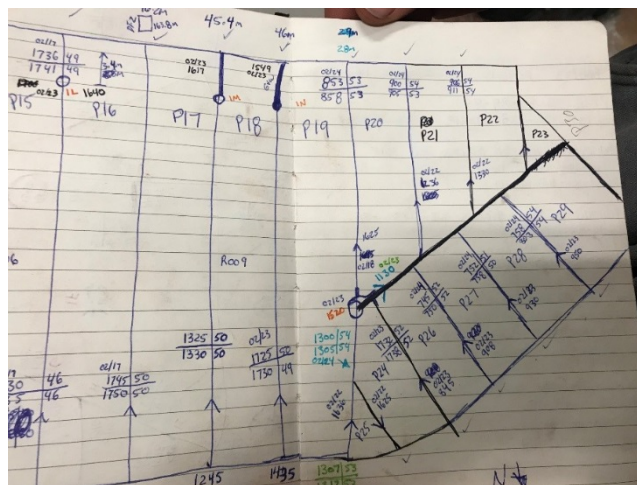
A.18 Feb 27/19

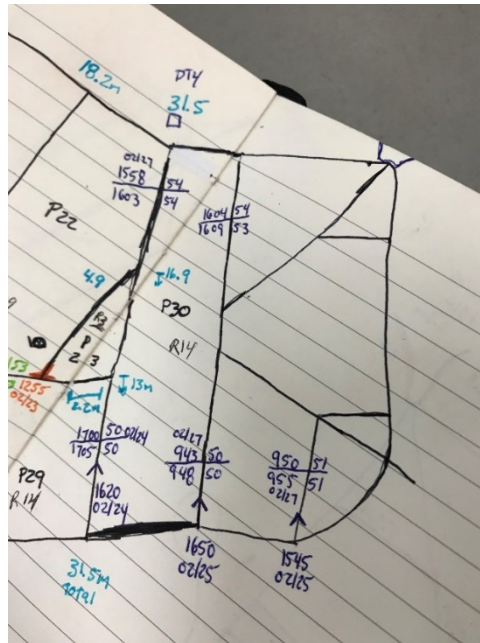
Pond 1A: Liner is all down just need to finish air testing the seams around the spill way, continuing with type 8 and type 5 placement at east and west sides berms and ditches, 20 m at the south of the berm and ditch to the spill way, did not get the types 8 and 5 finished today.

A.19 Feb 28/19

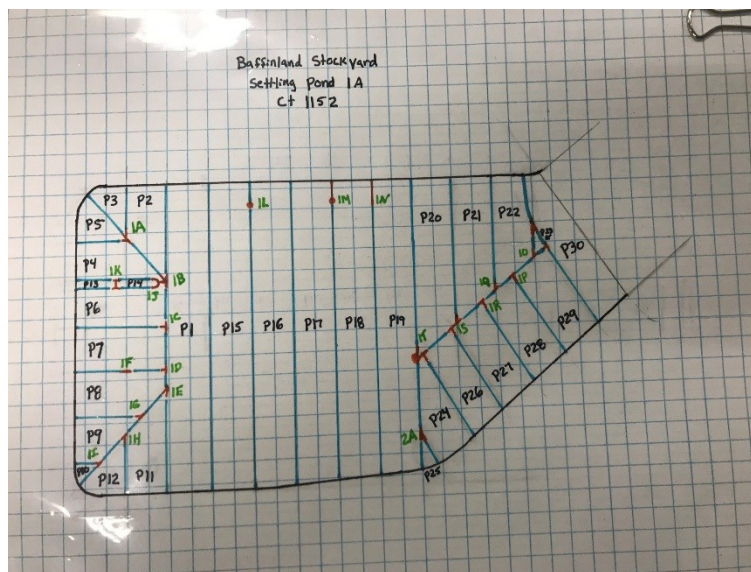
Pond 1A: Liner is all down just need to finish air testing the seams around the spill way, weather delayed and unable to complete. Continuing with type 8 and type 5 at east and west sides, 20 m at the south end to the spill way, cleanup and dressing of the site slopes and ditches.

Hand-drawn map of a field with a grid of plots. The grid is labeled with plot numbers (P19 to P28) and row numbers (R09 to R14). A red line runs diagonally across the plots, with various measurements and notes written along it. Dimensions of the field are given as 28m, 23.3, 18.2m, 16.1m, 5m, 13.5m, 13.2m, 13.4m, 31.5m, and 31.5m. A note "24-25 R6" is written at the bottom.





Pond 1A Layfield Times Pressures and Dates



Panel Placement

A.20 March 1/19

Pond 1A: Layfield completing final patch on outfall of the line Pond 1A to Pond 1 including pressure test. Nuna shaping ditching on the southern side of the pond. Concern on the slope facing the ore pile. Survey to assess.



Pond 1A Dressing of the Ditch and Berm

A.21 Mar 2/19

Pond 1A: Liner is completed, Nuna finishing ditching on the southern side of the pond.

A.22 Mar 3/19

Pond 1A: Liner is completed, Nuna is completing cleanup and dressing of the site by removing all sandbags, surplus material, and applying dressing stone to berms edges before cutting the northern slope to 3:1.

A.23 Mar 4/19

Nuna is completing cleanup and dressing of the ditch to survey tolerances.

A.24 Mar 5/19

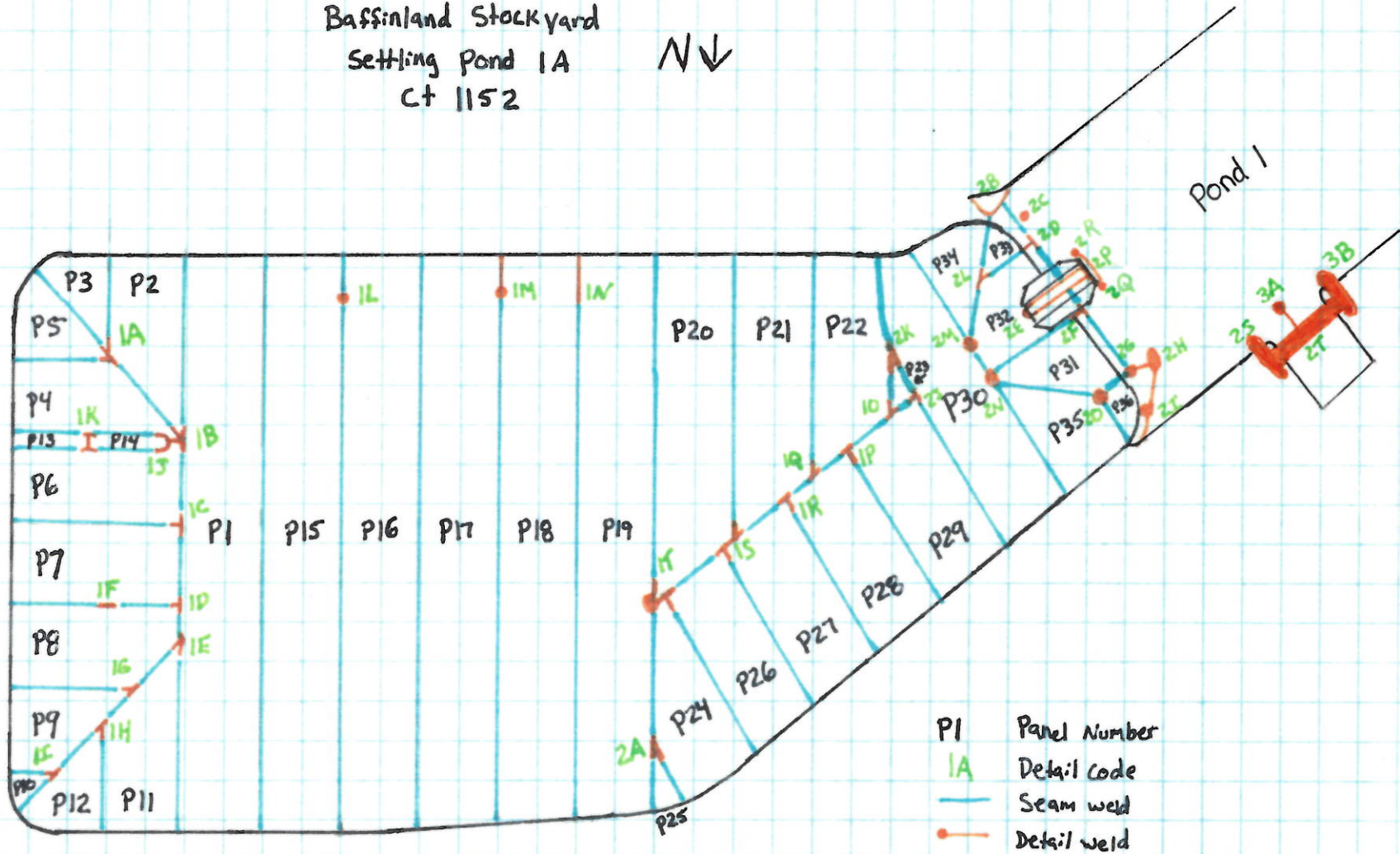
Pond 1A: Nuna shaping of slope on the northern side of Pond 1A. Finished final grading of ditch along Pond 1A.

A.25 Mar 6/19

Pond 1A: Nuna shaping slope of northern edge to 3:1 with type 8 material. Materials were excavated from the bench the previous night shaping it to 2:1.



Baffinland Stockyard
Settling Pond 1A
Ct 1152



CERTIFICATE OF INSPECTION OF SOIL SUBGRADE SURFACE

PROJECT NAME: Bassinland Pond 1 Repairs
PROJECT NUMBER: C11152
OWNER/CONTRACTOR: Quana/BJM
LOCATION: West pond, Port

I, the undersigned, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the soil subgrade surface described below, and:

- ☐ found it to be an acceptable surface on which to install geomembrane; OR
☐ found it to be an Unacceptable surface on which to install geomembrane

Area Inspected (☐ Partial or ☐ Complete): Emergency overflow
Dimensions of Subgrade Inspection: Approx 8m x 4m
Anchor Trench Dimensions: N/A
Comments: Type 9 with LP7 underlay

This certification is based on observations of the surface of the subgrade only. No subterranean inspections or tests have been performed by Layfield and Layfield makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Layfield accepts no responsibility for conformance of the subgrade to this project's specifications.

The soil subgrade inspected on this date refers to its present condition. Any changes in the subgrade condition that result from the effects of inclement weather and/or other forces beyond the control of Layfield and remedial work to correct the resulting deficiencies, will be the direct responsibility of the General Contractor.

LAYFIELD REPRESENTATIVE:

Date: March/23/2019
Signature: [Signature]
Name: Matthew Bourrel
Title: Supervisor

OWNERS REPRESENTATIVE:

I, the undersigned, a duly appointed representative of the Owner, hereby understand the soil subgrade surface inspection described above and authorize Layfield to proceed with deployment of geosynthetics on the subgrade provided.

Date: March 23, 2019
Signature: [Signature]
Name: Darko Filipic
Title: Project Coordinator
Company: Nuna

CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE

PROJECT NAME: Baileland Pond 1 Repairs
PROJECT NUMBER: CH1152 **DATE:** March/25/2019
OWNER: Nuna/BIM
LOCATION: West pond, Port

Scope of Installation(s): THE WORK

Area/Layer: Pond 1 overflow Area Inspected: ☐ Partial or ☒ Complete

Dimensions: Approx 8m x 4m

Liner cut back so Sill (Type 9) could be added to emergency overflow.
Once at desired height indicated by Hatch and Survey, liner was welded
Back together

Part 1 – LAYFIELD CANADA LTD.

I, Matthew Bourde, a duly appointed representative of Layfield Canada Ltd. (Layfield), have visually observed the installations (as outlined above), and have found the Work to be complete and free of defects and declare that the Work was completed in accordance with the project specifications, Layfield's QC program and the terms and conditions of the contract.

Layfield Representative:

Name: Matthew Bourde
Title: Supervisor
Date: March 15/2019 **Signature:** [Signature]

Part 2 – OWNER (or Representative)

I, Danko Filipic, a duly appointed representative of Nuna Logistics Ltd., do hereby take over and accept the installation(s) described above, and confirm that the work has been completed in accordance with the project specifications and the terms of the conditions of the contract.

I have evaluated and measured the work together with the Layfield representative, and agree that the measurements shown are both true and correct, and that the installation has met our approval.

Owners Representative:

Name: Danko Filipic
Title: Project Coordinator
Company: Nuna Logistics Ltd.
Date: March 25, 2019 **Signature:** [Signature]

Comments: _____



GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT1152

AREA / LAYER Primary

PROJECT TITLE Nuna Logistics-Baffinland-Stockyard #1 Settling Pond 1A

TRIAL SEAMS																		
#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)					SHEAR (PPI)					CHK'D BY
1	PX41013	2019/02/15	1300	MB	-34	271	271	109	105	102	103	94	113	108	117	113	110	MB
2	PX41013	2019/02/16	1200	MB	-34	271	271	100	107	109	98	101	119	114	123	114	125	MB
3	PX41013	2019/02/23	1245	MB	-34	271	271	116	98	83	89	99	135	126	133	119	113	MB
4																		
5																		
6																		

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
1A	P4 / P5	CONNECTED TO P2	T	G&W	PX41013	2019/02/15	1423	MB	-34	2019/02/16	VB+PS	WB
1B	P4 / P2	CONNECTED TO P1	T	G&W	PX41013	2019/02/15	1440	MB	-34	2019/02/16	VB+PS	WB
1C	P6 / P7	CONNECTED TO P1	T	G&W	PX41013	2019/02/15	1442	MB	-34	2019/02/16	VB+PS	WB
1D	P7 / P8	CONNECTED TO P1	T	G&W	PX41013	2019/02/15	1448	MB	-34	2019/02/16	VB+PS	WB
1E	P8 / P11	CONNECTED TO P1	T	G&W	PX41013	2019/02/15	1453	MB	-34	2019/02/16	VB+PS	WB
1F	P7 / P8	6M EAST OF 1D	WS	G&W	PX41013	2019/02/15	1503	MB	-34	2019/02/16	VB+PS	WB
1G	P8 / P9	CONNECTED TO P11	T	G&W	PX41013	2019/02/15	1514	MB	-34	2019/02/16	VB+PS	WB
1H	P11 / P12	CONNECTED TO P9	T	G&W	PX41013	2019/02/15	1516	MB	-34	2019/02/16	VB+PS	WB
1I	P9 / P10	CONNECTED TO P12	T	G&W	PX41013	2019/02/15	1518	MB	-34	2019/02/16	VB+PS	WB
1J	P4 / P6	1.5M WELD, P1 TO P14	FS	RS	PX41013	2019/02/16	1340	MB	-32	2019/02/16	VB+PS	WB
1K	P13 / P14	6.5M EAST OF 1J, PANEL CONNECTION	IO	G&W	PX41013	2019/02/16	1400	MB	-32	2019/02/16	VB+PS	WB
1L	P15 / P16	3.4M NORTH FROM SEOS	BO	P	PX41013	2019/02/23	1640	MB	-34	2019/02/23	VB+PS	WB
1M	P17 / P18	3.4M WELD FROM SEOS	BO	P+G&W	PX41013	2019/02/23	1617	MB	-34	2019/02/23	VB+PS	WB
1N	P18 / P19	3.4M NORTH FROM SEOS	D	G&W	PX41013	2019/02/23	1549	MB	-34	2019/02/23	VB+PS	WB
1O	P22 / P23	CONNECTED TO P29	T	G&W	PX41013	2019/02/23	1255	MB	-34	2019/02/23	VB+PS	WB
1P	P28 / P29	CONNECTED TO P22	T	G&W	PX41013	2019/02/23	1300	MB	-34	2019/02/23	VB+PS	WB
1Q	P21 / P22	CONNECTED TO P28	T	G&W	PX41013	2019/02/23	1305	MB	-34	2019/02/23	VB+PS	WB
1R	P27 / P28	CONNECTED TO P21	T	G&W	PX41013	2019/02/23	1318	MB	-34	2019/02/23	VB+PS	WB
1S	P26 / P27	CONNECTED TO P20	T	G&W	PX41013	2019/02/23	1323	MB	-34	2019/02/23	VB+PS	WB
1T	P19 / P20	CONNECTED TO P24	T	P	PX41013	2019/02/23	1520	MB	-34	2019/02/23	VB+PS	WB

DETAIL TYPE:	AD - ANIMAL DAMAGE ATL - AIR TEST LEAK BO - FUSION WELDER BURN CR - CREASE D - INSTALLATION DAMAGE	DS - DESTRUCT SAMPLE NUMBER EE - EARTHWORK EQUIPMENT DAMAGE EXT - EXTENSION FM - FISHMOUTH FS - FAILED SEAM LENGTH	IO - INSUFFICIENT OVERLAP MD - MANUFACTURER/DELIVERY DAMAGE P - PENETRATION PT - PRESSURE TEST CUT SI - SOIL SURFACE IRREGULARITY	T - THREE PANEL INTERSECTION VL - VACUUM TEST LEAK WR - WRINKLE WS - WELDER RESTART OTHER:
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TEST METHOD: AL - AIR LANCE VB - VAC BOX
PS - POINT STRESS ST - SPARK TEST

REPAIR TYPE: G&W - GRIND & WELD B - BOOT P - PATCH
RS - RECONSTRUCTED SEAM C - CAP S - SKIRT
HAW - HOT AIR WELD

REMARKS

LS-10-QF-007

www.layfieldcontainment.com

QC TECH Will Brydon
SUPERVISOR Mathew Bourne
SUBMISSION DATE 2019/03/25
SHEET NUMBER 1 of 3



GEOMEMBRANE DETAIL & TEST LOG

PROJECT NUMBER CT1152

AREA / LAYER Primary

PROJECT TITLE Nuna Logistics-Baffinland-Stockyard #1 Settling Pond 1A

TRIAL SEAMS																			
#	MACHINE NUMBER	DATE YYYY-MM-DD	TIME	WELD TECH	AIR TEMP °C	PREHEAT TEMP °C	EXTRUDER TEMP °C	PEEL (PPI)				SHEAR (PPI)				CHK'D BY	REMARKS		
1	PX41013	2019/02/24	1215	MB	-38	271	271	113	104	120	112	110	119	101	115	108	117	MB	
2	PX41013	2019/02/26	1215	MB	-37	271	271	106	106	112	116	107	120	114	127	116	121	MB	
3	PX41013	2019/02/26	1600	MB	-37	271	271	102	105	110	100	98	120	124	115	108	119	WB	
4	PX41013	2019/02/27	1040	MB	-32	273	273	114	104	102	108	109	132	122	113	108	124	WB	
5	PX41013	2019/03/01	1000	MB	-30	273	273	102	92	97	115	108	125	116	121	110	122	WB	
6	PX6235	2019/03/23	1500	MB	-28	271	273	95	98	127	120	107	113	118	119	122	126	MB	

DETAIL CODE	PANEL NUMBER(S)	LOCATION DESCRIPTION	DETAIL TYPE	REPAIR TYPE	MACHINE NUMBER	REPAIR DATE YYYY-MM-DD	START TIME	WELD TECH	AIR TEMP °C	TEST DATE YYYY-MM-DD	TEST METH.	QC TECH
2A	P24 / P25	CONNECTED TO P19	T	G&W	PX41013	2019/02/24	1300	MB	-34	2019/02/23	VB+PS	WB
2B	P34 / P33	CONNECT TO EXISTING SWEOS	IO	P	PX41013	2019/02/26	1310	MB	-37	2019/02/26	VB+PS	WB
2C	Existing / Existing	3.8M SOUTH OF 2D, 1M WEST	EE	P	PX41013	2019/02/26	1340	MB	-37	2019/02/26	VB+PS	WB
2D	P32 / P33	CONNECTED TO EXISTING	T	G&W	PX41013	2019/02/26	1400	MB	-37	2019/02/26	VB+PS	WB
2E	P32 / Existing	4.8M NORTH OF 2D, SPILLWAY FLOOR	IO	P	PX41013	2019/02/26	1600	MB	-37	2019/02/26	VB+PS	WB
2F	P31 / P32	CONNECTED TO EXISTING	T	G&W	PX41013	2019/02/26	1625	MB	-37	2019/02/26	VB+PS	WB
2G	P31 / P36	CONNECTED TO EXISTING	T	P	PX41013	2019/02/26	1700	MB	-37	2019/02/26	VB+PS	WB
2H	Existing / Existing	1M WELD + 2M PATCH WEST OF 2G	D	P	PX41013	2019/02/26	1730	MB	-37	2019/02/26	VB+PS	WB
2I	P36 / Existing	2.6M WELD + PATCH NE OF 2H	SI	P	PX41013	2019/02/26	1745	MB	-37	2019/02/27	VB+PS	WB
2J	P29 / P23	CONNECTED TO P30	T	G&W	PX41013	2019/02/27	1055	MB	-35	2019/02/27	VB+PS	WB
2K	P22 / P23	CONNECTED TO P30	T	G&W	PX41013	2019/02/27	1100	MB	-32	2019/02/27	VB+PS	WB
2L	P32 / P33	CONNECTED TO P34	T	G&W	PX41013	2019/02/27	1105	MB	-32	2019/02/27	VB+PS	WB
2M	P34 / P30	CONNECTED TO P32	T	P	PX41013	2019/02/27	1130	MB	-32	2019/02/27	VB+PS	WB
2N	P31 / P32	CONNECTED TO P30	T	P	PX41013	2019/02/27	1200	MB	-32	2019/02/27	VB+PS	WB
2O	P31 / P36	CONNECTED TO P35	T	P	PX41013	2019/02/27	1230	MB	-32	2019/02/27	VB+PS	WB
2P	P32 / Existing	WEST SPILLWAY CONNECTION	IO	P	PX41013	2019/03/01	1030	MB	-30	2019/03/01	VB+PS	WB
2Q	P32 / Existing	NORTH OF 2P	IO	P	PX41013	2019/03/01	1300	MB	-30	2019/03/01	VB+PS	WB
2R	P32 / Existing	SOUTH OF 2P	IO	P	PX41013	2019/03/01	1350	MB	-30	2019/03/01	VB+PS	WB
2S	Existing / Existing	10M WEST OF 2I	SI	P	PX6235	2019/03/23	1640	MB	-28	2019/03/23	VB+PS	MB
2T	Existing / Existing	6.7M PATCH WEST OF 2S	SI	P	PX6235	2019/03/23	1730	MB	-28	2019/03/23	VB+PS	MB

DETAIL TYPE:	AD - ANIMAL DAMAGE ATL - AIR TEST LEAK BO - FUSION WELDER BURN CR - CREASE D - INSTALLATION DAMAGE	DS# - DESTRUCT SAMPLE NUMBER EE - EARTHWORK EQUIPMENT DAMAGE EXT - EXTENSION FM - FISHMOUTH FS - FAILED SEAM LENGTH	IO - INSUFFICIENT OVERLAP MD - MANUFACTURER/DELIVERY DAMAGE P - PENETRATION PT - PRESSURE TEST CUT SI - SOIL SURFACE IRREGULARITY	T - THREE PANEL INTERSECTION VL - VACUUM TEST LEAK WR - WRINKLE WS - WELDER RESTART OTHER:
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TEST METHOD: AL - AIR LANCE VB - VAC BOX
PS - POINT STRESS ST - SPARK TEST

REPAIR TYPE: G&W - GRIND & WELD B - BOOT P - PATCH
RS - RECONSTRUCTED SEAM C - CAP S - SKIRT
HAW - HOT AIR WELD

REMARKS change to emergency overflow design on pond 1 detail 2S,2T,3A,3B

LS-10-QF-007

www.layfieldcontainment.com

QC TECH Will Brydon
SUPERVISOR Mathew Bourne
SUBMISSION DATE 2019/03/25
SHEET NUMBER 2 of 3



PROJECT NUMBER	CT1152	AREA / LAYER	Primary
PROJECT TITLE	Nuna Logistics-Baffinland-Stockyard #1 Settling Pond 1A		

[illegible]

DETAIL TYPE:	AD - ANIMAL DAMAGE	DS-# - DESTRUCT SAMPLE NUMBER	IO - INSUFFICIENT OVERLAP	T - THREE PANEL INTERSECTION
	ATL - AIR TEST LEAK	EE - EARTHWORK EQUIPMENT DAMAGE	MD - MANUFACTURER/DELIVERY DAMAGE	VL - VACUUM TEST LEAK
	BO - FUSION WELDER BURN	EXT - EXTENSION	P - PENETRATION	WR - WRINKLE
	CR - CREASE	FM - FISHMOUTH	PT - PRESSURE TEST CUT	WS - WELDER RESTART
	D - INSTALLATION DAMAGE	FS - FAILED SEAM LENGTH	SI - SOIL SURFACE IRREGULARITY	OTHER:

TEST METHOD:	AL - AIR LANCE	VB - VAC BOX
	PS - POINT STRESS	ST - SPARK TEST

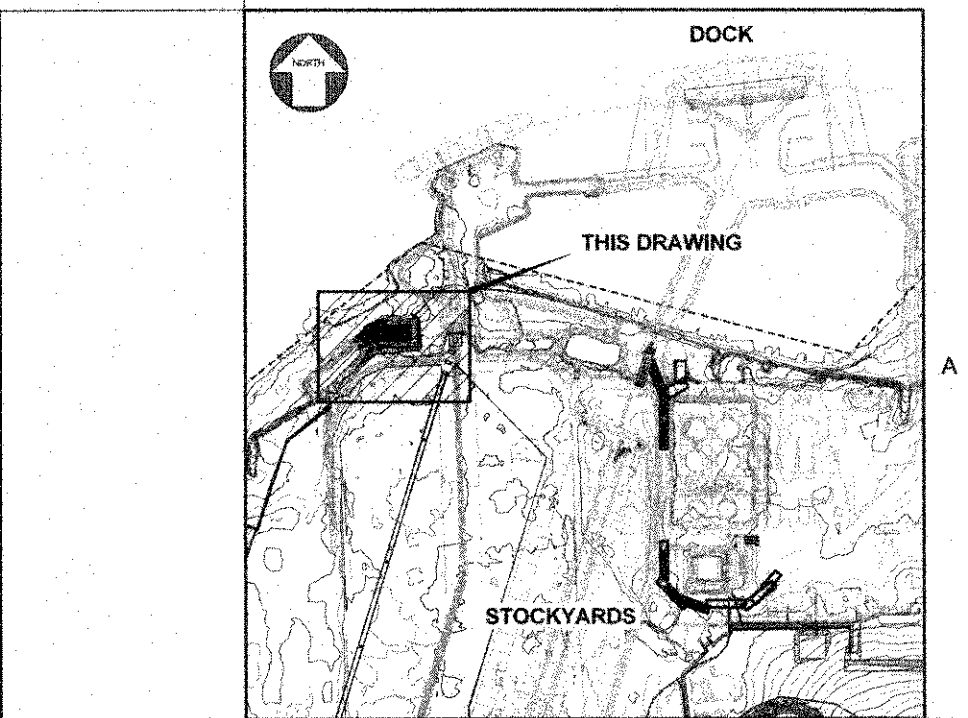
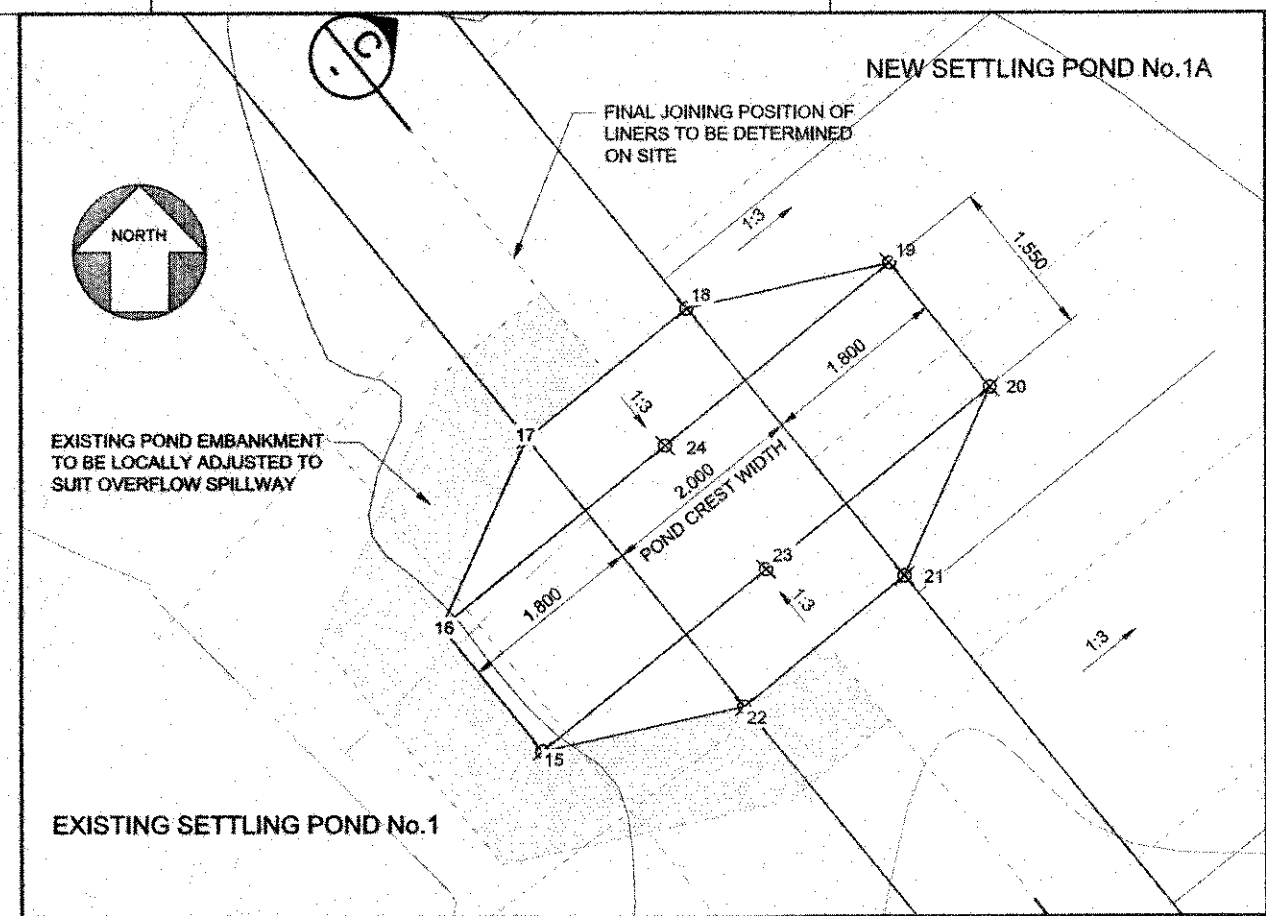
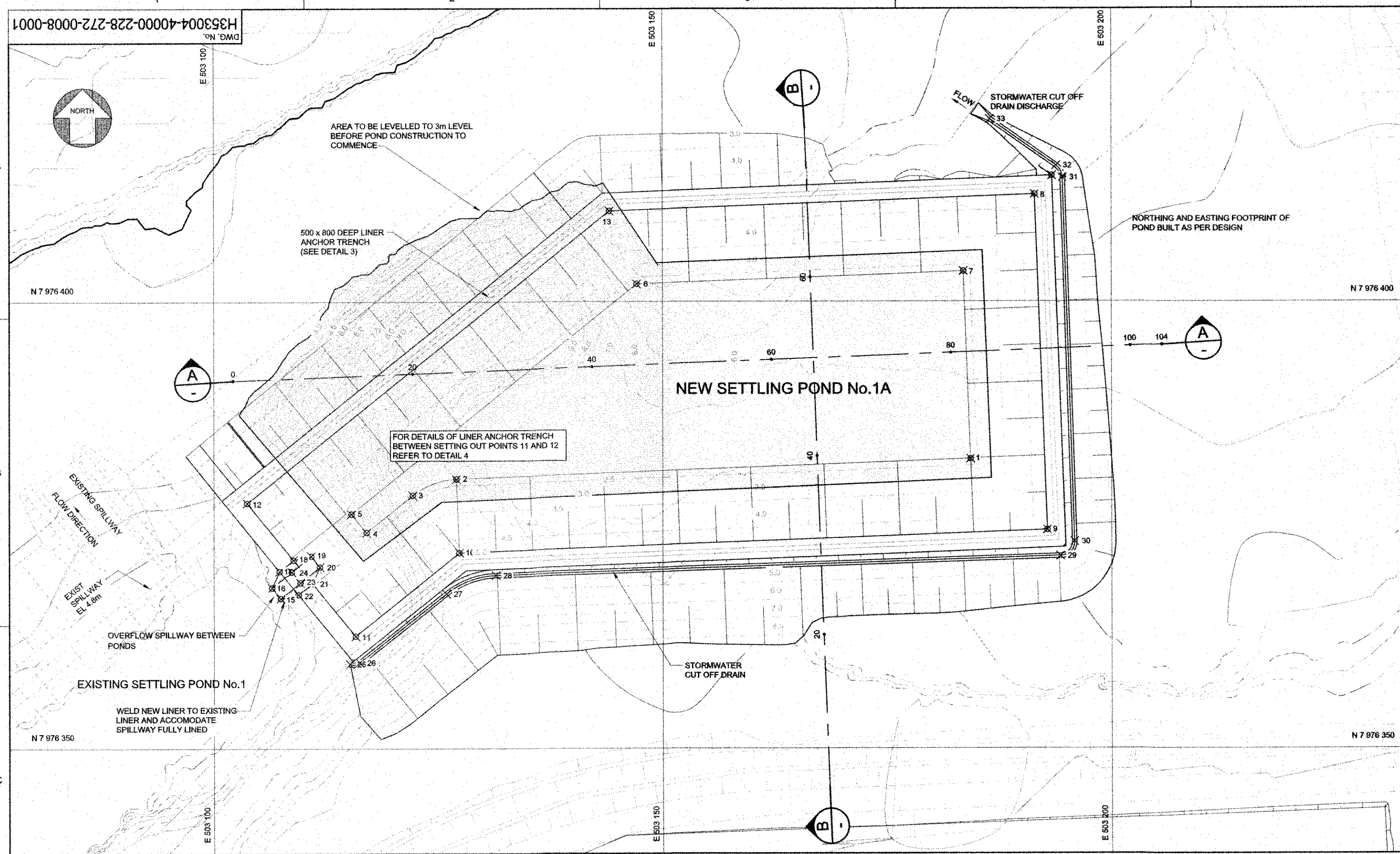
REPAIR TYPE:	G&W - GRIND & WELD	B - BOOT	P - PATCH
	RS - RECONSTRUCTED SEAM	C - CAP	S - SKIRT
	HAW - HOT AIR WELD		

REMARKS	change to emergency overflow design on pond 1 detail 2S,2T,3A,3B
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QC TECH	Will Brydon
SUPERVISOR	Mathew Bourne
SUBMISSION DATE	2019/03/25
SHEET NUMBER	3 of 3

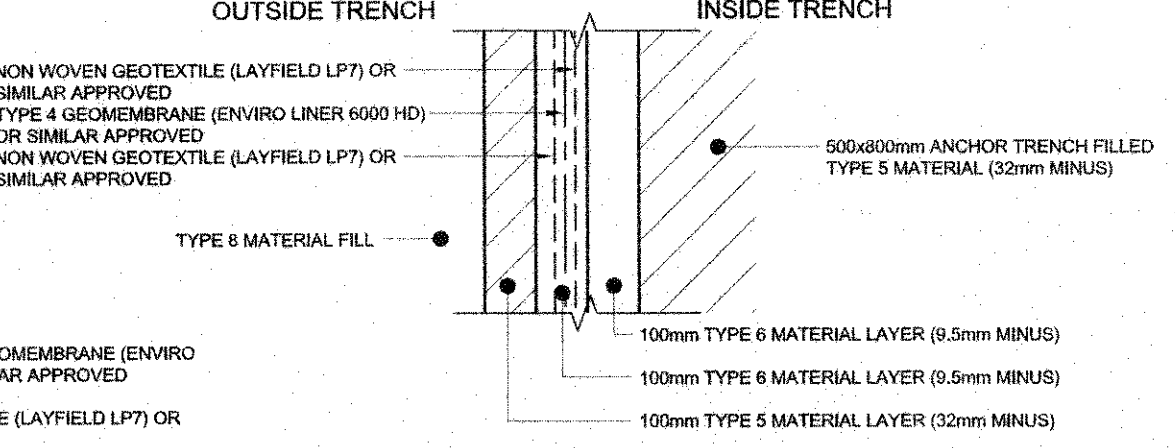
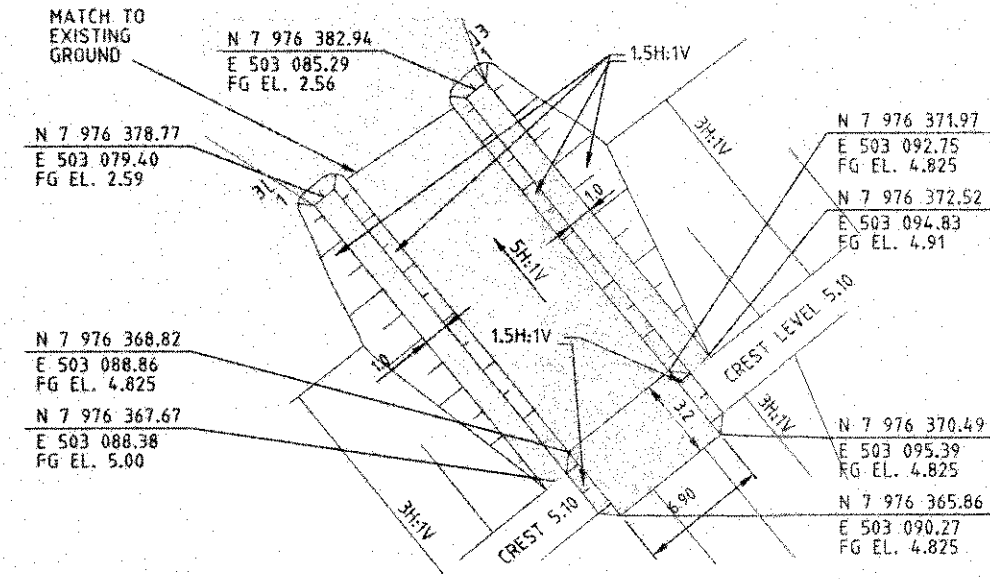
Appendix B

As-built Drawings

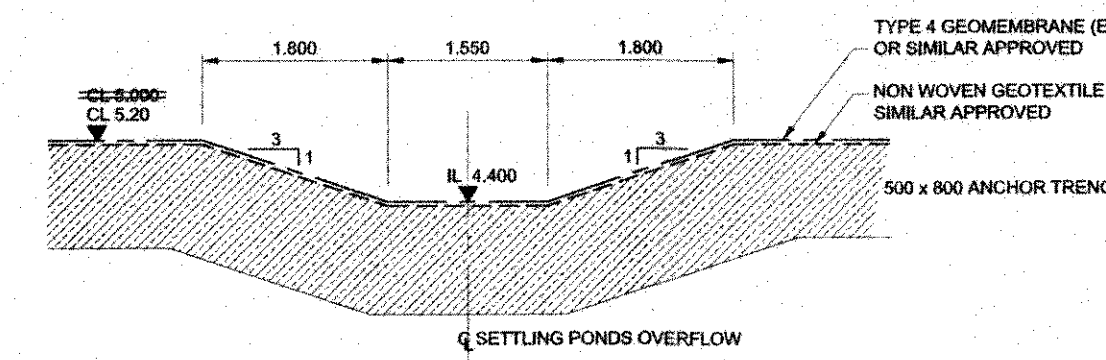
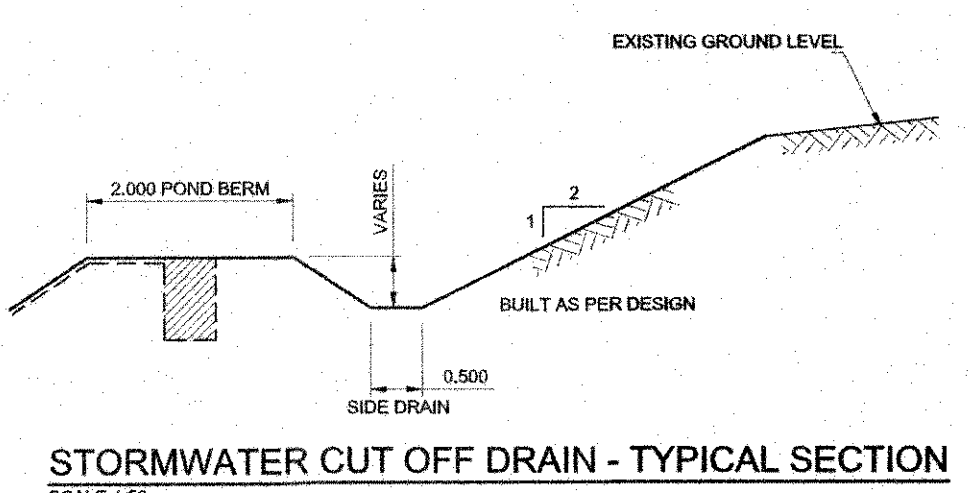


- NOTES:
- LIDAR SURVEY PROVIDED BY PHOTOSAT (2016).
 - CO-ORDINATE GRID IS SHOWN IN UTM (NAD83), ZONE 17 AND IS IN METERS.
 - CONTOURS ARE IN METERS. THE CONTOUR INTERVAL IS 0.5m.
 - ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.
 - IT IS ASSUMED THAT ALL RUN OFF COLLECTED BY THE SETTLING POND IS NON-ACID GENERATING AND CAN BE DISCHARGED TO THE ENVIRONMENT ONCE THE REQUIREMENTS OF BLM ENVIRONMENTAL CRITERIA HAS BEEN ACHIEVED. WATER TO BE DISCHARGED TO AN APPROVED POINT, IN ACCORDANCE WITH THE CLIENT'S (BIM) ENVIRONMENTAL REQUIREMENTS.
 - THE INSTALLATION OF THE GEOMEMBRANE (ENVIRO LINER 6000 HD) IS TO BE IN STRICT ACCORDANCE WITH THE SPECIALIST PROVIDER'S SPECIFICATIONS.
 - CREST LEVEL OF EXISTING POND SPILLWAY WAS RAISED TO 4.825m. IF GROUNDWATER ENCOUNTERED DURING CONSTRUCTION, POND 1A INVERT LEVEL MAY NEED TO BE ADJUSTED AS DIRECTED BY THE ENGINEER.

- LEGEND:
- CL CREST LEVEL
 - IL INVERT LEVEL
 - HWL HIGH WATER LEVEL
 - FBL FREE BOARD LEVEL
 - TYPE 4 GEOMEMBRANE (ENVIRO LINER 6000 HD) OR SIMILAR APPROVED
 - NON WOVEN GEO-TEXTILE (LAYFIELD LP7) OR SIMILAR APPROVED
 - EXISTING LINER

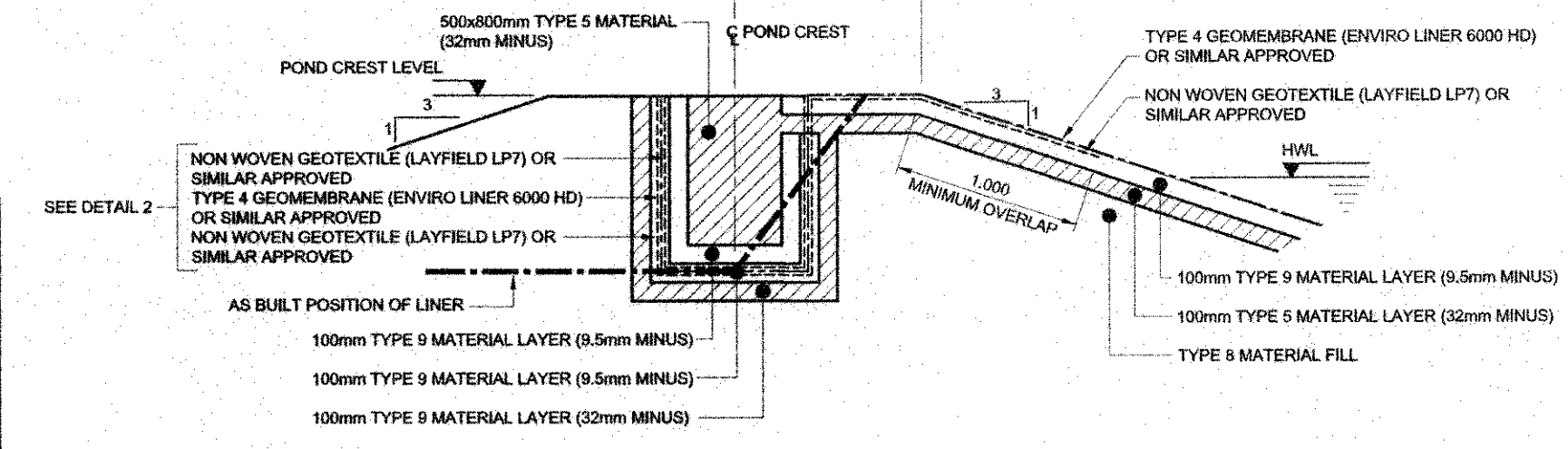


STORMWATER CUT OFF DRAIN SETTING OUT					
POINT	E	N	INVERT LEVEL	AS BUILT	
25	503115.142	7976359.482	-4.834	4.89	
26	503116.229	7976359.638	-4.833	4.86	
27	503125.889	7976367.371	-4.803	4.79	
28	503131.412	7976369.415	-4.788	4.76	
29	503194.284	7976371.534	-4.636	4.66	
30	503195.967	7976373.156	-4.633	4.63	
31	503194.562	7976413.802	-4.595	4.55	
32	503193.842	7976415.123	-4.834	4.54	
33	503196.457	7976420.295	-4.612	4.52	

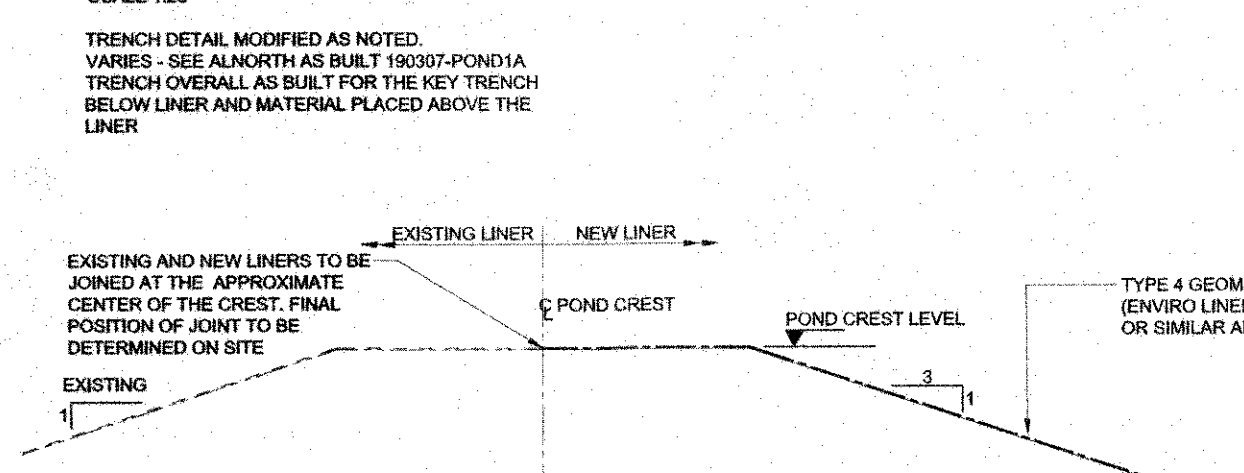


POND 1 AND 1A VOLUME CAPACITIES:	
POND 1:	3675m ³ (VOLUME AT SPILLWAY LEVEL = 4.825m)
POND 1A:	3709m ³ (VOLUME AT SPILLWAY LEVEL = 4.825m)
COMBINED CAPACITY:	3709 + 3075 = 6784m ³

DETAIL 1 - POND LINER SCALE 1:10



DETAIL 4 - POND LINER ANCHOR TRENCH BETWEEN POINTS 11 AND 12 SCALE 1:25



SETTLING POND EXTENSION SETTING OUT				
POINT	E	N	LEVEL	AS BUILT
1	503184.284	7976362.385	-2.250	2.700
2	503127.009	7976360.177	-2.250	2.700
3	503122.140	7976378.349	-2.250	2.700
4	503116.996	7976374.180	-2.250	2.700
5	503115.317	7976376.263	-2.250	2.700
6	503147.109	7976401.967	-2.250	2.700
7	503183.508	7976402.371	-2.250	2.700
8	503191.446	7976411.633	-5.000	5.200
9	503162.833	7976374.458	-5.000	5.200
10	503127.327	7976371.933	-5.000	5.200
11	503115.773	7976362.592	-5.000	5.200
12	503103.709	7976377.467	-5.000	5.200
13	503144.053	7976410.105	-5.000	5.200
14	503193.373	7976414.909	-5.000	5.200
15	503107.448	7976366.833	4.400	4.400
16	503106.472	7976368.038	4.400	4.400
17	503107.303	7976366.868	-5.000	5.200
18	503108.957	7976371.127	-5.000	5.200
19	503110.822	7976371.560	4.400	4.400
20	503111.797	7976370.354	4.400	4.400
21	503110.967	7976368.525	-5.000	5.200
22	503109.409	7976367.263	-5.000	5.200
23	503109.623	7976368.595	4.415	4.415
24	503108.646	7976366.798	4.415	4.415

SCALES:
HORIZONTAL 1:500
VERTICAL 1:100

DATUM 0.000

CUT / FILL	-5.053	-4.466	-3.741	-3.740	-3.447
CENTRE LINE (CL)	4.953	2.70	2.70	2.70	2.70
GROUND LEVELS ON CL	9.943	7.165	6.441	6.443	6.324
DISTANCE (m)	20	40	60	80	100

SECTION A - A

SCALES:
HORIZONTAL 1:500
VERTICAL 1:100

DATUM 0.000

CUT / FILL	-5.053	-4.466	-3.741	-3.740	-3.447
CENTRE LINE (CL)	4.953	2.70	2.70	2.70	2.70
GROUND LEVELS ON CL	9.943	7.165	6.441	6.443	6.324
DISTANCE (m)	20	40	60	80	100

SECTION B - B

FOR RECORD

No.	DESCRIPTION	REVISIONS
1	EDC STAMP REMOVED	
2	RECORDED AS BUILT DETAILS ADDED	
3	POND 1 AND 1A VOLUME CAPACITIES ADDED	
4	APPROVED FOR CONSTRUCTION	

HATCH

DRAFTSPERSON	I BARNARD	NR	13/06/2018
DESIGNER	H HERBST	NR	13/06/2018
CHECKER	F HUGO		
DESIGN COORD.	R GOOSEN		
RESP. ENG.	R HAUM		
LEAD DESG. ENG.	A GROENBELAAR		
AREA LEAD	V LAVRIC		
ENG. MANAGER	R GOOSEN		
AREA MANAGER	T ATIBA		

Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION PROJECT

PORT SITE
STOCKPILE No.1 SETTLING POND No.1A
PLAN AND PROFILE

DRAWING No.	H353004-40000-228-272-0008-0001
DRAWING TITLE	2018 SURFACE WATER MANAGEMENT PLAN
REFERENCE DRAWINGS	H340000-2345-10-035-0001 ORE STOCKPILE SEDIMENTATION PONDS - 'AS-BUILT'

SCALE 1:250
DWG. No. H353004-40000-228-272-0008-0001
REV 3

Appendix C

Earthworks Turnover Package

INSPECTION AND TEST PLAN NO.		4	REV:	1	DATE ISSUED:		1/19/2019		
P.O./CONTRACT. NO.		CC006	DESCRIPTION:	POND 1A EARTHWORKS					
CONTRACTOR:		NUNA EAST LTD.	LOCATION:	MILNE PORT		ITEM			

Activity No.	Activity Description	Procedure Reference Code/Specification Reference	Specification Acceptance Criteria	Verifying Document	Verification / Witness					
					NUNA		HATCH		BIM	
					Action	Sign	Action	Sign	Action	Sign
1.1	Baseline topographic survey	IFC	Survey	OG Survey	R	<i>DT</i>	R			
1.2	Obtain land disturbance approval	LDF	Owner Approval	LDF Signoff	H	<i>DT</i>	H	SG	H	
1.3	Locate & mark any UG utilities	N/A	N/A	Survey Verification	R	<i>DT</i>	R			
1.4	Survey excavation limits established	IFC	N/A	Survey Verification	R	<i>DT</i>	R			
2.1	Excavate area to design subgrade	IFC/ Typical Detail	Owner Approval	Survey Verification	R	<i>DT</i>	R			
2.2	Subgrade inspection	IFC/ Typical Detail	Owner Approval	QCD-001	H	<i>DT</i>	H	SG		
2.3	Confirm screen analysis provided meets specification for Type 8 material	Specification H353004-00000-280-078-0002	Material meets Spec	QCD-002	H	<i>DT</i>	R	SG		
2.4	Placement of Type 8 Fill	IFC/ Typical Detail	Owner Approval	QCD-003	R	<i>DT</i>	R	SG		
2.5	Confirm screen analysis provided meets specification for Type 5 material	Specification H353004-00000-280-078-0002	Material meets Spec	QCD-002	H	<i>DT</i>	R	SG		
2.6	Placement of Type 5 Fill	IFC/ Typical Detail	Owner Approval	QCD-003	R	<i>DT</i>	R	SG		
2.7	Confirm screen analysis provided meets specification for Type 9 material	Specification H353004-00000-280-078-0002	Material meets Spec	QCD-002	H	<i>DT</i>	R	SG		
2.8	Placement of Type 9 Fill	IFC/ Typical Detail	Owner Approval	QCD-003	R	<i>DT</i>	R	SG		
3.1	Geotextile Placement	N/A	Owner Approval	Inventory and installation inspection	R	<i>DT</i>	R			
3.2	Geomembrane Placement	Layfield QA/QC Procedure	Owner Approval	Layfield QA/QC Paperwork	H	<i>DT</i>	H		H	

HATCH Vendor/Contractor Document Review	
Doc Number	E353004-CC006-130-051-0001 SUB 02
Date Received	
Review Grade	Next Submittal Status
<input checked="" type="checkbox"/> C1 - Proceed to next submission & status	<input type="checkbox"/> Certified
<input type="checkbox"/> C2 - Proceed with exceptions as noted to next submission & status	<input type="checkbox"/> As-Built
<input type="checkbox"/> C3 - Do not proceed, Revise as noted & resubmit	<input type="checkbox"/> Internal Review
Next Submittal Date:	<input type="checkbox"/> Certified <input type="checkbox"/> As-Built
<input type="checkbox"/> C4 - No further submission required - Complete (select status below) <input type="checkbox"/> Certified Final <input type="checkbox"/> Final <input type="checkbox"/> Cancelled <input type="checkbox"/> Superseded	
Package Engineer: Name, signature and date <i>[Signature]</i> Jan 25, 2019	

4.1	Final Inspection completed	QMS	Owner Approval	Initialed ITP	H	PA	H			
4.2	Punch list generated and closed	QMS	Owner Approval	Initialed ITP	H	PA	H			
4.3	As-built completed	Contract Documents	As per client	Survey as-built	H	PA	H			
4.4	ITP Signoff by Owner	QMS	Owner Approval	Initialed ITP	H		H		H	
4.5	Turnover package and QCD sent to client	QMS	Owner Approval	Initialed ITP	H		H		H	

NOTES:

Construction steps may be done simultaneously over the footprint of the design to minimize disturbance to permafrost.
NUNA to perform visual inspection of the construction material provided and review reports to confirm acceptability of material.

Rev	Date	Reason for Revision	Drawn	Checked
1	1/19/2019	Incorporated Comments from Hatch		

ACTION:

H - Hold, Mandatory Hold Point

R - Test or inspection result review

W - Witness

S - Surveillance, Activity work or function is observed

NOTE: H & W points require formal notification to Hatch/ Hatch's Representative



LAND DISTURBANCE FORM

Document # BAF-PH1-830-P16-0008, Section 2.3

Form No.	Date: 10/16/18			Department: Projects
Project location:	Port Site			Name/Position: Brandon Urquhart/Project Coordinator
Project Duration:	Start	10/18/18	Finish	11/29/18
Settling Pond 1A				
Project Details				
GPS Coordinates:	Lat:	N+7976400	Long:	E+503150 (NAD 83)
Land disturbance area:	5000 m ²			
Type of disturbance (Excavation, Placement of Fill Material, ditching, etc.)				
Material placement over tundra				
Detailed description of planned work.				
Construction of settling pond extension, including:				
<ul style="list-style-type: none">- Clearing of any materials already in the footprint of Pond 1A (existing pile of ROQ to be relocated)- Excavation of pond to design grades- Placement of berm fill and compaction- Installation of liner				
Check List				
1	Has the Environmental Concerns in section 2.3.1. of the Environmental Protection plan been reviewed			Yes
	- If No, please review the list of concerns on page 4 of this form.			
2	Will work be completed within 31m of the High Water Mark of any stream or water body?			Yes
	- If Yes, please contact the Environment Department.			
3	Is there a stream or waterbody >31m of the work site?			Yes
	- If Yes, Include a detailed description of the Sediment and Erosion Control Measures on Page 3.			
4	Has the area been cleared by Archaeology?			Yes
	- If No or Unknown, Please contact the Environment Department.			
5	Will the land disturbance occur between May 31 and August 31?			No
	- If Yes, An Active Migration Bird Survey is required prior to start.			
Approval				
Approved by: Bill Bowden		Position: Environment Superintendent		
Approved on: Oct 21 / 2018				
Valid Unit:				
Comments and recommendations by the Environment Department:				
<ul style="list-style-type: none">- Contingent of blasting risk evaluation / SHA and- mitigative measures to protect the ^{existing} pond- clean up- Clean up of all debris and loose sediment must occur.				

Form No. 0
 Date: 10/16/18
 Project location: Port Site

Department: Projects

Sediment and Erosion Control Measures

Please give a detailed discription of the run-off control measure which will be put in place. Include all water bodies and streams, slope direction and materials to be used.

- Work will be completed in winter conditions. No runoff water is expected during construction of the Pond.
- Pond Outlets will be lined with geotextile and rip rap as per IFC design





MAT BLAST INFORMATION

Day: Wednesday
Date: Oct 24 2018
Time: 16:00 pm

PSC
Main
Camp

Weatherhaven
Matrix
Camp

200m radius
Personnel

50m radius
Equipment

Tower

Mat Blast
Location

200m radius
Personnel

Quarry Q1

Steensby
Camp

Guard
Location

Existing Haul Road

Guard
Location

REV	DESCRIPTION	DATE	BY	CHKD
1	ISSUED FOR INFORMATION	2018/10/23	PCN	
2	ISSUED FOR INFORMATION	2018/10/23	PCN	

Baffinland

HATCH

REVISION NO.	DESCRIPTION	DATE	BY	CHKD
1	ISSUED FOR INFORMATION	2018/10/23	PCN	
2	ISSUED FOR INFORMATION	2018/10/23	PCN	

PROJECT	PROJECT NO.	PROJECT NAME
Baffinland Iron Mines LP	181023-ACL-PCN	Mary River Expansion Project



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CLIENT NO	ISSUED	PCN	DATE		181023/17																																																							
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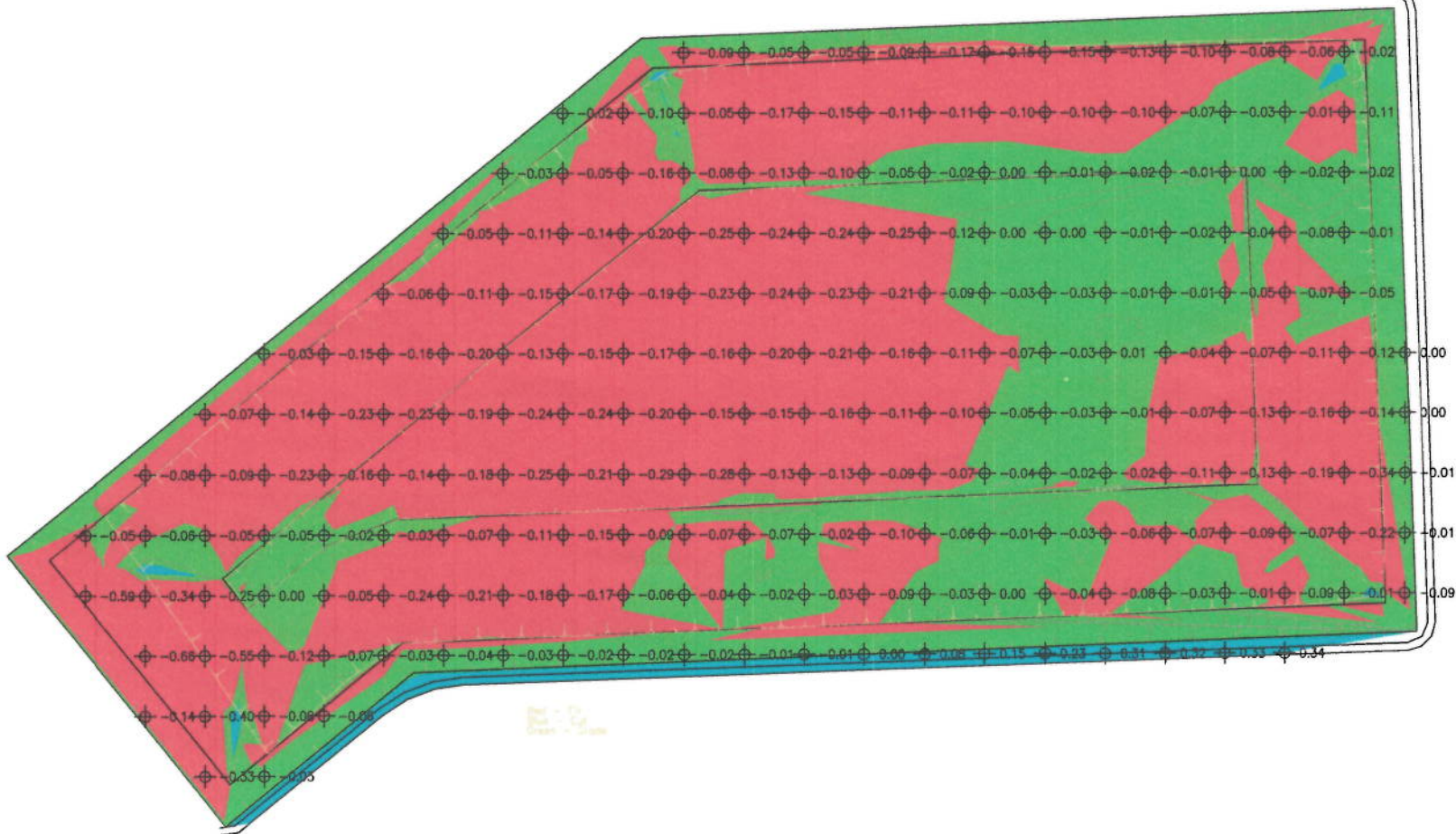
Nuna East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

2.2

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	Surface/Sub-grade Preparation Approval - <u>POND 1A</u>
Date of Inspection:	<u>JAN 24 2019</u>
Parties Present at Inspection	<u>Darko Filipic</u>

Comments:
<p>A visual inspection of the <u>POND 1A</u> surface/sub-grade was conducted prior to placement of fill Material.</p> <p>Sub-grade: Pond subgrade has been excavate to a minimum of 200mm below final grade. Some areas are over excavated and will be brought to grade when placing the layer of Type 5 material.</p> <p>The outlined area is approved for placement of material.</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contactor is released to proceed with construction.			
<u>NUNA</u>	<u>Darko Filipic</u>	<u>[Signature]</u>	<u>1/24/19</u>
Representative:	Name	Signature	Date
<u>HATCH</u>	<u>Stephane Gionat</u>	<u>[Signature]</u>	<u>24/01/19</u>
Representative:	Name	Signature	Date



REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR CONSTRUCTION
2	ISSUED FOR CONSTRUCTION
3	ISSUED FOR CONSTRUCTION
4	ISSUED FOR CONSTRUCTION
5	ISSUED FOR CONSTRUCTION
6	ISSUED FOR CONSTRUCTION
7	ISSUED FOR CONSTRUCTION
8	ISSUED FOR CONSTRUCTION
9	ISSUED FOR CONSTRUCTION
10	ISSUED FOR CONSTRUCTION

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR CONSTRUCTION
2	ISSUED FOR CONSTRUCTION
3	ISSUED FOR CONSTRUCTION
4	ISSUED FOR CONSTRUCTION
5	ISSUED FOR CONSTRUCTION
6	ISSUED FOR CONSTRUCTION
7	ISSUED FOR CONSTRUCTION
8	ISSUED FOR CONSTRUCTION
9	ISSUED FOR CONSTRUCTION
10	ISSUED FOR CONSTRUCTION

Baffinland

HATCH

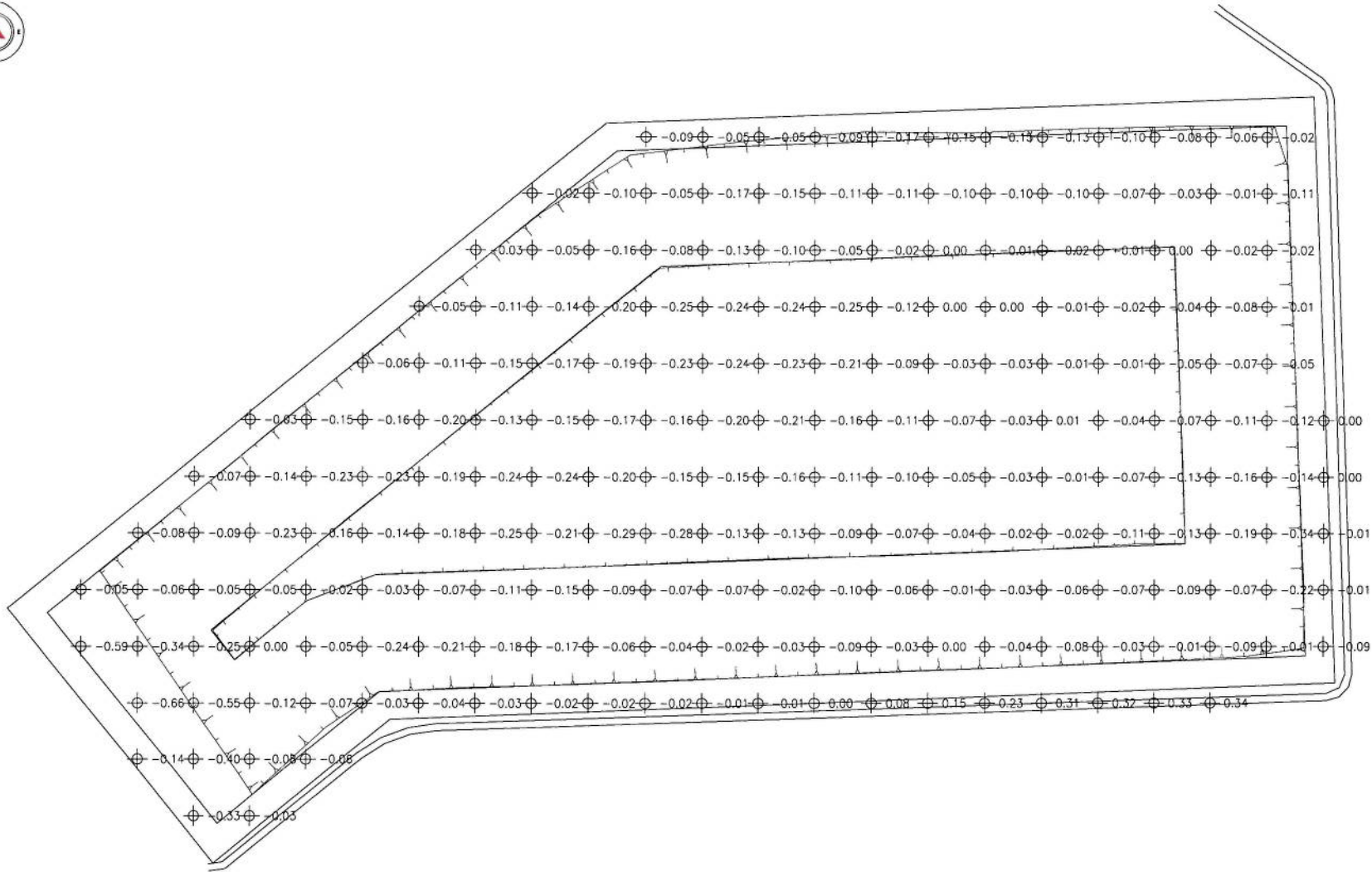







Pond 1a Sub grade topo

DATE	BY	CHKD	DATE
2018-08-10	2018-08-10	2018-08-10	2018-08-10
2018-08-10	2018-08-10	2018-08-10	2018-08-10
2018-08-10	2018-08-10	2018-08-10	2018-08-10

**BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION
PROJECT**

2018-08-10	2018-08-10	2018-08-10	2018-08-10
2018-08-10	2018-08-10	2018-08-10	2018-08-10
2018-08-10	2018-08-10	2018-08-10	2018-08-10
2018-08-10	2018-08-10	2018-08-10	2018-08-10



REFERENCE DRAWINGS			CLIENT			TITLE			PROJECT					
DRAWING NO.	DRAWING DESCRIPTION/TITLE	REF.				 			Pond 1a Sub grade topo			BAFFINLAND IRON MINES LP MARY RIVER EXPANSION PROJECT		
1	190124-1000-220-275-000-000	1												
									CLIENT NO. DRAWN SMR DATE: 19/01/24			PROJECT NO. DSGN DATE:		
			REV: 11/01/24 DESCRIPTION DRAWN: APD			DRAWING SIZE: A3 11" x 17" CHD: DATE:			SCALE: AS NOTED APVD: DATE:			DWG NO. 190124-Pond 1a Sub grade-ACL-SMR REV: -		

1/24/19
PT







Nuna East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

2-3

Project:	Milne Port Expansion Stage 3 Remaining Earthworks
Description of Item/Area Inspected:	Construction Material Approval Type: 8 (150mm minus) Source: Q1 Quarry
Date of Inspection:	Jan 20, 2019
Parties Present at Inspection	Danko Filipic Stephane Girard

Comments:
<p>A visual inspection of the Type <u>8</u> Material from <u>Q1 Quarry</u> was conducted to confirm <u>Type 8</u> Material conforms to specifications.</p> <p>A visual inspection was performed on the Type 8 material that was crushed in 2018 by Sana.</p> <p>Construction Material: <u>Type 8</u> conforms to specifications and is approved for placement at the berms forming Pond 1A subgrade</p>

Permission to Proceed:		
The area and instruction described above is acceptable, the contractor is released to proceed with construction.		
NUNA Representative:	<u>Danko Filipic</u> Name	<u>[Signature]</u> Signature
HATCH Representative:	<u>Stephane Girard</u> Name	<u>20/01/19</u> Date

NUNA East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

2-4

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	<i>Approval of placement of material.</i> Type: <i>8 (150 mm minus)</i> Location: <i>POND 1A</i>
Date of Inspection:	<i>Jan 20 2019</i>
Parties Present at Inspection	<i>Darko Filipic</i> <i>Stephane Gionet</i>

Comments:
<p>An inspection of the <u>Type 8</u> material placement was conducted.</p> <p>The Type 8 fill that was used to build up the berms and subgrade in Pond 1A was inspected visually. Material was placed and compacted using an excavator and D6 dozer.</p> <p>The grade, elevation and compaction were found to be acceptable.</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<i>Darko Filipic</i>	<i>[Signature]</i>	<i>1/20/19</i>
	Name	Signature	Date
HATCH Representative:	<i>Stephane Gionet</i>	<i>[Signature]</i>	<i>20/01/19</i>
	Name	Signature	Date

2.5

Nuna East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

Project:	Milne Port Expansion Stage 3 Remaining Earthworks
Description of Item/Area Inspected:	<i>Construction Material Approval</i> Type: <i>5 (32 mm minus)</i> Source: <i>Q1 Quarry</i>
Date of Inspection:	<i>Jan 24 2019</i>
Parties Present at Inspection	<i>Stephane Gignet</i>

Comments:
<p>A visual inspection of the Type <i>5</i> Material from <i>Q1 Quarry</i> was conducted to confirm <i>Type 5</i> Material conforms to specifications.</p> <p><i>Sample was taken from Type 5 stockpile in Q1 and sent to BIM materials lab for analysis.</i></p> <p><i>As per Glen Peace (Hatch) the Type 5 material is ok. (see attached email)</i></p> <p>Construction Material: <i>Type 5</i> conforms to specifications and is approved for placement at</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<i>Danko Filipic</i>	<i>[Signature]</i>	<i>1/24/19</i>
	Name	Signature	Date
HATCH Representative:	<i>Stephane Gignet</i>	<i>[Signature]</i>	<i>24/01/19</i>
	Name	Signature	Date

Sieve Analysis Report

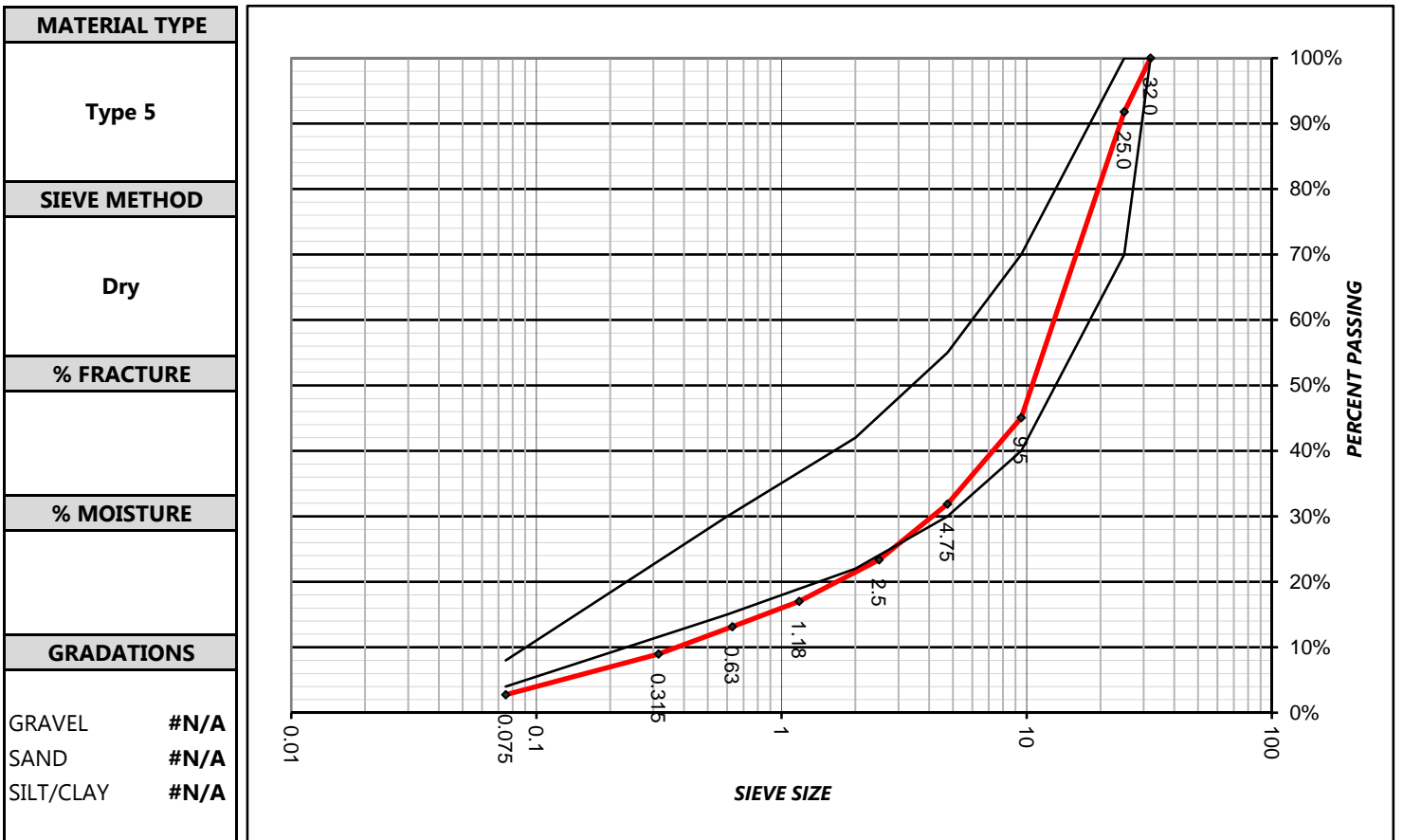
2 Hunt's Lane, St. John's, NL A1B 2L3 Phone: 709-579-1492

ASTM C-117; C-136 CAN/CGSB-8.2M

Test Date:	30-Jan-19	Report Number:	1
File Number:	18SJ0001 - Type 5 32mm minus	Inspector:	M Kirkbride
Client:	Hatch	Sampled By:	B Motty
Project:	BIM PSC Pond A1 Type 9	Sample Date:	28-Jan-19
Location:	Stockpile, Milne Hill for Pond 1A	Copy To:	
Contractor:			

TEST RESULTS

SIEVE SIZE (mm)	32	25	9.5	4.75	2.50	2.00	1.18	0.630	0.600	0.315	0.075				
MAX % PASS SPEC	100.0	70.0	40.0	30.0		22.0			15.0		4.0				
MIN % PASS SPEC	100.0	100.0	70.0	55.0		42.0			30.0		8.0				
% PASS RESULTS	100.0	91.8	45.1	31.9	23.4		17.0	13.1		9.0	2.8				



COMMENTS

The sample is coarse on the 0.6mm and 0.075mm sieves.

Reviewed By:



M Kirkbride

Darko Filipic

From: Gionet, Stephane <stephane.gionet@hatch.com>
Sent: Wednesday, January 23, 2019 7:57 AM
To: Darko Filipic
Cc: Coakley, Marlon
Subject: FW: Material spec for Pond 1A

Importance: High

Hi Darko

See email below from Glen

The type 5 is ok. Nuna can proceed with the installation as soon as Allnorth as the as-built completed.

Regards,

Stephane Gionet

From: Peace, Glen
Sent: Tuesday, January 22, 2019 5:36 PM
To: Gionet, Stephane <stephane.gionet@hatch.com>
Subject: FW: Material spec for Pond 1A
Importance: High

Stephane
FYI

Glen

From: Peace, Glen
Sent: Tuesday, January 22, 2019 3:03 PM
To: Coakley, Marlon <marlon.coakley@hatch.com>
Cc: Mills, Nick <nick.mills@hatch.com>
Subject: Material spec for Pond 1A
Importance: High

Marlon

The type 5 is ok they can proceed. Please send me pictures of both the type 5 and the type 9. I need to review the type 9 with Geotech.

Glen Peace, P. Eng.
Field Engineering Manager
Mary River Expansion Project
Email: glen.peace@hatch.com
Tel: +1 905 4034200, ext. 7693

HATCH

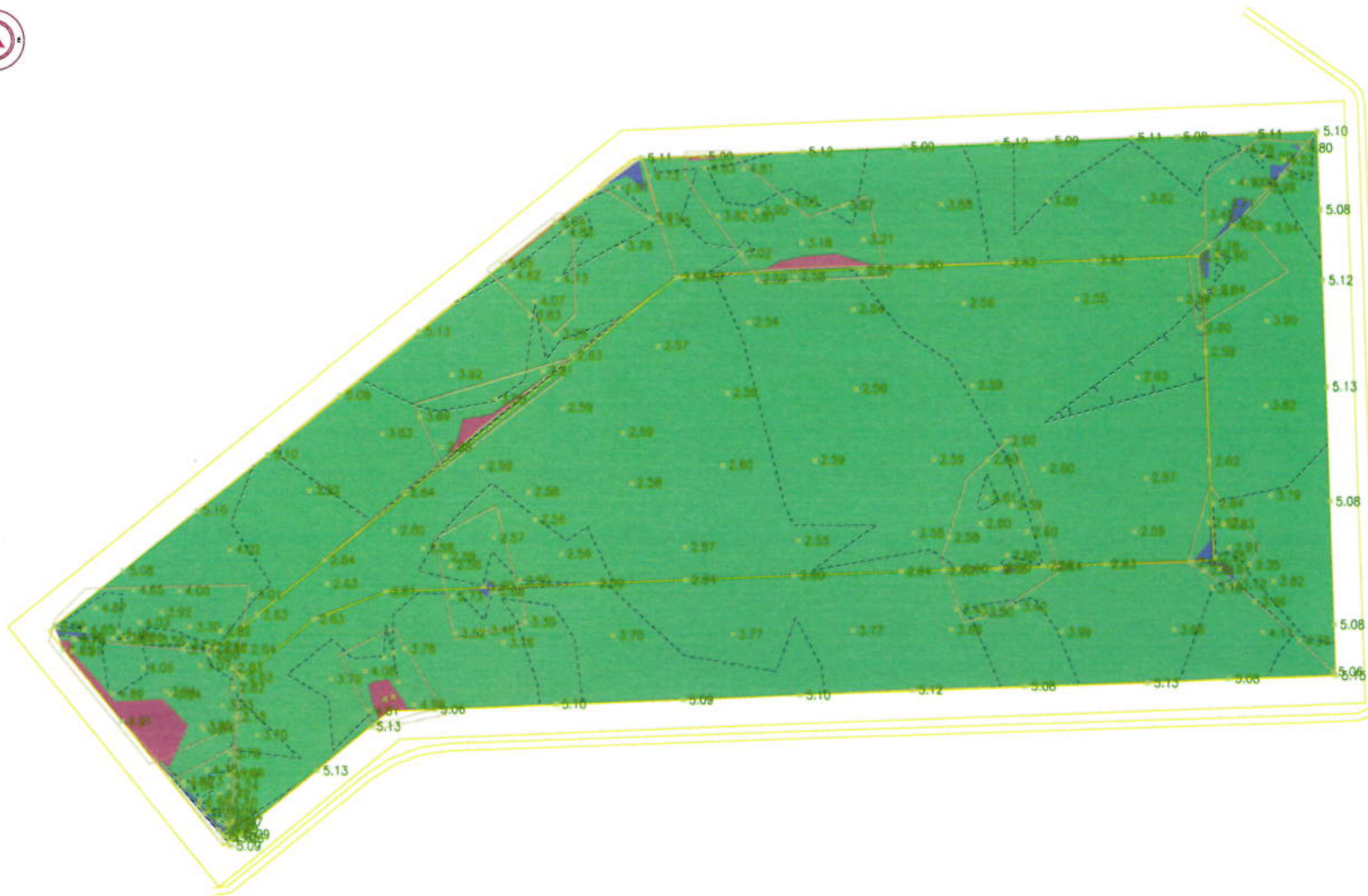
NUNA East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

2-6

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	Approval of placement of material. Type: Type 5 Location: Pond 1A
Date of Inspection:	January 29, 2019
Parties Present at Inspection	Brandon Urquhart

Comments:
<p>An inspection of the <u>Type 5</u> material placement was conducted.</p> <p>The grade, elevation and compaction were found to be acceptable.</p> <p>→ As per Allnorth asbuilt.</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<u>BRANDON URQUHART</u> Name	 Signature	<u>01/29/19</u> Date
HATCH Representative:	<u>Stephane Gionet</u> Name	 Signature	<u>01/29/19</u> Date



File: C:\Allnorth\Standards\3D\Standard\North N, Surveyor - Template | Layout: 800-2120-800 - English Landscape | Paper Size: 558mm x 411mm

REFERENCE DRAWINGS		
DRAWING NO.	DRAWING DESCRIPTION/TITLE	REV
P10014-4000-000 (21-000-000)		1

REV	DESCRIPTION	DATE



Pond 1a Type 5 Asbuilt			
CLIENT NO.	DRAWN	PCN	DATE
PROJECT NO.	DESIGN	DATE	
DRAWING SIZE	AND 'B'	CHD	DATE
SCALE	AS NOTED	APND	DATE

PROJECT	
BAFFINLAND IRON MINES LP MARY RIVER EXPANSION PROJECT	
DWG NO.	REV
190129-Pond 1a Type 5-ACL-PCN	-

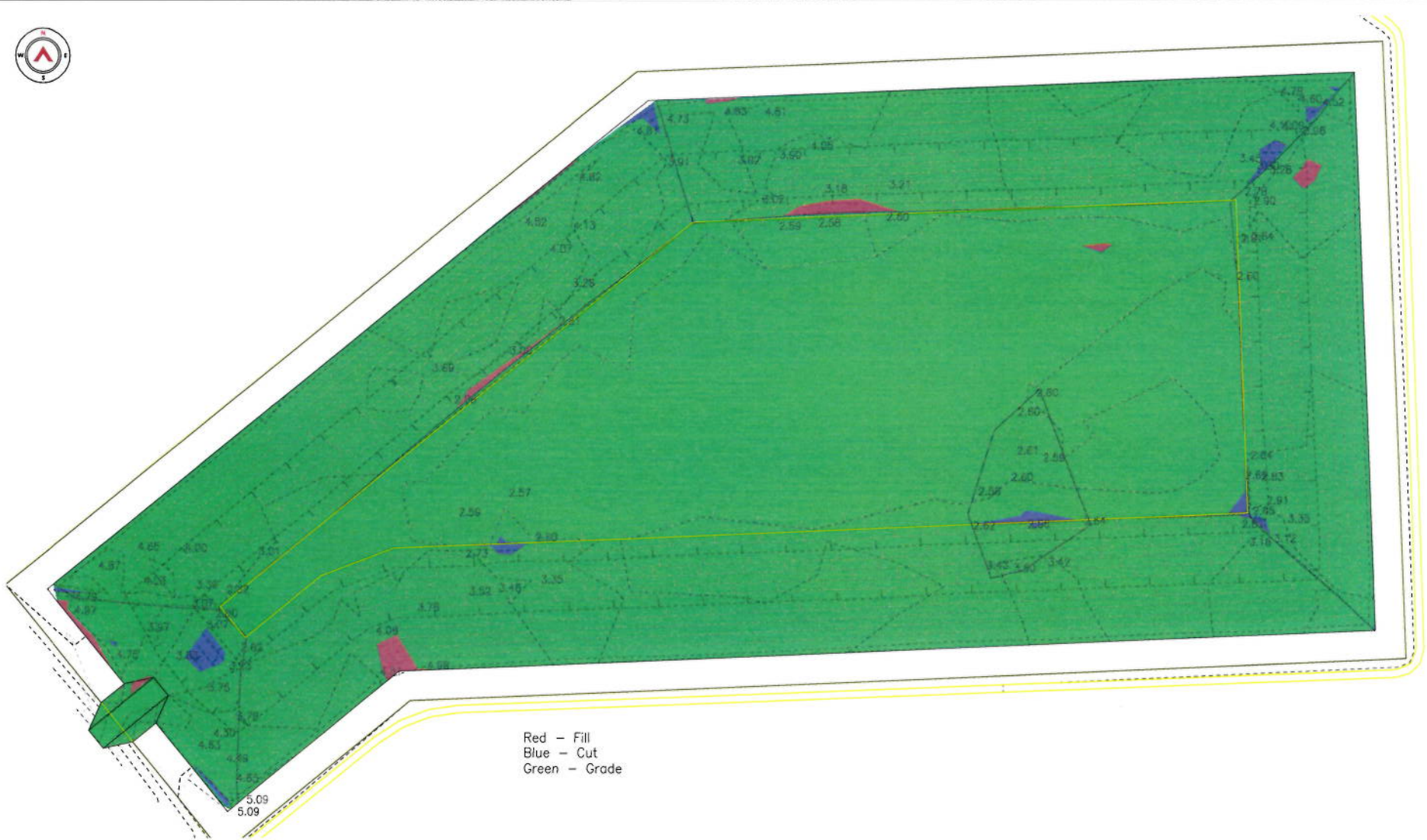
2.6

NUNA East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	Approval of placement of material. Type: <i>Type 5</i> Location: <i>Pond 1A West slope and spillway</i>
Date of Inspection:	<i>2/19/2019</i>
Parties Present at Inspection	<i>Danko Filipic</i> <i>Stephane Gionet (review) SG</i>

Comments:
<p>An inspection of the <i>Type 5</i> material placement was conducted.</p> <p>The grade, elevation and compaction were found to be acceptable.</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<i>Danko Filipic</i>	<i>[Signature]</i>	<i>2/19/2019</i>
	Name	Signature	Date
HATCH Representative:	<i>Stephane Gionet</i>	<i>[Signature]</i>	<i>19/02/19</i>
	Name	Signature	Date



Red - Fill
Blue - Cut
Green - Grade

[illegible]

1	10/02/26	Spillway Asbuilt Added	A/B
REV	YY/MM/DD	DESCRIPTION	DRAWN APVO

CLIENT

 **Baffinland**



TITLE			
<p align="center">Pond 1a Type 5 Asbuitt</p>			
CLIENT NO:	-	DRWN	PCN
PROJECT NO:	-	DSGN	DATE
DRAWING SIZE:	ANSI "B"	CHKD	DATE
SCALE:	1:250	APVD	DATE

PROJECT:

**BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION
PROJECT**



129		
DWG NO:	190129-Pond 1a Type 5-ACL-PCN	REV 1

Nuna East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

2.7

Project:	Milne Port Expansion Stage 3 Remaining Earthworks
Description of Item/Area Inspected:	Construction Material Approval Type: Type 9 Source: Pond 1A stockpile
Date of Inspection:	JANUARY 27, 2019
Parties Present at Inspection	Michael Kirkbride Brandon Urquhart (email)

Comments:
<p>A visual inspection of the Type <u>9</u> Material from <u>Pond 1A stockpile</u> was conducted to confirm <u>Type 9</u> Material conforms to specifications.</p> <p>Sample was taken from Type 9 stockpile @ location of Pond 1A by Allnorth.</p> <p>Results sent to Hatch and acceptable as per Adrian Grobbelaar.</p> <p>Construction Material: <u>Type 9</u> conforms to specifications and is approved for placement at <u>Pond 1A</u>.</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<u>BRANDON URQUHART</u> Name	 Signature	<u>01/29/19</u> Date
HATCH Representative:	<u>Stephane Gionet</u> Name	 Signature	<u>01/29/19</u> Date

Sieve Analysis Report

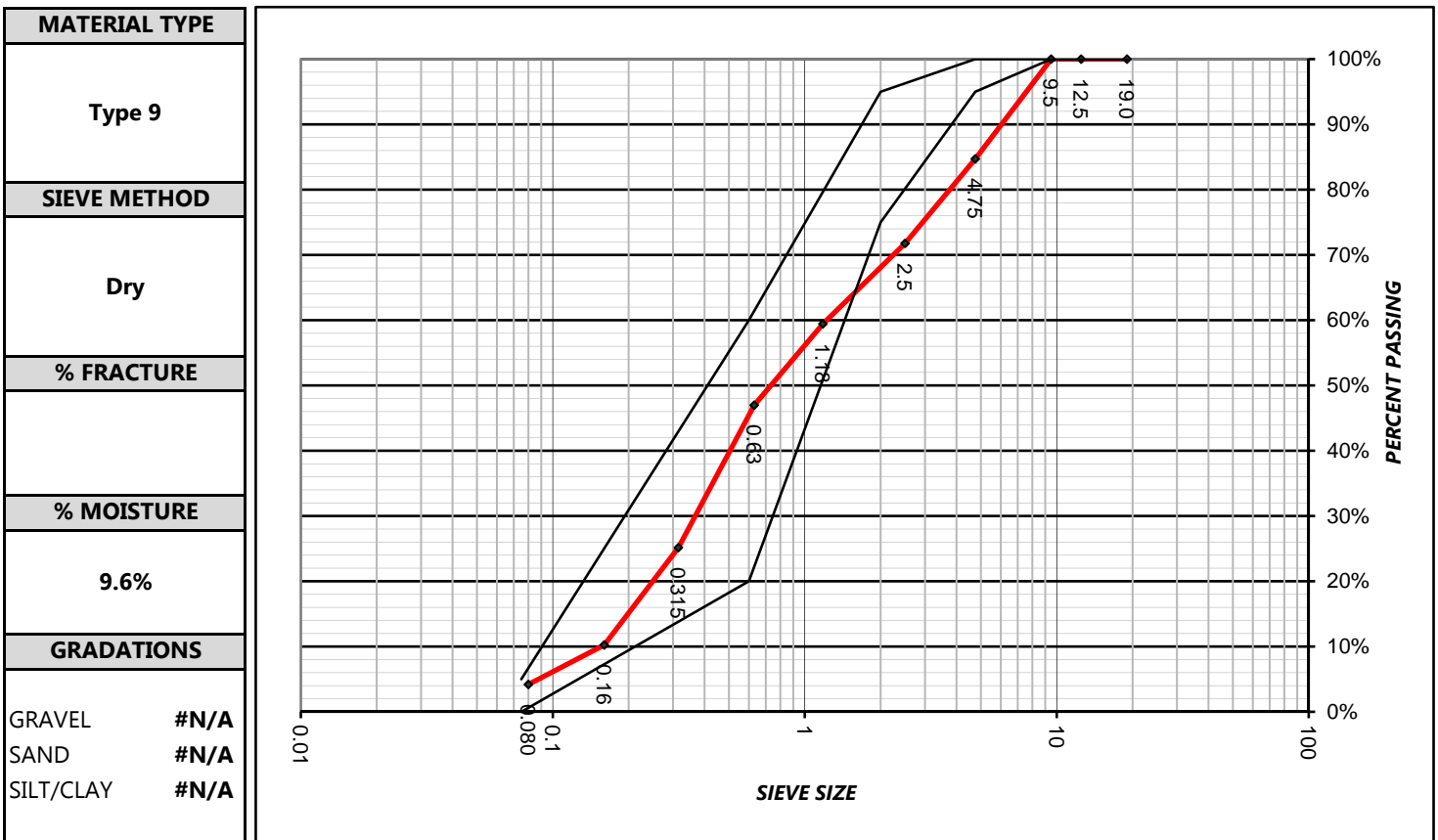
4445 Greig Avenue, Terrace, BC V8G 1M4 Phone: 250-638-0808

ASTM C-117; C-136 CAN/CGSB-8.2M


Test Date:	26-Jan-19	Report Number:	1
File Number:	18SJ0001 - Type 9 GSA	Inspector:	M Kirkbride
Client:	Hatch	Sampled By:	B Motty
Project:	BIM PSC Pond A1 Type 9	Sample Date:	26-Jan-19
Location:	PSC Pond A-1 Re-Screen trial Run	Copy To:	
Contractor:			

TEST RESULTS

SIEVE SIZE (mm)	19	12.5	9.5	4.75	2.50	2.00	1.18	0.630	0.600	0.315	0.160	0.080	0.075		
MAX % PASS SPEC	100.0	100.0	100.0	100.0		95.0			60.0				5.0		
MIN % PASS SPEC	100.0	100.0	100.0	95.0		75.0			20.0				0.0		
% PASS RESULTS	100.0	100.0	100.0	84.7	71.8		59.4	47.0		25.2	10.2	4.2			



COMMENTS

Material is coarse on the 4.75mm and 2.0mm based on the graphed values and compared to site specification	Reviewed By: 
Approximately 15% passing the 0.2mm sieve.	
	M Kirkbride

Sieve Analysis Report

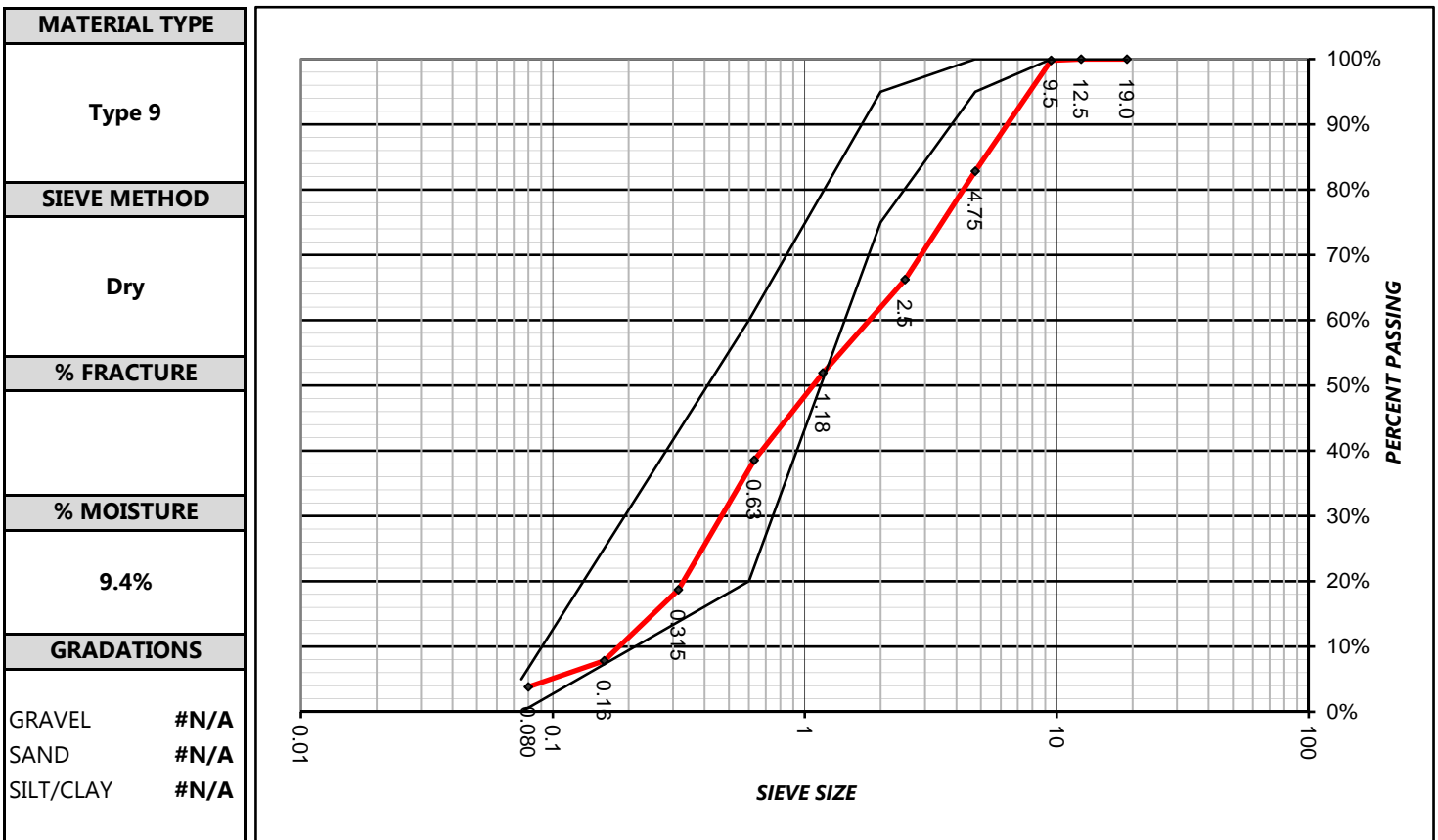
4445 Greig Avenue, Terrace, BC V8G 1M4 Phone: 250-638-0808

ASTM C-117; C-136 CAN/CGSB-8.2M


Test Date:	26-Jan-19	Report Number:	1
File Number:	18SJ0001 - Type 9 GSA	Inspector:	M Kirkbride
Client:	Hatch	Sampled By:	B Motty
Project:	BIM PSC Pond A1 Type 9	Sample Date:	26-Jan-19
Location:	PSC Pond A-1	Copy To:	
Contractor:			

TEST RESULTS

SIEVE SIZE (mm)	19	12.5	9.5	4.75	2.50	2.00	1.18	0.630	0.600	0.315	0.160	0.080	0.075		
MAX % PASS SPEC	100.0	100.0	100.0	100.0		95.0			60.0				5.0		
MIN % PASS SPEC	100.0	100.0	100.0	95.0		75.0			20.0				0.0		
% PASS RESULTS	100.0	100.0	99.8	82.8	66.2		51.9	38.5		18.7	7.8	3.8			



COMMENTS

Material is coarse on the 4.75mm and 2.0mm based on the graphed values and compared to site specification	Reviewed By: 
Approximately 12% passing the 0.2mm sieve.	
	M Kirkbride

Brandon Urquhart

From: Brandon Urquhart
Sent: Monday, January 28, 2019 6:30 AM
To: Ken Humby; Don Weber
Cc: Darko Filipic; Olivier Sonier; Joe Barron
Subject: FW: Type 9 approved

FYI

Brandon Urquhart
Project Coordinator

E brandonu@nunalogistics.com
C [+17806913582](tel:+17806913582)

NUNA EAST LTD.
PO Box 370
Pond Inlet, Nunavut, Canada, X0A 0X0
nunalogistics.com

You may withdraw consent for email communications from the Nuna Group of Companies by responding to the email with "Unsubscribe" in the subject line.

From: Gionet, Stephane <stephane.gionet@hatch.com>
Sent: Monday, January 28, 2019 6:28 AM
To: Brandon Urquhart <brandonu@nunalogistics.com>
Subject: Type 9 approved

Hi Brandon

Type 9 is acceptable please proceed with the installation when the type 5 as build will be completed.

Regards,

Stephane Gionet

Civil Supervisor
Baffinland Project

HATCH

stephane.gionet@hatch.com

From: Grobbelaar, Adriaan
Sent: Sunday, January 27, 2019 11:55 PM
To: Mills, Nick <nick.mills@hatch.com>
Cc: Goosen, Rodney <rodney.goosen@hatch.com>; Peace, Glen <glen.peace@hatch.com>; Gionet, Stephane <stephane.gionet@hatch.com>; Coakley, Marlon <marlon.coakley@hatch.com>
Subject: RE: Re ; Type 9

Nick

Agreed – This is acceptable when compared with the spec.

Regards

Adriaan Grobbelaar
Associate

Tel: +27 11 239 5522
Cell +27 82 9033 967
58 Emerald Parkway Road,
Greenstone Hill
South Africa



From: Mills, Nick
Sent: Sunday, January 27, 2019 4:27 PM
To: Grobbelaar, Adriaan <adriaan.grobbelaar@hatch.com>; Goosen, Rodney <rodney.goosen@hatch.com>
Cc: Coakley, Marlon <marlon.coakley@hatch.com>; Gionet, Stephane <stephane.gionet@hatch.com>; Peace, Glen <glen.peace@hatch.com>
Subject: Fwd: Re ; Type 9

Adrian

See attached samples taken for type 9 by our QA contractor. Please review and comment. I believe they are close enough.

Thanks
Nick
Sent from my iPhone

Begin forwarded message:

From: Michael Kirkbride <mkirkbride@allnorth.com>
Date: January 27, 2019 at 9:28:07 AM AST
To: "Coakley, Marlon" <marlon.coakley@hatch.com>, "Mills, Nick" <nick.mills@hatch.com>
Cc: "Peace, Glen" <glen.peace@hatch.com>, "Gionet, Stephane" <stephane.gionet@hatch.com>, Bill Motty <bmotty@allnorth.com>
Subject: RE: Re ; Type 9

Good day

Please see the attached test results completed by Allnorth from yesterday. Two samples were completed (1- of the existing pile, 2- of the rescreened trial)

In review the material is coarse on the 4.75 and the 2.0mm when compared to the Hatch Specification Quarried Fill Material Specification 2016-12-14. The rescreen trial did improve the coarse fraction marginally but still not within specification. Additional screening to improve the coarse fraction may cause the fines fraction to go out of specifications

0.2mm is approximated at 12% and 15% on the two samples.

Previous samples completed at Mary River will follow shortly with the data shown accordingly. The information from those sieves will be limited as they were completed by others but show general correlation to the samples completed by Allnorth. I hope this helps to provide resolution to the situation.

Cheers

NOTICE - This message from Hatch is intended only for the use of the individual or entity to which it is addressed and may contain information which is privileged, confidential or proprietary. Internet communications cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, arrive late or contain viruses. By communicating with us via e-mail, you accept such risks. When addressed to our clients, any information, drawings, opinions or advice (collectively, "information") contained in this e-mail is subject to the terms and conditions expressed in the governing agreements. Where no such agreement exists, the recipient shall neither rely upon nor disclose to others, such information without our written consent. Unless otherwise agreed, we do not assume any liability with respect to the accuracy or completeness of the information set out in this e-mail. If you have received this message in error, please notify us immediately by return e-mail and destroy and delete the message from your computer.

2-8

**NUNA East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report**

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	<i>Approval of placement of material.</i> <i>Type: Type 5 and Type 9 Key Trench</i> <i>Location: Pond 1A Key Trench 0+30 - 0+170</i>
Date of Inspection:	<i>February 13, 2019</i>
Parties Present at Inspection	<i>Allnorth Survey, Allnorth Qlt, Layfield</i>

Comments:
<p>An inspection of the <u>Type 5 and 9</u> material placement was conducted.</p> <p><i>Section 0+030 → 0+170</i></p> <p>The grade, elevation and compaction were found to be acceptable.</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<i>BRANDON (signature)</i>	<i>(signature)</i>	<i>02/13/2019</i>
	Name	Signature	Date
HATCH Representative:	<i>Dave Barry</i>	<i>(signature)</i>	<i>02/13/19</i>
	Name	Signature	Date

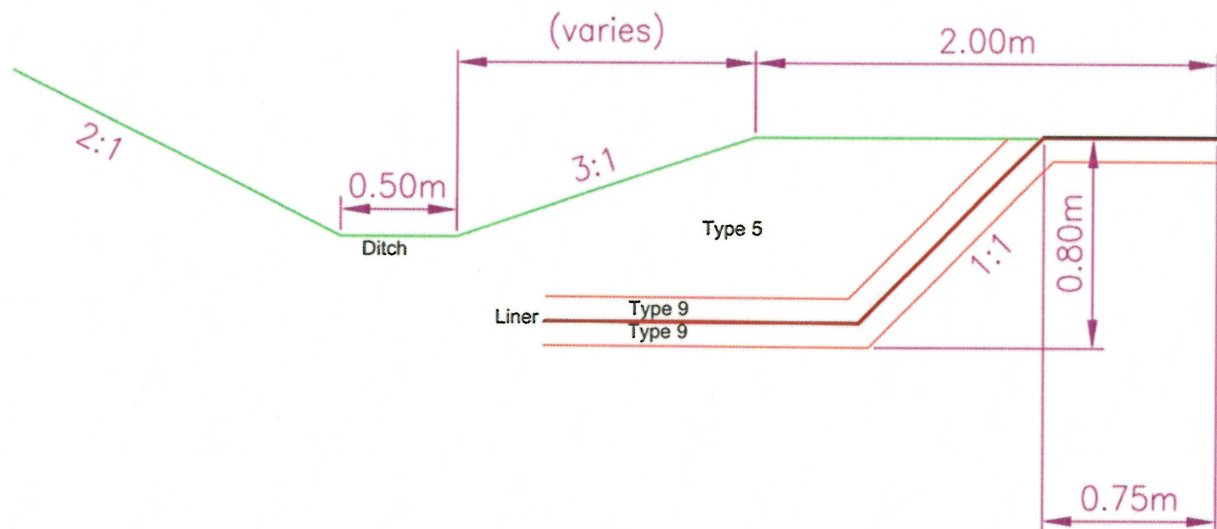
Baffinland Iron Mines LP
Mary River Expansion Stage 3
H353004

Construction Management Form
Site Contracts Administration
Request for Information

Project Name:	Mary River Expansion Stage 3	Project Number:	H353004
CWP No:		RFI No:	0021
Contractor:	Nuna East Ltd.	Contract No:	CC006
Initiated By:	Brandon Urquhart	Cost impact?	Y <input type="checkbox"/> / N <input checked="" type="checkbox"/>
Date of Submittal:	2019-02-10	Schedule Impact?	Y <input type="checkbox"/> / N <input checked="" type="checkbox"/>

Information Requested:

Nuna is proposing a design change to the trench liner detail to make it constructible. The current design is not feasible to build with the available material and ground conditions. The key cut cannot be made as a straight wall due to the risk of the pond crest collapsing during construction and liner installation. Nuna proposes to cut the liner key at a 1:1 slope to allow for geotechnical stability during construction and installation. This would override RFI 15



Reference Document No.	Revision	Title/Description
RFI - 0015		Pond 1A Liner Trench
RFI Classification:		
Design <input checked="" type="checkbox"/>	Clarification <input type="checkbox"/>	Construction Fabricator/Vendor <input type="checkbox"/>
Routine Request <input type="checkbox"/>		Other <input type="checkbox"/>

Baffinland Iron Mines LP
Mary River Expansion Stage 3
H353004

Construction Management Form
Site Contracts Administration
Request for Information


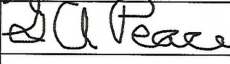
Project Response: [attach sufficient detail as required]

Slope of 1:1 is not acceptable. Slope is to be minimized.

RFI Follow-up Requirements:

Contract Order Issued Yes ☐ /No ☐ ((insert associated tracking #)) Back-Charge Required (Yes ☐ /No ☐
As-Built Required Yes ☐ /No ☐ Materials Required (Yes ☐ /No ☐

RFI Receipts and Approvals

Stakeholder	Name	Signature	Date <YYYY-MM-DD>
Hatch Construction Management	Nick Mills		Mar 2/18
Hatch Engineering Home Office <input type="checkbox"/> Site <input type="checkbox"/>	Glen Peace		2019-03-01
Hatch Project Management			
Client (as required):			

Request for Information

Note: The response to this RFI is NOT an authorization to perform a change to the Contract. Work may proceed in accordance with the response only if such work involves NO change in cost or schedule. In the case where the response may involve change in cost or schedule, a Contractual instrument must be issued by Hatch and received by the Contractor before the response can be executed. Where no Contractual instrument is indicated, action must be taken in accordance with (reference appropriate Contract Sections that authorize execution of any change in schedule and cost).



Baffinland Iron Mines LP
Mary River Expansion Stage 3
H353004



Construction Management Form
Site Contracts Administration
Request for Information

Project Name:	Mary River Expansion Stage 3	Project Number:	H353004
CWP No:	RFI No: 0012 0015		
Contractor: Nuna East Ltd.	Contract No: CC006		
Initiated By: Darko Filipic	Cost impact? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/>		
Date of Submittal: 2019-01-21	Schedule Impact? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/>		
Information Requested: Nuna is proposing a design change to the trench liner detail in order to make it constructible. The current design is not feasible to build in the existing frozen conditions and with the equipment available to the project. Nuna is proposing to cut the backslope of the berm from the liner trench to the invert of the stormwater cutoff ditch. The liner would then be laid down over bedding on this cut section and then backfilled over to the design grades of the pond crest. See attached diagram for clarification. Constructing the liner trench in this manner should achieve the intended purpose of anchoring the liner material at the crest of the pond.			
Reference Document No.	Revision	Title/Description	
H353004-40000-228-272-0008-0001	1	Port Site Stockpile 1, Pond 1A Plan & Profile	
RFI Classification: Design <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Fabricator/Vendor <input type="checkbox"/> Routine Request <input type="checkbox"/> Clarification <input type="checkbox"/> Other <input type="checkbox"/>			
Project Response: [attach sufficient detail as required]			
The proposed alternative anchor trench is acceptable. There should however be no additional cost to the Owner because of this alternative.			
RFI Follow-up Requirements: Contract Order Issued Yes <input type="checkbox"/> /No <input type="checkbox"/> ([insert associated tracking #]) Back-Charge Required (Yes <input type="checkbox"/> /No <input type="checkbox"/> As-Built Required Yes <input type="checkbox"/> /No <input type="checkbox"/> Materials Required (Yes <input type="checkbox"/> /No <input type="checkbox"/>			
RFI Receipts and Approvals			
Stakeholder	Name	Signature	Date <YYYY-MM-DD>
Hatch Construction Management	<i>[Signature]</i>	<i>[Signature]</i>	Jan 22/18
Hatch Engineering Home Office <input type="checkbox"/> Site <input type="checkbox"/>	Adriaan Grobbelaar	<i>[Signature]</i>	22 January 2019
Hatch Project Management	<i>[Signature]</i>	<i>[Signature]</i>	22 Jan 2018

E353004-CC006-400-465-0015

Project Template No.:
H353004-00000-102-086-0003

H353004-XXXX-400-465-XXXX, Rev. 0,
CC006-400-465-0015 Page 1
Ver. 04.02



Baffinland Iron Mines LP
Mary River Expansion Stage 3
H353004

Construction Management Form
Site Contracts Administration
Request for Information

Client (as required):			
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Request for Information

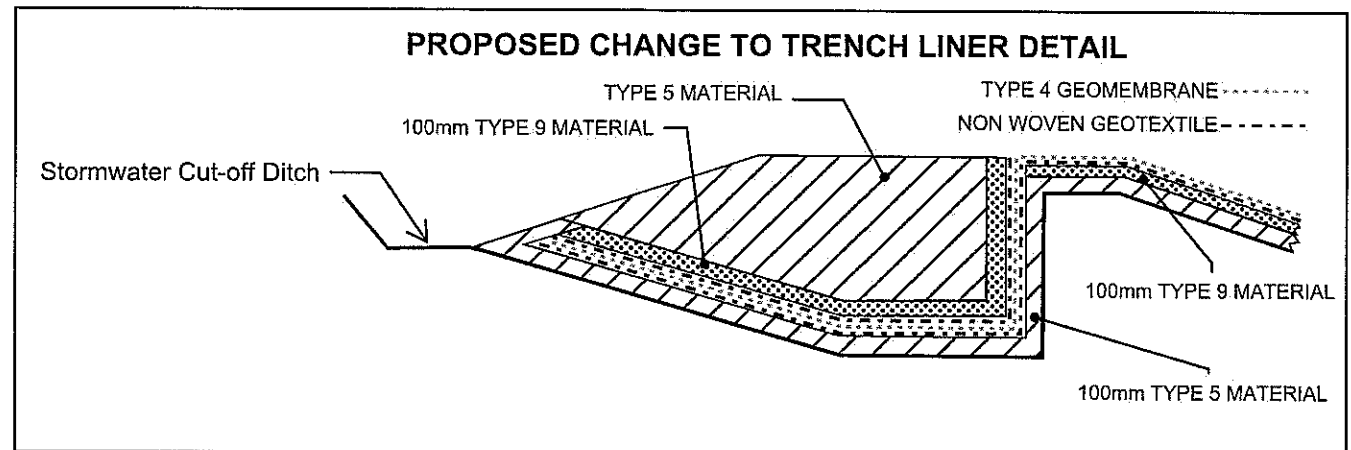
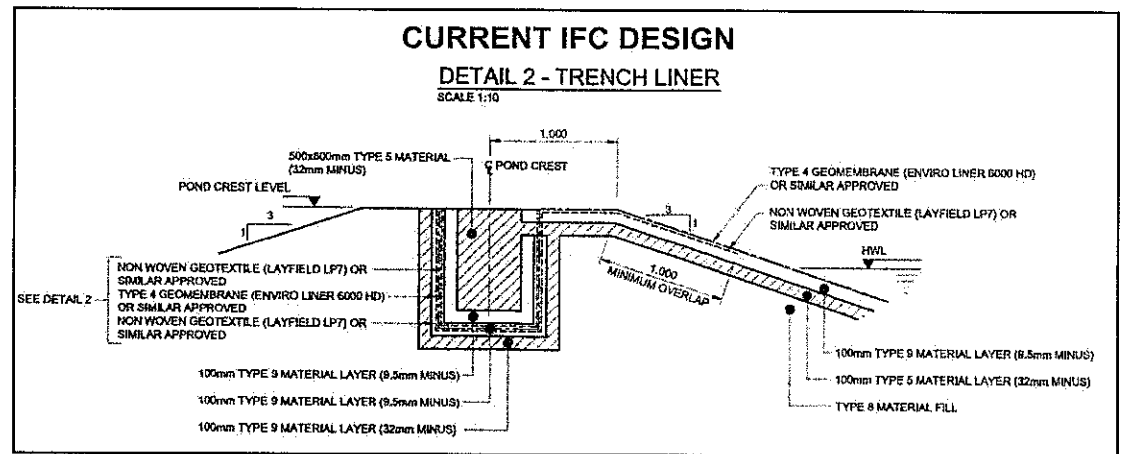
Note: The response to this RFI is NOT an authorization to perform a change to the Contract. Work may proceed in accordance with the response only if such work involves NO change in cost or schedule. In the case where the response may involve change in cost or schedule, a Contractual instrument must be issued by Hatch and received by the Contractor before the response can be executed. Where no Contractual instrument is indicated, action must be taken in accordance with (reference appropriate Contract Sections that authorize execution of any change in schedule and cost).

In order to be able to construct the pond liner anchor trench in the existing frozen conditions, Nuna is proposing to change the design as detailed in the bottom right diagram.

100mm Type 5 bedding material will then be placed on the excavated surface.

Then the Type 4 geomembrane followed by another layer of non-woven geotextile.

The geotextile will then be covered with 100mm of Type 9 material and the rest of the berm will be built up with Type 5 material.



NUNA East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

2.8

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	<i>Approval of placement of material.</i> Type: <i>Type 5 and Type 9</i> Location: <i>Pond 1A Key Trench 0+030 to 0+010</i> <i>0+170 to 0+200</i>
Date of Inspection:	<i>Feb 17 2019</i>
Parties Present at Inspection	<i>Danko Filipic</i>

Comments:
<p>An inspection of the <i>Type 5 and Type 9</i> material placement was conducted.</p> <p><i>Bedding material along bottom of key trench was placed as per RFI-21 instructions.</i></p> <p><i>Sections approved from 0+030 to 0+010 and 0+170 to 0+200.</i></p> <p><i>The grade, elevation and compaction were found to be acceptable.</i></p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contactor is released to proceed with construction.			
NUNA Representative:	<i>Danko Filipic</i>	<i>[Signature]</i>	<i>02/17/19</i>
	Name	Signature	Date
HATCH Representative:	<i>Kenny MacRae</i>	<i>[Signature]</i>	<i>02/17/19</i>
	Name	Signature	Date

2.8

**NUNA East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report**

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	<i>Approval of placement of material.</i> Type: <i>Type 9</i> Location: <i>Powd 1A Subgrade of Lner</i>
Date of Inspection:	<i>February 13, 2014</i>
Parties Present at Inspection	<i>Allnorth Survey, Allnorth QA, Layfield</i>

Comments:
<p>An inspection of the <u><i>Type 9 Material</i></u> material placement was conducted.</p> <p><i>Section 0+30 - 0+170</i></p> <p>The grade, elevation and compaction were found to be acceptable.</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<u><i>Brian Ureman</i></u>	<u><i>[Signature]</i></u>	<u><i>02/13/2014</i></u>
	Name	Signature	Date
HATCH Representative:	<u><i>Dave Burrey</i></u>	<u><i>[Signature]</i></u>	<u><i>02/13/19</i></u>
	Name	Signature	Date

2.8

NUNA East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	Approval of placement of material. Type: 9 (3/8" mines) Location: Pond 1A
Date of Inspection:	Feb 17, 2019
Parties Present at Inspection	Darko Filipic All North Survey, All North QA, Layfield

Comments:
<p>An inspection of the <u>Type 9</u> material placement was conducted.</p> <p>from section 0+30 - 0+170 to 0+10 - 0+200 has been placed to design grades as confirmed by survey.</p> <p>The grade, elevation and compaction were found to be acceptable.</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<u>Darko Filipic</u> Name	 Signature	<u>02/17/19</u> Date
HATCH Representative:	<u>Kenny MacRae</u> Name	 Signature	<u>02/17/19</u> Date

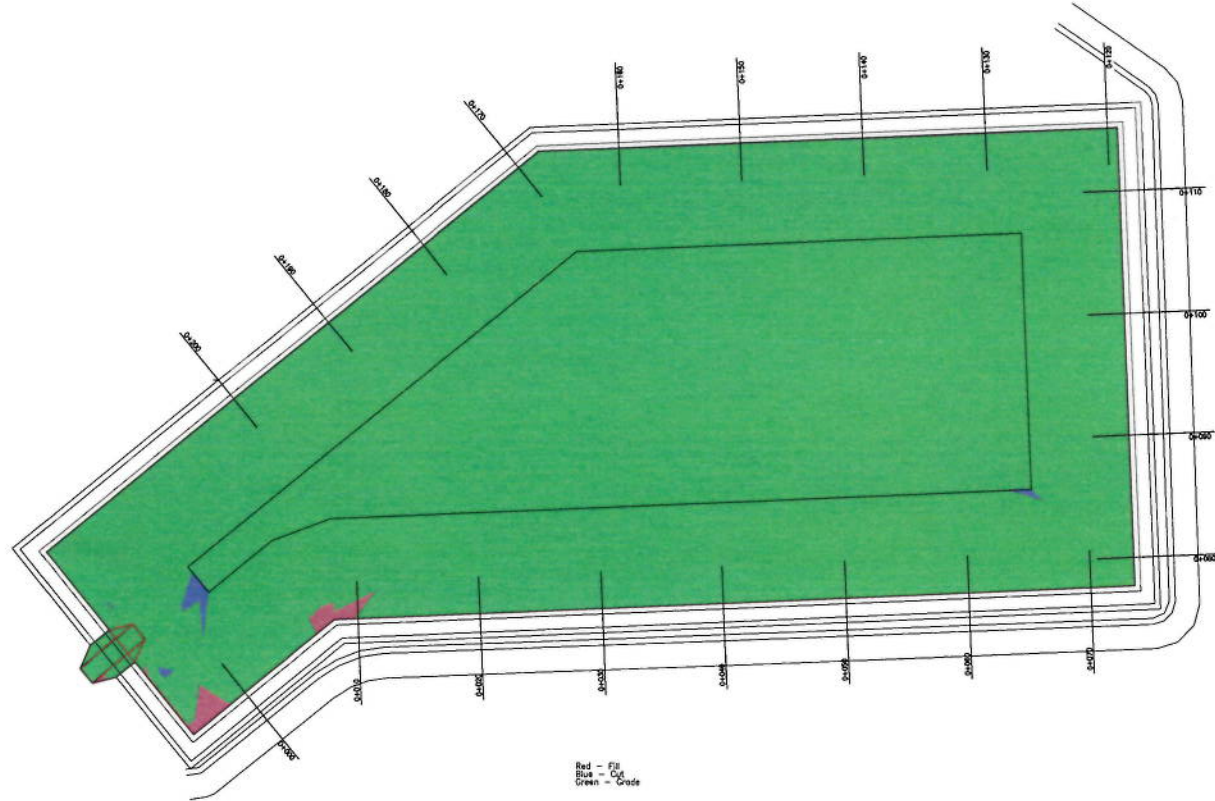
2-8

NUNA East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	<i>Approval of placement of material.</i> Type: <i>Type 9</i> Location: <i>Pond 1A west slope and spillway</i>
Date of Inspection:	<i>February 19, 2019</i>
Parties Present at Inspection	<i>Danko Filipic</i>

Comments:
<p>An inspection of the <u><i>Type 9</i></u> material placement was conducted.</p> <p><i>Material was placed and compacted with a 336 excavator. Survey confirmed grades prior to liner placement</i></p> <p><i>The grade, elevation and compaction were found to be acceptable.</i></p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<i>Danko Filipic</i> Name	<i>[Signature]</i> Signature	<i>2/19/19</i> Date
HATCH Representative:	<i>Stephane Gionet</i> Name	<i>[Signature]</i> Signature	<i>19/02/19</i> Date



Red = Fill
Blue = Cut
Green = Grade

REV	DATE	DESCRIPTION	BY	CHKD
1	11/02/08	ADDED SPILLWAY ASBUILT	AJB	
REV	TY/MA/ADD	DESCRIPTION	DRWN	APVD

CLIENT



TITLE

POND 1A TYPE 9 ASBUILT

CLIENT NO.	DRWN	AJB	DATE	11/02/11
PROJECT NO.	1801001	DSGN	DATE	
DRAWING SIZE	ANSI 11"	CHD.	DATE	
SCALE	1:200	APVD	DATE	

PROJECT

Baffinland Iron Mines
Mary River Expansion Project

DWG NO.
190209-Pond 1a Type 9-ACL-AJB

REV
1

NUNA East Limited Quality Department
Quality Surveillance Inspection Acceptance and Sign-off Report

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	Approval of placement of material. Type: 9 (3/8") minus Location: Pond 1 Spillway
Date of Inspection:	March 23, 2019
Parties Present at Inspection	Darko Filipic Alex Beaucauge Scott Mackenzie Stephane Giguere

Comments:
<p>An inspection of the <u>Type 9</u> material placement was conducted.</p> <p>The existing liner was cut and pulled back to allow placement of fill material to bring the elevation of the spillway to 4.825m, as directed.</p> <p>The Type 9 material was placed manually using shovels. Survey confirmed the desired elevation was achieved prior to re-weld of the liner.</p> <p>The grade, elevation and compaction were found to be acceptable.</p>

Permission to Proceed:			
The area and instruction described above is acceptable, the contractor is released to proceed with construction.			
NUNA Representative:	<u>Darko Filipic</u> Name	<u>[Signature]</u> Signature	<u>3/23/19</u> Date
HATCH Representative:	<u>Stephane Giguere</u> Name	<u>[Signature]</u> Signature	<u>23/03/19</u> Date

NUNA East Limited Quality Department
QCD-005 Construction Punchlist
Quality Surveillance Inspection Acceptance and Sign-off Report

4.2

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	Pond 1A Punchlist

No.	Description	Opened (Initial/Date)		Closed (Initial/Date)	
		Nuna	Hatch	Nuna	Hatch
1	Complete liner installation and tie-in to Pond 1	DT 02/27	SG 27/02/19	DT 03/02	K.C.
2	Clean up material from crest of pond.	DT 02/27	SG 27/02/19	DT 3/5	K.C.
3	Level off top of berm (hand work)	DT 02/27	SG 27/02/19	DT 03/03	K.C.
4	clean out all sand bags and construction debris from pond	DT 02/27	SG 27/02/19	DT 03/03	K.C.
5	Complete storm water ditch, including out let	DT 02/27	SG 27/02/19	DT 03/05	K.C.
6	Complete key trench berm	DT 02/27	SG 27/02/19	DT 03/06	K.C.
7	Layfield to complete installation report and turnover documentation	DT 02/27	SG 27/02/19	DT 03/02	K.C.
8	Cut North slope of pond to 3:1.	DT 03/05	K.C.	DT 03/07	K.C.

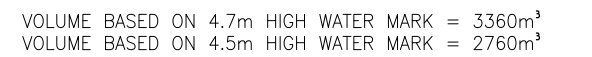
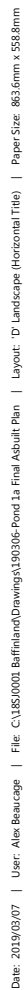
If additional items need to be added start a new sheet and make a note in the comments section below.

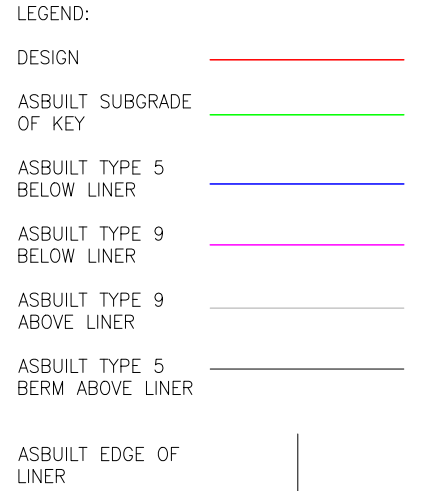
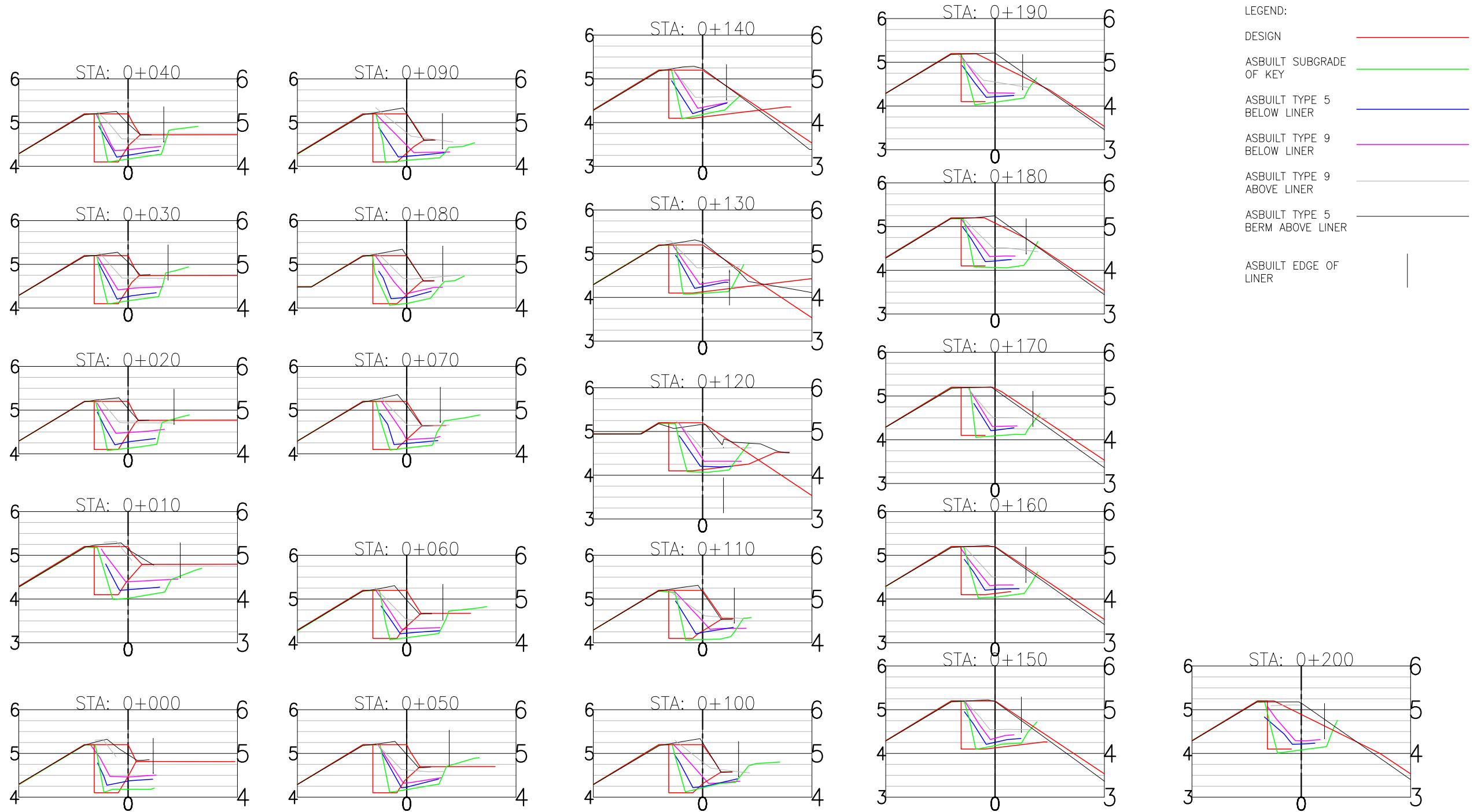
Comments:

Permission to Proceed:

All punch list items have been identified, corrected and accepted.

NUNA	<u>Danko Filipic</u>	<u>DT</u>	<u>03/07/2019</u>
Representative:	Name	Signature	Date
HATCH	<u>Kerrin Campbell</u>	<u>[Signature]</u>	<u>Mar 7/19</u>
Representative:	Name	Signature	Date

[illegible]



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REV	YY/MM/DD	DESCRIPTION	DRWN APVD

CLIENT:

HATCH

Allnorth

TITLE:			
POND 1A KEY TRENCH ASBUILT LAYERS OVERALL			
CLIENT NO:	-	DRWN:	AJB DATE: 19/03/07
PROJECT NO:	185J0001	DSGN:	- DATE: -
DRAWING SIZE:	ANSI "D"	CHKD:	- DATE: -
SCALE:	-	APVD:	- DATE: -

PROJECT:	
Baffinland Iron Mines Mary River Expansion Project	
DWG NO:	190307-Pond 1a Trench Overall Asbuilt
REV:	0

NUNA East Limited Quality Department
QCD-005 Construction Punchlist
Quality Surveillance Inspection Acceptance and Sign-off Report

Project:	Milne Port Expansion Stage 3 Remaining Earthworks Project
Description of Item/Area Inspected:	Pond 1A Punchlist

No.	Description	Opened (Initial/Date)		Closed (Initial/Date)	
		Nuna	Hatch	Nuna	Hatch
9	Raise Pond 1 Overflow spillway to elev. 4.825 (per N. Mills)	DF 03/21/19		DF 03/25/19	SC 25/03/19

If additional items need to be added start a new sheet and make a note in the comments section below.

Comments:

Pond 1 spillway was raised to increase volume in both settling ponds

Permission to Proceed:

All punch list items have been identified, corrected and accepted.

NUNA

Representative:

Darko Filipic
Name

DF
Signature

03/25/19

Date

HATCH

Representative:

Stephane Givner
Name

Signature

25/03/19
Date

Appendix D

Spill Reports

INCIDENT MANAGEMENT REPORT

BASIC DETAILS		Date Record Created:	07-Nov-18	Incident Status	Complete
Incident Number	INC105303	Client Incident Number		Incident Time	11:10 AM
Incident Date	07-Nov-18	Supervisor at Time of Incident	GUNTER, Jordan	Reported Time	11:10 AM
Reported By	WEBER, Don				
Reported Date	07-Nov-18				
Project Responsible	H-353004 Mary River Expansion Stage 3 by Nuna Logistics Contractors in Mississauga				
Exact Location	Pond 1A expansion				
Is this a Work related incident?	Yes	Has this incident been reported to Authorities?	No		
Is this a Hatch Controlled site or a Hatch employee working on a client site?	Yes				

INCIDENT DESCRIPTION

Summary 3L Oil Spill At Pond 1A (Pond under construction, not containing any water) excavation

Incident Type Equipment Failure

Detailed Description

At approximately 11:00AM on November 7, 2018 3L of hydraulic oil contacted the ground. The operator of Toromont 349F excavator was digging out blasted material at pond 1A, when he noticed oil on the track. The operator immediately walked the equipment off the pile where mechanics would be able to look at the issue. He then shut down the machine and called his supervisor. Excavator walked off pile to safe area where it can be assessed, equipment shut down, spill pads placed, scene secured

CONSEQUENCES

CATEGORY	ACTUAL	POTENTIAL
Injury / Illness	<Undefined>	<Undefined>
Environment	1 - Minor Pollution - Easy to clean up	1 - Minor Pollution - Easy to clean up
Plant / Equipment Damage	<Undefined>	<Undefined>
Motor Vehicle Accident	<Undefined>	<Undefined>
Financial	<Undefined>	<Undefined>
Outrage / Reputation	<Undefined>	<Undefined>
Security	<Undefined>	<Undefined>
Quality	<Undefined>	<Undefined>

Maximum Potential Score 1

IMMEDIATE CORRECTIVE ACTIONS

Immediate Corrective Actions

The operator immediately walked the equipment off the pile where mechanics would be able to look at the issue. He then shut down the machine and called his supervisor. Excavator walked off pile to safe area where it can be assessed, equipment shut down, spill pads placed, scene secured

NOTIFICATION

People Immediately Notified

COAKLEY, Marlon
GOULD, Robert

People to be Notified (mandatory for all incidents >=3)

PERRY, Steven
PIETRASZ, Jared
MOFFETT, Dean
BARREIRA, Dominic
SHAIN, William
CAMPBELL, Kevin
GAGNON, Pierre
GARDINER, Darren
KENNEDY, Robert

Safety Coordinator

GOULD, Robert

Hatch Supervisor (who will review this notification)

KENNEDY, Robert

Person Entering Record

HARVEY, Michael

INCIDENT MANAGEMENT REPORT

INVESTIGATION

Investigator

KENNEDY, Robert

Investigation Team

HARVEY, Michael

Detailed Investigation Description

At approximately 11:00AM on November 7, 2018 3L of hydraulic oil contacted the ground. The operator of Toromont 349F excavator was digging out blasted material at pond 1A, when he noticed oil on the track. The operator immediately walked the equipment off the pile where mechanics would be able to look at the issue. He then shut down the machine and called his supervisor. Excavator walked off pile to safe area where it can be assessed, equipment shut down, spill pads placed, scene secured. Hydraulic line coupler failure

List of known witnesses to incident

,

Location of supporting documents (attachments)

C:/Users/harv93377/Pictures/20181107_123129.jpg

ENVIRONMENT

Type of ecological loss

Habitat

Impact initiating event Spill and release

Habitat description Spill on to blasted rock.

Details

Hydraulic line coupler failure. Spill pads and manual shoveling of material in to quatrex bags

Species No

Number **Protected**

ROOT CAUSE ANALYSIS

Were procedures/safe systems of work/work instructions adequate? Yes

Was training adequate? Yes

Was quality control adequate? Yes

Was communication adequate? Yes

Is the management system adequate? Yes

Is the human engineering adequate? Yes

Was the immediate supervision adequate? Yes

Was the plant design adequate? Yes

Was the hardware adequate? Yes

Was the maintenance management adequate? Yes

Was housekeeping adequate? Yes

Was there clear guidance about priorities? Yes

Were the defences adequate? Yes

Was contractor management and alignment adequate? Yes

Was hazard identification adequate? Yes

Were there any other contributing factors? Yes

Details of other contributing factors

Defective Parts / Tools /
Equipment Temperature Extremes

INCIDENT MANAGEMENT REPORT

CORRECTIVE ACTIONS

Action No.	Action	Assigned To	Due Date	Completion Date
ACT112937	Clean up spill. (see photo)	KENNEDY, Robert	7-Nov-18	7-Nov-18
ACT112936	Defective parts-hose coupler failure. Request that Toromont make required repairs.	KENNEDY, Robert	7-Nov-18	18-Nov-18

KEY LEARNINGS

INVESTIGATOR COMMENTS

Investigation complete

Reviewed by: KENNEDY, Robert

Date: 10-Nov-18

HEALTH & SAFETY HUB LEAD / PROJECT HEALTH & SAFETY MANAGER COMMENTS

Closed

Reviewed by: GOULD, Robert

Date: 10-Nov-18

SUPERVISOR / TEAM LEADER / CONTRACT COORDINATOR COMMENTS

Investigation complete.

Reviewed by: KENNEDY, Robert

Date: 10-Dec-18

BU PROJECTS DIRECTOR / PROJECT OR CONSTRUCTION MANAGER COMMENTS

Reviewed by:

Date:

BUSINESS UNIT DIRECTOR / REGIONAL PDG LEAD COMMENTS

Reviewed by:

Date:

REGIONAL MANAGING DIRECTOR COMMENTS

Reviewed by:

Date:

Incident Report

STEP 1. INITIAL REPORT OF THE INCIDENT (Supervisor)

Date of Event	Time of Event	Date Reported	Time Reported	Main Person Involved	Reported By
17-Jan-19	11:30	17-Jan-19	11:30	Dave Whelan	Dave Whelan

Employer	Contractor (If Applicable)	BIM Department	Location
Baffinland	Nuna	Projects	Port Site

Supervisor	Supervisor Certificate #	Detailed Location
Joe Barron	2018-0593	Pond 1A

Health & Safety

- ☐ Injury
- ☐ Illness

Environment

- ☒ Spill/Release
- ☐ Wildlife Interaction
- ☐ Land disturbance

Operations

- ☐ Property Damage
- ☐ Vehicle Accident
- ☐ Fire

Reputation

- ☐ Security
- ☐ Non-compliance
- ☐ Non-conformance

Brief Title

Cat 374 Excavator Hydraulic Spill

Detailed Description

While warming up machine prior to beginning tasks, operator of the Cat 374 excavator noticed hydraulic oil leaking from the machine. Operator immediately shut down the machine, called supervisor and began containment. Approximately 25L of fluid contacted the ground.

Immediate Actions Taken to Secure Scene, Protect People or Environmental and Equipment

Machine shut down, supervisor contacted, spill containment deployed.

Preliminary Cause of the Incident

Hydraulic line leak.

Would you consider this a "near miss" incident? ☐

Is this a "[Dangerous Occurrence](#)" under Section 16.01 of the NWT/Nunavut Mine Health and Safety Regulations? ☐

Is this a "[Serious Injury](#)" under Section 16.01 of the NWT/Nunavut Mine Health and Safety Regulations? ☐

Using the [Incident Classification Matrix](#) the **Actual** Consequence of this incident was

Using the [Incident Classification Matrix](#) the **Reasonable Potential** Consequence of this incident was

Consequences	Minor	Medium	Serious	Major	Catastrophic
Health and Safety	No Injury, Bump & Scrape	First Aid	Medical Treatment or Restricted Work Injury	Lost Time Injury	Fatality
Environment	Non-reportable spill, No impact	Reportable Spill No impact	Reportable Spill Reversible Impact	Reportable Spill Long-Term Impact	Reportable Spill Irreversible Impact
Operations	< \$5K Loss	\$5K to \$50K Loss	\$50K to \$250K	\$250K to \$1000K	> \$1000K
Reputation	Community complaint - isolated and resolved Potential noncompliance with no impact	Low Level community impact Non-compliance with potential for fine or order	Community dissatisfaction Non-compliance with fine or order issued	Significant social harm Breach of license	Permanent social harm License Revocation

Incident Report

STEP 1. INITIAL REPORT OF THE INCIDENT (Supervisor)

Date of Event	Time of Event	Date Reported	Time Reported	Main Person Involved	Reported By
21-Jan-19	03:30	21-Jan-19	03:35	Mike Anderson	Mike Anderson

Employer	Contractor (If Applicable)	BIM Department	Location
Baffinland	Nuna	Projects	Port Site

Supervisor	Supervisor Certificate #	Detailed Location
Grant LaPoint	2018-0968	Pond 1A

Health & Safety

- ☐ Injury
- ☐ Illness

Environment

- ☒ Spill/Release
- ☐ Wildlife Interaction
- ☐ Land disturbance

Operations

- ☐ Property Damage
- ☐ Vehicle Accident
- ☐ Fire

Reputation

- ☐ Security
- ☐ Non-compliance
- ☐ Non-conformance

Brief Title

Hydraulic spill to sandy at rock at pond 1A

Detailed Description

At approximately 3:30 AM on January 21, 2019, Toromont 374F CAT excavator unit #326504 sustained a hydraulic hose failure at Pond 1A. The pond is currently under construction (not containing water) and the 15L of hydraulic fluid contacted the frozen, sandy, rock material. The operator was placing and sloping material when bucket cylinder hose failed. The operator safely parked the machine on level ground and shut it down. He then notified his supervisor and placed spill pads.

Immediate Actions Taken to Secure Scene, Protect People or Environmental and Equipment

Equipment shut down, spill pads placed.

Preliminary Cause of the Incident

Hose failure.

Would you consider this a "near miss" incident? ☐

Is this a "[Dangerous Occurrence](#)" under Section 16.01 of the NWT/Nunavut Mine Health and Safety Regulations? ☐

Is this a "[Serious Injury](#)" under Section 16.01 of the NWT/Nunavut Mine Health and Safety Regulations? ☐

Using the [Incident Classification Matrix](#) the **Actual** Consequence of this incident was

Minor

Using the [Incident Classification Matrix](#) the **Reasonable Potential** Consequence of this incident was

Minor

Consequences	Minor	Medium	Serious	Major	Catastrophic
Health and Safety	No Injury, Bump & Scrape	First Aid	Medical Treatment or Restricted Work Injury	Lost Time Injury	Fatality
Environment	Non-reportable spill, No impact	Reportable Spill No impact	Reportable Spill Reversible Impact	Reportable Spill Long-Term Impact	Reportable Spill Irreversible Impact
Operations	< \$5K Loss	\$5K to \$50K Loss	\$50K to \$250K	\$250K to \$1000K	> \$1000K
Reputation	Community complaint - isolated and resolved Potential noncompliance with no impact	Low Level community impact Non-compliance with potential for fine or order	Community dissatisfaction Non-compliance with fine or order issued	Significant social harm Breach of license	Permanent social harm License Revocation

STEP 2. INFORMATION GATHERING (Investigator)

Investigator(s)

Lead Investigator

Joelene Riczu

Others

Grant LaPoint

☒ Witnesses Present?

☒ Incident occur outdoors?

☐ Did the incident warrant a drug & alcohol test?

☒ Photos available of the Incident?

Witnesses

First Name	Last Name	Employer	Witness Statement Provided?
Mike	Anderson	Nuna	Yes

Weather Conditions

Temperature

-32 °C

Wind Speed & Direction

7 km/h

East

Light Conditions

Dark

General Weather Conditions

Injury/Illness Details

Employer

Contractor

Contractor

Other

Other Contractor

Nuna

Classification

Nature of Accident

Nature of Injury

Body Part

Side

Spill / Release

Spill / Release Details

Hydraulic fluid release on to frozen, sandy, snow.

Substance Spilled

Hydraulic Oil

Quantity

15

Unit

L

Habitat

Initiating Event

Hose failure

Method of Cleanup

Spill pads, scrape up contaminated material and place in quatrex bag

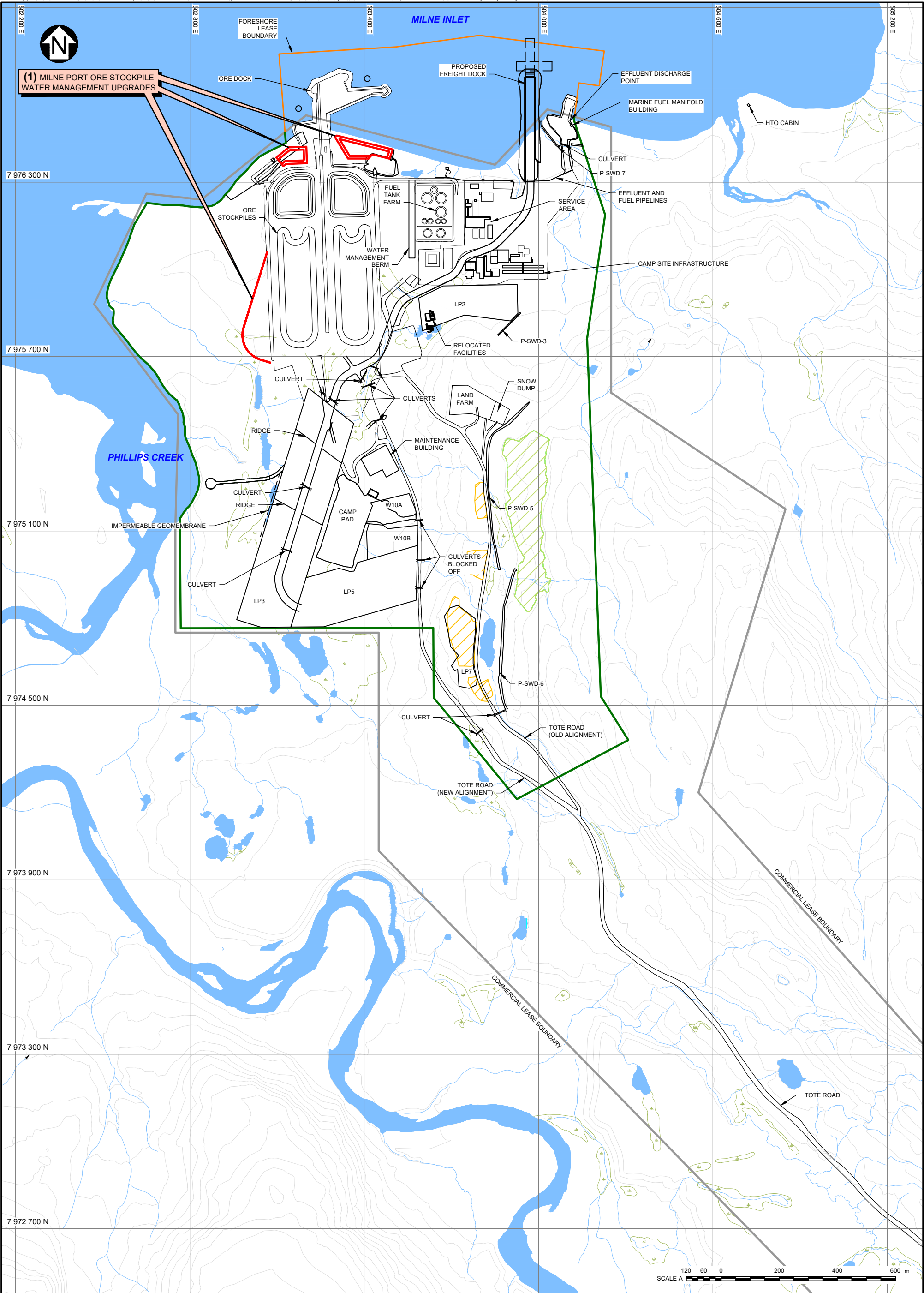
Equipment / Property Damage

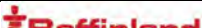
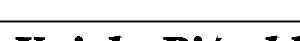
Incident Report







STEP 3: CAUSAL ANALYSIS (Investigator)			
At least one must be selected (two or three are typical)			
Equipment Failure Issues	Procedural Issues	Communication Issues	Engineering Issue
<input checked="" type="checkbox"/> 1.1 Defective Parts / Tools / Equipment	<input type="checkbox"/> 3.1 No Procedure	<input type="checkbox"/> 5.1 Shift Change Impact	<input type="checkbox"/> 7.1 Workplace/Roadway Layout/ Design / Conditions
<input type="checkbox"/> 1.2 Design Issue	<input type="checkbox"/> 3.2 Error in Procedure	<input type="checkbox"/> 5.2 Failure to Agree on How Task to be Performed	<input type="checkbox"/> 7.2 Congested Work Area / Restricted Action
<input type="checkbox"/> 1.3 Preventative Maintenance Issue	<input type="checkbox"/> 3.3 Procedure too Complex	<input type="checkbox"/> 5.3 Failure to Understand Communication	<input type="checkbox"/> 7.3 Inadequate display, signs, labels, alarms, warnings
<input type="checkbox"/> 1.4 Repeat Failure	<input type="checkbox"/> 3.4 Procedure not Followed	<input type="checkbox"/> 5.4 Inadequate Communication	<input type="checkbox"/> 7.4 Inadequate Guards or Barriers
<input type="checkbox"/> 1.5 Tolerable Failure		<input type="checkbox"/> 5.5 Cross-Department Communication Issue	<input type="checkbox"/> 7.5 Noise / Vibration / Light
			<input type="checkbox"/> 7.6 Poor Body Mechanics, Body Placement, Positioning, Repetitive
Natural Elements Issue	Training Issue	Work Direction Issue	Quality Control Issue
<input checked="" type="checkbox"/> 2.1 Temperature Extremes	<input type="checkbox"/> 4.1 No Training	<input type="checkbox"/> 6.1 No Direction Provided	<input type="checkbox"/> 8.1 No Quality Controls
<input type="checkbox"/> 2.2 Weather Conditions	<input type="checkbox"/> 4.2 Training not Followed, Unintentional	<input type="checkbox"/> 6.2 Inadequate Direction Provided	<input type="checkbox"/> 8.2 Inadequate Quality Controls
<input type="checkbox"/> 2.3 Ground Movement / Earthquake	<input type="checkbox"/> 4.3 Trained but Inexperienced	<input type="checkbox"/> 6.3 Failure to Follow Work Direction	<input type="checkbox"/> 8.3 Poor Compliance or Application of Controls
	<input type="checkbox"/> 4.4 Training not followed - Intentional	<input type="checkbox"/> 6.4 Distraction	Other
		<input type="checkbox"/> 6.5 Fatigue	<input type="checkbox"/> 9.1 Other (explain below)
		<input type="checkbox"/> 6.6 Impairment	
Cause Explanation (For Each Cause Identified in Casual Analysis - Provide a Brief Explanation of Why)			
Code	Explanation		
1.1	Hose failure		
2.1	Cold weather effects on equipment		
Corrective Actions:			
No.	Description	Issued To	Due Date
	Clean up spill	Grant LaPoint	22-Jan-19
Investigation Team and Factors Limiting the Investigation (if Any)			

Appendix E

Pond 1A Construction in Relation to Lease Boundaries



LEGEND:						NOTES:						
									MARY RIVER PROJECT			
									MILNE PORT SITE PLAN MODIFICATION REQUEST #9			
											P/A NO. NB102-181/48	REF NO. NB18-00410
											FIGURE A1	
0	13JUL'18	ISSUED WITH TRANSMITTAL				CM	CJV	CM				
REV	DATE	DESCRIPTION				DESIGNED	DRAWN	REVIEWED				

 WATER	ROAD	QIA SURFACE COMMERCIAL LEASE IMPACT BOUNDARY
 BORROW AREAS	 RIVER/STREAM/DRAINAGE	 POTENTIAL DEVELOPMENT AREA BOUNDARY
 QUARRY AREA		 FORESHORE LEASE BOUNDARY

1. COORDINATE GRID IS UTM NAD83 ZONE 17N.

2. TOPOGRAPHY PROVIDED BY EAGLE MAPPING (2005).

3. CONTOUR INTERVAL IS 10 METRES.

Appendix F

Contact Information as per Components 1 and 2 of the Commercial Lease Requirement

Role	Name	Email
Preparer of Report	Glen Peace, P.Eng.	glen.peace@hatch.com
Responsible for Construction	Marlon Coakley	marlon.coakley@hatch.com
Baffinland Representative	Christopher Murray	Christopher.murray@baffinland.com

Appendix G

Requests For Information from Contractor



Baffinland Iron Mines LP
Mary River Expansion Stage 3
H353004

Construction Management Form
Site Contracts Administration
Request for Information

Project Name:	Mary River Expansion Stage 3	Project Number:	H353004
CWP No:	RFI No: 0012		
Contractor: Nuna East Ltd.	Contract No: CC006		
Initiated By: Brandon Urquhart	Cost impact? Y <input checked="" type="checkbox"/> / N <input type="checkbox"/>		
Date of Submittal: 2018 – 11 - 11	Schedule Impact? Y <input checked="" type="checkbox"/> / N <input type="checkbox"/>		
Information Requested: Nuna East has been asked to construct Settling Pond 1A. The drawing provided to Nuna details that 100mm of Type 9 and Type 5 are required. The drawing calls for Type 8 but does not specify a required thickness. This detail will help Nuna plan required cuts within the pond footprint and allow us to minimize cut and blast volumes where possible.			
Reference Document No.	Revision	Title/Description	
H353004-40000-228-272-0008-0001	1	Port Site Stockpile 1, Pond 1A Plan & Profile	
RFI Classification:			
Design <input checked="" type="checkbox"/>	Construction <input type="checkbox"/>	Fabricator/Vendor <input type="checkbox"/>	
Routine Request <input type="checkbox"/>	Clarification <input checked="" type="checkbox"/>	Other <input type="checkbox"/>	
Project Response: [attach sufficient detail as required]			
The Type 9 (100mm) and Type 5 (100mm) must be provided in all locations where the geomembrane liner is present. This may mean that 200mm of over excavation may be required. Type 8 material will only be used as general fill material where the final level is above existing ground and in the embankments. Note that subgrade preparation to be according to project specification.			
RFI Follow-up Requirements:			
Contract Order Issued	Yes <input type="checkbox"/> /No <input type="checkbox"/>	((insert associated tracking #))	Back-Charge Required (Yes <input type="checkbox"/> /No <input type="checkbox"/>
As-Built Required	Yes <input type="checkbox"/> /No <input type="checkbox"/>		Materials Required (Yes <input type="checkbox"/> /No <input type="checkbox"/>
RFI Receipts and Approvals			
Stakeholder	Name	Signature	Date <YYYY-MM-DD>
Hatch Construction Management	A Mills	[Signature]	Nov 19/18
Hatch Engineering Home Office <input type="checkbox"/> Site <input type="checkbox"/>	S. DeYoung	[Signature]	2018-11-19
Hatch Project Management	Dominic Barreira	[Signature]	Nov 19/18

E353004-CC006-400-465-0012

Project Template No.:
H353004-00000-102-086-0003

~~H353004-40000-228-272-0008-0001~~, Rev. 0,
Page 1



Baffinland Iron Mines LP
Mary River Expansion Stage 3
H353004



Construction Management Form
Site Contracts Administration
Request for Information

Project Name:	Mary River Expansion Stage 3	Project Number:	H353004
CWP No:	RFI No: 0012 0015		
Contractor: Nuna East Ltd.	Contract No: CC006		
Initiated By: Darko Filipic	Cost impact? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/>		
Date of Submittal: 2019-01-21	Schedule Impact? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/>		
Information Requested: Nuna is proposing a design change to the trench liner detail in order to make it constructible. The current design is not feasible to build in the existing frozen conditions and with the equipment available to the project. Nuna is proposing to cut the backslope of the berm from the liner trench to the invert of the stormwater cutoff ditch. The liner would then be laid down over bedding on this cut section and then backfilled over to the design grades of the pond crest. See attached diagram for clarification. Constructing the liner trench in this manner should achieve the intended purpose of anchoring the liner material at the crest of the pond.			
Reference Document No.	Revision	Title/Description	
H353004-40000-228-272-0008-0001	1	Port Site Stockpile 1, Pond 1A Plan & Profile	
RFI Classification: Design <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Fabricator/Vendor <input type="checkbox"/> Routine Request <input type="checkbox"/> Clarification <input type="checkbox"/> Other <input type="checkbox"/>			
Project Response: [attach sufficient detail as required]			
The proposed alternative anchor trench is acceptable. There should however be no additional cost to the Owner because of this alternative.			
RFI Follow-up Requirements: Contract Order Issued Yes <input type="checkbox"/> /No <input type="checkbox"/> ([insert associated tracking #]) Back-Charge Required (Yes <input type="checkbox"/> /No <input type="checkbox"/> As-Built Required Yes <input type="checkbox"/> /No <input type="checkbox"/> Materials Required (Yes <input type="checkbox"/> /No <input type="checkbox"/>			
RFI Receipts and Approvals			
Stakeholder	Name	Signature	Date <YYYY-MM-DD>
Hatch Construction Management	<i>[Signature]</i>	<i>[Signature]</i>	Jan 22/18
Hatch Engineering Home Office <input type="checkbox"/> Site <input type="checkbox"/>	Adriaan Grobbelaar	<i>[Signature]</i>	22 January 2019
Hatch Project Management	<i>[Signature]</i>	<i>[Signature]</i>	22 Jan 2018

E353004-CC006-400-465-0015

Project Template No.:
H353004-00000-102-086-0003

H353004-XXXX-400-465-XXXX, Rev. 0,
CC006-400-465-0015 Page 1
Ver. 04.02



Baffinland Iron Mines LP
Mary River Expansion Stage 3
H353004

Construction Management Form
Site Contracts Administration
Request for Information

Client (as required):			
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Request for Information

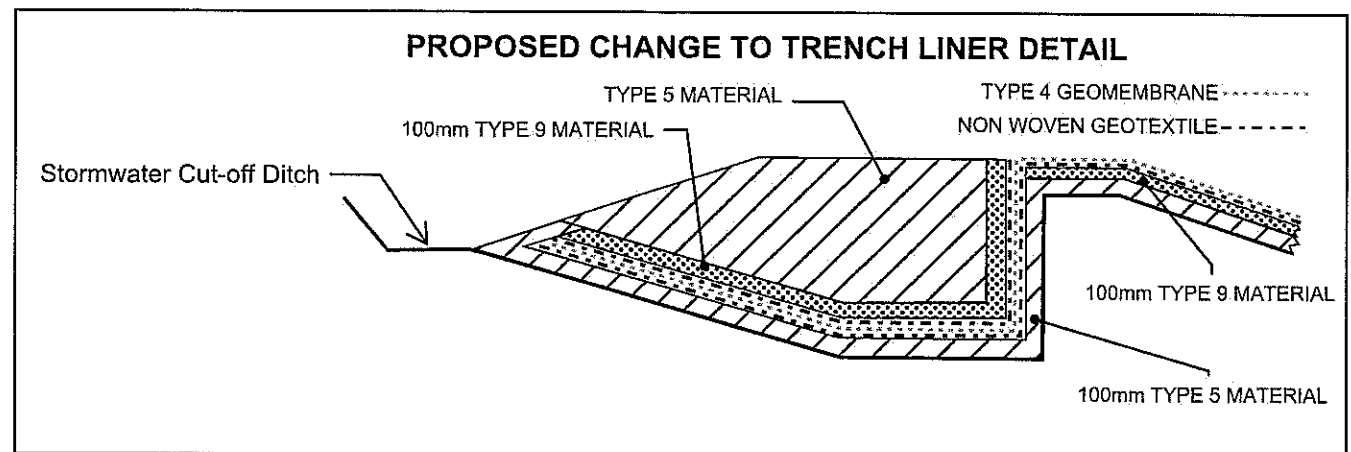
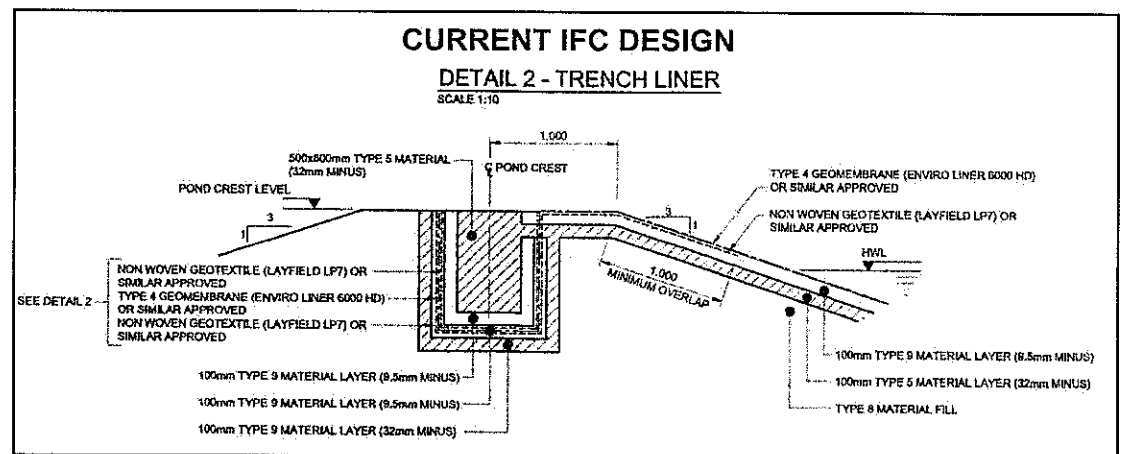
Note: The response to this RFI is NOT an authorization to perform a change to the Contract. Work may proceed in accordance with the response only if such work involves NO change in cost or schedule. In the case where the response may involve change in cost or schedule, a Contractual instrument must be issued by Hatch and received by the Contractor before the response can be executed. Where no Contractual instrument is indicated, action must be taken in accordance with (reference appropriate Contract Sections that authorize execution of any change in schedule and cost).

In order to be able to construct the pond liner anchor trench in the existing frozen conditions, Nuna is proposing to change the design as detailed in the bottom right diagram.

100mm Type 5 bedding material will then be placed on the excavated surface.

Then the Type 4 geomembrane followed by another layer of non-woven geotextile.

The geotextile will then be covered with 100mm of Type 9 material and the rest of the berm will be built up with Type 5 material.



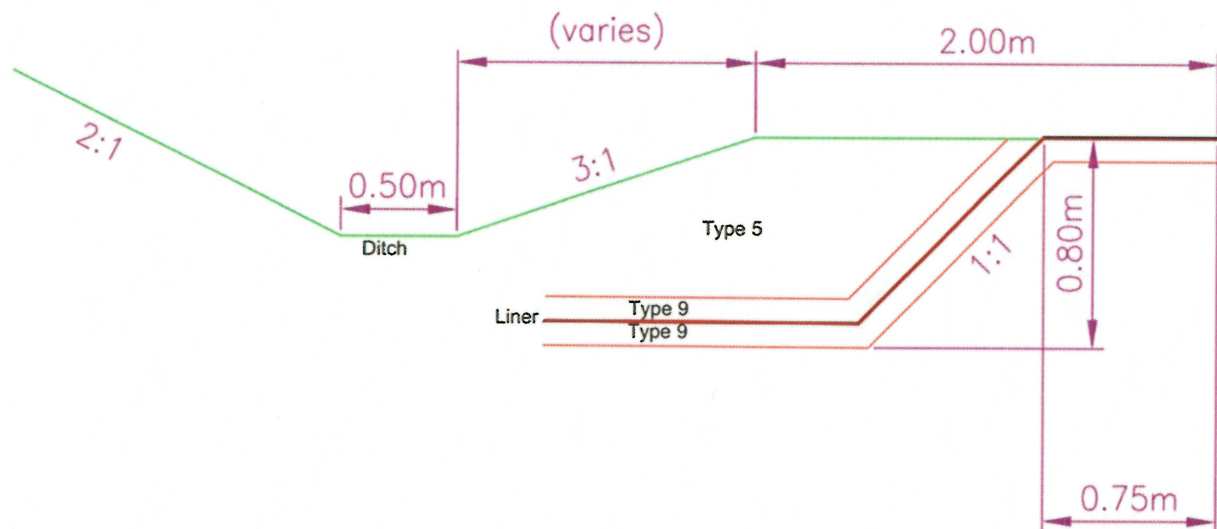
Baffinland Iron Mines LP
Mary River Expansion Stage 3
H353004

Construction Management Form
Site Contracts Administration
Request for Information

Project Name:	Mary River Expansion Stage 3	Project Number:	H353004
CWP No:	RFI No:0021		
Contractor: Nuna East Ltd.	Contract No: CC006		
Initiated By: Brandon Urquhart	Cost impact?	Y <input type="checkbox"/> / N <input checked="" type="checkbox"/>	
Date of Submittal: 2019-02-10	Schedule Impact?	Y <input type="checkbox"/> / N <input checked="" type="checkbox"/>	

Information Requested:

Nuna is proposing a design change to the trench liner detail to make it constructible. The current design is not feasible to build with the available material and ground conditions. The key cut cannot be made as a straight wall due to the risk of the pond crest collapsing during construction and liner installation. Nuna proposes to cut the liner key at a 1:1 slope to allow for geotechnical stability during construction and installation. This would override RFI 15



Reference Document No.	Revision	Title/Description
RFI - 0015		Pond 1A Liner Trench

RFI Classification:

Design ☒ Construction Fabricator/Vendor ☐
 Routine Request ☐ Clarification ☐ Other ☐

Baffinland Iron Mines LP
Mary River Expansion Stage 3
H353004

Construction Management Form
Site Contracts Administration
Request for Information


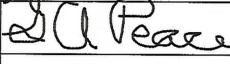
Project Response: [attach sufficient detail as required]

Slope of 1:1 is not acceptable. Slope is to be minimized.

RFI Follow-up Requirements:

Contract Order Issued Yes ☐ /No ☐ ((insert associated tracking #)) Back-Charge Required (Yes ☐ /No ☐
As-Built Required Yes ☐ /No ☐ Materials Required (Yes ☐ /No ☐

RFI Receipts and Approvals

Stakeholder	Name	Signature	Date <YYYY-MM-DD>
Hatch Construction Management	Nick Mills		Mar 2/18
Hatch Engineering Home Office <input type="checkbox"/> Site <input type="checkbox"/>	Glen Peace		2019-03-01
Hatch Project Management			
Client (as required):			

Request for Information

Note: The response to this RFI is NOT an authorization to perform a change to the Contract. Work may proceed in accordance with the response only if such work involves NO change in cost or schedule. In the case where the response may involve change in cost or schedule, a Contractual instrument must be issued by Hatch and received by the Contractor before the response can be executed. Where no Contractual instrument is indicated, action must be taken in accordance with (reference appropriate Contract Sections that authorize execution of any change in schedule and cost).