

APPENDIX C.1

CONSTRUCTION SUMMARY REPORTS

APPENDIX C.1.1

CAMP LAKE JETTY EARTHWORKS

Project Memo

H349000

2017-09-29

To: **Baffinland**
Andrew Vermeer

From: **Hatch**
Matthew Buykx

cc:

Daniel Andres-Molina
Martin Dion
Marc André Lacombe

Baffinland Iron Mines Corporation

Mine Site Raw Water Intake -Earthworks

As requested, Hatch has revised and issued the Mine Site Raw Water Intake Earthworks & Drainage – Plan drawings and sections (H349000-4711-10-035-0001 rev3 and H349000-4711-10-035-0001 rev2) As-Built status. These revised two drawings show updated information to the following items as a result of field modifications undertaken by Baffinland in 2016 :

- Jetty surface
- Jetty fill slopes and interface with bathymetry
- Approximate pipe alignment to Weatherheaven Camp

The drawing revision is based on survey data, photos and information provided by BIM. Fill slopes have been estimated by projecting surface survey points to bathymetry surface at design slopes. Backfill materials have not been confirmed and are shown as per original issued for construction drawings.



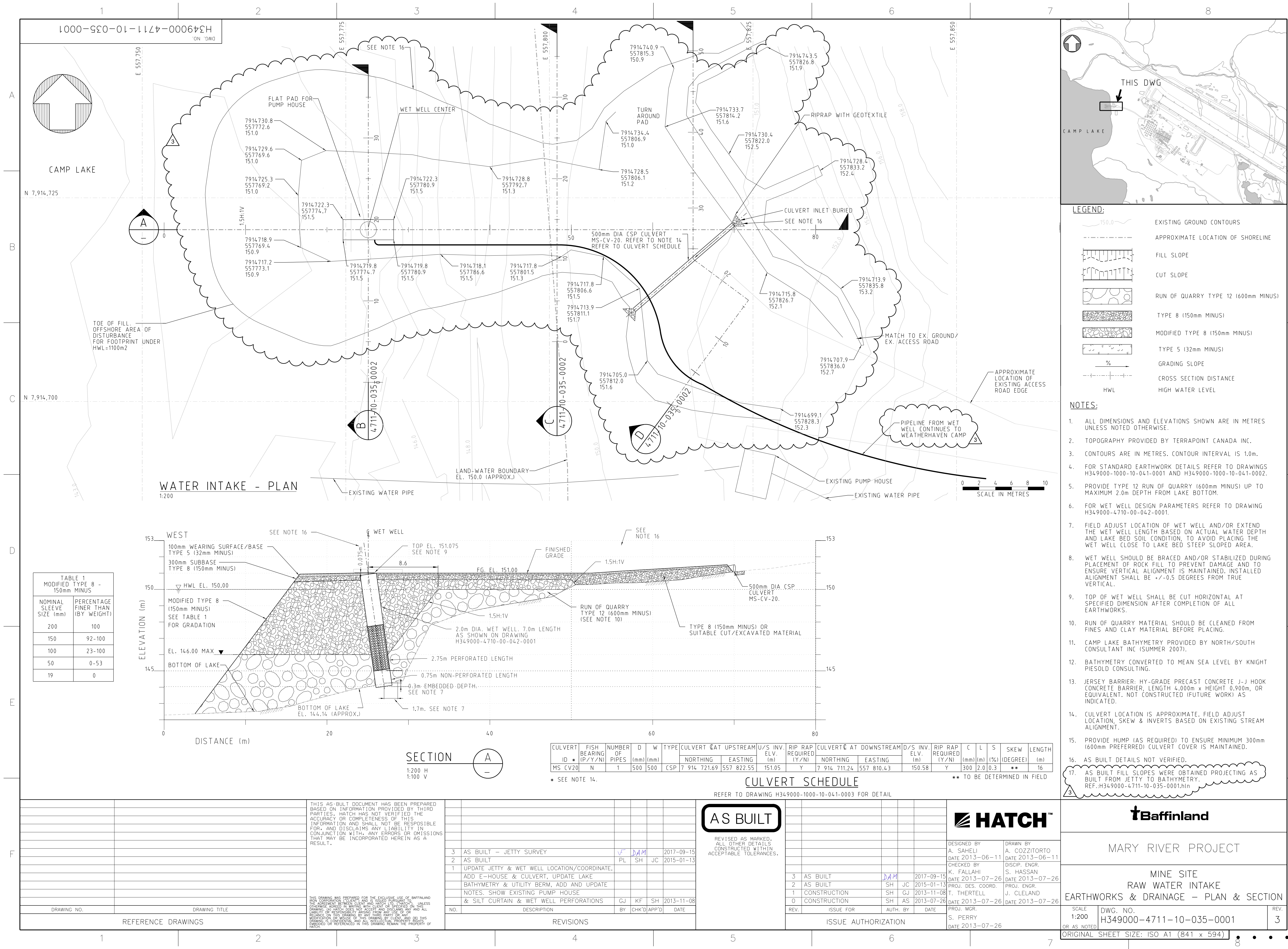
Matthew Buykx, P. Eng

MB:jfw

If you disagree with any information contained herein, please advise immediately.

H349002-0000-07-220-0002, Rev. 0

Page 1



LEGEND:

- EXISTING GROUND CONTOURS
- APPROXIMATE LOCATION OF SHORELINE
- FILL SLOPE
- CUT SLOPE
- RUN OF QUARRY TYPE 12 (600mm MINUS)
- TYPE 8 (150mm MINUS)
- MODIFIED TYPE 8 (150mm MINUS)
- TYPE 5 (32mm MINUS)
- GRADING SLOPE
- CROSS SECTION DISTANCE
- HWL
- HIGH WATER LEVEL

- NOTES:**
- ALL DIMENSIONS AND ELEVATIONS SHOWN ARE IN METRES UNLESS NOTED OTHERWISE.
 - TOPOGRAPHY PROVIDED BY TERRAPOINT CANADA INC.
 - CONTOURS ARE IN METRES. CONTOUR INTERVAL IS 1.0m.
 - FOR STANDARD EARTHWORK DETAILS REFER TO DRAWINGS H349000-1000-10-041-0001 AND H349000-1000-10-041-0002.
 - PROVIDE TYPE 12 RUN OF QUARRY (600mm MINUS) UP TO MAXIMUM 2.0m DEPTH FROM LAKE BOTTOM.
 - FOR WET WELL DESIGN PARAMETERS REFER TO DRAWING H349000-4710-00-042-0001.
 - FIELD ADJUST LOCATION OF WET WELL AND/OR EXTEND THE WET WELL LENGTH BASED ON ACTUAL WATER DEPTH AND LAKE BED SOIL CONDITION, TO AVOID PLACING THE WET WELL CLOSE TO LAKE BED STEEP SLOPED AREA.
 - WET WELL SHOULD BE BRACED AND/OR STABILIZED DURING PLACEMENT OF ROCK FILL TO PREVENT DAMAGE AND TO ENSURE VERTICAL ALIGNMENT IS MAINTAINED. INSTALLED ALIGNMENT SHALL BE +/-0.5 DEGREES FROM TRUE VERTICAL.
 - TOP OF WET WELL SHALL BE CUT HORIZONTAL AT SPECIFIED DIMENSION AFTER COMPLETION OF ALL EARTHWORKS.
 - RUN OF QUARRY MATERIAL SHOULD BE CLEANED FROM FINES AND CLAY MATERIAL BEFORE PLACING.
 - CAMP LAKE BATHYMETRY PROVIDED BY NORTH/SOUTH CONSULTANT INC (SUMMER 2007).
 - BATHYMETRY CONVERTED TO MEAN SEA LEVEL BY KNIGHT PIESOLD CONSULTING.
 - JERSEY BARRIER: HY-GRADE PRECAST CONCRETE J-J HOOK CONCRETE BARRIER, LENGTH 4.000m x HEIGHT 0.900m, OR EQUIVALENT. NOT CONSTRUCTED (FUTURE WORK) AS INDICATED.
 - CULVERT LOCATION IS APPROXIMATE. FIELD ADJUST LOCATION, SKEW & INVERTS BASED ON EXISTING STREAM ALIGNMENT.
 - PROVIDE HUMP (AS REQUIRED) TO ENSURE MINIMUM 300mm (600mm PREFERRED) CULVERT COVER IS MAINTAINED.
 - AS BUILT DETAILS NOT VERIFIED.
 - AS BUILT FILL SLOPES WERE OBTAINED PROJECTING AS BUILT FROM JETTY TO BATHYMETRY. REF: H349000-4711-10-035-0001.hln

CULVERT ID	FISH BEARING OF (P/Y/N)	NUMBER OF PIPES	D (mm)	W (mm)	TYPE	CULVERT @ UPSTREAM		U/S INV. ELV. (m)	RIP RAP REQUIRED (Y/N)	CULVERT @ DOWNSTREAM		D/S INV. ELV. (m)	RIP RAP REQUIRED (Y/N)	C	L	S	SKEW (DEGREE)	LENGTH (m)
						NORTHING	EASTING			NORTHING	EASTING							
MS CV20	N	1	500	500	CSP	7 914 721.69	557 822.55	151.05	Y	7 914 711.24	557 810.43	150.58	Y	300	2.0	0.3	**	16

* SEE NOTE 14. ** TO BE DETERMINED IN FIELD

AS BUILT

HATCH

Baffinland

MARY RIVER PROJECT

MINE SITE
RAW WATER INTAKE
EARTHWORKS & DRAINAGE - PLAN & SECTION

SCALE: 1:200
OR AS NOTED

DWG. NO.
H349000-4711-10-035-0001

REV.
3

NO.	DESCRIPTION	BY	CHK'D	APP'D	DATE
3	AS BUILT - JETTY SURVEY				2017-09-15
2	AS BUILT	PL	SH	JC	2015-01-13
1	UPDATE JETTY & WET WELL LOCATION/COORDINATE, ADD E-HOUSE & CULVERT, UPDATE LAKE BATHYMETRY & UTILITY BERM, ADD AND UPDATE NOTES, SHOW EXISTING PUMP HOUSE & SILT CURTAIN & WET WELL PERFORMANCES	GJ	KF	SH	2013-11-08

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NO.	DESCRIPTION	BY	CHK'D	APP'D	DATE
3	AS BUILT - JETTY SURVEY				2017-09-15
2	AS BUILT	PL	SH	JC	2015-01-13
1	UPDATE JETTY & WET WELL LOCATION/COORDINATE, ADD E-HOUSE & CULVERT, UPDATE LAKE BATHYMETRY & UTILITY BERM, ADD AND UPDATE NOTES, SHOW EXISTING PUMP HOUSE & SILT CURTAIN & WET WELL PERFORMANCES	GJ	KF	SH	2013-11-08

REV.	ISSUE FOR	AUTH.	BY	DATE
3	AS BUILT			2017-09-15
2	AS BUILT	SH	JC	2015-01-13
1	CONSTRUCTION	SH	GJ	2013-11-08
0	CONSTRUCTION	SH	AS	2013-07-26

DESIGNED BY	DRAWN BY
A. SAHELI	A. COZZITORTO
DATE 2013-06-11	DATE 2013-06-11
CHECKED BY	DISCIPL. ENGR.
K. FALLAHI	S. HASSAN
DATE 2013-07-26	DATE 2013-07-26
PROJ. DES. COORD.	PROJ. ENGR.
T. THERTELL	J. CLELAND
DATE 2013-07-26	DATE 2013-07-26
PROJ. MGR.	
S. PERRY	
DATE 2013-07-26	





4711-10-035-0001



4711-10

4711-10-035-0001




D
4711-10

4711-10-035-0001

TYPE 5 (32mm MINUS)

TYPE 8 (150mm MINUS)

MODIFIED TYPE 8 (150mm MINUS)



RUN OF QUARRY TYPE 12 (600mm MINUS)

%

GRADING SLOPE

HWL

HIGH WATER LEVEL

1. ALL DIMENSIONS AND ELEVATIONS SHOWN ARE IN METRES UNLESS NOTED OTHERWISE.
2. TOPOGRAPHY PROVIDED BY TERRAPOINT CANADA INC.
3. CAMP LAKE BATHYMETRY PROVIDED BY CONSTRUCTION TEAM, BASED ON 2013 SURVEY
4. BATHYMETRY CONVERTED TO MEAN SEA LEVEL BASED ON HIGH WATER MARK EL. 149.64m. WATER SURFACE ELEVATION PROVIDED BY THE COMPANY.
5. FOR WET WELL INSTALLATION REQUIREMENTS REFER TO DRAWING H349000-4711-10-035-0001.
6. FOR MODIFIED TYPE 8 GRADATION, SEE TABLE 1 AS SHOWN ON DRAWING H349000-4711-10-035-0001.
7. PROVIDE TYPE 12 RUN OF QUARRY (600mm MINUS) UP TO MAXIMUM 2.0m DEPTH FROM LAKE BOTTOM.
8. FOR ROAD HUMP REFER TO TYPICAL DETAIL 10 ON DRAWING H349000-1000-10-041-0007.

AS BUILT


HATCH™

†Baffinland

MARY RIVER PROJECT

MINE SITE
RAW WATER INTAKE
EARTHWORKS & DRAINAGE – SECTIONS

SCALE 1:100	DWG. NO. H349000-4711-10-035-00
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REV
2

ORIGINAL SHEET SIZE: ISO A1 (841 x 594)

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2	AS BUILT – JETTY SURVEY	VF	DAM		2017-09-18
1	UPDATE SECTIONS AS PER THE UPDATED PLAN	GJ	KF	SH	2013-11-08

NO. DESCRIPTION BY CHK'D APP'D DATE					
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REVISIONS

2	AS BUILT	DAM		2017-09-
1	CONSTRUCTION	SH	GJ	2013-11-

REV.	ISSUE FOR	AUTH. BY	DATE
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ISSUE AUTHORIZATION

	DESIGNED BY
	A. SAHELI
	DATE 2013-06-1
	CHECKED BY
	K. FALLAHI
	DATE 2013-07-2
18	PROJ. DES. COORD.
08	T. THERTELL
26	DATE 2013-07-2
	PROJ. MGR.
	S. PERRY
	DATE 2013-07-2

1	DRAWN BY M. MCDOUGALD DATE 2013-06-11
26	DISCIP. ENGR. S. HASSAN DATE 2013-07-26
26	PROJ. ENGR. J. CLELAND DATE 2013-07-26

20	DATE 2013-07-2
	PROJ. MGR.
	S. PERRY
	DATE 2013-07-2

DATE 2013-07-2	
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1

APPENDIX C.1.2
CONSTRUCTION SUMMARY REPORT
MILNE PORT CAMP PAD NATURAL STREAM DIVERSION



January 24, 2018

Assol Kubeisinova
Technical Advisor, Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

**RE: Construction Summary Report: Milne Port Camp Pad Natural Stream Diversion
Type A Water Licence Modification Application No. 3a**

This submission provides the Construction Summary Report including as-built drawings (Attachment 1) for the Milne Port Camp Pad Natural Stream Diversion (Diversion Ditch), in accordance with the reporting requirements outlined in Baffinland Iron Mines Corporation's (Baffinland) Type A Water Licence – 2AM-MRY1325 Amendment 1 (Type A Water Licence). This submission was prepared in support of Water Licence Modification No. 3a approved under Motion No. 2017-10-01.

Part G, Item 4 of the Type A Water Licence states:

"The Licensee shall provide as-builts and drawings of the Modifications referred to in this Licence within ninety (90) days of completion of the Modification. These plans and drawings shall be stamped by an Engineer"

On June 9, 2017, Baffinland received an Inspector's Direction¹ from Indigenous and Northern Affairs Canada (INAC) in regards to a camp pad that had been constructed at Milne Port during freshet 2017 on a drainage path of an ephemeral stream. Baffinland subsequently submitted to the Nunavut Water Board (NWB) a water licence modification request² on July 19, 2017 to complete the construction of the pad and construct the Diversion Ditch to redirect impacted surface water flows around the pad, along with other proposed upgrades to Milne Port accommodation infrastructure. On September 8, 2017, the NWB issued to Baffinland an approval letter³ to construct the Diversion Ditch around the camp pad. Construction of the Diversion Ditch was completed on October 26, 2017.

We trust this submission meets the reporting requirements outlined in the Type A Water Licence. Please do not hesitate to contact the undersigned should you have any questions.

Regards,

A handwritten signature in black ink, appearing to read "Chris Murray", written over a horizontal line.

Christopher Murray
Environmental and Regulatory Compliance Manager

¹ INAC. 2017. INAC Inspector's Direction issued to Baffinland. June 9, 2017.

² Baffinland. 2017. Modification Request – Milne Port Accommodations Camp Upgrade. July 19, 2017.

³ NWB. 2017. Licence No. 2AM-MRY1325 Type "A" – Modification Application (No. 3a) by Baffinland Iron Mines Corporation for Construction of a Proposed Surface Water Diversion System at the Milne Port Site of the Mary River Mine Project. September 8, 2017.

Attachments:

Attachment 1: Construction Summary Report – Milne Port Camp Pad Natural Stream Diversion
(H353004-40000-220-230-0001, Rev. 1)

cc. David Hohnstein (NWB)

Jonathan Mesher, Sarah Forte (INAC)

Stephen Williamson Bathory (Qikiqtani Inuit Association)

Timothy Ray Sewell, William Bowden, Connor Devereaux, Andrew Vermeer (Baffinland)

Attachment 1

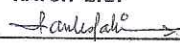
Construction Summary Report

Milne Port Camp Pad Natural Stream Diversion

(H353004-40000-220-230-0001, Rev. 1)

**Baffinland Iron Mines Corporation
Mary River Project**

**Construction Summary Report: Milne Port Camp Pad Natural Stream
Diversion**

PERMIT TO PRACTICE HATCH LTD.	
Signature	
Date	2018-01-23
PERMIT NUMBER: P 512	
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU	



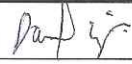
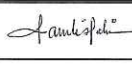
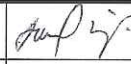

						
2018-01-23	1	Approved for Use	for E Chidiac	R Halim	D Stanger	for T Atiba
2018-01-11	0	Approved for Use	E Chidiac	R Halim	D Stanger	T Atiba
Date	Rev.	Status	Prepared By	Checked By	Approved By	Approved By
HATCH						Client

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Appendices:

Appendix A

As-Built Drawings

Appendix B

Survey Data

1. Facility Description

1.1 Purpose and Design Basis

The Camp Pad Natural Stream Diversion at Milne Port (Diversion Ditch) was constructed to direct runoff water around the constructed camp pad from the identified 24,668 ha catchment area (as shown on drawing H353004-40000-228-272-0001-0001) and address sedimentation and geotechnical concerns highlighted in the INAC Inspector's Direction issued to Baffinland Iron Mines Corporation (Baffinland) on June 9, 2017. During normal operation, runoff from the catchment area drains to the Diversion Ditch and is discharged to ephemeral water bodies located west of the constructed camp pad, as shown in drawing H353004-40000-228-271-0001-0001. The ditch is equipped with geotextile on the surfaces covered with a 300 mm layer of Type 19 rock (150mm clear – riprap).

Water in the Diversion Ditch will be monitored as part of the site drainage monitoring strategy to meet applicable criteria for Project contact water.

The design flow capacity of the Diversion Ditch is such that 300mm clearance between the High Water Level of the ditch and the top of the ditch is present.

The Diversion Ditch is equipped with a main inlet catching runoff water from the identified catchment area, as well as another inlet for minor seasonal runoff water originating from the north side of the catchment area (also identified in the aforementioned drawings).

1.2 Location and Base Elevations

The Diversion Ditch is located between northing N7975122 and N7975040, and easting E503408 and E503198. The ditch top invert elevation is at EL.13.277m and bottom invert elevation is at EL. 10.230m. Overall, the Diversion Ditch follows the East and South perimeter of the constructed camp pad.

1.3 Geometry and Access

The Diversion Ditch has been constructed in shape of 2 intersecting lines at 90 degrees, to optimize the runoff water collection of the identified catchment area. The ditch has a bottom width of 3m and a top width of over 7m. The design slopes are 2H:1V and the discharge area to the existing water body consists of a trapezoid form with an opening transitioning from a ditch 3m width to 12m width over a length of 10m. The total length of the Diversion Ditch is 340m: 160m for the East length and 180m for the South length with discharge area.

1.4 Earthworks Materials Details

The Diversion Ditch was excavated to meet the elevation requirements of the design, and the ditch was constructed by excavating the natural ground using a conventional excavator. Material excavated consisted of mostly sand and fines. No bedrock was encountered.

2. Construction Activity Summary

The construction activities on the Diversion Ditch started in mid-October 2017. All works were completed on October 26, 2017.

The following summarizes the sequence of construction activities:

- a. Excavation began from STA 0+000 towards the 90° curve at STA 0+160. During excavation, near the main inlet, a short area was left unexcavated to serve as a plug and was excavated last to address sedimentation concerns associated with surface water inflows during construction.
- b. During construction, most of the length excavated between STA 0+000 to STA 0+160 was covered with geotextile installed and capped with riprap Type 19 material.
- c. Upon completion of STA 0+000 to STA 0+160, with the unexcavated plug left in place, excavation continued on the South length by completing the discharge point to final trapezoid geometry at STA 0+340.
- d. Upon completion of the discharge area at STA 0+340, the excavation of the ditch continued from STA 0+320 towards the curve at STA 0+160.
- e. The access of CAT740 Rock Truck and JD850 Excavator was made via the corner where the curve is located, between STA 0+160 and STA 0+200. This area was excavated and completed once the construction of South length was complete with geotextile and riprap installation.
- f. The main inlet plug was then excavated and finalized with geotextile and riprap.

Due to snow removal difficulties associated with a 2 day winter storm that caused significant snow drifts, construction of the Diversion Ditch was completed in short lengths to allow for immediate installation of geotextile and placement of riprap following snow removal.

General excavation of the Diversion Ditch was conducted as follows:

- a. Excavation during the construction of the Diversion Ditch was performed using a JD850 Excavator. The excavator was situated facing perpendicular to the ditch and used to excavate the ditch to obtain rough section dimensions.
- b. Using survey support provided by Nuna Logistics Ltd. (Nuna), the excavator adjusted the slopes until the appropriate toe was obtained with a 3m width.
- c. The elevation of the bottom of the ditch was then surveyed and adjusted with the excavator, as required, to achieve the final slopes and elevations.

3. QA/QC

Quality Assurance (QA) was performed by the Hatch Construction Supervisor during daily audits with the Nuna Surveyor and Supervisor of the obtained excavation grades and ensuring the functional purpose of the Diversion Ditch was achieved. Quality Control (QC) was performed by the Nuna Surveyor to verify achievement of the design grades, as well as verification of the slope ratios and recording final elevations following riprap placement. (Figure 1).

Note: More than halfway through the excavation of the Diversion Ditch, Nuna survey GPS equipment experienced issues and could not provide the necessary survey accuracy. No other equipment was available on site and due to the inclement weather, no schedule delays were permissible. Nuna survey personnel assessed the rest of the excavation visually. Upon final as-built data collection, and following completion of the Ditch construction, Nuna Survey returned to the Ditch location with functional equipment, removed riprap stones and measured the final grade of the excavation line. The elevation of the riprap line on the as-built drawing (Appendix A) was then calculated by adding 0.3m to the bottom of excavation. All data indicated in Appendix B table is for the elevation of final excavation profile and was used to generate the as-built drawing provided in Appendix A.

4. Photographic Records



Figure 1: JD850 Excavator completing a segment of the ditch with geotextile and riprap placement. In the foreground, excavated ditch can be seen, which will be the next section for slope and grade final cut, along with geotextile and riprap placement.



Figure 2: An overview of a completed section, in the background, the inlet plug can be seen to remain with riprap placement required and geotextile already installed.



Figure 3: Post-Construction overview of the diversion ditch facing South. The downward sloping can be seen.

5. As-Built Drawings

The as-built drawings incorporate contractor red line markups, field instructions, requests for information, field sketches, and all other inputs provided by the field engineering team. The as-built drawing is attached in Appendix A. This drawing is representative of the final as-built drawing, as there are no mark-ups made on the issued-for-construction drawings.

Table 5-1: Diversion Ditch System ‘As-Built’ Drawing List

Drawing Number	Title	Revision
CAB 171022 MP Diversion Ditch Excavation.dwg	Milne Port Camp Pad Diversion Ditch Excavation Plan & Profile	0

6. Field Decisions

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

Near the end of the Diversion Ditch’s construction, the Nuna surveyors’ GPS data collector failed and could no longer be used. There was no other instrument available and therefore visual evaluation was required for slope cuts as well as bottom ditch width cuts. However, all final excavation data has been collected, including the invert elevations. Data collected was used to develop the as-built drawing in Appendix A, as described previously in the QA/QC Section. Data shown in Appendix B are for the elevations of the excavated surface (see Note on Section 3).

7. Performance Evaluation

Due to the frozen conditions present during and following construction, the Diversion Ditch is not considered to be “In Operation” at this time. Although it is assumed to be functional, flows associated with spring freshet season are required in order to provide better evaluation of the Diversion Ditch’s performance and make necessary adjustments and modifications.

Baffinland Projects and Operations departments, with water quality monitoring support from the onsite Environment Department (Baffinland Environment), will assess the performance of the Diversion Ditch during freshet 2018. The Diversion Ditch will also be included in the biannual geotechnical inspections required under Baffinland’s Type A Water Licence – 2AM-MRY1325 – Amend. 1 (Type A Water Licence) and conducted by a Professional Engineer.

8. Vibration Monitoring and Quarrying Activity

No drill and blast activities were performed for this work. No vibration monitoring was conducted during the construction of the Milne Port Camp Pad Diversion Ditch, as it was not deemed necessary based on scope of activities required for construction.

Regarding quarrying, the material was already being produced by the Baffinland Road Maintenance department (Baffinland Road Maintenance) in Quarry Q1 and the stockpile already existed and was made available for the construction of the Diversion Ditch. The loader from Baffinland Road Maintenance was used to load the CAT740 Rock Truck and rockfill material was hauled to the work area from the stockpile. Material was then free dumped and placed on the ditch surfaces using the JD850 Excavator.

9. Environmental Monitoring

The Baffinland Environment was responsible for environmental monitoring at the site during construction and following-up with the construction team(s) if there were any reported environmental incidents or non-conformances.

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 this ditch would originate from the following sources based on construction methodology:

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

There were no recorded spills from equipment used at the construction site.

Furthermore, due to the frozen conditions present during construction, no surface water flows were encountered during the construction of the Diversion Ditch. As such, surface water quality monitoring during construction was deemed not required. Baffinland Environment will conduct environmental monitoring during freshet 2018, as required, to assess the water quality of runoff being discharged from the Diversion Ditch.

Post-Construction Note: On November 06, 2017, BIM Environment identified that some snow that accumulated in the ditch was intermixed with soils from construction. This snow was removed and relocated in accordance with Baffinland's Snow Management Plan (BAF-PH1-300-P16-0002).

10. Earthworks Data

No Earthworks/Geotechnical investigations were performed on the Diversion Ditch, therefore there is nothing to report for Earthworks data.

11. Unanticipated Observations

Inclement weather occurred on October 24 and 25, 2017 and impacted the construction activities of the Diversion Ditch, as described in Section 2.

12. Surface Monitoring

Not conducted.

13. Required Maintenance

None conducted to-date.

14. Adaptive Management

Nothing to report.

15. Concordance with Type “A” Water Licence

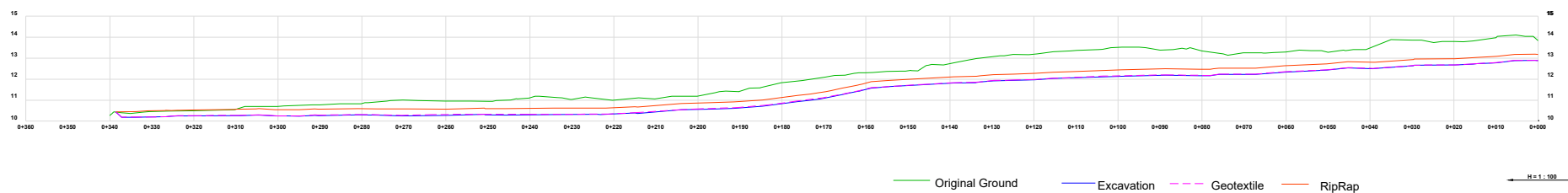
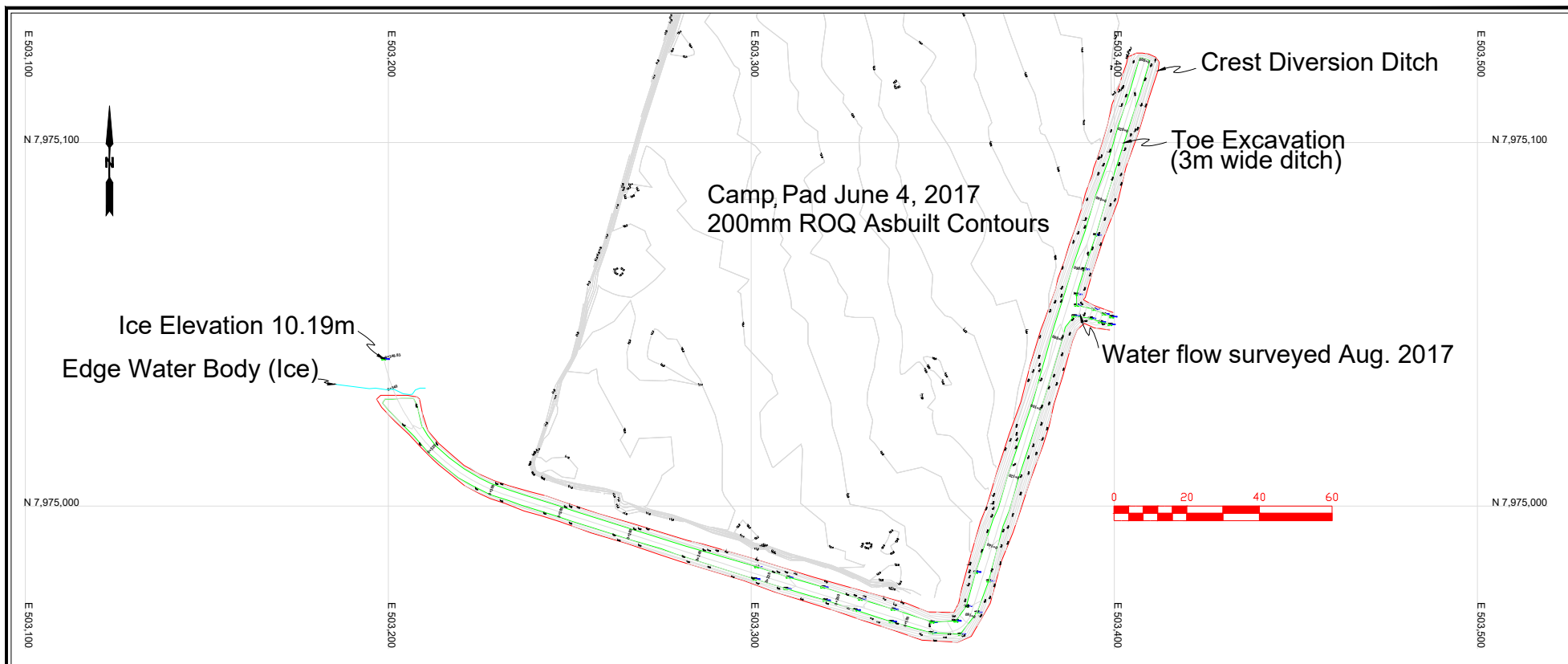
Baffinland's Type A Water Licence, Schedule D, outlines the requirements for Construction Summary/Monitoring Reports. The following table provides a concordance of the report, herein, with the requirements included in Part D.

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;	5
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
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

Appendix A

As-Built Drawings



NOTES:

Diversion Ditch Construction Oct. 2017
Excavation covered with geotextile & 300mm
RipRap
Excavation Volume 1,504cm
RipRap Cover 789cm
Ground Disturbance 2,576 sq. meters

CLIENT:

Baffinland Iron Mines Corporation

PROJECT:

Early Earthworks Project , Baffin Island, Nunavut

PREPARED BY:

Nuna East Ltd.
9839 - 31 Avenue
Edmonton, AB
T6N 1C5

DRAWN BY:
mc



SCALE:
barscale

DATE:
Nov. 29, 2017

DRAWING TITLE:

**Milne Port Camp Pad
Diversion Ditch Excavation
Plan & Profile**

DRAWING NAME (YYMMDD):

CAB 171022 MP Diversion Ditch Excavation.dwg

Appendix B

Survey Data

Baffinland Iron Mines Corporation – Mary River Project

Construction Summary Report: Milne Port Camp Pad Natural Stream Diversion – January 23, 2018

No.	N	E	EI	Feature
2286004	7975040	503198.8	10.19	DD7 ICE
2290200	7975057	503392	13.363	CREST
2290201	7975065	503394	13.416	CREST
2290202	7975074	503397	13.56	CREST
2290203	7975084	503400.9	14.005	CREST
2290205	7975075	503394.9	12.461	TOE
2290206	7975065	503391.7	12.37	TOE
2290207	7975058	503389.6	12.281	TOE
2290213	7975075	503393.3	12.429	EXC
2290214	7975066	503390.4	12.335	EXC
2290215	7975058	503388.3	12.223	EXC
2290217	7975045	503388.5	13.63	CREST
2290218	7975036	503385.9	13.545	CREST
2290219	7975028	503383.3	13.528	CREST
2291001	7975105	503401	12.704	TOE EXCAVATION
2291002	7975114	503404.1	12.864	TOE EXCAVATION
2291003	7975122	503406.6	12.907	TOE EXCAVATION
2291004	7975123	503407	12.951	TOE EXCAVATION
2291005	7975123	503408.5	12.876	TOE EXCAVATION
2291006	7975123	503409.8	12.872	TOE EXCAVATION
2291007	7975113	503406.9	12.852	TOE EXCAVATION
2291011	7975114	503405.5	12.78	EXC
2291012	7975109	503404.1	12.718	EXC
2291013	7975104	503402.6	12.671	EXC
2291014	7975104	503403.9	12.685	TOE EXCAVATION
2291015	7975103	503406.6	14.065	CREST EXCAVATION
2291016	7975112	503409.5	14.164	CREST EXCAVATION
2291017	7975120	503412.1	14.164	CREST EXCAVATION
2291018	7975122	503412.4	14.042	CREST EXCAVATION
2291019	7975124	503411.3	13.754	CREST EXCAVATION
2291020	7975124	503409.6	13.635	CREST EXCAVATION
2291021	7975125	503407.7	13.573	CREST EXCAVATION
2291022	7975125	503406	13.587	CREST EXCAVATION
2291023	7975123	503403.7	14.131	CREST EXCAVATION
2291024	7975122	503403.4	14.137	CREST EXCAVATION
2291025	7975118	503402	14.244	CREST EXCAVATION
2291026	7975115	503401.1	14.214	CREST EXCAVATION
2291027	7975111	503399.4	14.191	CREST EXCAVATION
2291028	7975105	503398.2	14.109	CREST EXCAVATION

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No.	N	E	EI	Feature
2291029	7975100	503396.7	14.052	CREST EXCAVATION
2291030	7975093	503394.3	13.979	CREST EXCAVATION
2291031	7975096	503395.3	14.04	CREST EXCAVATION
2291032	7975091	503393.9	13.968	CREST EXCAVATION
2291033	7975086	503392	13.738	CREST EXCAVATION
2291034	7975082	503390.9	13.603	CREST EXCAVATION
2291035	7975076	503389.1	13.438	CREST EXCAVATION
2291036	7975072	503387.6	13.546	CREST EXCAVATION
2291037	7975067	503386.2	13.516	CREST EXCAVATION
2291038	7975063	503384.4	13.526	CREST EXCAVATION
2291039	7975060	503383.9	13.414	CREST EXCAVATION
2291040	7975079	503398.7	13.566	CREST EXCAVATION
2291041	7975093	503403.2	13.765	CREST EXCAVATION
2291043	7975095	503398.2	12.71	
2291044	7975085	503394.8	12.601	
2291045	7975076	503391.9	12.434	TOE EXCAVATION
2291046	7975066	503388.6	12.427	TOE EXCAVATION
2291047	7975059	503386.6	12.289	TOE EXCAVATION
2291048	7975060	503388.3	12.229	EXC
2291049	7975059	503389.8	12.294	TOE EXCAVATION
2291050	7975094	503400.8	12.67	TOE EXCAVATION
2292001	7975030	503202.2	10.36	CREST
2292002	7975030	503199.6	10.37	CREST
2292003	7975030	503197.9	10.354	CREST
2292004	7975029	503196.7	10.407	CREST
2292005	7975027	503198.2	10.363	CREST
2292006	7975023	503201.8	10.47	CREST
2292007	7975020	503205.7	10.516	CREST
2292008	7975019	503206.7	10.499	CREST
2292009	7975016	503209.1	10.564	CREST
2292010	7975013	503212.6	10.543	CREST
2292011	7975011	503214	10.546	CREST
2292012	7975008	503217.5	10.552	CREST
2292013	7975006	503221	10.6	CREST
2292014	7975003	503225.2	10.66	CREST
2292015	7975002	503228.1	10.747	CREST
2292016	7975001	503232.2	10.742	CREST
2292017	7974999	503237.3	10.766	CREST
2292018	7974997	503241.9	10.732	CREST

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No.	N	E	EI	Feature
2292019	7974996	503247.1	10.701	CREST
2292020	7975001	503248.4	10.834	CREST
2292021	7975003	503243.6	10.81	CREST
2292022	7975004	503239.3	10.746	CREST
2292023	7975006	503233.3	10.7	CREST
2292024	7975007	503229.1	10.716	CREST
2292025	7975009	503225.2	10.654	CREST
2292026	7975011	503220.9	10.515	CREST
2292027	7975014	503217.2	10.502	CREST
2292028	7975017	503213.9	10.537	CREST
2292029	7975021	503210.9	10.422	CREST
2292030	7975023	503210.2	10.573	CREST
2292031	7975025	503209.4	10.409	CREST
2292032	7975028	503208.8	10.368	CREST
2292033	7975029	503208.6	10.41	CREST
2292034	7975030	503207.9	10.408	CREST
2292035	7975030	503206.4	10.328	CREST
2292036	7975030	503205.2	10.314	CREST
2292037	7975030	503204.1	10.335	CREST
2292038	7975030	503207	10.192	EXC
2292039	7975030	503203.5	10.187	EXC
2292040	7975029	503201.2	10.181	EXC
2292041	7975029	503199.1	10.193	EXC
2292042	7975028	503198.4	10.188	EXC
2292043	7975026	503200	10.186	EXC
2292044	7975027	503203.9	10.191	EXC
2292045	7975028	503207.9	10.191	EXC
2292046	7975022	503209.2	10.189	EXC
2292047	7975021	503207.9	10.207	EXC
2292048	7975019	503207.2	10.33	EXC
2292049	7975022	503203.9	10.186	EXC
2292050	7975024	503205.5	10.193	EXC
2292051	7975025	503208.5	10.189	EXC
2292052	7975019	503210.9	10.258	EXC
2292053	7975018	503209.8	10.248	EXC
2292054	7975017	503208.8	10.257	EXC
2292055	7975014	503211.2	10.254	EXC
2292056	7975015	503212.2	10.255	EXC
2292057	7975017	503213.1	10.259	EXC

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No.	N	E	EI	Feature
2292058	7975013	503216.8	10.281	EXC
2292059	7975012	503216.1	10.259	EXC
2292060	7975011	503215.4	10.257	EXC
2292061	7975008	503219.3	10.301	EXC
2292062	7975009	503220.2	10.263	EXC
2292063	7975010	503220.9	10.296	EXC
2292064	7975008	503225.2	10.288	EXC
2292065	7975006	503224.6	10.293	EXC
2292066	7975006	503223	10.279	EXC
2292067	7975003	503228.1	10.284	EXC
2292068	7975005	503228.1	10.249	EXC
2292069	7975006	503228.3	10.269	EXC
2292070	7975004	503233.6	10.287	EXC
2292071	7975003	503233.3	10.24	EXC
2292072	7975002	503233	10.284	EXC
2292073	7975000	503236.5	10.28	EXC
2292074	7975001	503237.9	10.264	EXC
2292075	7975003	503237.5	10.281	EXC
2292076	7975000	503247.2	10.304	EXC
2292077	7974999	503246.8	10.295	EXC
2292078	7974997	503246.6	10.293	EXC
2292079	7974990	503286.6	11.151	CREST
2292080	7974991	503282.5	10.95	CREST
2292081	7974994	503272.1	10.964	CREST
2292082	7974995	503267.3	11.002	CREST
2292083	7974998	503257.9	10.903	CREST
2292084	7974999	503251.1	10.31	EXC
2292085	7974997	503251.1	10.282	EXC
2292086	7974996	503250.3	10.319	EXC
2292087	7974994	503256.2	10.291	EXC
2292088	7974995	503256.9	10.278	EXC
2292089	7974997	503257.2	10.317	EXC
2292090	7974994	503267.1	10.297	EXC
2292091	7974992	503266.9	10.277	EXC
2292092	7974991	503266.8	10.293	EXC
2292093	7974988	503275.2	10.338	EXC
2292094	7974989	503275.7	10.296	EXC
2292095	7974991	503275.9	10.301	EXC
2292096	7974989	503281.7	10.299	EXC

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No.	N	E	EI	Feature
2292097	7974988	503280.5	10.292	EXC
2292098	7974987	503278.9	10.324	EXC
2292099	7974985	503280.5	10.992	CREST
2292100	7974986	503275.1	10.929	CREST
2292101	7974990	503265.6	10.805	CREST
2292102	7974993	503255.8	10.953	CREST
2292103	7974994	503252.5	10.852	CREST
2292105	7974996	503363.2	13.09	CREST
2292106	7975000	503364.8	13.156	CREST
2292107	7975009	503367.6	13.221	CREST
2292108	7975020	503371	13.28	CREST
2292109	7975029	503374.2	13.332	CREST
2292110	7975039	503376.9	13.416	CREST
2292111	7975049	503379.8	13.495	CREST
2292112	7975051	503380.8	13.523	CREST
2292113	7975048	503389.7	13.623	CREST
2292114	7975022	503382	13.703	CREST
2292115	7975017	503380.4	13.715	CREST
2292116	7975007	503376.9	13.497	CREST
2292117	7974998	503373.8	13.266	CREST
2292118	7974993	503372	13.155	CREST
2292119	7974995	503369.3	11.84	EXC
2292120	7974996	503368.1	11.841	EXC
2292121	7974996	503366.6	11.819	EXC
2292122	7974999	503368	11.913	EXC
2292123	7974999	503369.5	11.914	EXC
2292124	7974999	503371.1	11.957	EXC
2292125	7975008	503373.7	12.008	EXC
2292126	7975008	503372.5	11.968	EXC
2292127	7975009	503370.7	11.984	EXC
2292128	7975019	503374.1	12.057	EXC
2292129	7975018	503375.6	12.072	EXC
2292130	7975018	503377	12.17	EXC
2292131	7975028	503380.1	12.163	EXC
2292132	7975029	503378.7	12.14	EXC
2292133	7975029	503377.6	12.155	EXC
2292134	7975038	503380.2	12.245	EXC
2292135	7975038	503381.9	12.191	EXC
2292136	7975038	503383.3	12.159	EXC

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No.	N	E	EI	Feature
2292137	7975046	503385.5	12.141	EXC
2292138	7975046	503384	12.172	EXC
2292139	7975047	503382.7	12.222	EXC
2292140	7975050	503383.5	12.264	EXC
2292141	7975049	503385	12.175	EXC
2292142	7975049	503386.5	12.245	EXC
2292143	7975085	503394.8	12.612	EXC
2292144	7975085	503396.7	12.497	EXC
2292145	7975085	503398.1	12.495	EXC
2292146	7975095	503399.7	12.635	EXC
2292147	7975095	503398.4	12.649	EXC
4312008	7974987	503360.5	12.952	CREST
4312009	7974977	503358	12.976	CREST
4312010	7974973	503357.2	12.721	CREST
4312011	7974971	503355.8	12.253	CREST
4312012	7974971	503348.6	11.877	CREST
4312013	7974973	503342.7	11.688	CREST
4312014	7974975	503334.8	11.716	CREST
4312015	7974978	503325.5	11.326	CREST
4312016	7974980	503317.2	11.337	CREST
4312017	7974983	503309.2	11.218	CREST
4312018	7974986	503300.4	11.278	CREST
4312019	7974980	503297.9	11.074	CREST
4312020	7974976	503306.1	11.03	CREST
4312021	7974974	503314.3	11.113	CREST
4312022	7974971	503323.2	11.216	CREST
4312023	7974969	503330.5	11.456	CREST
4312024	7974966	503339.1	11.686	CREST
4312025	7974963	503347	11.916	CREST
4312026	7974963	503356.8	12.25	CREST
4312027	7974964	503360.6	12.331	CREST
4312028	7974973	503365.8	12.557	CREST
4312029	7974985	503368.9	12.914	CREST
4312034	7974981	503363.7	11.702	CL DTCH
4312035	7974971	503360.9	11.578	CL DTCH
4312036	7974966	503357	11.276	CL DTCH
4312037	7974967	503349.5	11.006	CL DTCH
4312038	7974970	503339.4	10.728	CL DTCH
4312039	7974973	503329.6	10.579	CL DTCH

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No.	N	E	EI	Feature
4312040	7974976	503320.2	10.535	CL DTCH
4312041	7974979	503310.3	10.368	CL DTCH
4312042	7974981	503302	10.315	CL DTCH
4312048	7975057	503391.4	13.286	CREST
4312049	7975055	503394.3	13.506	CREST
4312050	7975053	503399.7	13.68	CREST
4312051	7975048	503398.8	13.89	CREST
4312052	7975049	503394.4	13.566	CREST
4312053	7975050	503391.7	13.556	CREST
4312056	7975051	503385.5	12.219	CL DTCH
4312057	7975055	503387.2	12.225	CL DTCH
4312059	7975054	503389.8	12.275	CL DTCH
4312060	7975053	503393.9	12.859	CL DTCH
4312061	7975052	503396.6	13.223	CL DTCH
4312062	7975051	503398.9	13.492	CL DTCH
4312063	7975052	503399.2	13.47	EXC TOE
4312064	7975053	503397.1	13.28	EXC TOE
4312065	7975054	503394.4	12.84	EXC TOE
4312066	7975055	503389.6	12.289	EXC TOE
4312067	7975052	503388.9	12.25	EXC TOE
4312068	7975052	503393.4	12.86	EXC TOE
4312069	7975051	503396.1	13.21	EXC TOE
4312070	7975050	503398.8	13.46	EXC TOE
4312071	7974982	503361.8	11.76	EXC TOE
4312072	7974972	503359.2	11.61	EXC TOE
4312073	7974968	503356.3	11.299	EXC TOE
4312074	7974968	503349.8	11.032	EXC TOE
4312075	7974972	503339	10.727	EXC TOE
4312076	7974974	503330.1	10.564	EXC TOE
4312077	7974978	503319.7	10.567	EXC TOE
4312078	7974980	503310.1	10.399	EXC TOE
4312079	7974983	503301.5	10.308	EXC TOE
4312080	7974980	503300.9	10.333	EXC TOE
4312081	7974977	503309.5	10.384	EXC TOE
4312083	7974974	503320.3	10.566	EXC TOE
4312084	7974971	503328.6	10.549	EXC TOE
4312085	7974968	503338.5	10.698	EXC TOE
4312086	7974965	503349.5	10.967	EXC TOE
4312087	7974965	503357.5	11.272	EXC TOE

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No.	N	E	El	Feature
4312088	7974971	503362.2	11.552	EXC TOE
4312089	7974979	503365.4	11.687	EXC TOE

Notes:

1. Column 1 (No.) refers to the Survey data point no.
2. Northing (N), Easting (E) and Elevation (El) are in metres
3. Elevations refer to top of excavated surface (prior to placement of riprap).