Design Report
Jetty-CP1 and Jetty-CP5 Upgrade

Prepared by:

Agnico Eagle Mines Limited – Meliadine Division

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Revision
R0	2022-05-23			Upgrade Design Report

Digitally signed by Pascal Marcotte
Date: 2022.05.23 09:20:19 -06'00'

Prepared By: _____
Pascal Marcotte
Water Management Process Engineer
NAPEG #L4736

Josh Bazar

Digitally signed by Josh Bazar
Date: 2022.05.23 13:37:39 -05'00'

Reviewed By: _____
Josh Bazar
Water Management General Supervisor

Approved By: _____
Matt Gillman
Environment Superintendent

TABLE OF CONTENTS

LIST OF APPENDICES

Appendix A: Design Report – Jetty-CP1 and Jetty-CP5
Appendix B: As built report – Jetty-CP1 and Jetty-CP5
Appendix C: Photo of pump boxes
Appendix D: Drawing redlining detailing the piping modification

1 INTRODUCTION

1.1 SITE LOCATION AND ACCESS

Agnico Eagle Mines Limited (Agnico Eagle) is operating the Meliadine gold mine located approximately 25 km north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut. The Mine site is located on the peninsula between the East, South, and West basins of Meliadine Lake (63°01'23.8"N, 92°13'6.42"W). The area is accessible from the all-weather gravel road linking the Meliadine mine site with Rankin Inlet.

1.2 EXISTING FACILITIES

The Meliadine mine includes several water management infrastructures, such as water retention dikes, berms, culverts, channels, collection ponds, pumping stations, freshwater intake and water treatment plants. These infrastructures are required to manage water during pre-production, operation, and interim mine closure.

Two of the Meliadine collection ponds (CP1 and CP5) are equipment with jetties, which consist of a causeway, intake pits, pumping stations, intake pipes and Water Treatment Complex (WTC) feed pipes. Each pumping station has 2 pumps, offering full redundancy (n+1). The design report and as built report for these facilities are presented in Appendix A and B respectively. These infrastructures were constructed between February and July 2017.

1.3 PURPOSE OF DOCUMENT

Since its construction, the elevation of the intake pipes of Jetty-CP1 and Jetty-CP5 have been identified as a factor limiting pumping rates when these ponds are at low levels (e.g., final pond dewatering prior to freeze-up). To remove these limitations, Agnico Eagle intends on upgrading these infrastructures. This report includes the design and drawings for this upgrade.

1.4 SCOPE OF WORK

The scope of work of this project includes:

- Jetty-CP1
  - Relocating one pump directly in CP1
  - Modification of the WTC feed pipes
- Jetty-CP5
  - Relocating one pump directly in CP5
  - Installation of a level switch to protect the pump
  - Modification of the WTC feed pipes

This scope of work will be executed by Agnico Eagle personnel onsite.

2 DESIGN METHODOLOGY

2.1 DESIGN RATIONALE, REQUIREMENTS, CRITERIA AND PARAMETERS

The design rationales are as follows:

- Increase pumping rate capacity when CP1 level is below the Jetty's top inlet pipe.
- Enable pumping when CP5 level is below the Jetty's bottom inlet pipe.
- Protect pumps from running dry using automation.
- Limit the extent of modifications required to the jetties.
- Limit flow restriction in the WTC feed pipes.

2.2 DESIGN METHODS

For each jetties, one of two pumps will be relocated directly in their respective pond. The other pumps will remain in the intake pits as per design. The relocated pumps will be fastened in shallow pump boxes to ease handling and prevent suction of sediments.

The level indicator transmitter located in CP1 (65LIT6950227) will still be used to prevent the relocated pump from running dry. As for the relocated pump in CP5, a new level switch will be installed for this purpose.

3 DESCRIPTION

3.1 PUMP BOXES

A photo of the proposed pump boxes can be found in Appendix C. Identical pump boxes will be used for the relocated pumps in CP1 and CP5. These pump boxes will be 4 feet in width, 4 feet in length and 18 inches height, and will be made with available steel sheets found on site. They will be fastened to the relocated pumps, and lifting of the apparatus will be done using the pumps design lifting lugs.

3.2 PIPING MODIFICATIONS

The WTC feed pipes of the relocated pumps will be extended to the end of the jetties using 16'' HDPE pipe. From there, 10'' rubber discharge hoses will be used to connect the WTC feed pipes to the relocated pumps. See details of piping modification in the drawing redlining presented in Appendix D.

4 CONSTRUCTION METHODS

4.1 CONSTRUCTION METHOD AND EQUIPMENT

Construction of the pump boxes and piping modification will be performed on site, by qualified Agnico Eagle employees.

4.2 QUALITY CONTROL AND ASSURANCE

A record of as-built drawings will be produced once the upgrades are completed.

4.3 TESTING AND INSPECTION

Prior to start-up, the new piping will be tested for leaks. If leaks are found, the pipe will be repaired. After start-up, jetty inspections will continue to occur as per Part E Item 16 of the 2AM-MEL1631 Amended Water Licence.

4.4 TIMELINE

This upgrade will be implemented in Summer 2022, pending arrival of material and equipment.

APPENDIX A: DESIGN REPORT – JETTY-CP1 AND JETTY-CP5

TETRA TECH

DESIGN REPORT FOR JETTY-CP1 AND JETTY-CP5 MELIADINE PROJECT, NUNAVUT

PRESENTED TO

Agnico Eagle Mines Ltd.

TETRA TECH

DECEMBER 2016
ISSUED FOR USE
TETRA TECH PROJECT NUMBER: 28920
AGNICO EAGLE DOCUMENT NUMBER: 6515-E-132-005-132-REP-004

Tetra Tech
5100, Sherbrooke street east, suite 400
Montreal, QC H1V 3R9, CANADA
Tel 514.257.1112 Fax 514.257.0717

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (the project). The mine is located approximately 25 km north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut.

A new Type "A" Water Licence (No. 2AM-MEL1631) was recently awarded to Agnico Eagle for the development of the project. Agnico Eagle is developing the mine towards proposed production in 2020.

Agnico Eagle presented the water management plan for the project in 2015 *(Ref : Water Management Plan, 6513-MPS-11, June 2016).* Several infrastructures such as water retention dikes, berms, culverts, channels, collection ponds (CP), a water treatment plant (WTP), jetties and pumping stations are planned to manage the site contact water during pre-production, operation, and interim mine closure.

Figure 1 illustrates the general Site Layout for Proposed Infrastructure during Mine Operation.

The construction of the dikes D-CP1 and D-CP5 has begun in the last quarter of 2016 and is planned to be completed during the first quarter of 2017. As a consequence, Pond H17 will be used as CP1 collection pond and Pond A54 as CP5 collection pond.

The water management infrastructures designated by Jetty-CP1 and Jetty-CP5 are required to be constructed before the spring freshet of 2017:

- The proposed Jetty-CP1 is also named "WTP intake causeway" and is required in order to pump water collected in collection pond CP1 to the Water Treatment Plant (WTP) for treatment prior to discharge to the environment via the diffuser into Meliadine Lake or prior to be reused by the process plant.
- The proposed Jetty-CP5 is required to pump collected water from the collection pond CP5 to the collection pond CP1.

Agnico Eagle retained Tetra Tech to undertake the following tasks associated with Jetty-CP1 and Jetty-CP5:

- Conduct the detailed design of Jetty-CP1 and Jetty-CP5 to produce construction drawings and specifications; and
- Prepare the design report for Jetty-CP1 and Jetty-CP5, in accordance with the requirements in the Type "A" Water License (No. 2AM-MEL1631).

This report summarizes the site conditions, design basis, considerations, criteria, analyses, evaluations and presents the detailed design of Jetty-CP1 and Jetty-CP5, including construction drawings and specifications.

2.0 GENERAL SITE CONDITIONS

2.1 Climate and Meteorology

The project site lies within the Southern Arctic Climatic Region where daylight reaches a minimum of 4 hours per day in winter and a maximum of 20 hours per day in summer. The nearest weather station is Rankin Inlet A (Station 2303401), located approximately 25 km south of the project site. The closest long-term regional evaporation station operated by Environment Canada is in Churchill, Manitoba.

The monthly mean air temperature is typically above 0°C for the months of June to September, and is below 0°C between October and May. July is typically the warmest month and January the coldest. Winters are typically long and cold, while summers are short and cool. Spring and autumn are short. The mean annual temperature for the period of record from 1981 to 2009 was -10.4°C.

The annual average total precipitation at the project site is 412 mm/year and falls almost equally as snow and rainfall (6515-GGD-003, Site Information). Average annual evaporation for small waterbodies in the project area is estimated to be 323 mm between June and September. The average annual loss of snowpack to sublimation and snow redistribution is estimated to vary between 46% and 52% of the total precipitation for the winter period and occurs between October and May (Golder, 2013a).

The region is known for high winds, which are due in part to the broad, flat, uninterrupted expanses offered to moving air masses. The wind blows from the north and north-northwest direction more than 30% of the time. The mean values for wind speed show that the north-northwest, together with north and northwest winds, have the highest speeds and tend to be the strongest. Mean monthly wind speeds are typically between 19 km/hour and 27 km/hour.

The climate in the project region is projected to be warmer for the 2020s, 2050s, and 2080s time horizons when compared to the observed historic values (Agnico Eagle and Golder, 2014). Precipitation shows an increase compared to historical values, but the majority of projections are not significantly different from the annual recorded precipitation values.

2.2 Topography and lakes

The dominant terrain in the project area comprises glacial landforms such as drumlins (glacial till), eskers (gravel and sand), and lakes. A series of low relief ridges are composed of glacial deposits, oriented in a northwest-southeast direction, which control the regional surface drainage patterns. The property is about 60 metres above sea level (masl) in low-lying topography with numerous lakes. Surface waters are usually frozen by early October and remain frozen until early June.

The surveyed lake surface elevations in the project area range from about 51 masl at Meliadine Lake to about 74 masl for local small perched lakes. Lakes formed by glacio-fluvial processes or glacial processes, are common throughout the project area. Most of the perched lakes at the project site are relatively shallow (less than 2 m water depth). Late-winter ice thicknesses on freshwater lakes in the project area range between 1.0 m and 2.3 m with an average thickness of 1.7 m. Ice cover usually appears by the end of October and is completely formed in early November. The spring freshet typically begins in mid-June and is complete by early July (Golder, 2012a).

2.3 Permafrost

The project site is located within the Southern Arctic terrestrial eco-zone, one of the coldest and driest regions of Canada, in a zone of continuous permafrost. Continuous permafrost to depths of between 360 m to 495 m is expected based on historical and recent ground temperature data from thermistors installed near Tiriganiaq, F-Zone, and Discovery deposits (Golder, 2012b). The measured ground temperature data indicates that the active layer is 1.0 m to 3.0 m in areas of shallow soils and areas away from the influence of lakes. It is anticipated that the active layer adjacent to lakes or below a body of moving water such as a stream could be deeper. The typical permafrost ground temperatures at the depths of zero annual amplitude (typically at a depth of below 15 m) are in the range of -5.0°C to -7.5°C in the areas away from lakes and streams. The geothermal gradient ranges from 0.012°C/m to 0.02°C/m (Golder, 2012b).

2.4 Groundwater

In areas of continuous permafrost, there are generally two groundwater flow regimes: a shallow groundwater flow regime located in the active layer near the ground surface, and a deep groundwater flow regime located beneath permafrost. From late spring to early autumn, when temperatures are above 0˚C, the active layer thaws. Within the active layer, the water table is expected to be a subdued replica of topography, and is expected to parallel the topographic surface. The project area groundwater in the active layer flows to local depressions and ponds that drain to larger lakes.

The permafrost in the rock in the project area would be virtually impermeable to groundwater flow. The shallow groundwater flow regime, therefore, has little to no hydraulic connection with the deep groundwater regime. A numerical hydrogeological model for the deep groundwater flow regime was developed (Golder, 2013b). The results of the hydrogeological model have indicated that the rock at the project site below the base of the permafrost or in taliks is generally of low hydraulic conductivity, on the order of 3 x 10-9 m/s (Golder, 2013c).

To a lesser degree, groundwater beneath the permafrost is influenced by density differences due to the upward diffusion of deep-seated brines (density-driven flow). In the Canadian Shield, concentrations of Total Dissolved Solids (TDS) in groundwater increase with depth, primarily in response to upward diffusion of deep-seated brines. Salinity can induce a freezing point depression, creating a cryopeg in permafrost where water can be unfrozen even though the temperature is below 0°C. At the project site, the freezing point depression was calculated to be equivalent to -3.3°C (Golder, 2012b). The portion of the permafrost, where groundwater may be partially or wholly unfrozen due to the freezing point depression, has been estimated to be at a depth of 350 m to 375 m (Golder, 2012b).

2.5 Subsurface Conditions

A number of site investigation programs were carried out at the project site in 1998, 1999, 2007, 2009, 2011, 2012, 2013, 2014, 2015, and 2016.

In general, the near surface stratigraphy comprises a veneer of organic material, underlain by non-cohesive soils (i.e. silty sand and sandy silt) with cobbles and boulders. The overburden thickness ranges between 1.5 m and 17.8 m and is underlain by greywacke, medium to strong with some fracturing and frost jacking of the upper bedrock surface. A layer of ice-rich overburden (silt or sand) has been observed in some of the boreholes drilled. Overburden soils with excess ice (Vc, Vs, Vx, and Vr) were observed in most of the boreholes. Massive icy beds up to 1.25 m thick were also encountered. The estimated percentage (by volume) of the excess visible ice ranged from 2% to more than 50% in the overburden soils. Limited soil porewater salinity tests (Tetra Tech, 2013) indicated that the overburden soils may have a porewater salinity of 4 parts per thousand (ppt) for shallow sandy soils and up to 12 ppt for deep silty soils.

2.6 Land survey and Lake bathymetric data

The raw land survey data, a 1-m contour digital map of the ground surface and 0.5 m contour lake bathymetric data for selected lakes at the project site were provided to Tetra Tech by Agnico Eagle. Those data were incorporated into the original digital map for the design of infrastructures in this study.

3.0 DESIGN OF THE JETTIES

3.1 Jetties Location and Design concept

The construction of the dikes D-CP1 and D-CP5 has begun in the last quarter of 2016 and is planned to be completed during the first quarter of 2017. As a consequence, Pond H17 will be used as CP1 collection pond and Pond A54 as CP5 collection pond.

Contact water from major infrastructure of the future mine will be diverted and/or collected in the collection ponds (CP1, CP3 to CP6) and the collected water in CP3 to CP6 will eventually be pumped to CP1. Water collected in CP1 will be treated by the Water treatment Plant (WTP) prior to discharge to the environment via the diffuser into Meliadine Lake or prior to be reused by the process plant.

Figure 1 illustrates the general Site Layout for Proposed Infrastructure during Mine Operation.

Jetty-CP1 will be constructed in CP1 to pump out water from CP1 to the WTP.

Jetty-CP5 will be constructed in CP5 to pump out water from CP5 to CP1.

Each jetty will consist of a causeway, intake pits, pumping stations, intake pipes and discharging pipes.

3.2 Intake pits and intake pipes

The design intent is to drain CP1 or CP5 as low as possible during the open-water season each year. Lower pipe intake elevations will help to achieve this design intent.

The lake bathymetric elevations (data from Golder's reports) indicated that the maximum lake depth is 1.7 m for Pond H17 and 1.3 m for Pond A54. Based on that information, the lowest lakebed elevation would be approximately 62.44m for Pond H17 (CP1) and 64.45 m for Pond A54 (CP5). The design was based on these elevations to determine the water intake pipes elevations.

Based on the same assumptions, the intake pits will have an adequate depth to ensure water could be drained from the lowest lakebed elevation.

The intake pits for Jetty-CP1 and Jetty-CP5 are made of HDPE and are respectively 5.8 m and 3.5 m deep.

There will be a typical separation of 150 mm between the invert of the intake pipe and the lake bottom to prevent the movement of sediment from entering into the pipe.

A layer of Rip-Rap (100-350 mm) will be placed at the entry of the intake pipe for erosion and sediment control.

A stainless steel wire mesh will be set at the end of the intake pipes.

A layer of compacted Granular Fill 0-30 mm material will be placed around the intake wells and pipes as recommended by the manufacturer.

The wells, pumping stations and pipe details are designed by Tetra Tech and based on the projected collection pond capacity requirements and conventional engineering design criteria.

3.3 Jetty (Causeway) design

The jetties' causeways will be constructed to provide access to the vehicles for the intake pits construction and later, they will be used occasionally by maintenance vehicles during mine operation.

Jetty-CP1 will extend approximately 140 m in length into CP1, and Jetty-CP5 will extend approximately 110 m in length into CP5.

The jetties will be constructed of non-acid generating (NAG), coarse rock fill from esker or from Run-of-Mine (ROM) waste rock obtained from the development of the mine.

As shown on the construction drawings given in appendix A, both causeways of Jetty-CP1 and Jetty-CP5 will be 11 m wide, including a minimum roadway surface of 8 m plus room for pipelines, power cables as well as suitable safety barriers if required. There will be a widened area surrounding the pump house.

The elevation of the top of the jetties were set to provide a suitable freeboard (about 0.7m) above the maximum operation water level in the ponds to allow protection for wave action.

Lateral slopes into the lakes are 1V:3H minimum for stability.

A compacted final layer of Granular Fill 0-30mm will be placed as a final grade for the road surface.

3.4 Figures and Drawings

Figure 1 in appendix A presents a general site layout plan during mine operation.

The construction drawings for Jetty-CP1 (65-417-230-207) and for Jetty-CP5 (65-417-230-208) are given in appendix A.

4.0 CONSTRUCTION

4.1 Construction Material Quantities

The table below presents the material quantities for the construction of the jetties' causeways.

Item	Jetty-CP1	Jetty-CP5	Total
Run-of-Mine or Class A borrow material from Esker (0-600 mm) (m^3)	9425	2291	**11,716**
Granular Fill (0-30 mm) (m^3)	315	313	**628**
Rip-rap Fill (100-350 mm) (m^3)	0.5	0.5	**1**
Total Fill Material Volume (m^3)	**9740,5**	**2604,5**	**12,345**

4.2 Earth Work Construction Material Specifications

The general requirements for the materials are specified below.

4.2.1 Run-of-Mine or Class A borrow material from Esker

The rockfill required for earth work construction can be sourced from Eskers ("Borrow pits") or from non-acid generating (NAG) run-of-mine waste (mine) rock.

The rockfill for the water management earth structures can have a wide variation in gradation, with a maximum particle size of 600 mm. The lift of the rockfill should be no greater than 900 mm. The passes of heavy construction equipment will compact the rockfill. The fill particles shall be angular and shall be derived from hard, durable, NAG rock. Any oversized boulders should be removed before the rockfill is placed into the earth structures.

4.2.2 30 mm Minus Granular Fill (0-30 mm)

30 mm Minus Granular Fill shall consist of, hard durable particles, be free of roots, topsoil and other organic material and have a particle size distribution as presented in the table below. Processing will be required to achieve the specified gradation.

Table: 30 mm Minus Granular Fill – Particle Size Distribution Limits

Particle Size	% Passing
30	100
14	65 – 100
5	45 – 70
0.63	15 – 35
0.08	4 - 10

4.2.3 Rip-rap

Rip-rap shall be used as erosion protection materials. The particle size specifications for the graded rip-rap materials are presented in the table below. The material shall be free of roots, topsoil, and other organic material. Processing may be required to achieve the specified gradation. The material can be processed from hard,

durable, NAG rock. Rocks used for rip-rap should generally be blocky and angular or sub angular, with sharp clean edges and relatively flat faces. It is generally recommended that rocks should be close to equi-dimensional rather than elongate, although this is not always possible. Typically, the average ratio of the long axis to the thickness should be less than 2.

Table: Particle Size Specifications for Rip-rap Materials

Rip-rap Types	Minimum Particle Size (mm)	Median Particle Size (mm)	Maximum Particle Size (mm)
Rip-rap for Jetties CP1 and CP5	100	150	350

4.3 Supervision

An Agnico Eagle representative will supervise the construction of the jetties.

4.4 Schedule

The construction of the jetties will be undertaken before freshet 2017, when there is ice of sufficient thickness on CP1 (Pond H17) and CP5 (Pond A54) to support construction equipment and when the water level is low.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Agnico Eagle Mines Ltd. and their agents. Tetra Tech does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Agnico Eagle Mines Ltd., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech's Services Agreement.

6.0 CLOSURE

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

Respectfully submitted,
Tetra Tech

INGÉNIEURE · ENGINEER
Solène Moreau
137890
QUÉBEC
2 déc. 2016

PERMIT TO PRACTICE
TETRA TECH INDUSTRIES, INC.
O/A TETRA TECH
Signature
Date 2016-12-02
PERMIT NUMBER: P 1029
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
J.M.I.F. ALARIE
LICENSEE
2016.12.02

Prepared by:
Solène Moreau, Eng.
Direct Line: 514.257.2427 x3443
Solene.Moreau@tetratech.com

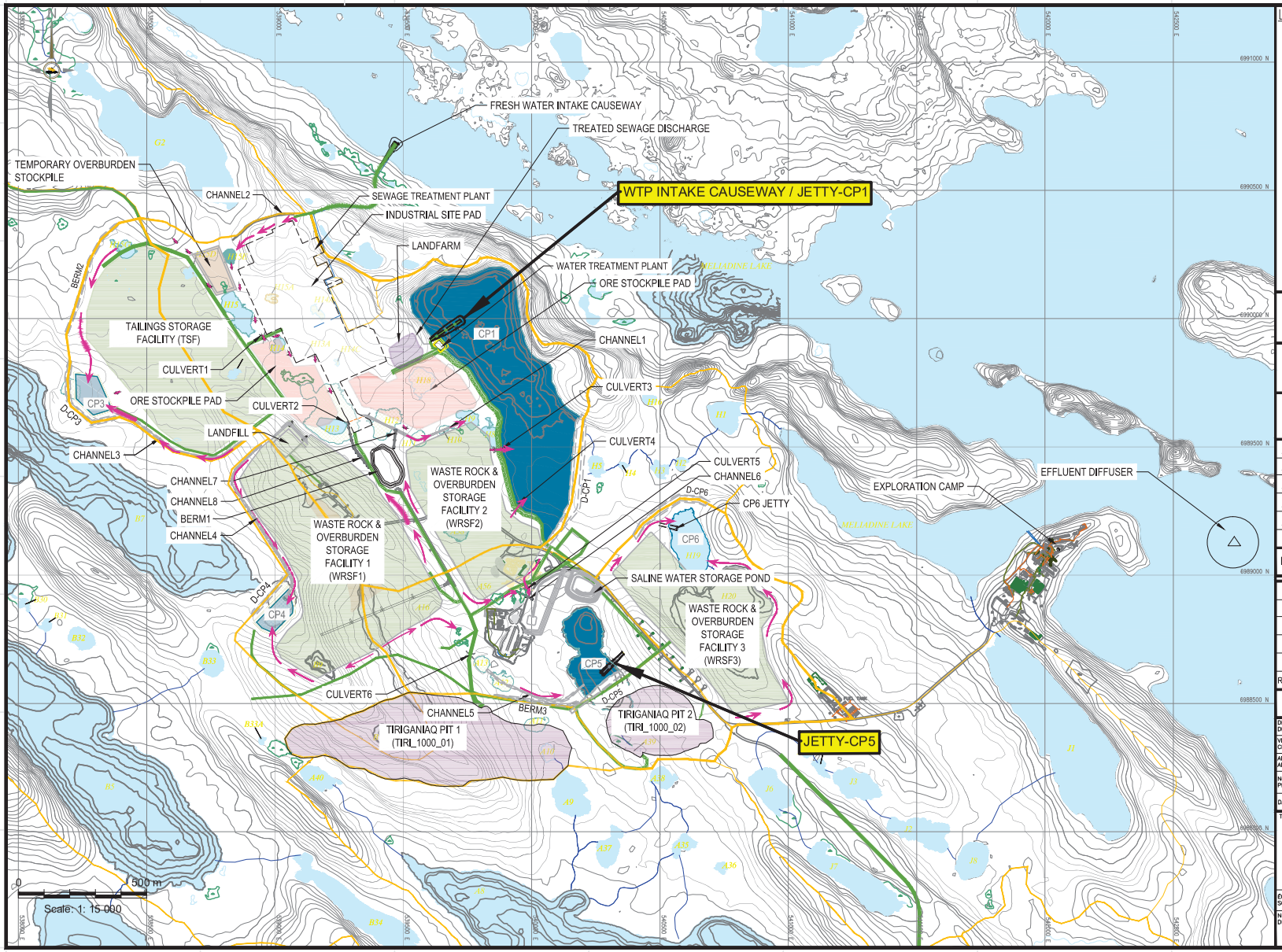
Reviewed by:
Josée Alarie, P. Eng.
Direct Line: 514.257.2427 x3323
Josee.Alarie@tetratech.com

APPENDIX A

- Figure 1: General Site Layout for Proposed Infrastructure
- Construction Drawing 65-417-230-207
- Construction Drawing 65-417-230-208

NO. DESSIN
DRAWING NO.

FORMAT ANSI B–11x17



LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- CONTACT WATER FLOW DIRECTION

AGNICO EAGLE

TETRA TECH EBA

TITRE / TITLE	# DWG

DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	PAR BY
A	ISSUED FOR REVIEW	08–05–2016	GZ

REVISIONS

DESSINÉ PAR DRAWN BY	EP	DATE 08–05–2016
VÉRIFIÉ PAR CHECKED BY	GZ	08–05–2016
APPROUVÉ PAR APPROVED BY		
No. PROJET PROJECT NO.	6515	
DATE		

TITRE / TITLE

AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 1 GENERAL SITE LAYOUT PLAN
FOR PROPOSED INFRASTRUCTURE
DURING MINE OPERATION (YEAR 7)

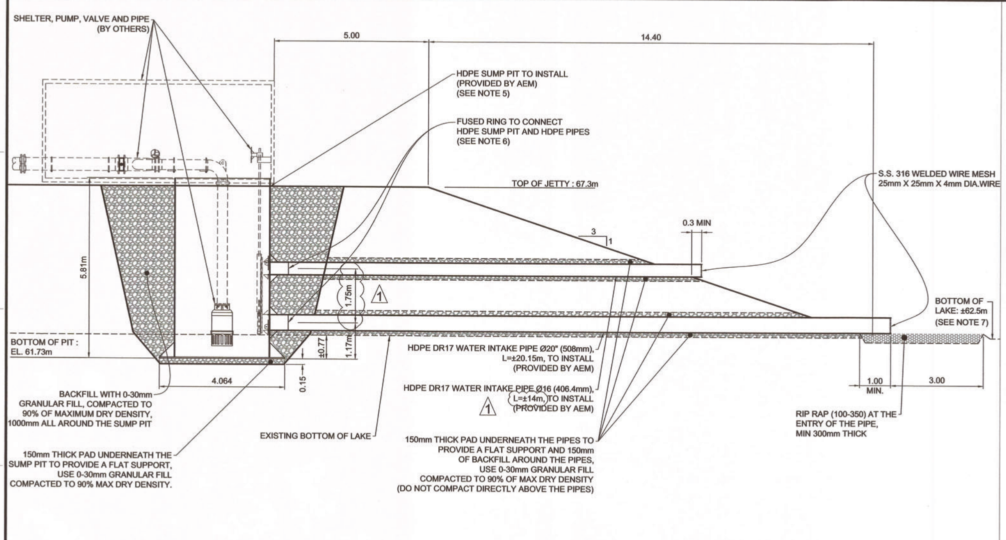
ÉCHELLE/ SCALE	FICHIER FILE	REVISION	FEUILLE/SHT
1:15000	.DWG	A	1 / 1

No. DESSIN/ DRAWING NO.

AE–CART–ANSI B

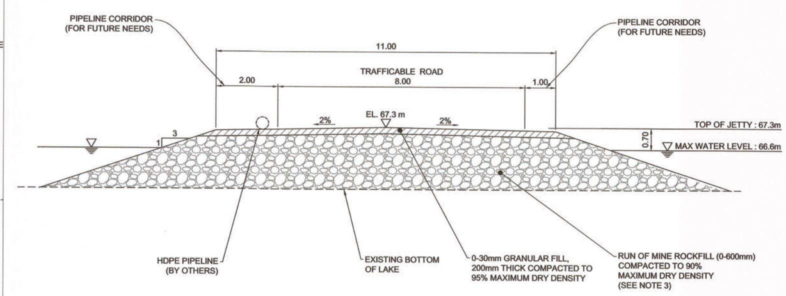
P:\28920\DESSIN\CIV–INFRA\DESSINS DE TRAVAIL\AUTOCAD\Aménagement du drainage – Étude\Figure 3.dwg

NO. DESSIN DRAWING NO. 65-417-230-207-208_R1



SHELTER, PUMP, VALVE AND PIPE (BY OTHERS)
5.00
14.40
HDPE SUMP PIT TO INSTALL (PROVIDED BY AEM) (SEE NOTE 5)
FUSED RING TO CONNECT HDPE SUMP PIT AND HDPE PIPES (SEE NOTE 6)
TOP OF JETTY : 67.3m
S.S. 316 WELDED WIRE MESH 25mm X 25mm X 4mm DIA.WIRE
0.3 MIN
5.81m
1.75m
1.17m
±0.77
0.15
4.064
BOTTOM OF PIT : EL. 61.73m
BOTTOM OF LAKE: ±62.5m (SEE NOTE 7)
HDPE DR17 WATER INTAKE PIPE Ø20" (508mm), L=±20.15m, TO INSTALL (PROVIDED BY AEM)
HDPE DR17 WATER INTAKE PIPE Ø16 (406.4mm), L=±14m, TO INSTALL (PROVIDED BY AEM)
1.00 MIN.
3.00
BACKFILL WITH 0-30mm GRANULAR FILL, COMPACTED TO 90% OF MAXIMUM DRY DENSITY, 1000mm ALL AROUND THE SUMP PIT
EXISTING BOTTOM OF LAKE
RIP RAP (100-350) AT THE ENTRY OF THE PIPE, MIN 300mm THICK
150mm THICK PAD UNDERNEATH THE SUMP PIT TO PROVIDE A FLAT SUPPORT, USE 0-30mm GRANULAR FILL COMPACTED TO 90% MAX DRY DENSITY.
150mm THICK PAD UNDERNEATH THE PIPES TO PROVIDE A FLAT SUPPORT AND 150mm OF BACKFILL AROUND THE PIPES, USE 0-30mm GRANULAR FILL COMPACTED TO 90% OF MAX DRY DENSITY (DO NOT COMPACT DIRECTLY ABOVE THE PIPES)

CROSS-SECTION A
1:75

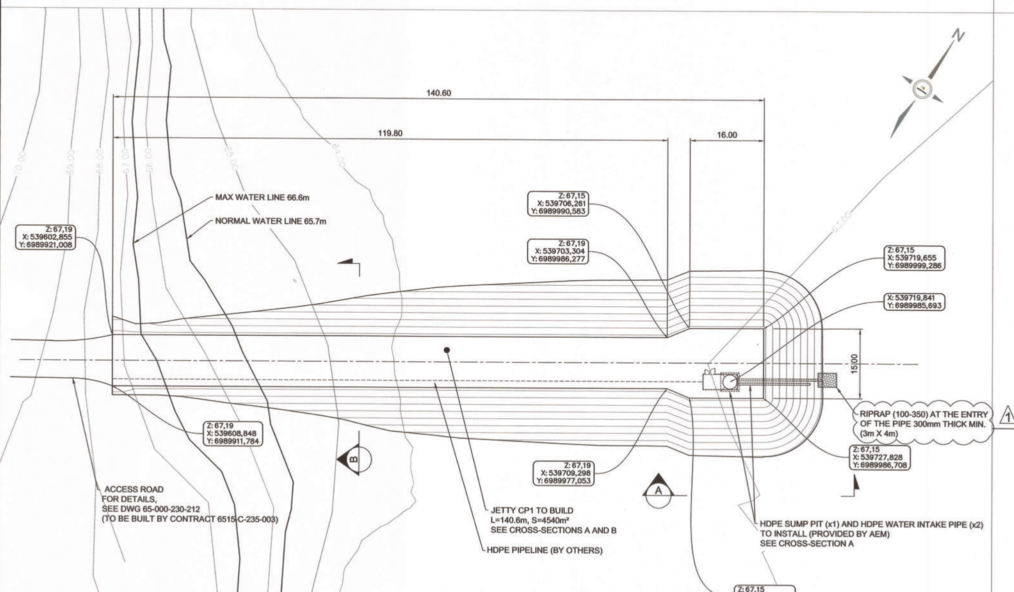


PIPELINE CORRIDOR (FOR FUTURE NEEDS)
11.00
TRAFFICABLE ROAD 8.00
2.00
1.00
EL. 67.3 m
2%
2%
TOP OF JETTY : 67.3m
0.70
MAX WATER LEVEL : 66.6m
HDPE PIPELINE (BY OTHERS)
EXISTING BOTTOM OF LAKE
0-30mm GRANULAR FILL, 200mm THICK COMPACTED TO 95% MAXIMUM DRY DENSITY
RUN OF MINE ROCKFILL (0-600mm) COMPACTED TO 90% MAXIMUM DRY DENSITY (SEE NOTE 3)

CROSS-SECTION B
1:75

NOTES:

- SAFETY BERMS MADE OF BOULDERS OR CONCRETE BLOCKS COULD BE INSTALLED AT THE EDGE OF THE JETTY.



140.60
119.80
16.00
15.00
MAX WATER LINE 66.6m
NORMAL WATER LINE 65.7m
Z: 67,19 X: 539602,855 Y: 6989921,008
Z: 67,15 X: 539706,261 Y: 6989990,583
Z: 67,19 X: 539703,304 Y: 6989986,277
Z: 67,15 X: 539719,655 Y: 6989999,286
X: 539719,841 Y: 6989985,693
Z: 67,19 X: 539608,848 Y: 6989911,784
Z: 67,19 X: 539709,298 Y: 6989977,053
Z: 67,15 X: 539727,828 Y: 6989986,708
Z: 67,15 X: 539714,411 Y: 6989977,990
RIPRAP (100-350) AT THE ENTRY OF THE PIPE 300mm THICK MIN. (3m X 4m)
ACCESS ROAD FOR DETAILS, SEE DWG 65-000-230-212 (TO BE BUILT BY CONTRACT 6515C-235-003)
JETTY CP1 TO BUILD L=140.6m, S=4540m²
SEE CROSS-SECTIONS A AND B
HDPE PIPELINE (BY OTHERS)
HDPE SUMP PIT (x1) AND HDPE WATER INTAKE PIPE (x2) TO INSTALL (PROVIDED BY AEM) SEE CROSS-SECTION A

JETTY CP1 - PLAN VIEW
1:500

ESTIMATED IN-PLACE QUANTITIES

Construction - Jetty CP-1

Aggregate Material	Thickness (mm)	Required (m³)
Granular fill, 0-30mm (final grade)	200	325
0-30mm (around sump pit)	1000	75
0-30mm (around pipes)	150	15,5
RIP RAP, 100-350mm (at the entry of the pipe)	300	4
ROM, 0-600mm	±2140	9421

NOTES:

- THE GIVEN MATERIAL QUANTITIES ARE BARE-BONE, IN-PLACE QUANTITIES AFTER PLACEMENT AND COMPACTION.
- THE QUANTITIES DO NOT INCLUDE ANY EXTRAS TO COMPENSATE FOR POTENTIAL MATERIAL WASTED, MATERIAL LOSS INTO THE TUNDRA, AND ADDITIONAL MATERIAL REQUIRED DUE TO FOUNDATION SETTLEMENT DURING CONSTRUCTION.
- THE QUANTITIES INDICATED ARE AFTER COMPACTION. FOR MATERIAL PREPARATION, EXTRA QUANTITIES SHOULD BE ADDED TO CONSIDER THE BULKING FACTOR.

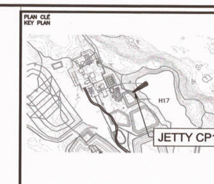
LEGEND

Z: 73,40 X: 539565,397 Y: 6989056,827 — PROPOSED ELEVATIONS AND COORDINATES

PERMIT TO PRACTICE
TETRA TECH INDUSTRIES, INC. O/A TETRA TECH
Signature
Date 2016-12-02
PERMIT NUMBER: P 1029
NT/NU Association of Professional Engineers and Geoscientists

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-12-01

PLAN CLÉ / KEY PLAN



TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

GENERAL NOTES:

1. EXISTING GROUND DTM PROVIDED BY AEM.
2. ALL UNITS ARE IN METERS.
3. GRANULAR MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 300mm AND COMPACTED AS INDICATED. BORROW PIT OR RUN OF MINE MATERIAL SHALL BE PLACED WITH LIFTS NOT EXCEEDING 900mm AND COMPACTED TO A MIN. OF 90% OF MAXIMUM DRY DENSITY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY SECURITY AND SLOPES OF ALL EXCAVATIONS, BACKFILL AND SHALL ABIDE BY ALL RELEVANT STANDARDS AND REGULATIONS. THE STABILITY, DEWATERING AND MAINTENANCE OF ALL EXCAVATIONS OR BACKFILL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
5. THE SUMP PIT AND HDPE PIPES ARE PROVIDED BY AEM AND ARE STORED ON SITE (CUTTING / FUSING TO THE SPECIFIED PIPE LENGTH WILL BE NECESSARY). SPEC DRAWINGS ARE AVAILABLE AND SHALL BE CONSULTED FOR DIMENSIONS CHECKS. BLIND FLANGES ARE INSTALLED ON THE ENTRY OF THE PIPES INSIDE THE SUMP PIT.
6. THE CONNECTION BETWEEN THE SUMP PIT AND THE HDPE WATER INTAKE PIPE SHALL BE A FUSED RING. RESPECT APPLICABLE STANDARDS TO ENSURE THE QUALITY OF THE RING.
7. THE BOTTOM OF LAKE ELEVATION IS APPROXIMATE AND SHALL BE CONFIRMED ON SITE. THE FINAL ELEVATION OF THE PIPES AND SUMP PIT WILL BE DETERMINED BY THE 150mm REQUIREMENT SPACE BETWEEN THE BOTTOM OF THE LOWER PIPE AND THE LAKE BED.
8. THE CONSTRUCTION METHODOLOGY SHALL BE DEFINED BY THE CONTRACTOR. WORKS SHALL BE DONE WHEN THE WATER LEVEL IS VERY LOW AND/OR ICED. THE JETTY SHALL BE LEVELLED PROGRESSIVELY IN ORDER TO INSTALL THE SUMP PIT WITH APPROPRIATE EQUIPMENT AND MATERIAL.
9. AN AS-BUILT DRAWING SHALL BE PROVIDED AFTER CONSTRUCTION.

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
GENERAL CIVIL WORKS 2016	65-000-230-212

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
1	2016-12-01	ISSUED FOR CONSTRUCTION	D.R.	J.A.	
0	2016-09-19	ISSUED FOR CONSTRUCTION	JD.M	J.A.	
A	2016-08-23	ISSUED FOR COMMENTS	D.R.	J.A.	

REVISIONS

J.M.F. ALARIE LICENSEE 2016-12-01

TITRE / TITLE
AGNICO-EAGLE – MELIADINE DIVISION
417 – JETTIES
230-GENERAL EARTH WORKS
JETTY CP1
PLAN / CROSS-SECTIONS

		DATE
DESSINÉ PAR / DRAWN BY	DANIEL ROSALES	2016-06-16
VÉRIFIÉ PAR / CHECKED BY	SOLÈNE MOREAU	2016-06-16
APPROUVÉ PAR / APPROVED BY	JOSÉE ALARIE	2016-09-08
ÉCHELLE / SCALE	AS INDICATED	2016-06-16

NO. DESSIN / DRAWING NO. 65-417-230-207

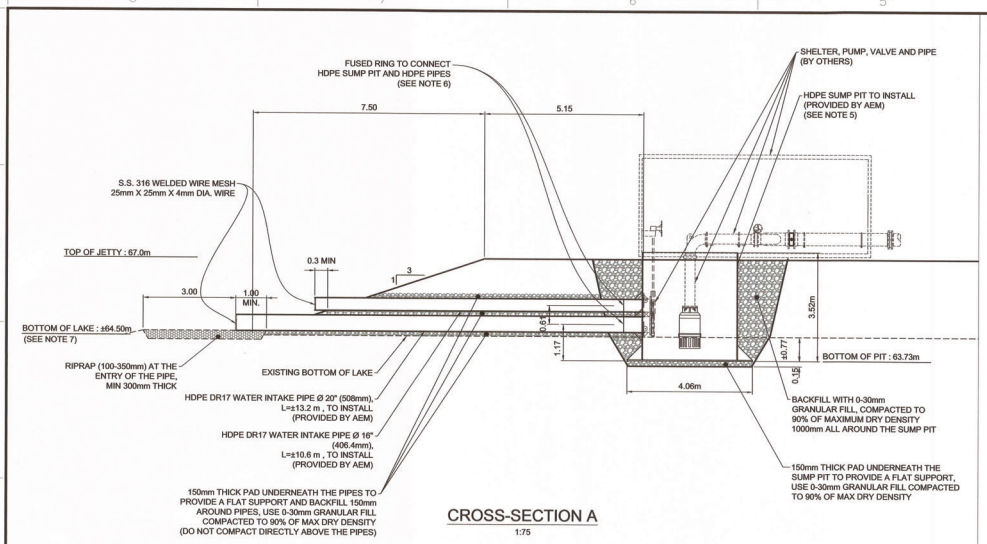
NO. PROJET / PROJECT NO. 6515/28920 — REVISION 1 — FEUILLE / SHT 1/1

FORMAT ARCH D

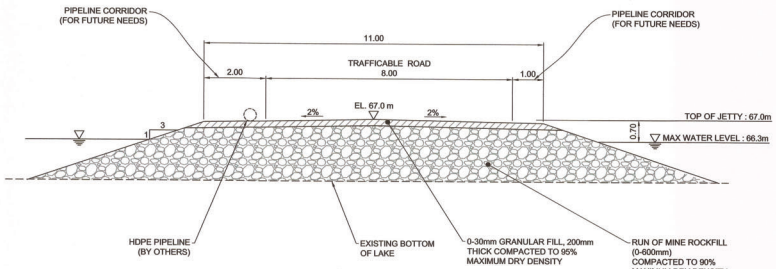
P:\28920\DESSIN\CIV-INFRA\DESSINS DE TRAVAIL\AUTOCAD\65-417-230-207-208_R1.dwg

NO. DESSIN DRAWING NO. 65-417-230-207-208_R1

FORMAT ARCH D



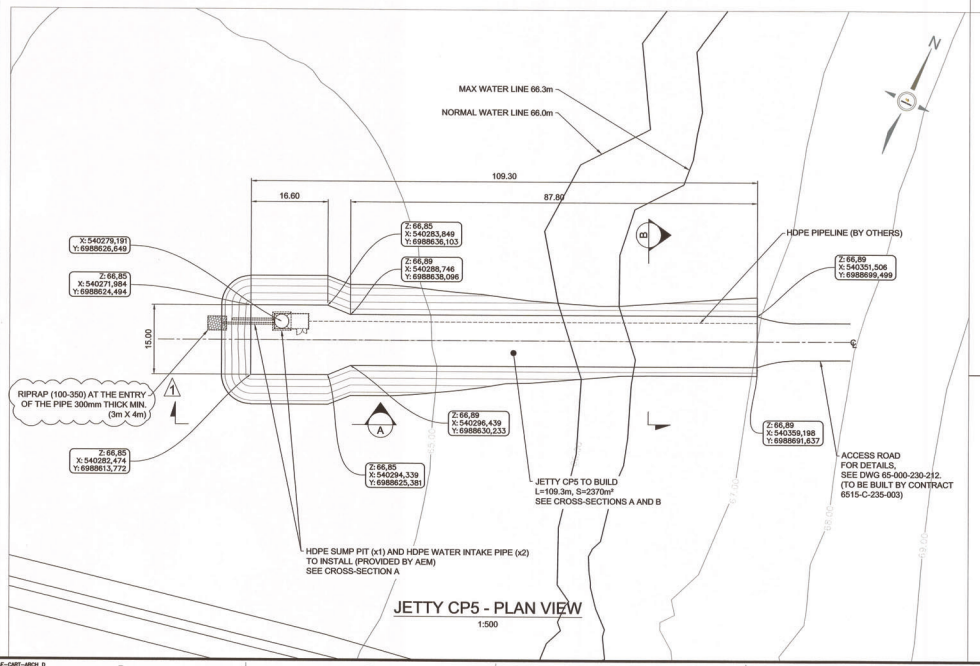
CROSS-SECTION A
1:75



CROSS-SECTION B
1:75

NOTES:

- SAFETY BERMS MADE OF BOULDERS OR CONCRETE BLOCKS COULD BE INSTALLED AT THE EDGE OF THE JETTY.



JETTY CP5 - PLAN VIEW
1:500

ESTIMATED IN-PLACE QUANTITIES
Construction - Jetty CP-5

Aggregate Material	Thickness (mm)	Required (m³)
Granular fill, 0-30mm (final grade)	200	256
0-30mm (around sump pit)	1000	47
0-30mm (around pipes)	150	10
RIP RAP, 100-350mm (at the entry of the pipe)	300	4
ROM, 0-600mm	±1010	2288

1

NOTES:

- THE GIVEN MATERIAL QUANTITIES ARE BARE-BONE, IN-PLACE QUANTITIES AFTER PLACEMENT AND COMPACTION.
- THE QUANTITIES DO NOT INCLUDE ANY EXTRAS TO COMPENSATE FOR POTENTIAL MATERIAL WASTED, MATERIAL LOSS INTO THE TUNDRA, AND ADDITIONAL MATERIAL REQUIRED DUE TO FOUNDATION SETTLEMENT DURING CONSTRUCTION.
- THE QUANTITIES INDICATED ARE AFTER COMPACTION. FOR MATERIAL PREPARATION, EXTRA QUANTITIES SHOULD BE ADDED TO CONSIDER THE BULKING FACTOR.

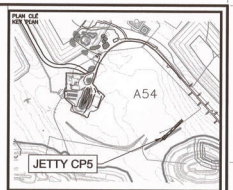
PERMIT TO PRACTICE
TETRA TECH INDUSTRIES, INC.
O/A TETRA TECH
Signature
Date 2016-12-02
PERMIT NUMBER: P 1029
NT/NU Association of Professional Engineers and Geoscientists

LEGEND

Z: 73,40 X: 539565,397 Y: 6989056,827 — PROPOSED ELEVATIONS AND COORDINATES

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-12-01

PLAN CLÉ KEY PLAN



TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

GENERAL NOTES:

1. EXISTING GROUND DTM PROVIDED BY AEM.
2. ALL UNITS ARE IN METERS.
3. GRANULAR MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 300mm AND COMPACTED AS INDICATED. BORROW PIT OR RUN OF MINE MATERIAL SHALL BE PLACED WITH LIFTS NOT EXCEEDING 900mm AND COMPACTED TO A MIN. OF 90% OF MAXIMUM DRY DENSITY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY SECURITY AND SLOPES OF ALL EXCAVATIONS, BACKFILL AND SHALL ABIDE BY ALL RELEVANT STANDARDS AND REGULATIONS. THE STABILITY, DEWATERING AND MAINTENANCE OF ALL EXCAVATIONS OR BACKFILL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
5. THE SUMP PIT AND HDPE PIPES ARE PROVIDED BY AEM AND ARE STORED ON SITE (CUTTING / FUSING TO THE SPECIFIED PIPE LENGTH WILL BE NECESSARY). SPEC DRAWINGS ARE AVAILABLE AND SHALL BE CONSULTED FOR DIMENSIONS CHECKS. BLIND FLANGES ARE INSTALLED ON THE ENTRY OF THE PIPES INSIDE THE SUMP PIT.
6. THE CONNECTION BETWEEN THE SUMP PIT AND THE HDPE WATER INTAKE PIPE SHALL BE A FUSED RING. RESPECT APPLICABLE STANDARDS TO ENSURE THE QUALITY OF THE RING.
7. THE BOTTOM OF LAKE ELEVATION IS APPROXIMATE AND SHALL BE CONFIRMED ON SITE. THE FINAL ELEVATION OF THE PIPES AND SUMP PIT WILL BE DETERMINED BY THE 150mm REQUIREMENT SPACE BETWEEN THE BOTTOM OF THE LOWER PIPE AND THE LAKE BED.
8. THE CONSTRUCTION METHODOLOGY SHALL BE DEFINED BY THE CONTRACTOR. WORKS SHALL BE DONE WHEN THE WATER LEVEL IS VERY LOW AND/OR ICED. THE JETTY SHALL BE LEVELLED PROGRESSIVELY IN ORDER TO INSTALL THE SUMP PIT WITH APPROPRIATE EQUIPMENT AND MATERIAL.
9. AN AS-BUILT DRAWING SHALL BE PROVIDED AFTER CONSTRUCTION.

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
GENERAL CIVIL WORKS 2016	65-000-230-212

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
1	2016-12-01	ISSUED FOR CONSTRUCTION	D.R.	J.A.	
0	2016-09-19	ISSUED FOR CONSTRUCTION	JO.M	J.A	
A	2016-06-23	ISSUED FOR COMMENTS	D.R.	J.A.	

REVISIONS

J.M.I.F. ALARIE LICENSE 2016-12-01

TITRE / TITLE
AGNICO-EAGLE – MEL IADINE DIVISION
417- JETTIES
230-GENERAL EARTH WORKS
JETTY CP5
PLAN / CROSS-SECTIONS

DESSINÉ PAR DRAWN BY	DANIEL ROSALES	DATE 2016-06-16
VÉRIFIÉ PAR CHECKED BY	SOLÈNE MOREAU	2016-06-16
APPROUVÉ PAR APPROVED BY	JOSÉE ALARIE	2016-09-08
ÉCHELLE SCALE	AS INDICATED	DATE 2016-06-16

NO. DESSIN DRAWING NO. 65-417-230-208

NO. PROJET PROJECT NO. 6515/28920 — REVISION 1 — FEUILLE / SHT 1 / 1

AE-CART-ARCH D

P:\28920\DESSIN\CIV-INFRA\DESSINS DE TRAVAIL\AUTOCAD\65-417-230-207-208_R1.dwg

APPENDIX B: AS BUILT REPORT – JETTY-CP1 AND JETTY-CP5

CONSTRUCTION SUMMARY (AS-BUILT) REPORT FOR JETTY-CP1 AND JETTY-CP5 MELIADINE PROJECT, NUNAVUT

PRESENTED TO
Agnico Eagle Mines Ltd.

OCTOBER 2017
ISSUED FOR USE
TETRA TECH PROJECT NUMBER: 28920
AGNICO EAGLE DOCUMENT NUMBER: 6515-E-132-005-132-REP-012

Tetra Tech
5100, Sherbrooke street east, suite 400
Montreal, QC H1V 3R9, CANADA
Tel 514.257.1112 Fax 514.257.0717

EXECUTIVE SUMMARY

Tetra Tech was retained by Agnico Eagle Mines Limited (Agnico Eagle) to prepare a construction summary (as-built) report for Jetty-CP1 and Jetty-CP5 at the Meliadine Gold Project, Nunavut. Tetra Tech previously prepared the construction drawings and specifications as well as the design report of Jetty-CP1 and CP5.

Tetra Tech was not involved in the construction of Jetty-CP1 and CP5. The information presented in this report was provided by Agnico Eagle.

The construction of Jetty-CP1 and Jetty-CP5 was completed in July 2017. The construction monitoring was managed by Agnico Eagle.

This report summarizes the construction as-built information for Jetty-CP1 and Jetty-CP5.

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (the project). The mine is located approximately 25 km north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Tetra Tech previously prepared the construction drawings and specifications for the jetties in December 2016. Jetty-CP1 is located in pond H17. Jetty-CP5 is located in pond A54. As part of the scope of work, Agnico Eagle asked Tetra Tech to undertake the following tasks associated with Jetty-CP1 and Jetty-CP5:

- Conduct the detailed design of Jetty-CP1 and Jetty-CP5 to produce construction drawings and specifications; and
- Prepare the design and construction summary reports for Jetty-CP1 and Jetty-CP5, in accordance with the requirements in the Type “A” Water License (No. 2AM-MEL1631).

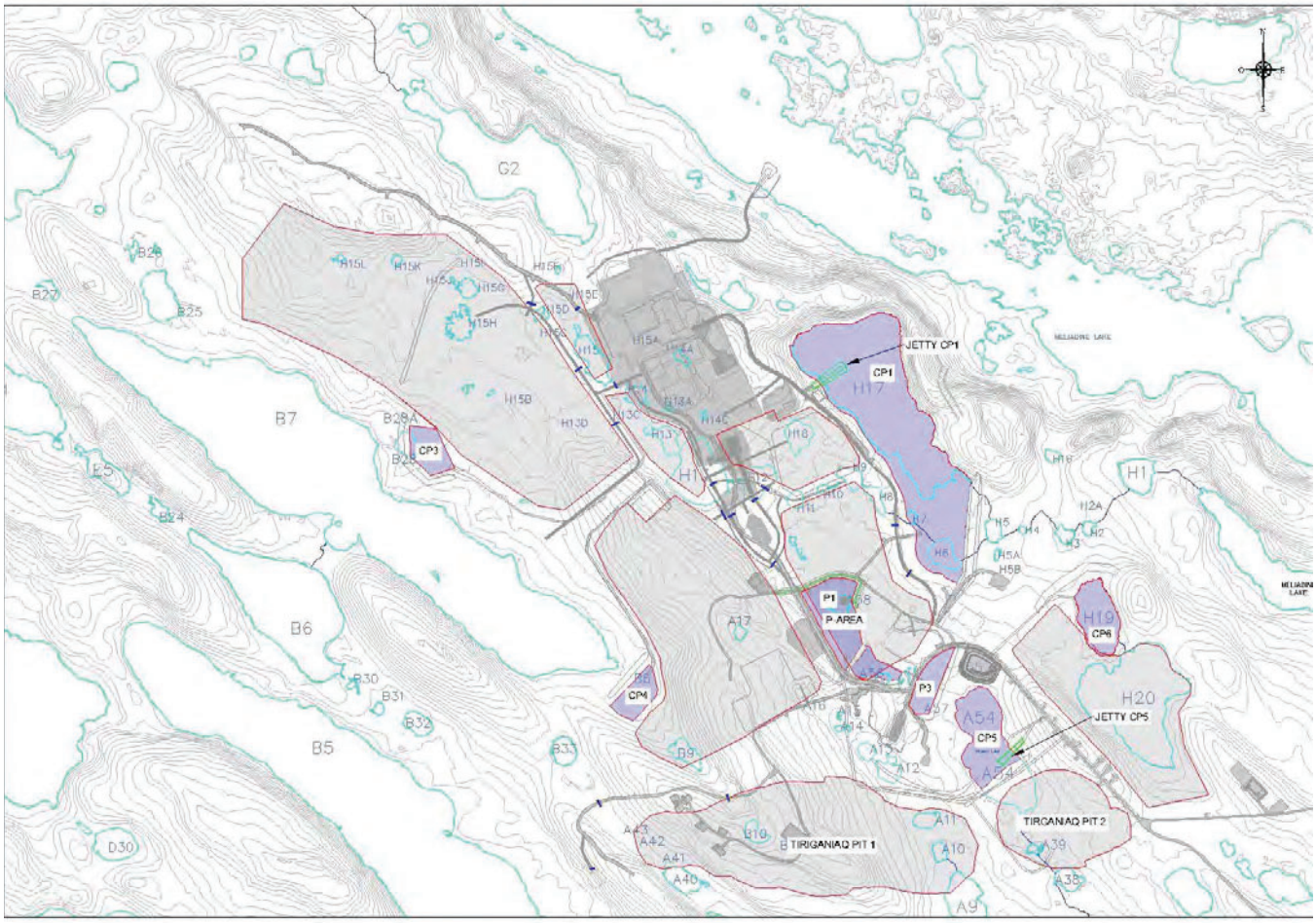
As required by the Water Licence A, this report summarizes the construction work of Jetty-CP1 and Jetty-CP5. Included in this report is:

- A summary of the characteristics of the jetties;
- Documentation on field decisions that deviate from original plans;
- As-built drawings of both jetties;
- A survey drawing conducted after the construction of Jetty-CP1 and Jetty-CP5;
- A construction summary of both jetties;
- Photographs of both jetties.

2.0 SUMMARY OF THE CONSTRUCTION

2.1 Site Location Plan

The figure below presents a site location plan for Jetty-CP1 and Jetty-CP5.



2.2 Construction Schedule

The construction of Jetty-CP1 and Jetty-CP5 were completed according to the following milestones:

Item	Jetty-CP1	Jetty-CP5
Site Preparation/Snow and Ice Clearing	February 5th to February 8th	February 7th to February 8th
Run of Mine Placement	February 6th to May 26th	February 11th to May 26th
30mm Minus Bedding Placement	April 29th to May 26th	April 29th to May 27th
HDPE Sump Installation	May 1st to May 3rd	May 1st to May 3rd
30mm Minus Topping Placement	June 28th to July 2nd	July 2nd to July 5th

2.3 Jetty Characteristics

The characteristics and estimated in-place quantities of the jetties are presented in the table below. For erosion control purposes, riprap was installed at the entry of the pipes.

Characteristics		
Item	**Jetty-CP1**	**Jetty-CP5**
Elevation of Jetty (m)	67.3	67.0
Length (m)	132.4	109.3
Width (avg.) (m)	11.6	11.6
Side Slope (avg.)	1V:2.3H	1V:3H

Material Quantities		
Item	**Jetty-CP1**	**Jetty-CP5**
30mm Minus, final grade (m^3)	361	284
30mm Minus, around sump pit (m^3)	90.5	57
30mm Minus, around pipes (m^3)	23.2	11
Rip-rap, at entry of pipes (m^3)	7	4
Run of Mine, 600mm Minus (m^3)	9079	2158
Total Fill Material Volume (m^3)	9560.7	2514

2.4 Drawings and Photographs

As-built drawings are presented in Appendix A.

A survey drawing conducted during the construction of Jetty-CP1 and CP5 can be found in Appendix B.

Photographs of the jetties after construction are shown in Appendix C and Appendix D.

3.0 DOCUMENTATION ON FIELD DECISIONS THAT DEVIATE FROM ORIGINAL PLANS

A construction summary was prepared for each jetty by the construction team. Their summaries are available in Appendix E.

The construction of Jetty-CP1 followed the design drawing, except for the following:

- The alignment of the jetty remained the same, while the length was decreased by 8m to coincide with the lowest point of the lake bottom (this on-site adjustment was required).
- The average side slope is 1V:2.5H while the plans specified a slope of 1V:3H

The geometry and characteristics of Jetty-CP1 were adjusted to site conditions. The table below presents the difference between the proposed work and the actual work.

Characteristics			
Item	**Proposed**	**Actual**	**Difference**
Elevation of Jetty (m)	67.3	67.3	0
Length (m)	140.6	132.4	- 8.2
Width (avg.) (m)	11	11.6	+ 0.6
Side Slope (avg.)	1V:3H	1V:2.3H	Steeper

Material Quantities			
Item	**Proposed**	**Actual**	**Difference**
30mm Minus, final grade (m^3)	325	361	+ 36
30mm Minus, around sump pit (m^3)	75	90.5	+ 15.5
30mm Minus, around pipes (m^3)	15.5	23.2	+ 7.7
Rip-rap, at entry of pipe (m^3)	4	7	+ 3
Run of Mine, 600mm Minus (m^3)	9421	9079	- 342
Total Fill Material Volume (m^3)	9840.5	9560.7	- 279.8

The construction of Jetty-CP5 followed the design drawing, except for the following:

- The alignment of the beginning of the jetty shifted by 4m, the length increased by 1.3m to 110.7m, and the jetty was rotated to the Northwest to coincide with a lower lake bed elevation and provide easy road access.

The geometry and characteristics of Jetty-CP5 were adjusted to site conditions. The table below presents the difference between the proposed work and the actual work.

Characteristics			
Item	**Proposed**	**Actual**	**Difference**
Elevation of Jetty (m)	67.0	67.0	0
Length (m)	109.3	110.7	+ 1.4
Width (avg.) (m)	11.0	11.6	+ 0.6
Side Slope (avg.)	1V:3H	1V:3H	-

Material Quantities			
Item	**Proposed**	**Actual**	**Difference**
30mm Minus, final grade (m^3)	256	284	+ 28
30mm Minus, around sump pit (m^3)	47	57	+ 10
30mm Minus, around pipes (m^3)	10	11	+ 1
Rip-rap, at entry of pipe (m^3)	4	4	0
Run of Mine, 600mm Minus (m^3)	2288	2158	- 130
Total Fill Material Volume (m^3)	2605	2514	- 91

4.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Agnico Eagle Mines Ltd. and their agents. Tetra Tech does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Agnico Eagle Mines Ltd., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech's Services Agreement.

5.0 CLOSURE

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

Respectfully submitted,
Tetra Tech

PERMIT TO PRACTICE
TETRA TECH INDUSTRIES, INC.
O/A TETRA TECH
Signature
Date 2017-11-13
PERMIT NUMBER: P 1029
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
J.M.I.F. ALARIE
LICENSEE

Prepared by: 2017-11-13
Christopher Morin, Jr. Eng.
Direct Line: 514.257.2427 x3240
Christopher.Morin@tetratech.com

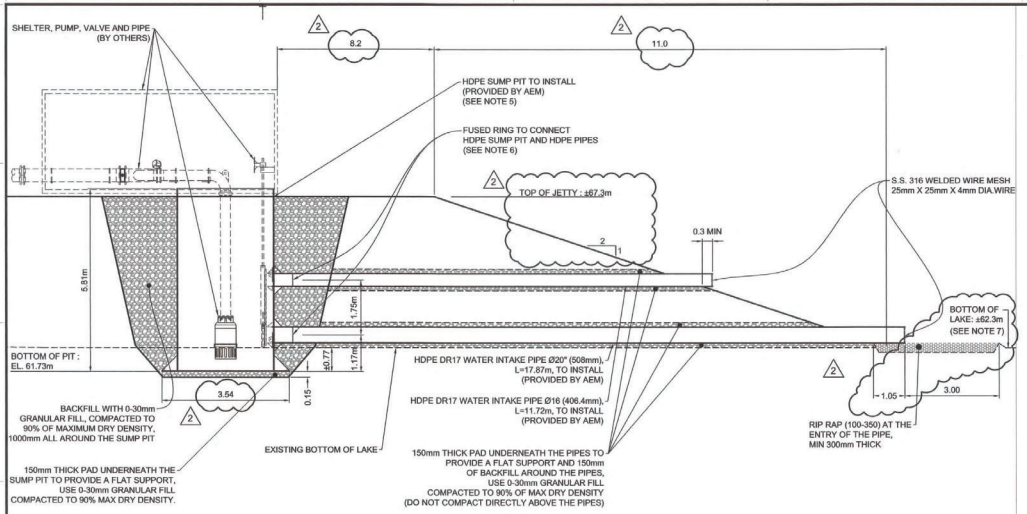
Reviewed by: 2017-11-13
Josée Alarie, P. Eng.
Direct Line: 514.257.2427 x3323
Josee.Alarie@tetratech.com

APPENDIX A

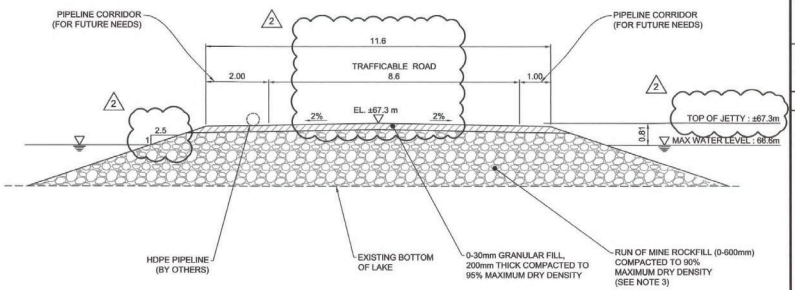
- As-Built Drawing 65-417-230-207
- As-Built Drawing 65-417-230-208

NO. DESSIN
DRAWING NO. 65-417-230-207-208_R2

FORMAT ARCHD



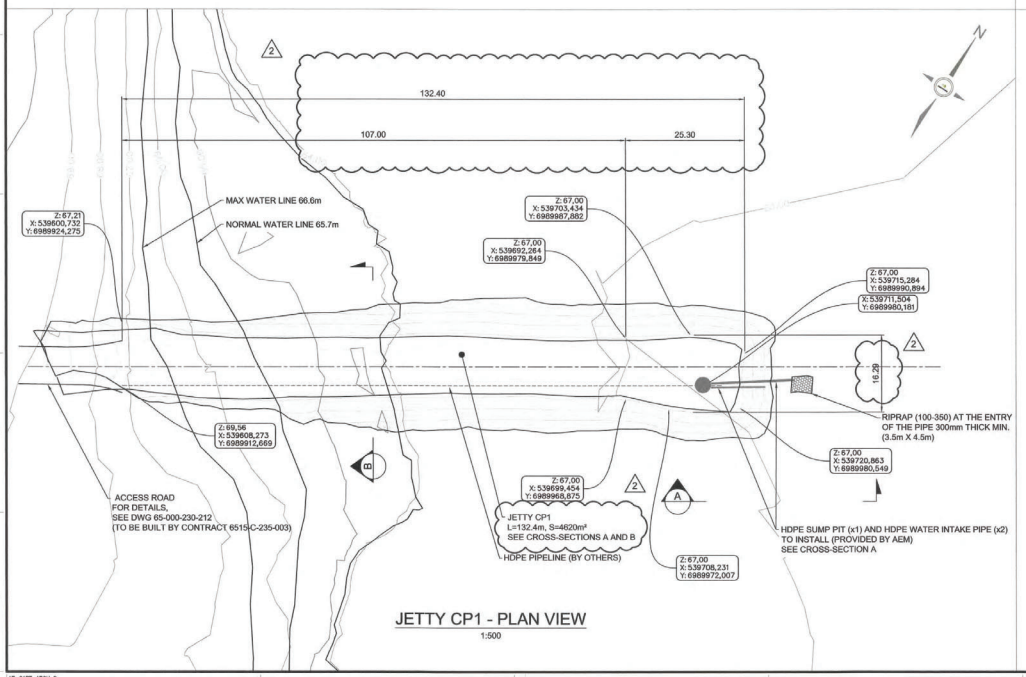
CROSS-SECTION A
NTS



CROSS-SECTION B
NTS

NOTES:

- SAFETY BERMS MADE OF BOULDERS OR CONCRETE BLOCKS COULD BE INSTALLED AT THE EDGE OF THE JETTY.



JETTY CP1 - PLAN VIEW
1:500

SUMMARY OF IN-PLACE QUANTITIES
Construction - Jetty CP-1

Aggregate Material	Thickness (mm)	Estimated (m³)	Actual (m³)
Granular fill, 0-30mm (final grade)	200	375	361
0-30mm (around sump pit)	1000	75	90.5
0-30mm (around pipes)	150	15.5	23.2
RIP RAP, 100-350mm (at the entry of the pipe)	300	4	7
ROM, 0-600mm	±2060	9421	9079
TOTAL	-	9890.5	9560.7

NOTES:

- THE GIVEN MATERIAL QUANTITIES ARE BARE-BONE, IN-PLACE QUANTITIES AFTER PLACEMENT AND COMPACTION.
- THE QUANTITIES DO NOT INCLUDE ANY EXTRAS TO COMPENSATE FOR POTENTIAL MATERIAL WASTED, MATERIAL LOSS INTO THE TUNDRA, AND ADDITIONAL MATERIAL REQUIRED DUE TO FOUNDATION SETTLEMENT DURING CONSTRUCTION.
- THE QUANTITIES INDICATED ARE AFTER COMPACTION. FOR MATERIAL PREPARATION, EXTRA QUANTITIES SHOULD BE ADDED TO CONSIDER THE BULKING FACTOR.

LEGEND

Z: 73,40
X: 539565,397
Y: 6989056,827 — FINISHED GRADE ELEVATIONS AND COORDINATES

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-30

PLAN CLÉ
KEY PLAN

TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

GENERAL NOTES:

1. EXISTING GROUND DTM PROVIDED BY AEM.
2. ALL UNITS ARE IN METERS.
3. GRANULAR MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 300mm AND COMPACTED AS INDICATED. BORROW PIT OR RUN OF MINE MATERIAL SHALL BE PLACED WITH LIFTS NOT EXCEEDING 900mm AND COMPACTED TO A MIN. OF 90% OF MAXIMUM DRY DENSITY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY SECURITY AND SLOPES OF ALL EXCAVATIONS, BACKFILL AND SHALL ABIDE BY ALL RELEVANT STANDARDS AND REGULATIONS. THE STABILITY, DEWATERING AND MAINTENANCE OF ALL EXCAVATIONS OR BACKFILL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
5. THE SUMP PIT AND HDPE PIPES ARE PROVIDED BY AEM AND ARE STORED ON SITE (CUTTING / FUSING TO THE SPECIFIED PIPE LENGTH WILL BE NECESSARY). SPEC DRAWINGS ARE AVAILABLE AND SHALL BE CONSULTED FOR DIMENSIONS CHECKS. BLIND FLANGES ARE INSTALLED ON THE ENTRY OF THE PIPES INSIDE THE SUMP PIT.
6. THE CONNECTION BETWEEN THE SUMP PIT AND THE HDPE WATER INTAKE PIPE SHALL BE A FUSED RING. RESPECT APPLICABLE STANDARDS TO ENSURE THE QUALITY OF THE RING.
7. THE BOTTOM OF LAKE ELEVATION IS APPROXIMATE AND SHALL BE CONFIRMED ON SITE. THE FINAL ELEVATION OF THE PIPES AND SUMP PIT WILL BE DETERMINED BY THE 150mm REQUIREMENT SPACE BETWEEN THE BOTTOM OF THE LOWER PIPE AND THE LAKE BED.
8. THE CONSTRUCTION METHODOLOGY SHALL BE DEFINED BY THE CONTRACTOR. WORKS SHALL BE DONE WHEN THE WATER LEVEL IS VERY LOW AND/OR ICED. THE JETTY SHALL BE LEVELLED PROGRESSIVELY IN ORDER TO INSTALL THE SUMP PIT WITH APPROPRIATE EQUIPMENT AND MATERIAL.
9. AN AS-BUILT DRAWING SHALL BE PROVIDED AFTER CONSTRUCTION.

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
GENERAL CIVIL WORKS 2016	65-000-230-212

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-30	ISSUED AS-BUILT	C.M.	J.A.	
1	2016-12-01	ISSUED FOR CONSTRUCTION	D.R.	J.A.	
0	2016-09-19	ISSUED FOR CONSTRUCTION	J.G.M	J.A.	
A	2016-08-23	ISSUED FOR COMMENTS	D.R.	J.A.	

REVISIONS

PERMIT TO PRACTICE
TETRA TECH INDUSTRIES, INC.
O/A TETRA TECH
Signature
Date 2017.11.00
PERMIT NUMBER: P 1029
NT/NU Association of Professional Engineers and Geoscientists

APPROVED PROFESSIONAL ENGINEER
J.M.F. ALARIE
LICENCE
2017-10-30

TITRE / TITLE
AGNICO-EAGLE – MELIADINE DIVISION
417 – JETIES
230-GENERAL EARTH WORKS
JETTY CP1
PLAN / CROSS-SECTIONS

DESSINÉ PAR DRAWN BY	DANIEL ROSALES	DATE 2016-06-16
VÉRIFIÉ PAR CHECKED BY	SOLÈNE MOREAU	2016-06-16
APPROUVÉ PAR APPROVED BY	JOSÉE ALARIE	2016-09-08
ÉCHELLE SCALE	AS INDICATED	DATE 2016-06-16

NO. DESSIN DRAWING NO. 65-417-230-207

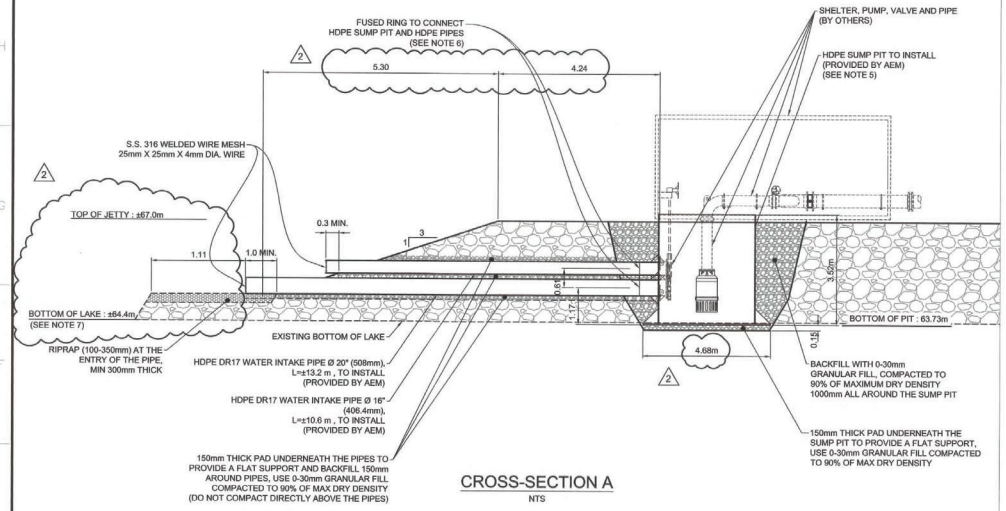
NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6515/28920	2	1 / 1

AE-CART-ARCH D

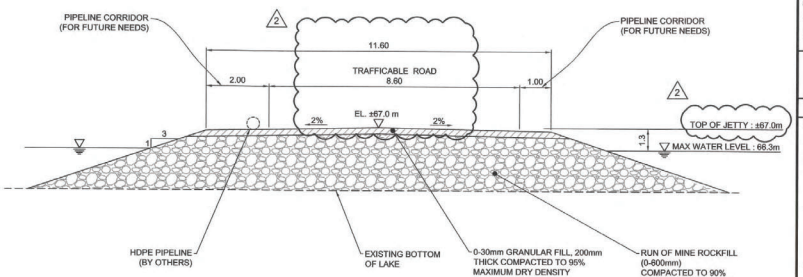
P:\28920\DESSIN\CIV-INFRA\DESSINS DE TRAVAIL\AUTOCAD\65-417-230-207-208_R2.dwg

NO. DESSIN DRAWING NO. 65-417-230-207-208_R2

FORMAT ARCH D



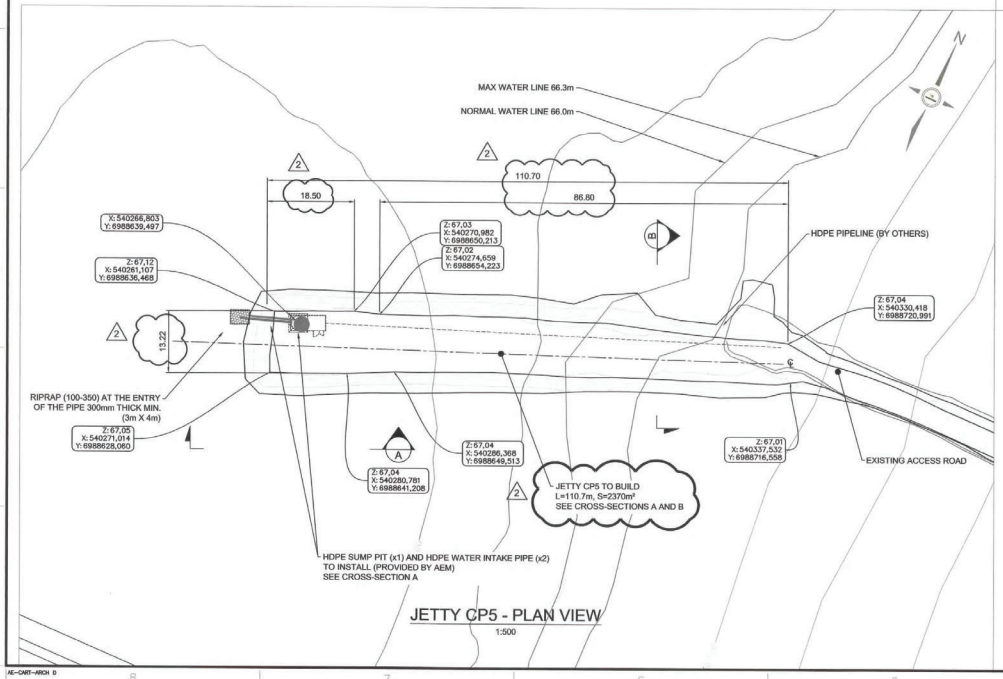
CROSS-SECTION A
NTS



CROSS-SECTION B
NTS

NOTES:

- SAFETY BERMS MADE OF BOULDERS OR CONCRETE BLOCKS COULD BE INSTALLED AT THE EDGE OF THE JETTY.



JETTY CP5 - PLAN VIEW
1:500

ESTIMATED IN-PLACE QUANTITIES
Construction - Jetty CP-5

Aggregate Material	Thickness (mm)	Estimated (m^3)	Actual (m^3)
Granular fill, 0-30mm (final grade)	200	256	284
0-30mm (around sump pit)	1000	47	57
0-30mm (around pipes)	150	10	11
RIP RAP, 100-350mm (at the entry of the pipe)	300	4	4
ROM, 0-600mm	±930	2288	2158
TOTAL	-	2605	2514

NOTES:

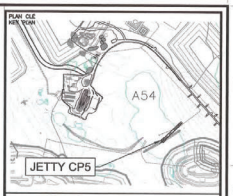
- THE GIVEN MATERIAL QUANTITIES ARE BARE-BONE, IN-PLACE QUANTITIES AFTER PLACEMENT AND COMPACTION.
- THE QUANTITIES DO NOT INCLUDE ANY EXTRAS TO COMPENSATE FOR POTENTIAL MATERIAL WASTED, MATERIAL LOSS INTO THE TUNDRA, AND ADDITIONAL MATERIAL REQUIRED DUE TO FOUNDATION SETTLEMENT DURING CONSTRUCTION.
- THE QUANTITIES INDICATED ARE AFTER COMPACTION. FOR MATERIAL PREPARATION, EXTRA QUANTITIES SHOULD BE ADDED TO CONSIDER THE BULKING FACTOR.

LEGEND

Z: 73,40 X: 539565,397 Y: 6989056,827 — FINISHED GRADE ELEVATIONS AND COORDINATES

TEL QUE CONSTRUIT AS BUILT
AGNICO EAGLE DATE : 2017-10-30

PLAN GÉ KEY MAP



TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

GENERAL NOTES:

1. EXISTING GROUND DTM PROVIDED BY AEM.
2. ALL UNITS ARE IN METERS.
3. GRANULAR MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 300mm AND COMPACTED AS INDICATED. BORROW PIT OR RUN OF MINE MATERIAL SHALL BE PLACED WITH LIFTS NOT EXCEEDING 900mm AND COMPACTED TO A MIN. OF 90% OF MAXIMUM DRY DENSITY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY SECURITY AND SLOPES OF ALL EXCAVATIONS, BACKFILL AND SHALL ABIDE BY ALL RELEVANT STANDARDS AND REGULATIONS. THE STABILITY, DEWATERING AND MAINTENANCE OF ALL EXCAVATIONS OR BACKFILL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
5. THE SUMP PIT AND HDPE PIPES ARE PROVIDED BY AEM AND ARE STORED ON SITE (CUTTING / FUSING TO THE SPECIFIED PIPE LENGTH WILL BE NECESSARY). SPEC DRAWINGS ARE AVAILABLE AND SHALL BE CONSULTED FOR DIMENSIONS CHECKS. BLIND FLANGES ARE INSTALLED ON THE ENTRY OF THE PIPES INSIDE THE SUMP PIT.
6. THE CONNECTION BETWEEN THE SUMP PIT AND THE HDPE WATER INTAKE PIPE SHALL BE A FUSED RING. RESPECT APPLICABLE STANDARDS TO ENSURE THE QUALITY OF THE RING.
7. THE BOTTOM OF LAKE ELEVATION IS APPROXIMATE AND SHALL BE CONFIRMED ON SITE. THE FINAL ELEVATION OF THE PIPES AND SUMP PIT WILL BE DETERMINED BY THE 150mm REQUIREMENT SPACE BETWEEN THE BOTTOM OF THE LOWER PIPE AND THE LAKE BED.
8. THE CONSTRUCTION METHODOLOGY SHALL BE DEFINED BY THE CONTRACTOR. WORKS SHALL BE DONE WHEN THE WATER LEVEL IS VERY LOW AND/OR ICED. THE JETTY SHALL BE LEVELLED PROGRESSIVELY IN ORDER TO INSTALL THE SUMP PIT WITH APPROPRIATE EQUIPMENT AND MATERIAL.
9. AN AS-BUILT DRAWING SHALL BE PROVIDED AFTER CONSTRUCTION.

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
GENERAL CIVIL WORKS 2016	65-000-230-212

AGNICO EAGLE

REV.	DATE	DESCRIPTION	DWG/BY	APP.	CLIENT
3	2017-10-30	ISSUED AS-BUILT	CJL	JA	
2	2016-12-01	ISSUED FOR CONSTRUCTION	DR	JA	
1	2016-09-19	ISSUED FOR CONSTRUCTION	JGM	JA	
0	2016-08-23	ISSUED FOR COMMENTS	DR	JA	

REVISIONS

PERMIT TO PRACTICE
TETRA TECH INDUSTRIES, INC.
Signature
Date 2017-11-10
PERMIT NUMBER: P 1029
NTNU Association of Professional Engineers and Geoscientists

PROFESSIONAL ENGINEERS GEOSCIENTISTS J.M.I.F. ALARIE LICENCE

2017-10-30

TITRE / TITLE
AGNICO—EAGLE — MELIADINE DIVISION
417— JETTIES
230—GENERAL EARTH WORKS
JETTY CP5
PLAN / CROSS-SECTIONS

DESSINÉ PAR / DRAWN BY	DANIEL ROSALES	DATE 2016-06-16
VÉRIFIÉ PAR / CHECKED BY	SOLÈNE MOREAU	2016-06-16
APPROUVÉ PAR / APPROVED BY	JOSÉE ALARIE	2016-09-08
ÉCHELLE / SCALE	AS INDICATED	DATE 2016-06-16

NO. DESSIN / DRAWING NO. 65-417-230-208

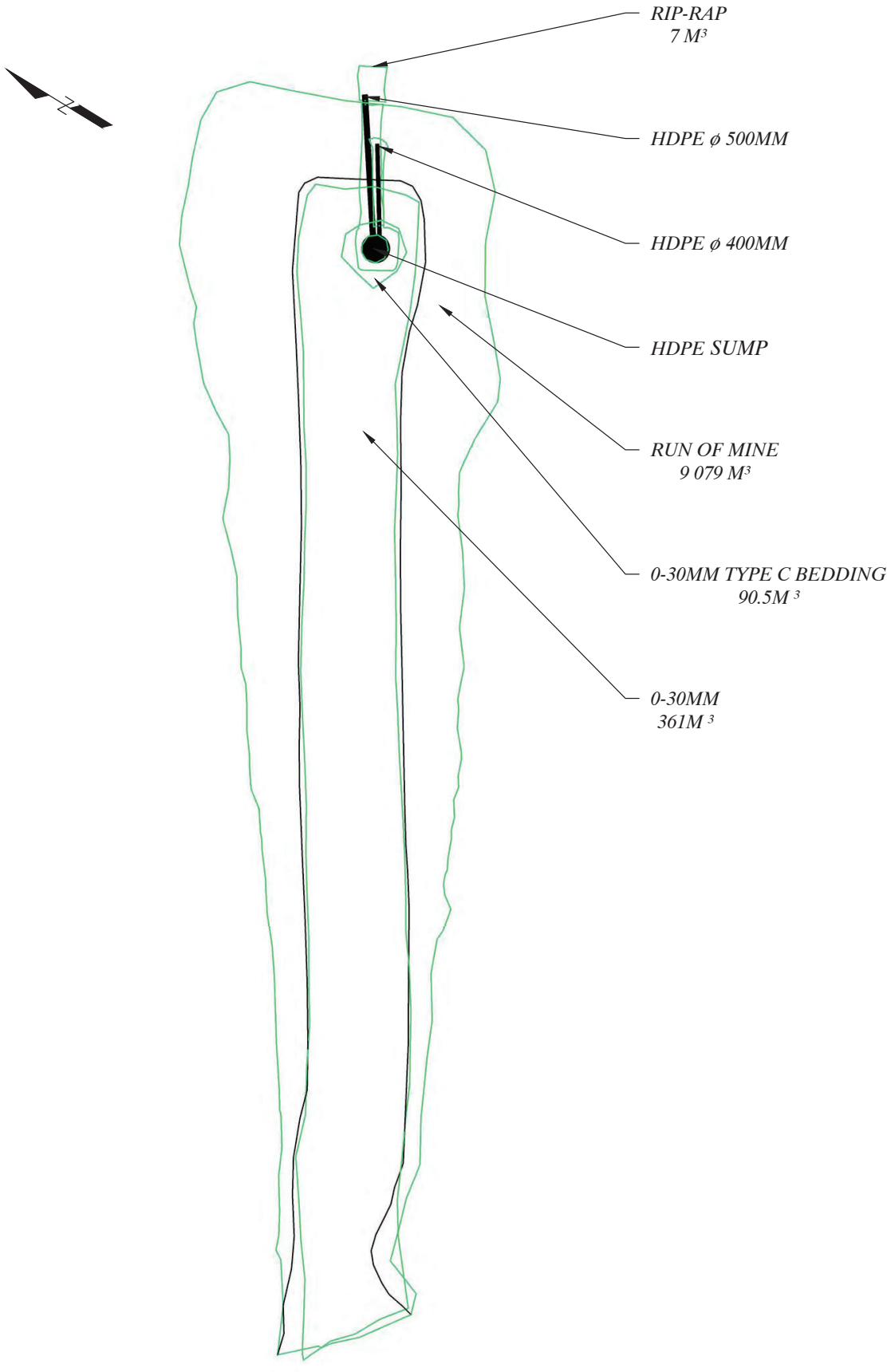
NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515/28920	2	1/1

AE-CART-ARCH D

P:\28920\DESSIN\CIV-INFRA\DESSINS DE TRAVAIL\AUTOCAD\65-417-230-207-208_R2.dwg

APPENDIX B

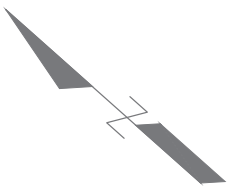
- As-Built Jetty-CP1 417-QTY-20170704
- As-Built Jetty-CP5 417-QT-20170718-02

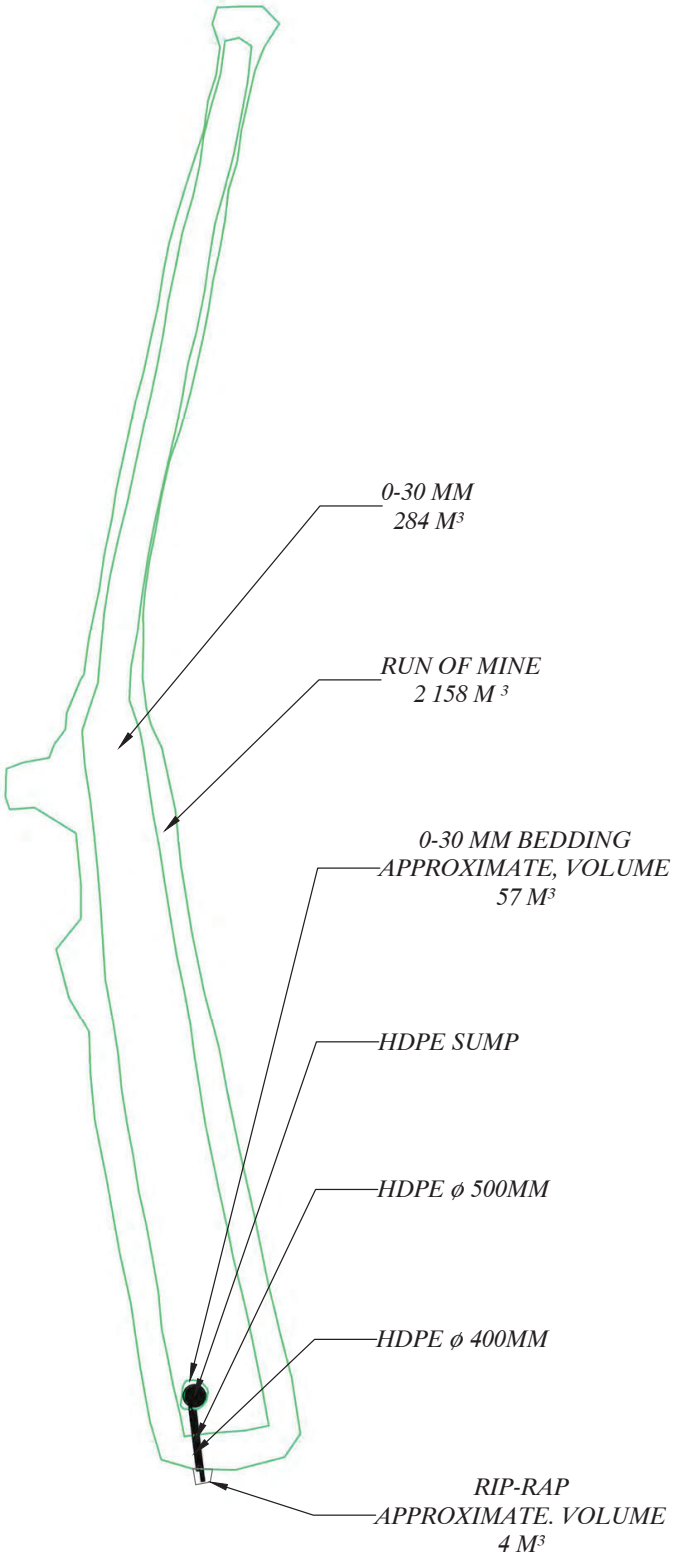


C:\Users\Utilisateur\Desktop\RANKIN INLET\SURVEY\DWG_MELIADINE\CP1\AB--JETTY1--C3D2018.dwg 2017-10-21

HAMELARPENTAGE

AGNICO EAGLE	WORK EXECUTION DATE : 2017-07-04	EMISSION DATE : 2017-10-22
COORD. SYSTEME: UTM15 NAD83	AS BUILT JETTY CP1	DRAWN BY: R.CLOUATRE
SCALE: 1:500	PLAN NO.: 417-QTY-20170704	APPROVED BY: Hamel arpentage



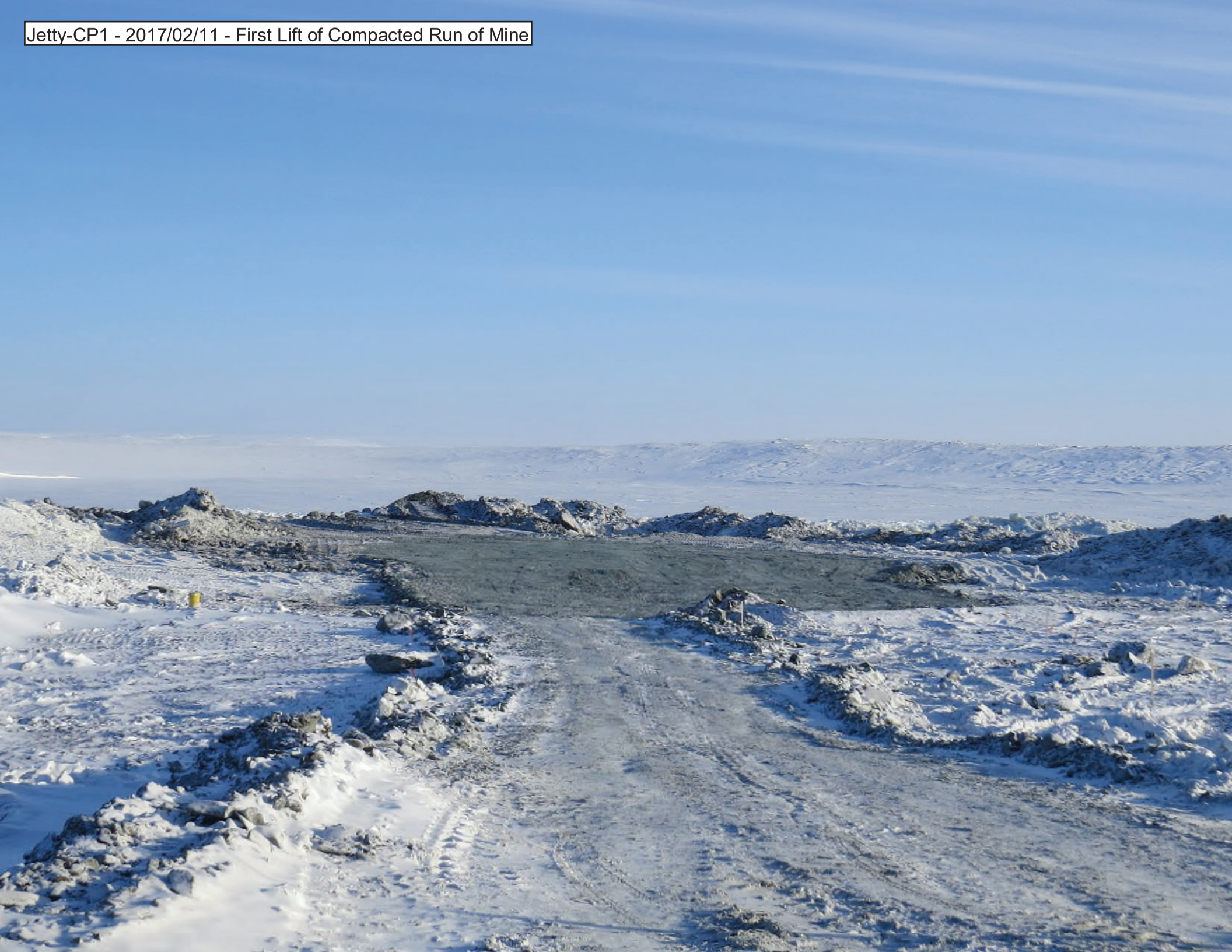


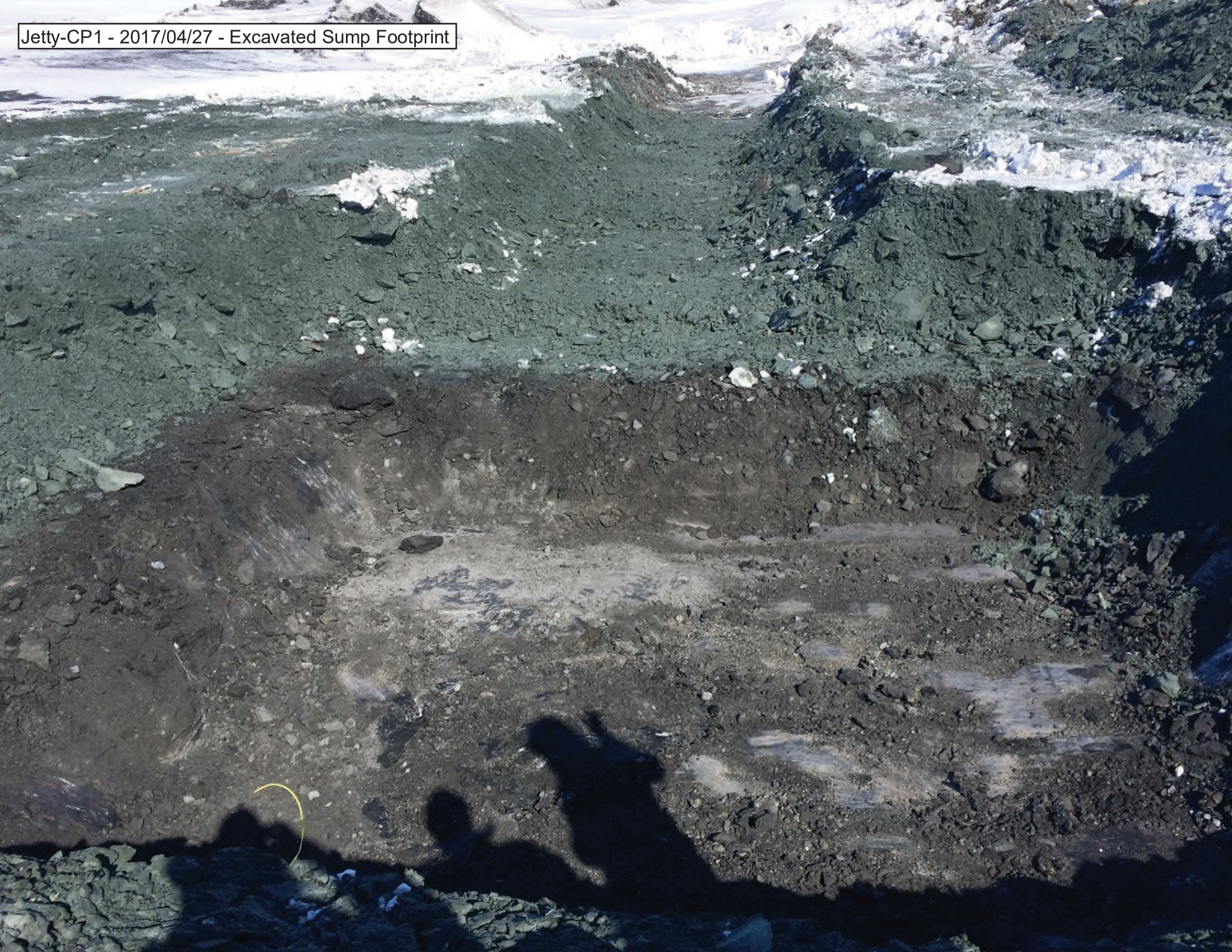
C:\Users\Utilisateur\Desktop\RANKIN INLET\SURVEY\DWG_MELIADINE\CP5\AB_JETTY 5-CP5 2017-10-22

HAMELARPENTAGE	AGNICO EAGLE	WORK EXECUTION DATE : 2017-07-18	EMISSION DATE : 2017-10-22
	COORD. SYSTEME: UTM15 NAD83	AS BUILT JETTY CP5	DRAWN BY: R.CLOUATRE
	SCALE: 1:750	PLAN NO.: 417-QT-20170718-02	APPROVED BY: Hamel arpentage

APPENDIX C

- Photographs of Jetty-CP1


Jetty-CP1 - 2017/02/11 - First Lift of Compacted Run of Mine


Jetty-CP1 - 2017/04/27 - Excavated Sump Footprint


Jetty-CP1 - 2017/05/01 - Placed HDPE Sump


Jetty-CP1 - 2017/05/04 - First Pipe Covered


Jetty-CP1 - 2017/05/04 - Second Pipe Installation


Jetty-CP1 - 2017/05/28 - Completed Run of Mine Bedding


Jetty-CP1 - 2017/07/05 - Completion

APPENDIX D

- Photographs of Jetty-CP5


Jetty-CP5 - 2017/05/01 - Placed HDPE Sump
SOLENO


Jetty-CP5 - 2017/05/04 - First Pipe Installed


Jetty-CP5 - 2017/05/06 - Second Pipe Installation


Jetty-CP5 - 2017/05/29 - Completed Run of Mine Bedding


Jetty-CP5 - 2017/07/05 - Completion

APPENDIX E

- Construction Summary – Jetty 1
- Construction Summary – Jetty 5

Construction Summary – Jetty 1

- Civil construction completed primarily by MTKSL
- Fusion completed by Semi-Blais
- Construction conducted simultaneously with D-CP1 construction (during down time at the dike)
- No formal QA/QC monitoring was conducted although Dike QA/QC did observe material placement/compaction and equipment tracking
- Average Type C gradation specifications provided
- No particle size analysis conducted on 30 mm minus crushed ROM used as bedding/topping material. However, sieves available from later productions of 30 mm minus, using the same crusher, same specifications and same feed source material

Design Deviations:

- Length of jetty was shortened 10 m from design to coincide with the lowest part of the lake bottom (RFI 170129)

1. **Site Preparation/Snow and Ice Clearing (February 5 to February 8)**

- Snow cleared from footprint of access road prior to ROM placement
- Ice/Snow pushed from Lake H17 footprint and piled around Jetty footprint (snow/ice berms)

2. **ROM Placement (February 6 to May 26)**

- Run-of-mine (ROM) from Underground Operations (600 mm minus) placed in controlled lifts (approximately 1.0 m lift heights) and compacted prior to placement of the next lift
- The first lift of ROM was placed throughout the entire jetty footprint – sump and pipe footprint were excavated/trenched through the ROM (excavation of sump/pipe footprint completed by Inukshuk)
- Side slopes were shaped to 3:1 as per RFI 170129

3. **30 mm Minus Bedding Placement (April 29 to May 26)**

- Placed in controlled lifts and compacted prior to placement of next lift
- Under sump pit and intake pipe 30 mm minus crushed ROM placed (by AEM)
- Type C (20 mm minus esker material) was substituted for a portion of the bedding material

4. **HDPE Sump Installation (May 1 to May 3)**

- Lake bottom excavated prior to placement of 30 mm minus bedding
- 200 mm minus crushed ROM placed for rip rap at end of pipe

5. **30 mm Minus Topping Placement (June 28 to July 2)**

- Topping consisted of 30 mm minus crushed ROM
- Placed in controlled lifts and compacted prior to placement of next lift

Equipment Used for Construction:

- CAT D9 Bulldozer
- CAT D8 Bulldozer
- CAT D6 Bulldozer
- CAT 330L Excavator
- CAT 345C Excavator
- CAT 336E Excavator
- CAT 320 Excavator
- CAT 980 Loader
- CAT 988 Loader
- CAT 740 articulated haul trucks
- CAT 773 haul trucks
- CAT CS56 10-ton vibratory drum compactor
- HAMM 5-ton vibratory drum compactor
- Various small hand-pushed compactors

Construction Summary – Jetty 5

- Civil construction completed primarily by MTKSL
- Fusion completed by Semi-Blais
- Construction conducted simultaneously with D-CP5 construction (during down time at the dike)
- No formal QA/QC monitoring was conducted although Dike QA/QC did observe material placement/compaction and equipment tracking
- No particle size analysis conducted on 30 mm minus crushed ROM used as bedding/topping material. However, sieves available from later productions of 30 mm minus, using the same crusher, same specifications and same feed source material

Design Deviations:

- Alignment of jetty was rotated to the northwest so that the as-built sump position is approximately 17.5 m above original design – change in alignment was to coincide with a lower lakebed elevation and to provide easy road access by using an existing berm built in 2016

1. **Site Preparation/Snow and Ice Clearing (February 7 to February 8)**

- Snow cleared from footprint of access road prior to ROM placement
- Ice/Snow pushed from Lake A54 footprint and piled around Jetty footprint (snow/ice berms)

2. **ROM Placement (February 11 to May 26)**

- Run-of-mine (ROM) from Underground Operations (600 mm minus) placed in controlled lifts (approximately 1.0 m lift heights) and compacted prior to placement of the next lift
- The first lift of ROM was placed throughout the entire jetty footprint – sump and pipe footprint were excavated/trenched through the ROM
- Side slopes were shaped to 3:1 as per RFI 170129

3. **30 mm Minus Bedding Placement (April 29 to May 27)**

- Placed in controlled lifts and compacted prior to placement of next lift

4. **HDPE Sump Installation (May 1 to May 3)**

- Sump was placed in test pit location previously excavated therefore no additional lake bottom excavated prior to placement of 30 mm minus bedding
- 200 mm minus crushed ROM placed for rip rap at end of pipe

5. **30 mm Minus Topping Placement (July 2 to July 5)**

- Topping consisted of 30 mm minus crushed ROM
- Placed in controlled lifts and compacted prior to placement of next lift

Equipment Used for Construction:

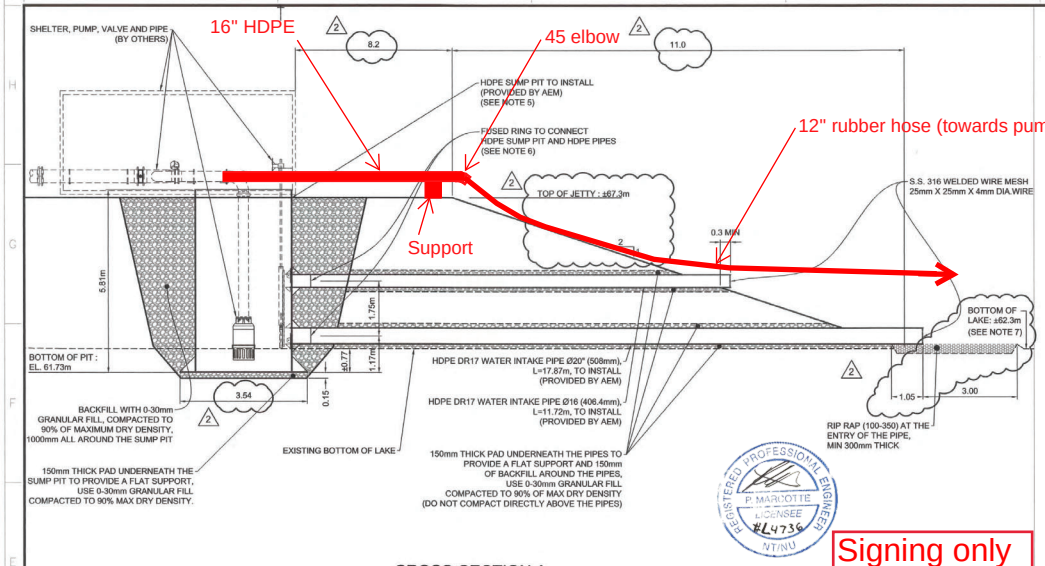
- CAT D9 Bulldozer
- CAT D8 Bulldozer
- CAT D6 Bulldozer
- CAT 330L Excavator
- CAT 345B Excavator
- CAT 336E Excavator
- CAT 980 Loader
- CAT 988 Loader
- CAT 740 articulated haul trucks
- CAT 773 haul trucks
- CAT CS56 10-ton vibratory drum compactor
- HAMM 5-ton vibratory drum compactor
- Various small hand-pushed compactors

APPENDIX C: PHOTO OF PUMP BOXES

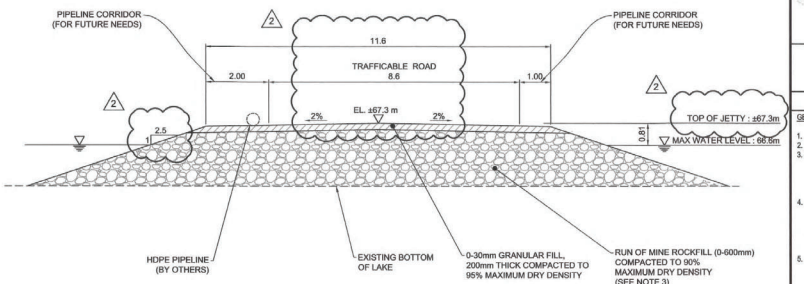
APPENDIX D: DRAWING REDLINING DETAILING THE PIPING MODIFICATION

NO. DESSIN / DRAWING NO. 65-417-230-207-208_R2

FORMAT ARCHD



CROSS-SECTION A
NTS

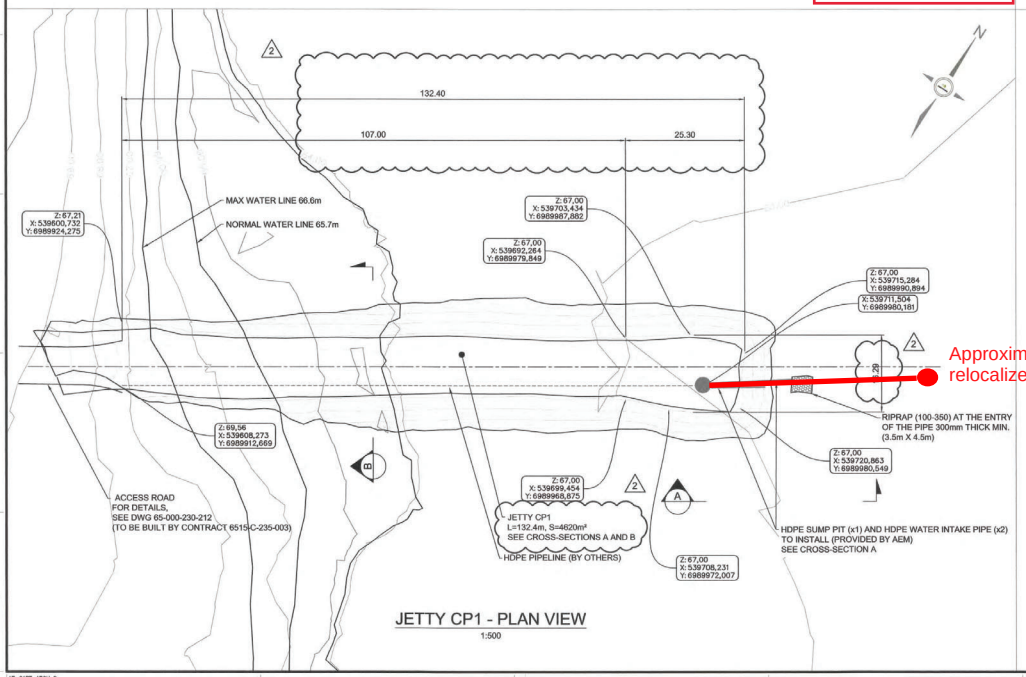


CROSS-SECTION B
NTS

NOTES:

- SAFETY BERMS MADE OF BOULDERS OR CONCRETE BLOCKS COULD BE INSTALLED AT THE EDGE OF THE JETTY.

Signing only for redlining



Approximate location of relocalized pump

JETTY CP1 - PLAN VIEW
1:500

SUMMARY OF IN-PLACE QUANTITIES
Construction - Jetty CP-1

Aggregate Material	Thickness (mm)	Estimated (m³)	Actual (m³)
Granular fill, 0-30mm (final grade)	200	375	361
0-30mm (around sump pit)	1000	75	90.5
0-30mm (around pipes)	150	15.5	23.2
RIP RAP, 100-350mm (at the entry of the pipe)	300	4	7
ROM, 0-600mm	±2060	9421	9079
TOTAL	-	9890.5	9560.7

NOTES:

- THE GIVEN MATERIAL QUANTITIES ARE BARE-BONE, IN-PLACE QUANTITIES AFTER PLACEMENT AND COMPACTION.
- THE QUANTITIES DO NOT INCLUDE ANY EXTRAS TO COMPENSATE FOR POTENTIAL MATERIAL WASTED, MATERIAL LOSS INTO THE TUNDRA, AND ADDITIONAL MATERIAL REQUIRED DUE TO FOUNDATION SETTLEMENT DURING CONSTRUCTION.
- THE QUANTITIES INDICATED ARE AFTER COMPACTION. FOR MATERIAL PREPARATION, EXTRA QUANTITIES SHOULD BE ADDED TO CONSIDER THE BULKING FACTOR.

LEGEND

Z: 73,40 X: 539565,397 Y: 6989056,827 — FINISHED GRADE ELEVATIONS AND COORDINATES

TEL QUE CONSTRUIT AS BUILT
AGNICO EAGLE DATE : 2017-10-30

PLAN CLÉ / KEY PLAN

TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

GENERAL NOTES:

1. EXISTING GROUND DTM PROVIDED BY AEM.
2. ALL UNITS ARE IN METERS.
3. GRANULAR MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 300mm AND COMPACTED AS INDICATED. BORROW PIT OR RUN OF MINE MATERIAL SHALL BE PLACED WITH LIFTS NOT EXCEEDING 900mm AND COMPACTED TO A MIN. OF 90% OF MAXIMUM DRY DENSITY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY SECURITY AND SLOPES OF ALL EXCAVATIONS, BACKFILL AND SHALL ABIDE BY ALL RELEVANT STANDARDS AND REGULATIONS. THE STABILITY, DEWATERING AND MAINTENANCE OF ALL EXCAVATIONS OR BACKFILL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
5. THE SUMP PIT AND HDPE PIPES ARE PROVIDED BY AEM AND ARE STORED ON SITE (CUTTING / FUSING TO THE SPECIFIED PIPE LENGTH WILL BE NECESSARY). SPEC DRAWINGS ARE AVAILABLE AND SHALL BE CONSULTED FOR DIMENSIONS CHECKS. BLIND FLANGES ARE INSTALLED ON THE ENTRY OF THE PIPES INSIDE THE SUMP PIT.
6. THE CONNECTION BETWEEN THE SUMP PIT AND THE HDPE WATER INTAKE PIPE SHALL BE A FUSED RING. RESPECT APPLICABLE STANDARDS TO ENSURE THE QUALITY OF THE RING.
7. THE BOTTOM OF LAKE ELEVATION IS APPROXIMATE AND SHALL BE CONFIRMED ON SITE. THE FINAL ELEVATION OF THE PIPES AND SUMP PIT WILL BE DETERMINED BY THE 150mm REQUIREMENT SPACE BETWEEN THE BOTTOM OF THE LOWER PIPE AND THE LAKE BED.
8. THE CONSTRUCTION METHODOLOGY SHALL BE DEFINED BY THE CONTRACTOR. WORKS SHALL BE DONE WHEN THE WATER LEVEL IS VERY LOW AND/OR ICED. THE JETTY SHALL BE LEVELLED PROGRESSIVELY IN ORDER TO INSTALL THE SUMP PIT WITH APPROPRIATE EQUIPMENT AND MATERIAL.
9. AN AS-BUILT DRAWING SHALL BE PROVIDED AFTER CONSTRUCTION.

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
GENERAL CIVIL WORKS 2016	65-000-230-212

AGNICO EAGLE

REVISIONS

REV.	DATE	DESCRIPTION	PAR/PRT	APP.	CLIENT
2	2017-10-30	ISSUED AS-BUILT	C.M.	J.A.	
1	2016-12-01	ISSUED FOR CONSTRUCTION	D.R.	J.A.	
0	2016-09-19	ISSUED FOR CONSTRUCTION	J.G.M	J.A.	
A	2016-08-23	ISSUED FOR COMMENTS	D.R.	J.A.	

PERMIT TO PRACTICE TETRA TECH INDUSTRIES, INC. O/A TETRA TECH
Signature
Date 2017.11.00
PERMIT NUMBER: P 1029
NT/NU Association of Professional Engineers and Geoscientists

J.M.F. ALARIE LICENCE
2017-10-30

TITRE / TITLE
AGNICO-EAGLE – MELIADINE DIVISION
417 – JETTIES
230-GENERAL EARTH WORKS
JETTY CP1
PLAN / CROSS-SECTIONS

DESSINÉ PAR / DRAWN BY	DANIEL ROSALES	DATE 2016-06-16
VÉRIFIÉ PAR / CHECKED BY	SOLÈNE MOREAU	2016-06-16
APPROUVÉ PAR / APPROVED BY	JOSÉE ALARIE	2016-09-08
ÉCHELLE / SCALE	AS INDICATED	DATE 2016-06-16

NO. DESSIN / DRAWING NO. 65-417-230-207

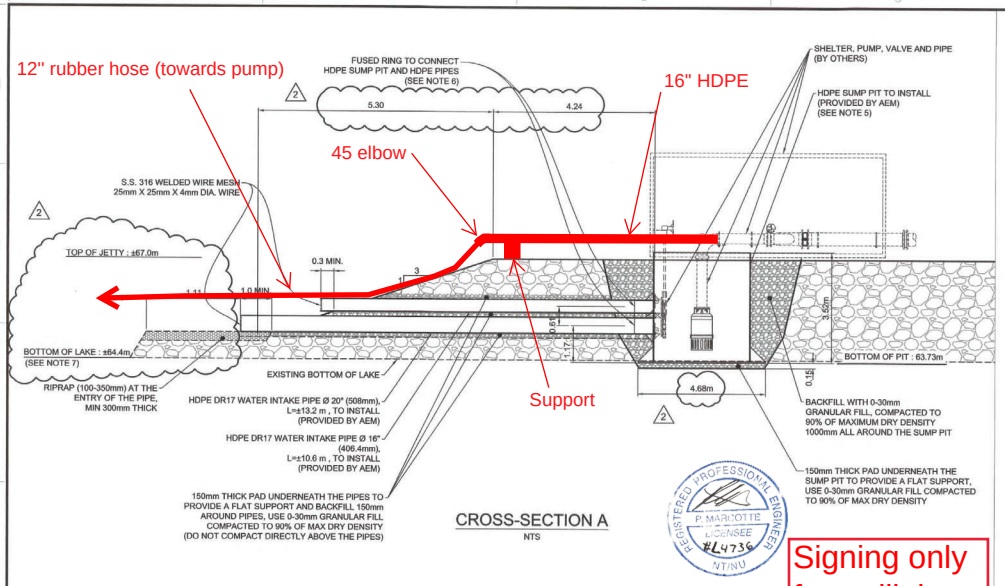
NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515/28920	2	1 / 1

AE-CART-ARCH D

P:\28920\DESSIN\CIV-INFRA\DESSINS DE TRAVAIL\AUTOCAD\65-417-230-207-208_R2.dwg

NO. DESSIN DRAWING NO. 65-417-230-207-208_R2

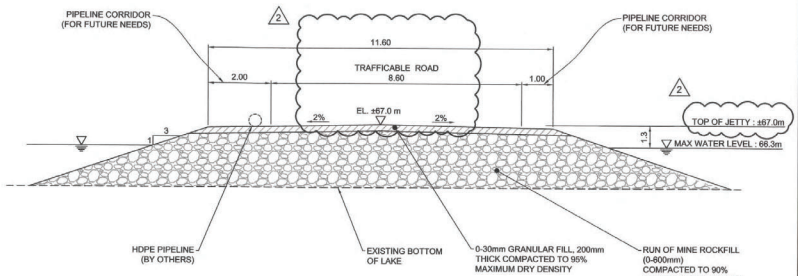
FORMAT ARCH D



CROSS-SECTION A
NTS

REGISTERED PROFESSIONAL ENGINEER P. MARIOTTE LICENSEE #L4736 NT/NU

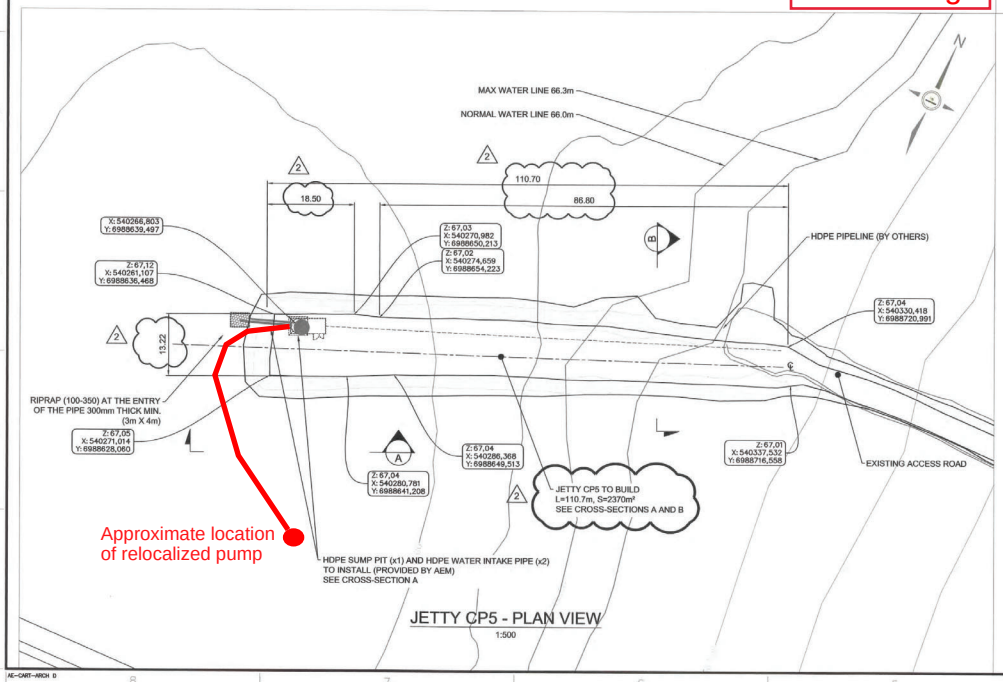
Signing only for redlining



CROSS-SECTION B
NTS

NOTES:

- SAFETY BERMS MADE OF BOULDERS OR CONCRETE BLOCKS COULD BE INSTALLED AT THE EDGE OF THE JETTY.



JETTY CP5 - PLAN VIEW
1:500

ESTIMATED IN-PLACE QUANTITIES
Construction - Jetty CP-5

Aggregate Material	Thickness (mm)	Estimated (m^3)	Actual (m^3)
Granular fill, 0-30mm (final grade)	200	256	284
0-30mm (around sump pit)	1000	47	57
0-30mm (around pipes)	150	10	11
RIP RAP, 100-350mm (at the entry of the pipe)	300	4	4
ROM, 0-600mm	±930	2288	2158
TOTAL	-	2605	2514

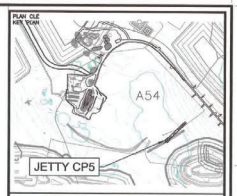
NOTES:

- THE GIVEN MATERIAL QUANTITIES ARE BARE-BONE, IN-PLACE QUANTITIES AFTER PLACEMENT AND COMPACTION.
- THE QUANTITIES DO NOT INCLUDE ANY EXTRAS TO COMPENSATE FOR POTENTIAL MATERIAL WASTED, MATERIAL LOSS INTO THE TUNDRA, AND ADDITIONAL MATERIAL REQUIRED DUE TO FOUNDATION SETTLEMENT DURING CONSTRUCTION.
- THE QUANTITIES INDICATED ARE AFTER COMPACTION. FOR MATERIAL PREPARATION, EXTRA QUANTITIES SHOULD BE ADDED TO CONSIDER THE BULKING FACTOR.

LEGEND

Z: 73,40 X: 539565,397 Y: 6989056,827 — FINISHED GRADE ELEVATIONS AND COORDINATES

TEL QUE CONSTRUIT AS BUILT AGNICO EAGLE DATE : 2017-10-30



TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

GENERAL NOTES:

1. EXISTING GROUND DTM PROVIDED BY AEM.
2. ALL UNITS ARE IN METERS.
3. GRANULAR MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 300mm AND COMPACTED AS INDICATED. BORROW PIT OR RUN OF MINE MATERIAL SHALL BE PLACED WITH LIFTS NOT EXCEEDING 900mm AND COMPACTED TO A MIN. OF 90% OF MAXIMUM DRY DENSITY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY SECURITY AND SLOPES OF ALL EXCAVATIONS, BACKFILL AND SHALL ABIDE BY ALL RELEVANT STANDARDS AND REGULATIONS. THE STABILITY, DEWATERING AND MAINTENANCE OF ALL EXCAVATIONS OR BACKFILL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
5. THE SUMP PIT AND HDPE PIPES ARE PROVIDED BY AEM AND ARE STORED ON SITE (CUTTING / FUSING TO THE SPECIFIED PIPE LENGTH WILL BE NECESSARY). SPEC DRAWINGS ARE AVAILABLE AND SHALL BE CONSULTED FOR DIMENSIONS CHECKS. BLIND FLANGES ARE INSTALLED ON THE ENTRY OF THE PIPES INSIDE THE SUMP PIT.
6. THE CONNECTION BETWEEN THE SUMP PIT AND THE HDPE WATER INTAKE PIPE SHALL BE A FUSED RING. RESPECT APPLICABLE STANDARDS TO ENSURE THE QUALITY OF THE RING.
7. THE BOTTOM OF LAKE ELEVATION IS APPROXIMATE AND SHALL BE CONFIRMED ON SITE. THE FINAL ELEVATION OF THE PIPES AND SUMP PIT WILL BE DETERMINED BY THE 150mm REQUIREMENT SPACE BETWEEN THE BOTTOM OF THE LOWER PIPE AND THE LAKE BED.
8. THE CONSTRUCTION METHODOLOGY SHALL BE DEFINED BY THE CONTRACTOR. WORKS SHALL BE DONE WHEN THE WATER LEVEL IS VERY LOW AND/OR ICED. THE JETTY SHALL BE LEVELLED PROGRESSIVELY IN ORDER TO INSTALL THE SUMP PIT WITH APPROPRIATE EQUIPMENT AND MATERIAL.
9. AN AS-BUILT DRAWING SHALL BE PROVIDED AFTER CONSTRUCTION.

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
GENERAL CIVIL WORKS 2016	65-000-230-212

AGNICO EAGLE

REV.	DATE	DESCRIPTION	DWG BY	APP.	CLIENT
2	2017-10-30	ISSUED AS-BUILT	CJL	J.A.	
1	2016-12-01	ISSUED FOR CONSTRUCTION	D.R.	J.A.	
0	2016-09-19	ISSUED FOR CONSTRUCTION	JG.M	J.A.	
A	2016-08-23	ISSUED FOR COMMENTS	D.R.	J.A.	

REVISIONS

PERMIT TO PRACTICE TETRA TECH INDUSTRIES, INC. Signature Date 2017-11-10 PERMIT NUMBER: P 1029 NT/NU Association of Professional Engineers and Geoscientists

PROFESSIONAL ENGINEER J.M.I.F. ALARIE LICENSEE L4736 NT/NU 2017-10-30

TITRE / TITLE

AGNICO—EAGLE — MELIADINE DIVISION
417— JETTIES
230—GENERAL EARTH WORKS
JETTY CP5
PLAN / CROSS-SECTIONS

DESSINÉ PAR DRAWN BY	DANIEL ROSALES	DATE 2016-06-16
VÉRIFIÉ PAR CHECKED BY	SOLÈNE MOREAU	2016-06-16
APPROUVÉ PAR APPROVED BY	JOSÉE ALARIE	2016-09-08
ÉCHELLE SCALE	AS INDICATED	DATE 2016-06-16

NO. DESSIN DRAWING NO. 65-417-230-208

NO. PROJET PROJECT NO. 6515/28920 | REVISION 2 | FEUILLE / SHT 1/1

AE-CART-ARCH D

P:\28920\DESSIN\CIV-INFRA\DESSINS DE TRAVAIL\AUTOCAD\65-417-230-207-208_R2.dwg