



MEADOWBANK GOLD PROJECT

**Baker Lake Bulk Fuel Storage Facility: Environmental
Performance Monitoring Plan**

In Accordance with Water License 2AM-MEA1530

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Complex

Version 6.1
March 2022

EXECUTIVE SUMMARY

Agnico Eagle Mines Limited – Meadowbank Complex (Agnico Eagle) is currently operating the Meadowbank Gold Project approximately 70 km north of the Hamlet of Baker Lake. Agnico Eagle is also operating the Amaruq property, approximately 150 kilometers (km) north of the hamlet of Baker Lake and approximately 50 km northwest of Meadowbank Mine, in the Kivalliq Region of Nunavut. The Whale Tail deposit is being mined and ore is hauled by truck to the approved infrastructure at Meadowbank Mine for milling. Agnico Eagle received approval on January 2019 to add two (2) 10 million liters diesel fuel storage tanks to the Marshalling Area Bulk Fuel Storage Facility in Baker Lake. Agnico has since built and commissioned the two approved tanks. In 2019, one of the approved tanks (Tank 7) was added to the facility, and in 2021, the second approved tank (Tank 8) was added to the facility. As part of the project, a total of eight (8) 10 million litres fuel storage tanks for diesel and eighteen (18) 100,000L fuel storage tank for Jet-A will receive and store bulk shipments of fuel for the Meadowbank Project at the Baker Lake Marshalling Area. Two (2) 100,000L fuel storage tank for Jet-A are scheduled to be re-added the system in 2022 as approved by the Water License.

To adequately assess the environmental performance of the bulk fuel storage tank at Meadowbank this report provides: a summary of the design, installation, operation and maintenance that follows the CCME (2003) Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum and Allied Petroleum Products; a summary of the location and environmental setting; a summary of the NWB Type A water license requirements; and an environmental assessment to support the recommended environmental monitoring for the ongoing evaluation of the secondary containment.

IMPLEMENTATION SCHEDULE

As required by Water License 2AM-MEA1530, Part B, Item 11, the proposed implementation schedule for this Plan is outlined below.

This Plan will be immediately implemented (March 2022) subject to any modifications proposed by the NWB as a result of the review and approval process.

DISTRIBUTION LIST

Agnico Eagle – General Mine Manager

Agnico Eagle – Superintendent of Environment and Critical Infrastructures

Agnico Eagle – Environment General Supervisor

Agnico Eagle – Environmental Coordinator

Agnico Eagle – Environmental Technician

Agnico Eagle – Energy and Infrastructures Superintendent

Agnico Eagle – Procurement Department

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Revision
1	2009/12/22			Comprehensive plan for Baker Lake Bulk Fuel Storage Facility
2	2011/12/13			Update all items related to the Baker Lake Fuel Storage Installations: Final Report of Phase 3 (2010)
3	2014/06/30			Add Jet-A Tank information and 2014 comprehensive review
4	2018/08/16			Text updated to reflect proposal to add 2 diesel fuel tanks.
5	2020/01/17	1		Add Tank 7 information
		2		Deleted as it's a duplicate of Section 4 and 5.1
		Figure 1-2		Update Figure to add Tank 7 information +
		3		Adjust condition Part H Item 4 as per the Water License
		4.1		Add Tank 7 information
		5.1		Update with current monitoring / inspection
		6		Update reference section
6	2022/01/17	1		Add Tank 8 information
		Figure 1-1		Update Figure
		3		Adjust conditions to align with section numbers in <u>Water License 2AM-MEA1530</u>
		4.1		Add Tank 8 information
		5.1		Updated inspection frequency during summer and <u>Freshet</u>
		6		Added Tank 8 construction summary to references.
6.1	2022/03/03	Figure 1-1		Updated Figure to include tanks 7 and 8
		Figure 1-2		Updated Figure to include aerial image of entire tank farm facilities
		4.3.3		Preventative measures to ensure HDPE liner integrity added.
		5.1		Requirements from Part 6 of the CCME (2003) guidelines for monitoring and detection of leaks.

Prepared By: Environmental Department

Approved by: 

Alexandre Lavallee
Superintendent of Environment and Critical Infrastructures

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SECTION 1. INTRODUCTION

Agnico Eagle Mines Limited – Meadowbank Complex (Agnico Eagle) is currently operating the Meadowbank Gold Project approximately 70 km north of the Hamlet of Baker Lake. Agnico Eagle is also operating the Amaruq property, approximately 150 kilometers (km) north of the hamlet of Baker Lake and approximately 50 km northwest of Meadowbank Mine, in the Kivalliq Region of Nunavut. The Whale Tail deposit is being mined and ore is hauled by truck to the approved infrastructure at Meadowbank Mine for milling.

The Baker Lake Bulk Fuel Storage Tank Facility is located east of the hamlet of Baker Lake, on the north shore of Baker Lake. The GPS coordinates of these facilities is NAD 83 15W E 356874 N 7134486. A general site location is provided in Figure 1-1. An aerial photo depicting the site layout of the infrastructure and tanks is provided in Figure 1-2.

In 2007-2008, four (4) 10 million diesel tank were constructed. Following the amendment No.1 - Marshalling Area Bulk Fuel Storage Facility Expansion Water Licence 2AM-MEA0815 Type A, two (2) more 10 million liters bulk fuel storage tank (#5 and #6) were constructed in 2010. This amendment also permitted the construction, in 2013, of Jet A Fuel tanks.

Following a modification to the Water License 2AM-MEA1526, Agnico Eagle received approval in January 2019, to add two (2) 10 million liters diesel fuel storage tanks to the Marshalling Area Bulk Fuel Storage Facility in Baker Lake. In 2019, Agnico has built and commissioned one of the two approved tanks (Tank 7), and in 2021, the second approved tank (Tank 8) was added to the Fuel Storage Facility.

As part of the project, a total of eight (8) 10 million litres fuel storage tanks for diesel and eighteen (18) 100,000L fuel storage tank for Jet-A will receive and store bulk shipments of fuel for the Meadowbank Project at the Baker Lake Marshalling Area. Two (2) 100,000L fuel storage tank for Jet-A are scheduled to be re-added the system in 2022 as approved by the Water License.

To adequately assess the environmental performance of the bulk fuel storage tank at Meadowbank this report provides: a summary of the design, installation, operation and maintenance that follows the CCME (2003) Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum and Allied Petroleum Products; a summary of the location and environmental setting; a summary of the NWB Type A water license requirements; and an environmental assessment to support the recommended environmental monitoring for the ongoing evaluation of the secondary containment.

Figure 1-1: General Location of Baker Lake Bulk Fuel Storage Facilities



Figure 1-2: Baker Lake Bulk Fuel Storage Facility Site Layout



**Aerial photo taken in Summer 2021 during Tank 8 construction*

SECTION 2. ENVIRONMENTAL SETTING

2.1 TOPOGRAPHY

The bulk fuel storage area is located east of the Hamlet of Baker Lake, approximately 350 m north of Baker Lake. The storage facility sits on a low terrace parallel with the shoreline of the lake. There is a gradual slope (5 to 10% grade) toward Baker Lake with an approximate elevation change of 35 m from the bulk fuel storage facility to the Baker Lake shoreline.

The Baker Lake shoreline is gently sloping, well-drained and is lined with marine gravels, sands and boulders.

2.2 GEOLOGY

The regional surficial geology is characterized by sandy till, bedrock outcrops, felsenmeer (ice-shattered bedrock) and shallow lakes (Golder, 2007). The most common soil type in this region is glacial till. Marine beach deposits are found along the north shore of Baker Lake.

The soil near the bulk fuel storage facility is comprised of silts, sands, gravels, cobble and boulders and frost-susceptible glacial till overlying weathered bedrock (Golder, 2007). The soil thickness is typically less than 1.4 m with permafrost or bedrock encountered at less than 2 m. Approximately 60% of the surface area surrounding the bulk fuel storage facility is comprised of bedrock outcrop.

2.3 FLORA AND FAUNA

There are no trees and few shrubs in the area surrounding the bulk fuel storage facility. The site is covered by low-lying vegetation; predominated by grassy hummocks, dwarf willow, sedge, green moss and lichen.

Arctic ground squirrels, ptarmigan and songbirds are inhabitants in the area surrounding the bulk fuel storage facility. Lake cisco, lake trout, arctic char, lake whitefish, round whitefish, slimy sculpin and stickleback are predominant species found in Baker Lake.

2.4 SUBSURFACE CONDITIONS

Test pits excavated in 2005 near the bulk fuel storage facility and between the tanks and the shoreline indicate a saturated top layer (0.2 m) of organic material (primarily green moss) (Golder, 2005; 2007). A layer of grey to black medium sand is present up to 0.7 m thickness throughout the area, below which a saturated, grey brown, sand and silt layer is found.

Bedrock is exposed at shallow depths throughout the site in locations where topsoil or till soils are present (Golder, 2005). Bedrock is encountered at a maximum depth of 1.4 m. As predicted by the soil conditions, seepage flows in test pits indicate high site drainage.

2.5 WATER QUALITY

Baker Lake water quality closely resembles distilled water as many conventional water chemistry parameters are at or below detection limits (BAER, 2005). The water column is generally well mixed and the water chemistry homogenous. During the open water season there is limited vertical stratification in temperature and dissolved oxygen, with observed higher salinity in the bottom strata.

SECTION 3. NWB TYPE A WATER LICENSE CONDITIONS

The Nunavut Water Board (NWB) Type A Water License 2AM-MEA1530 requirements related to the bulk fuel storage facility in Baker Lake are provided below. Agnico Eagle is committed to achieving all of these requirements.

Part F: Conditions Applying to Waste Disposal and Management

9. The Discharge of Effluent to land from fuel containment facilities at the Baker Lake Bulk Fuel Storage Facility and Meadowbank Fuel Storage Facility (Monitoring Program Stations ST-37 through ST-40), shall not exceed the following Effluent quality limits:

Parameter	Maximum Average Concentration (MAC)	Maximum Concentration of any single Grab sample
pH	6.0 to 9.5	6.0 to 9.5
Total Arsenic (mg/L)	**0.5	1.0
Total Copper (mg/L)	**0.3	0.6
Total Nickel (mg/L)	**0.5	1.0
Total Zinc (mg/L)	*0.5	1.0
Total Suspended Solids (mg/L)	*15	30
Ammonia (mg/L)	6.0	6.0
Benzene (µg/L)	370	370
Toluene (µg/L)	2	2
Ethylbenzene (µg/L)	90	90
Lead (mg/L)	0.1	0.1
Oil and Grease (mg/L)	5 and no visible sheen	5 and no visible sheen

* Environmental Guideline for Industrial Waste Discharges in the NWT, 2004

** Metal and Diamond Mines Effluent Regulations (MDMER)

10. The Licensee shall, under Part F, Item 9, discharge Effluent in such a manner as to minimize surface erosion at a distance of at least thirty-one (31) meters above the ordinary High Water Mark of any Water body, where direct flow into a Water body is not possible and no additional impacts are created, or as otherwise approved by the Board in writing.

12. The Licensee shall confirm compliance with Effluent quality limits in Part F, Items 3, 4, 5, 7 and 9 prior to Discharge.

13. The Licensee shall provide at least ten (10) days' notice to the Inspector prior to any planned Discharges from any facilities. The notice shall include an estimated volume proposed for Discharge and the receiving location.

Part H: Conditions Applying to Emergency Response and Contingency Planning

2. The Licensee shall prevent any chemicals, petroleum product or unauthorized Wastes associated

with the project from entering Water.

3. The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice

4. The Licensee shall perform weekly inspections of petroleum products storage and containment facilities, fuel tanks and connectors, for leaks and settlement and shall keep a written log of inspections to be made available to an Inspector upon request. More frequent inspections may be requested by an Inspector.

SECTION 4. ENVIRONMENTAL PERFORMANCE ASSESSMENT

To adequately assess the environmental performance of the bulk fuel storage tanks and facilities, a desk-top review of the design and installation reports were completed. In addition, a consultant performed a geotechnical inspection to annually evaluate the site drainage, secondary containment and performed an environmental assessment of the bulk fuel storage facility.

4.1 DESK-TOP REPORT REVIEW

The installation/construction reports (Agnico Eagle, 2009a, b; Agnico Eagle, 2010; Agnico Eagle 2011, Agnico Eagle 2020, Agnico Eagle 2021 for diesel tank and Agnico Eagle, 2013 for Jet-A tanks; attached in Appendix A) indicated the use of best management practices during the installation of the aboveground fuel storage tanks.

During the summer of 2007, Agnico Eagle built bulk fuel tanks #1 and #2. Under the supervision of Hatch Engineering, the construction of the secondary containment berm was completed. Enviroline Services Inc. was hired in October 2007 to install the HDPE membrane liner in accordance with CCME (2003) specifications; this liner was subsequently covered with a surface layer of crushed stone. Tanks were commissioned in 2007.

Bulk fuel storage tanks #3 and #4 were completed in October 2008. Under the supervision of Stavibel Engineering, the secondary containment berms were constructed and the HDPE membrane liner was designed and installed for bulk fuel storage tanks #3 and #4 under the supervision of Luc Croisetière and Agnico Eagle. Works were completed for these tanks in July 2009 and tanks were commissioned the same year.

Bulk fuel storage tank #5 and #6 were completed in October 2010. Under the supervision of Stavibel Engineering, the construction of the secondary containment berms for tanks #5 and #6 was completed. Enviroline Services Inc. was hired in May 2010 to install the HDPE membrane liner. Tanks were commissioned the same year.

Construction of the bulk fuel storage tank #7 was completed in September 2019. Under the supervision of Agnico Eagle the secondary containment berms were constructed. The HDPE membrane liner was installed and tested by Geosynthetiques ZTG Inc. for bulk fuel storage tank #7.

Under the supervision of Agnico Eagle, construction of the bulk fuel storage tank #8 was completed in September 2021. Piping installation work associated with the tank system was finalized in October 2021.

All of the aboveground storage tanks were field erected. For the diesel tanks, construction activity was supervised by Hatch Engineering, Stavibel Engineering and Agnico Eagle and included qualified steel fabricators and installers. Following the diesel tank construction, X-Ray testing of horizontal and vertical welds was completed. For tanks #7 and #8, to attest welds quality, inspectors relied on visual inspection, magnetic particulate tests and high penetration oil tests. All of the welds met the specifications outlined in the API Standard 650 (Agnico Eagle, 2009a, b, 2020, 2021).

In 2013, the Jet-A tanks, the secondary containment enclosure and installation of the HDPE liner in accordance with CCME (2003) specifications was completed and commissioned. Stavibel Engineering provided the design, planning and construction oversight related to the installation of infrastructure of Agnico Eagle's Jet A Fuel Storage facility which consists of 100,000 liters double walled tanks, associated piping and pumping systems and secondary requirement. SM Construction had installed the Jet-A tanks and Texcel was hired in July 2013 to install the HDPE secondary containment membrane liner. After construction, all tanks were cleaned and washed inside and pressure tests were performed as per specifications.

A secondary containment volume calculation was completed to provide verification on the liquid storage capacity of the storage tank system. The CCME Environmental Code of Practice for Aboveground Storage Tanks (2003) states:

a storage tank system that consists of more than one storage tank which should have a volumetric capacity of not less than the sum of the capacity of the largest storage tank located in the contained space and 10% of the capacity of the largest tank or the aggregate capacity of all other storage tanks located in the contained space.

In accordance with the CCME (2003) code of practice, the Baker Lake bulk fuel storage tanks meet the volumetric requirements for a storage tank system.

4.2 SECONDARY CONTAINMENT VISUAL INSPECTION

A consultant performs a geotechnical inspection annually and inspects the bulk fuel secondary containment structures, the report is sent to NWB annually as per requirement of the Water Licence.

4.3 ENVIRONMENTAL ASSESSMENT

The management of site drainage, surface water collection and water/fuel removal within the secondary containment area is an important measure in the protection of the terrestrial environment, surface water and ground water from potential sources of contamination. The environmental protection objectives, strategy and an evaluation of the potential of leaks or seepage to contaminate the terrestrial environment, surface water and ground water are provided in the following sections. Much of the environmental protection strategies focus on the control of contact water. In this report contact water is defined as any water that may be physically or chemically affected by the nearby operational activities.

4.3.1 Terrestrial Environment

The primary objective of the terrestrial management plan is to minimize any adverse impacts to the terrestrial (soil, flora and fauna) environment. To meet this objective, bulk fuel storage facility structures have been constructed to minimize the operational footprint and control contact run-off water within the secondary containment area. Due to the site grading, all water that comes into contact with the bulk fuel storage facility is intercepted and directed into the impermeable HDPE lined secondary containment area.

The ground beneath the secondary containment area has been adequately graded to ensure berm stability.

4.3.2 Surface Water

The objective of water management around the bulk fuel storage facility is to minimize impacts on the quantity and quality of surface water and groundwater. To meet this objective, the bulk fuel storage facility structures have been constructed to intercept and direct contact run-off water to the impermeable HDPE lined secondary containment area. As there is a high volume of fuel transfer and activity around the modular fuel dispenser, the pad below the modular fuel dispenser and refueling station is lined and sloped toward the secondary containment berm.

Seepage flows in test pits indicate high site drainage due to the high soil porosity. Therefore, should contact water reach the natural environment, the ultimate fate of the contaminants is likely to be in shallow groundwater or surface water (Golder, 2007).

4.3.3 Groundwater

It is not expected that groundwater would be impacted as there is no direct pathway for contaminated water to seep from the bulk fuel storage facility. Due to the site grading, all contact water from the bulk fuel storage facility is directed inside the HDPE lined secondary containment area. Preventative measures that are currently in place to ensure the integrity of the HDPE membrane liner include: limiting access into the area and prohibiting snow removal within the secondary containments to avoid accidental damage to the liner. Water levels within the secondary containment are monitored and kept to minimal levels to preserve the lifespan of the liner. Should the integrity of the liner become compromised, there could be leakage into the below grade soil; this would likely present the greatest source of hydrocarbon contamination to impact groundwater and receiving water. Should this occur, an implementation plan for repair would be initiated. Refer to Section 5 below for the visual and operational inspection performed within the facility.

SECTION 5. PERFORMANCE MONITORING PLAN

The environmental performance monitoring plan is a tiered approach with an emphasis on visual and operational inspections; routine surface water sampling to control and monitor the quality of the contact water; and event monitoring (in the case of a spill emergency or occurrence). Management of the bulk fuel storage facility will be guided by the monitoring results.

5.1 VISUAL AND OPERATIONAL INSPECTIONS

Visual and operational inspections are a central component of the environmental performance monitoring plan. Visual inspections of the secondary containment structure are important because if the integrity of the berm walls or liner is compromised this presents the greatest potential for leaks or seepage into groundwater and ultimately the receiving environment.

Inspections are logged and reported by the Environmental Department, these are conducted on a weekly basis and increased to a twice weekly frequency during Freshet and summer months. These inspections include, but are not limited to, assessment of the area for any spills, adherence to waste management procedures, adherence to proper fueling procedures, precipitation/ run-off accumulation, and visible sheens on contact water pools and crush material inside the secondary containment. Environmental staff follow-up with operations staff and advise the supervisor if any non-conformity is observed. A weekly written log is completed and available upon request. Weekly fuel leak inspections are conducted by the Energy and Infrastructure Department on the entire Baker Lake Fuel Storage Facility. Monthly owner/operator inspections to assure continued tank integrity, are also conducted by the Energy and Infrastructure Department. Inspection of the facilities include: leak detection, exterior paint assessment, tank and piping condition, condition of tank supports and foundation, functionality of monitoring gauges and alarms, condition of product dispenser components, secondary containment berm structure and integrity, indicators of liner damage, evidence of tampering or misuse, any structural abnormalities. Copies of these inspection reports are retained for reference. Continuous improvement to incorporate API 653 standards into preventative maintenance scheduling are on-going. Qualified API inspectors will also be involved in this process. Each of the 10 million liter diesel fuel tanks are also subject to a 10-year recertification schedule.

In-service monitoring, including inventory control of transfer and weekly volume inspections using manual or live gauge reconciliation are conducted by Meadowbank staff. Weekly visual inspections and inventory reconciliation are used to evaluate and determine bulk fuel tank leakage. Annual air tests are conducted on all systems.

An annual geotechnical inspection is also conducted annually by a third party to evaluate the site drainage, secondary containment including HDPE liner integrity and performed an environmental assessment of the bulk fuel storage facility. Corrective action/ maintenance may be necessary following the inspection to ensure optimal performance of the facility. The bulk fuel storage facility is maintained in accordance with best management practices.

Should a leak be suspected, visual leak detection and precision leak detection or API 653 standard approved test will be conducted on the aboveground storage tanks and a pressure liquid media leak detection test or high-pressure inert gas or vacuum leak detection test will be conducted on the aboveground piping.

The aforementioned monitoring and leak detection criteria is in alignment with the frequencies and methods outlined in Part 6 of the CCME (2003) Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products. Tables 1 and 2 outline the details for in-service monitoring, periodic leak detection, and if a leak is suspected for applicable aboveground storage tanks and aboveground piping respectively.

Table 1 CCME Monitoring and Leak Detection Criteria for Aboveground Storage Tanks

Containment	In-Service Monitoring	Periodic Leak Detection	Leak Suspected
API Std 650-98 (<i>within approved secondary containment</i>)	Manual dip and inventory reconciliation; electronic dip and electronic inventory reconciliation; or electronic dip and manual inventory reconciliation in conformance with Section 8.3 of CCME (2003) and Visual leak detection (weekly) or High-technology <i>secondary containment</i> monitoring	API 653	Precision leak detection test of a storage tank; or API 653
Horizontal tanks	Manual dip and inventory reconciliation; electronic dip and electronic inventory reconciliation; or electronic dip and manual inventory reconciliation in conformance with Section 8.3 of CCME (2003) and Visual leak detection (weekly).	Not required	Visual leak detection (weekly) (where entire system including <i>piping</i> is visible); or Precision leak detection test of a storage tank

Table 2 CCME Monitoring and Leak Detection Criteria for Aboveground Piping

Containment	In-Service Monitoring	Periodic Leak Detection	Leak Suspected
All types	Visual leak detection (weekly).	Not required	Pressure liquid media leak detection test or High-pressure inert gas or vacuum leak detection test

The bulk fuel tanks are filled during barge season on an annual basis. During the period of re-filling there is the greatest risk of over-filling. Through regular visual inspections, inventory control and monitored fuel transfer, the risk is significantly reduced. The fuel transfer from ship to shore is detailed in the Oil Pollution Emergency Plan and Oil Pollution Prevention Plan (OPEP/OPPP) and the Product Transfer Area Assessment – Baker Lake Oil Handling Facility found in Spill Contingency Plan Appendix. In the case of a spill, the spill contingency plan and the OPEP/OPPP will be followed.

5.2 ROUTINE CONTACT WATER MONITORING

Due to snow accumulation, melting and precipitation, contact water will unavoidably collect inside the secondary containment area. Contact water from inside the secondary containment area will be sampled as described in Section 3 above prior to its release into the terrestrial environment. During water discharge, piping will be directed onto the nearby tundra at least 31 m above the ordinary High Water Mark, to allow for natural attenuation and drainage (i.e. surface water will never be pumped directly into Baker Lake).

During visual inspections, the quantity of contact water collected inside the secondary containment area will be evaluated. When water withdrawal is deemed necessary, water samples will be collected and analyzed for the parameters: pH, Total Arsenic, Total Copper, Total Lead, Total Nickel, Total Zinc, Total Suspended Solids, Ammonia, Benzene, Toluene, Ethylbenzene, Xylene, and Oil and Grease. If the contact water exceeds the licensed limits detailed in Section 3 above, the portable oil-water separator will be used to treat the water prior to discharge to the receiving environment or water will be pumped and disposed at the Meadowbank Tailings Storage Facility or Stormwater Management Pond. Prior to withdrawal, samples will be analyzed at a certified laboratory.

In addition, water samples from Baker Lake are collected as part of the Core Receiving Environment Management Program (CREMP). The results of these analyzes are included in the annual report. These samples are used to evaluate the performance of the overall water management plan for the Baker Lake Marshalling Area.

5.3 EVENT MONITORING

In the event of a spill occurrence at the bulk fuel storage facility, the spill contingency plan and the OPEP/OPPP will be followed. As a follow-up to the spill response, the environmental staff will conduct an environmental assessment to determine the extent of impacts of the spill occurrence on the nearby environment. This will include the identification of the potential environmental pathways of concern that may result in impacts to surface water (i.e. Baker Lake near-shore surface water), soil or groundwater.

5.3.1 Soil Sampling

Following the unlikely event where a spill is not contained within the secondary containment area, soil sampling may be required to locate and prevent further impact to the terrestrial and aquatic receiving environment. Depending on the quantity of the spill, the organic surface soils and silt-containing till below the surface are a likely sink for hydrocarbons, thus soil samples will be taken at selected locations to horizontally and vertically delineate the impacted areas. Furthermore, the soil samples will provide valuable information used to determine the necessity of installing groundwater wells (see Section 5.3.3 below).

5.3.2 Water Sampling

Following a spill event, an environmental assessment could be conducted. Similar to routine contact water sampling (inside the secondary containment area), water samples will be collected and analyzed for the following parameters: pH, Total Arsenic, Total Copper, Total Lead, Total Nickel, Total Zinc, Total Suspended Solids, Ammonia, Benzene, Toluene, Ethylbenzene, Xylene, and Oil and Grease.

As part of the CREMP, receiving environment surface and at- depth water samples will be taken in Baker Lake and analyzed for the same parameters as listed above.

5.3.3 Assessment of the Need for Groundwater Well Installation

Following a spill event, if soil sample results identify elevated concentrations of contaminants (i.e. exceeding the industrial standard levels outlined in the CCME Canada-Wide Standard (CWS) for Petroleum Hydrocarbons (PHC) in Soil, 2008) and/or if water samples identify elevated receiving environment water samples (i.e. exceeding licensed limits caused as a result of the spill event), an assessment of the need for groundwater wells will be conducted. The assessment, and if required, design for installation, monitoring and maintenance of vertical ground water monitoring wells will be in accordance with CCME (2003) procedures.

SECTION 6. REFERENCES

Agnico Eagle (2009a). Baker Lake Fuel Storage Installations: Interim Report of Phase 1 (2007) and Phase 2- A (2008). April 2009.

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Appendix A1

Baker Lake Diesel Fuel Storage Installations: Interim Report Following Construction of Phase 1 (2007) and Phase 2-A (2008)



**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

BAKER LAKE FUEL STORAGE INSTALLATIONS

**INTERIM REPORT
FOLLOWING THE CONSTRUCTION
OF
PHASE 1 (2007)
PHASE 2-A (2008)**



**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

BAKER LAKE FUEL STORAGE INSTALLATIONS

INTERIM REPORT

FOLLOWING THE CONSTRUCTION

OF

**PHASE 1 (2007)
PHASE 2-A (2008)**

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MEADOWBANK DIVISION**

BAKER LAKE FUEL STORAGE INSTALLATIONS

**INTERIM REPORT
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APPENDIX 1 : DRAWINGS

VD2259-BKL-001	VD2259-BKL-002	VD2259-BKL-003	VD2259-BKL-004
VD2259-BKL-005	VD2259-BKL-006	VD2259-BKL-007	VD2259-BKL-008
VD2259-BKL-009	VD2259-BKL-010	VD2259-BKL-011	VD2259-BKL-012

VENDOR DRAWINGS FROM CHAMCO INDUSTRIES LTD

APPENDIX 2

SAFE FILL LEVEL FOR ALL FUEL TANKS

EXECUTIVE SUMMARY

Agnico-Eagle Mines Limited is currently in the process of building a gold mining project in the Kivalliq region of Nunavut, about 70 km north of Baker Lake.

The yearly operations of this mining operation requires the storage of a minimum of forty million (40 000 000) liters of diesel fuel, which represents four (4) bulk fuel storage tanks, each with a nominal capacity of ten million (10 000 000) liters.

PHASE 1

During the summer of 2007, Agnico-Eagle Mines Limited has built the first two (2) bulk fuel tanks, with a combined capacity twenty million (20 000 000) liters of diesel fuel. An impervious enclosure was built around it in order to provide secondary containment around the fuel tanks. These first two (2) bulk fuel tanks were then in condition to be filled.

PHASE 2-A

During the summer of 2008, Agnico-Eagle Mines Limited has built another two (2) bulk fuel tanks, for a total combined capacity of forty million (40 000 000) liters of diesel fuel. Only a portion of the enclosure was built around it, with the final purpose being to provide secondary containment around the fuel tanks. These other two (2) bulk fuel tanks were completed in late October 2008, and they remain empty as of April 2009.

PHASE 2-B

During 2009, Agnico-Eagle Mines Limited plans to complete the installation of an impermeable HDPE membrane, which will provide adequate secondary containment around the fuel tanks. This will allow to fill up all four (4) bulk fuel tanks in the summer of 2009, once the piping installation has been completed

DESCRIPTION OF THE MANDATE

Agnico-Eagle Mines has given a mandate to the undersigned in order to verify the compliance with applicable regulations of its fuel storage installations in Baker Lake, Nunavut.

According to the terms of reference, the mandate consists summarily in the following activities.

A. Review and compilation of the available documentation ;

B. Collection of any information that may be missing ;

C. REVISION OF CONSTRUCTION DRAWINGS

a. Preparation of *AS BUILT* drawings of the construction of PHASE 1 ;

b. Preparation of *AS BUILT* drawings of the construction of PHASE 2-A ;

c. Preparation of *IFC* drawings for the construction of PHASE 2-B ;

D. Verifications to the storage capacity within the existing containment berms of PHASE 1 and verifications for PHASE 2 in regards to the applicable regulations.

A. DOCUMENTATION READILY AVAILABLE

GOLDER ASSOCIATES - Vancouver Office

For the Baker Lake bulk fuel storage facilities, this firm has produced some construction specifications on 2006-04-28, which were given reference SP-GAL-03 under their project number 06-1413-009.

NISHI-KHON / SNC-LAVALIN LTD - Vancouver Office

For the Baker Lake bulk fuel storage facilities, this firm has produced a set of drawings issued **for construction** on 2007-08-03, under their project number 017202. Some specifications for fuel piping and valves were also issued.

EARTHWORK DRAWINGS	017202-1000-41D1-0006	17202-1000-46ES-1001A	017202-8000-46DC-9150
017202-1000-41D1-0001	FUEL PIPING DRAWINGS	17202-1000-46ES-1001B	017202-8000-46DC-9152
017202-1000-41D1-0002	017202-1000-41D1-0007	ELECTRICAL DRAWINGS	017202-8000-46DC-9153
017202-1000-41D1-0003	017202-1000-46D4-1004	017202-1000-46D6-1001	017202-8000-46DC-9156
017202-1000-41D1-0004	017202-1000-46D4-1005	017202-1000-47D2-2001	017202-8000-46DC-9157
017202-1000-41D1-0005	017202-1000-46D4-1006	017202-8000-47DA-9004	017202-8000-46DC-9166

GEM STEEL EDMONTON LTD

This vendor has submitted a set of drawings issued **for review**, which consist in four (4) structural drawings showing the details of a fuel tank of 10 million liters nominal capacity. The original design of this fuel tank is shown on revision A of drawings BL-2007-1, BL-2007-2, BL-2007-3, and BL-2007-4.

CHAMCO INDUSTRIES LTD

This vendor has submitted a set of preliminary drawings issued **for approval** under their project number 1014938ABS, consisting of the following drawings. These documents have all been reviewed by HATCH.

DRAWING NUMBER	H325174-M268-VD-0040	H325174-M268-VD-0041	H325174-M268-VD-0010
H325174-M268-VD-0011	H325174-M268-VD-0012	H325174-M268-VD-0013	H325174-M268-VD-0014
H325174-M268-VD-0015	H325174-M268-VD-0016	H325174-M268-VD-0017	H325174-M268-VD-0019
H325174-M268-VD-0020	H325174-M268-VD-0021	H325174-M268-VD-0029	H325174-M268-VD-0030
H325174-M268-VD-0031	H325174-M268-VD-0032	H325174-M268-VD-0033	H325174-M268-VD-0034
H325174-M268-VD-0035	H325174-M268-VD-0036	H325174-M268-VD-0037	H325174-M268-VD-0039

B. ADDITIONAL COLLECTION OF INFORMATION

HATCH - Vancouver Office

Role during construction phase : Field Supervision during construction of PHASE 1 (2007).

Mr. Marlon Coakley and Jim Bonia, which were HATCH employees at the time, have supervised the construction of the fuel containment area around tanks #1 and #2, in phase 1 of this project. A specialized crew coming from Saskatoon (Enviroline Service inc.) was hired in October 2007 to install an HDPE membrane over the berms. This HDPE membrane has been covered with a layer of about 150 mm thickness of crushed stone. During August 2008, some additional HDPE membrane was installed under the tanks #3 and #4, but the final installation of the impermeable enclosure for phase 2-B remains to be done in 2009.

GEM STEEL EDMONTON LTD

Role during construction phase : Fabrication and field assembly of 10 M liters fuel tanks

Construction of phase 1 (tanks #1 and #2) took place from September to November 2007, with a crew of about 16 workers. During this time, a crew has welded a pipeline towards a booster pump and installed flanged connections and gate valves between fuel tank #1 and the fuel dispensing module manufactured by CHAMCO. The connection of the booster pump to the barge, using hoses, allowed for fuel tank #1 to be filled up in 2007. During August 2008, tanks #1 and #2 were also filled up with fuel by barge delivery.

Construction of phase 2-A (tanks #3 and #4) took place from August to October 2008. Following each phase of this field work, a crew from ACUREN has proceeded to X-RAY testing of horizontal and vertical welds according to specifications described in the latest edition of API Standard 650. According to the report made by ACUREN, no repairs of defective welds were required, either on the tank shell or nozzles.

MOSHER ENGINEERING LTD

Role during construction phase : Welding of pipelines and support brackets between the 10 M liters tanks and the sea hose connection.

In September 2008, a crew of four (4) workers has extended a pipeline towards the barge landing and installed pipes with flanged connections and gate valves between fuel tank #2 and the fuel dispensing module manufactured by CHAMCO. They have also installed check valves on both the inlet and outlet nozzles of tank #2, as well as a pressure relief valve set at 75 psi to bypass the gate valve on the outlet of tank #2.

This safety feature against thermal expansion of fuel inside the pipeline towards the fuel dispensing module remains to be installed on tank #1. The grade of material that was used for this pipeline was A333 cold temperature rated steel.

CHAMCO INDUSTRIES LTD

Role during construction phase : Manufacturing of the fuel dispensing module.

This fuel dispensing module was manufactured in 2006 and sent to the Meadowbank site. A representative from CHAMCO was present during the commissioning. Possibly due to vibrations during transport, there were many flanged connections that needed tightening.

C. REVISION OF CONSTRUCTION DRAWINGS

AEM has hired STAVIBEL Engineering Services, a firm based in Val-d'Or, in order to complete the drawings that were used in producing this report. Those twelve (12) drawings are enclosed in **Appendix 1** of this report.

Drawing VD2259-BKL-001 shows the general layout of fuel storage area. It has been compiled using surveying data collected by a crew from NUNA.

Drawing VD2259-BKL-002 shows the fuel storage area and existing piping for PHASE 1. It has been compiled using surveying data collected by NUNA.

Drawing VD2259-BKL-003 shows the fuel storage area and location of a sump for collection of surface water, to be built in PHASE 2-B. It shows the limits of the HDPE membrane that has been installed in 2008 under the fuel tanks.

Drawings VD2259-BKL-004, 005, and 006 show cross-sections of the containment area in PHASE 2 (to be completed in 2009). These cross-sections are derived from surfaces that were generated using the *Autocad Civil 3D* software, and are also based on information collected from existing land surveys. This drawing file was also used to verify containment volumes, as it is described further in section D.

Drawing VD2259-BKL-007 is an as-built version of structural drawing BL2007-1, which was designed and issued by Gem Steel Edmonton Limited. This drawing has been updated to reflect nozzle orientations that were noted during a visit. No significant changes were noted, except those made to the nozzle schedule.

Drawing VD2259-BKL-008 shows the proposed piping for PHASE 2. It contains a schedule of valves and fittings that remain to be installed.

Drawing VD2259-BKL-009 shows the location of the existing pipeline and sea hose connection with the barge for fuel unloading. Also, a spill containment sump is proposed on this drawing.

Drawing VD2259-BKL-010 is a process and instrumentation diagram. It shows the details of the existing and proposed piping, along with further details for the fuel dispensing module.

Drawing VD2259-BKL-011 is a general layout that shows the location of existing grounding wire and proposed layout to extend this grounding into PHASE 2.

Drawing VD2259-BKL-012 shows the details of the barge and laydown areas, along with the details of a ditch and culvert for diversion of surface water run-off.

Also enclosed are two (2) vendor drawings from CHAMCO INDUSTRIES LTD, which shows the piping details inside the fuel dispensing module.

D. VERIFICATIONS TO STORAGE CAPACITY WITHIN BERMS

STAVIBEL Engineering Services has completed verifications on the liquid storage capacity inside the containment berms, which create an impermeable enclosure around tank #1 and #2.

The method used was a volume calculation using *Autocad CIVIL 3D* software.

The maximum storage capacity of fuel tank #1 is 10 515 000 litres of diesel fuel at a standard temperature of fifteen degrees Celcius (15 °C).

The maximum storage capacity of fuel tank #2 is 10 480 000 litres of diesel fuel at a standard temperature of fifteen degrees Celcius (15 °C).

It has been verified using the above software that the impermeable enclosure built in PHASE 1 will effectively hold one hundred percent (100 %) of the maximum storage capacity of the biggest tank, plus ten percent (10 %) of the maximum storage capacity of the other tank. This calculation has been summarized in a worksheet that is shown on PAGE 8, hereunder.

The containment volume for tanks #1 and #2 is 11 586 cubic meters, of which 367 cubic meters were occupied by accumulation of surface water as of 2008-10-31.

Thus, the lowest point of the HDPE membrane that sits atop the containment area is sufficiently high (at elevation 33.86 m) to meet the above criteria.

A worst case scenario has been simulated, and consists in either a rupture of the first course of side plates in the tank shell, or a failure in the outlet piping, when either one of fuel tanks is 100% full.

This simulation shows that, in such a worst case scenario, the hydraulic balancing level inside the containment area would not exceed the point with the lowest elevation on the surrounding berms, providing that there is no substantial accumulation of surface water inside. There is a no additional safety margin.

However, with the upcoming completion in phase 2-B (summer 2009) of the impermeable enclosure around tanks #3 and #4, a breach will be made into the berm dividing the two containment areas. This is also shown on a sketch, hereby.

When phase 2-b is completed in summer of 2009, the containment volume for tanks #3 and #4 will be 10 855 cubic meters As a result, the new containment requirement of 130% of the biggest tank volume (or 13 647 cubic meters), expressed while considering all four (4) tanks as a whole, will then be exceeded.

DESIGN REVIEW - FOR FUEL SPILL CONTAINMENT BERMS AT BAKER LAKE

<u>EQUIPMENT #</u>	<u>diam</u> (ft)	<u>rim el.</u> (m)	<u>radius</u> (m)	<u>surface</u> (m2)	<u>top el.</u> (m)	<u>height</u> (m)	<u>volume (m3)</u>
740-TK-044 TANK # 1	110	32.99	16.764	882.89	44.90	11.910	10 515
740-TK-044 TANK # 2	110	33.03	16.764	882.89	44.90	11.870	10 480

Let's say berms are 5' 3" higher than the average tank floor (so 1.60 m total height) with variable slopes and that the tanks are sitting on cones made of crushed stone of 20 m diameter x 1.0 m height.

Volume
11 563 m3

Secondary Containment Requirement
according to ref. PN-1326, Section 3.9.1(1) 2-b-ii

110%

DESIGN OF BERM DIMENSIONS

<u>elevation</u>	<u>height</u> (m)	<u>width</u> (m)	<u>length</u> (m)	<u>surface</u> (m2)		cumulative volume (m3)
32.00	0.00	64.0	104.0	6656.00	slope ratio N-S	0
32.66	0.66	69.3	107.6	7452.03	horizontal	4656
32.76	0.76	70.1	108.1	7575.93	4.0	5407
32.86	0.86	70.9	108.6	7700.69	vertical	6171
32.96	0.96	71.7	109.2	7826.31	slope ratio E-W	6947
33.06	1.06	72.5	109.7	7952.80	horizontal	7736
33.16	1.16	73.3	110.3	8080.15	2.7	8538
33.26	1.26	74.1	110.8	8208.36	vertical	9352
33.36	1.36	74.9	111.3	8337.44		10 180
33.46	1.46	75.7	111.9	8467.38		11 020
33.56	1.56	76.5	112.4	8598.19		11 873
33.66	1.66	77.3	113.0	8729.86		12 739
33.76	1.76	78.1	113.5	8862.39		13 619
33.86	1.86	78.9	114.0	8995.79	GROSS CONTAINMENT	14 512
34.00						CUBIC METERS

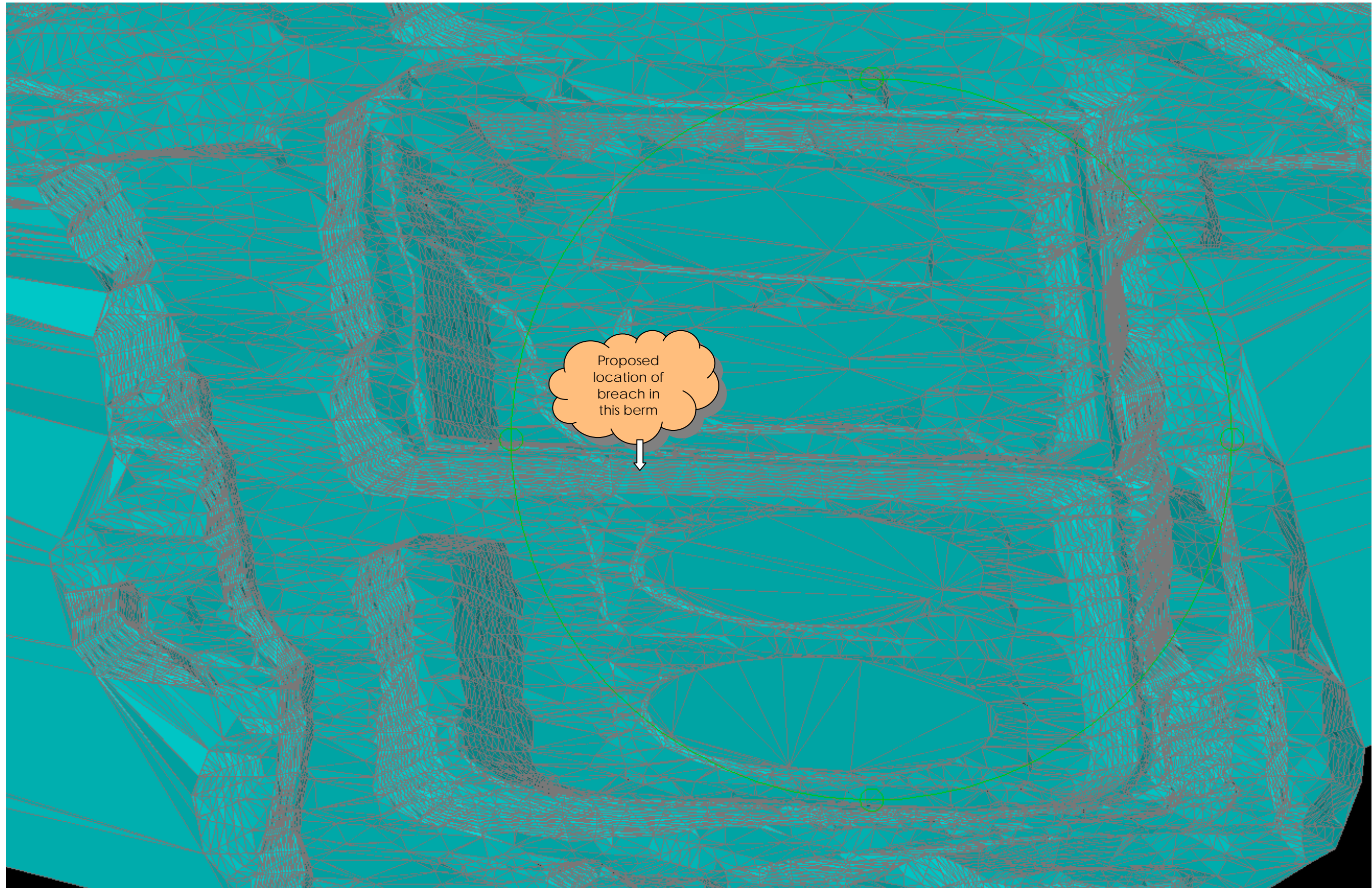
containment volume to be subtracted for the two (2) cones made of crushed stone

	<u>perimeter</u> (m)	<u>number</u>	<u>radius</u> (m)	<u>surface</u> (m2)	<u>height</u> (m)	volume (m3)
CONES	126.0	2	20.05	1262.93	1.01	-2680
RAMP		1			variable	-246

containment volume to be subtracted for accumulation of surface water

<u>elevation</u>	volume (m3)
water level as of November 2008	31.70
	-367.0

Volume
NET CONTAINMENT 11 219 m3
or 107%



APPENDIX 1

AS BUILT DRAWINGS for PHASE 2-A

IFC DRAWINGS (10) for PHASE 2-B

VD2259-BKL-001	VD2259-BKL-002	VD2259-BKL-003	VD2259-BKL-004
VD2259-BKL-005	VD2259-BKL-006	VD2259-BKL-007	VD2259-BKL-008
VD2259-BKL-009	VD2259-BKL-010	VD2259-BKL-011	VD2259-BKL-012

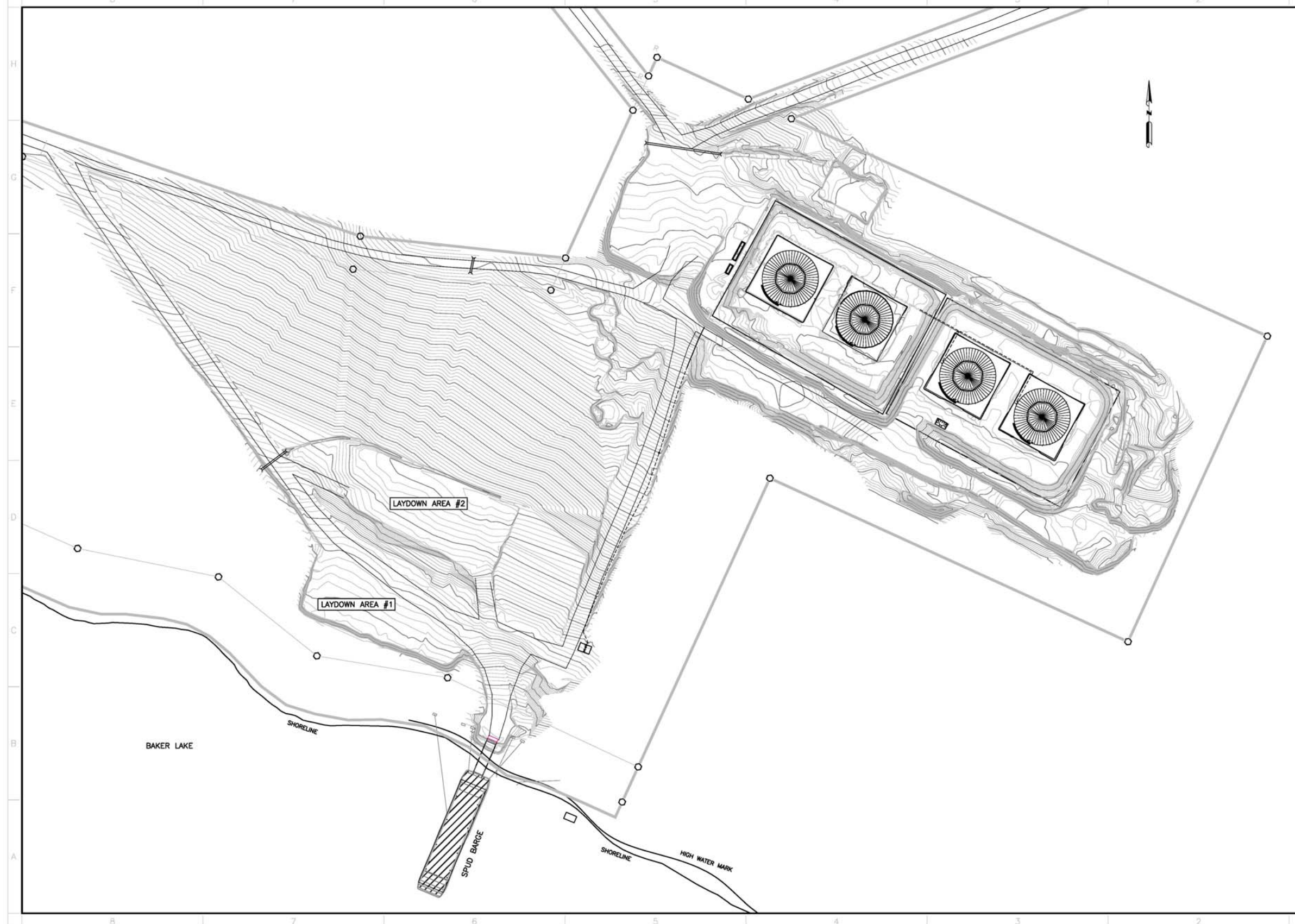
**Plus two (2) drawings from
CHAMCO INDUSTRIES LTD**

**Vendor ref. # CUP1014938-22
 CUP1014938-25**

PROJECT NO.

0 50 100 150 200 250 300mm

FORMAT ARCH-LANDSCAPE



KEY PLAN

GENERAL NOTES

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REVISIONS	
NO.	DESCRIPTION

REFERENCE DRAWINGS

NO.	DATE	DESCRIPTION	BY	APP.
1	08-03-07	FOR CONSTRUCTION	F.R.	P.A.

REVISIONS

AGNICO-EAGLE
 MEADOWBANK DIVISION

TITLE
 AGNICO-EAGLE - MEADOWBANK DIVISION
 BAKER LAKE AREA 740
 GENERAL LAYOUT

DRAWN BY FRANCIS ROSE, TECH DATE 2008-03-27

CHECKED BY PATRICK GARD, P.ENG

APPROVED BY PATRICK GARD, P.ENG

SCALE 1:1000 DATE 2008-03-27

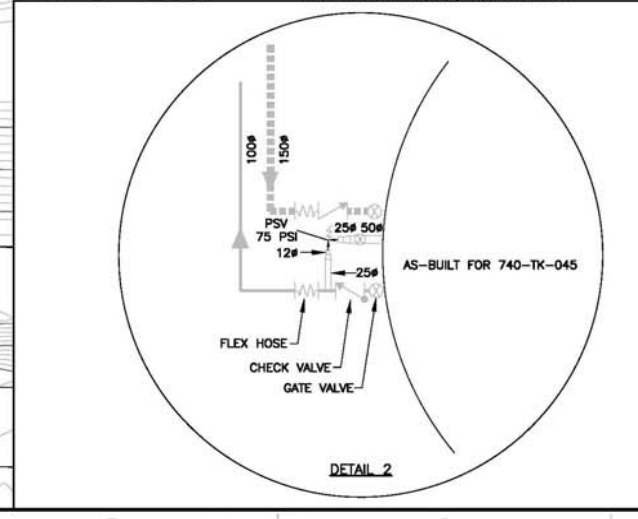
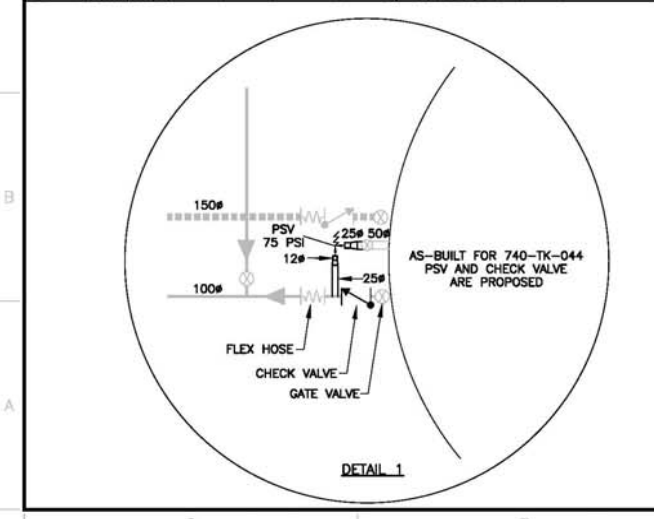
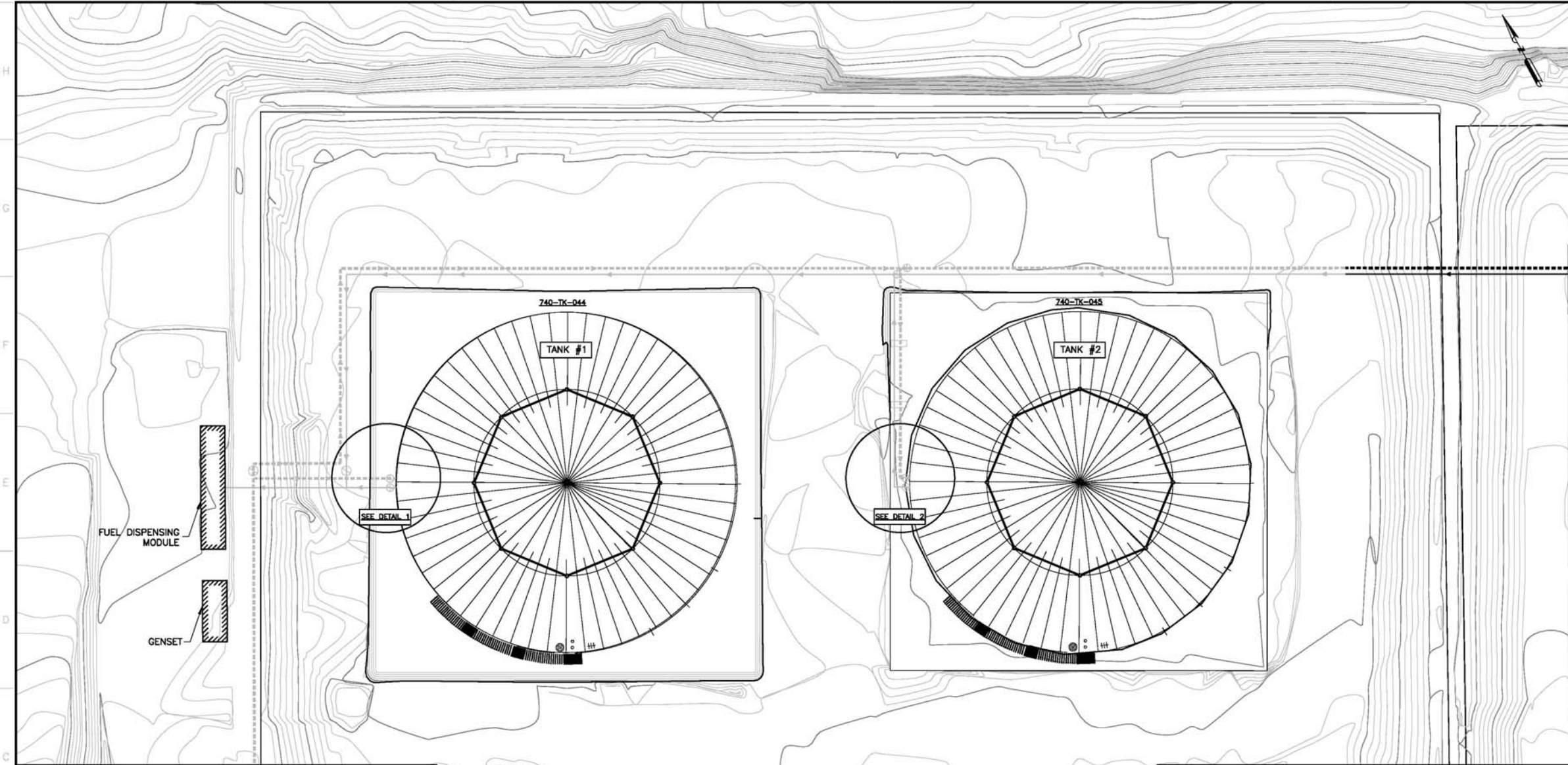
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PROJECT NO. VD2259-2 SHEET 1 / 12

Drawing No.



FORMAT ARCHD-LANDSCAPE



KEY PLAN

GENERAL NOTES

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ISSUED FOR CONSTRUCTION
PATRICK GARD, P.ENG 2009/05/27

NO.	DATE	DESCRIPTION	BY	APP.

REFERENCE DRAWINGS



NO.	DATE	DESCRIPTION	BY	APP.
1	08-03-07	FOR CONSTRUCTION	F.R.	P.A.

AGNICO-EAGLE
MEADOWBANK DIVISION

AGNICO-EAGLE - MEADOWBANK DIVISION
BAKER LAKE AREA 740
GENERAL LAYOUT
PHASE 1

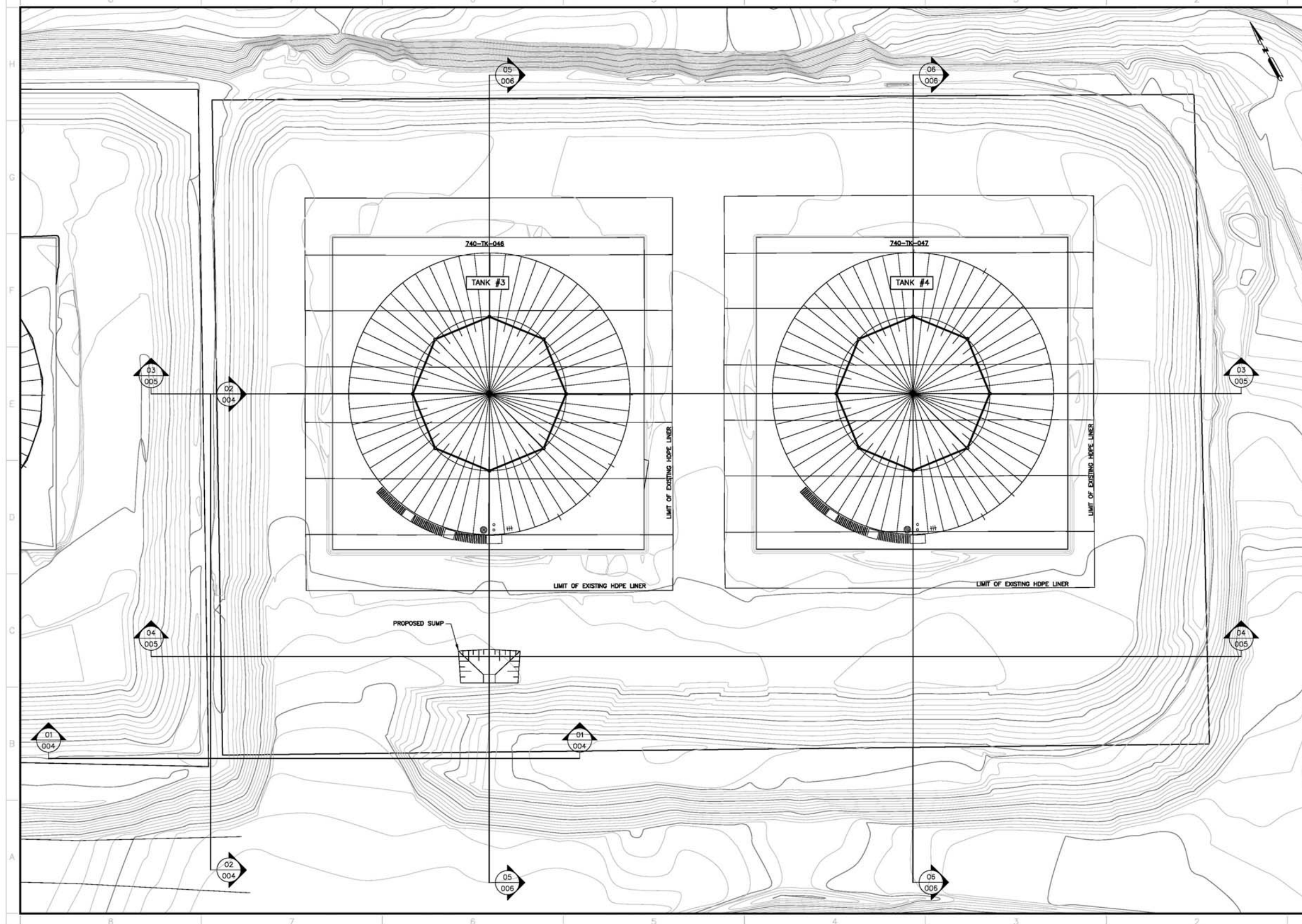
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CHECKED BY	PATRICK GARD, P.ENG		
APPROVED BY	PATRICK GARD, P.ENG		
SCALE	1:200	DATE	2009-03-27

DRAWING NO. **VD2259-BKL-002**
PROJECT NO. **VD2259-2** REVISION **1** SHEET **2 / 12**

PROJECT NO.

0 50 100 150 200 250 300mm

FORMAT ARCH-LANDSCAPE



KEY PLAN



GENERAL NOTES

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ISSUED FOR CONSTRUCTION
 PATRICK GARD, P.ENG 2009/05/27

NO.	DESCRIPTION	DATE

REFERENCE DRAWINGS

NO.	DESCRIPTION	DATE

REVISIONS

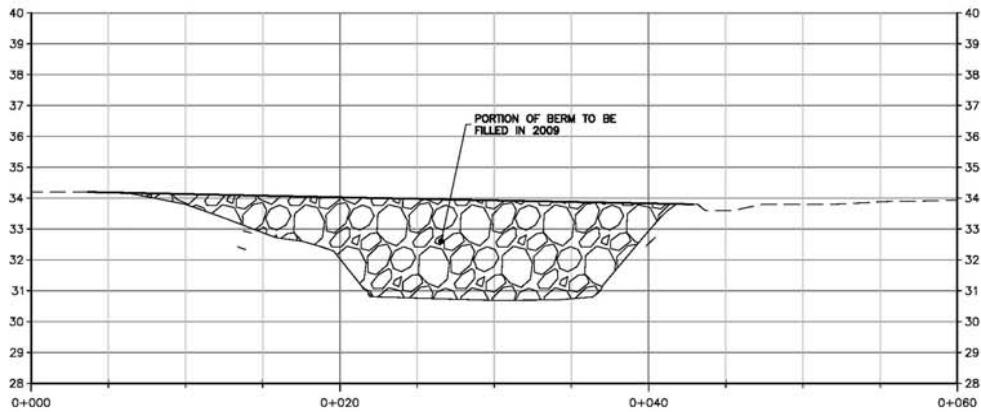
AGNICO-EAGLE
MEADOWBANK DIVISION

TITLE: AGNICO-EAGLE - MEADOWBANK DIVISION
 BAKER LAKE AREA 740
 GENERAL LAYOUT
 PHASE 2-A (2008)

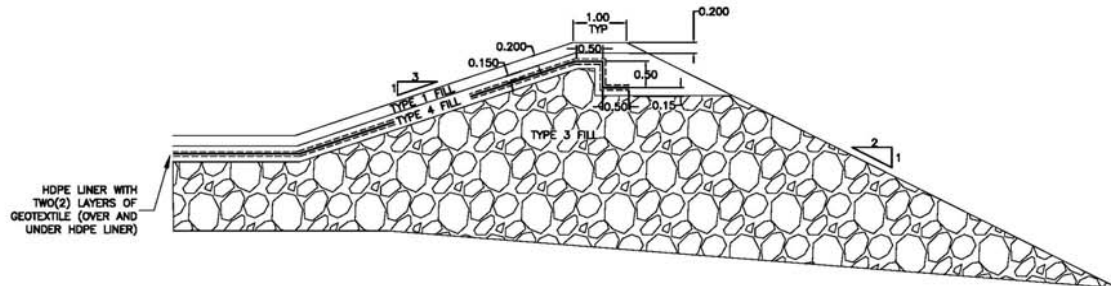
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CHECKED BY	PATRICK GARD, P.ENG		
APPROVED BY	PATRICK GARD, P.ENG		
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DRAWING NO.	VD2259-BKL-003		
PROJECT NO.	VD2259-2	REVISION	1
		SHEET	3 / 12

DATE: _____

FORMAT ARCHD-LANDSCAPE

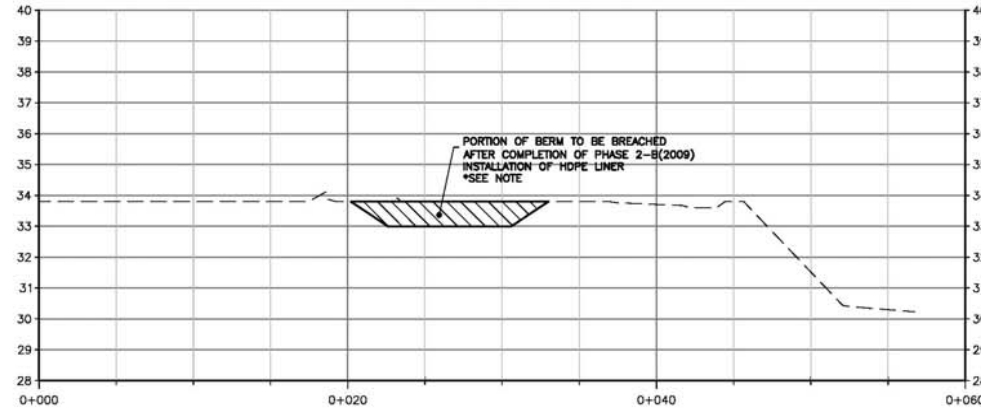


CROSS-SECTION



TYPE 1 FILL: MINUS 20mm CRUSHED
 TYPE 2 FILL: MINUS 150mm ROCK
 TYPE 3 FILL: BLASTED ROCK 0-200mm
 TYPE 4 FILL: SCREENED SAND

TYPICAL CROSS-SECTION



CROSS-SECTION



NOTE: HOPE LINER MUST BE WELDED BACK ON TOP OF EXISTING LINER ON BERM ONCE BREACH HAS BEEN EXCAVATED TO ENSURE IMPERMEABLE LINK BETWEEN BOTH BERM ENCLOSURES

KEY PLAN

GENERAL NOTES

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ISSUED FOR CONSTRUCTION
 PATRICK GARD, P.ENG 2008/03/27

NO.	DATE	DESCRIPTION	BY	APP. (P.ENG)

REFERENCE DRAWINGS



NO.	DATE	DESCRIPTION	BY	APP. (P.ENG)
1	03-03-27	FOR CONSTRUCTION	F.R.	P.A.

AGNICO-EAGLE
 MEADOWBANK DIVISION

TITLE: AGNICO-EAGLE - MEADOWBANK DIVISION
 BAKER LAKE AREA 740
 CROSS-SECTIONS OF HOPE MEMBRANE
 PHASE 2-B (2009)

DRAWN BY: FRANCIS ROSE, TECH DATE: 2008-03-27

CHECKED BY: PATRICK GARD, P.ENG

APPROVED BY: PATRICK GARD, P.ENG

SCALE: HOR:1:200 VER:1:100 DATE: 2008-03-27

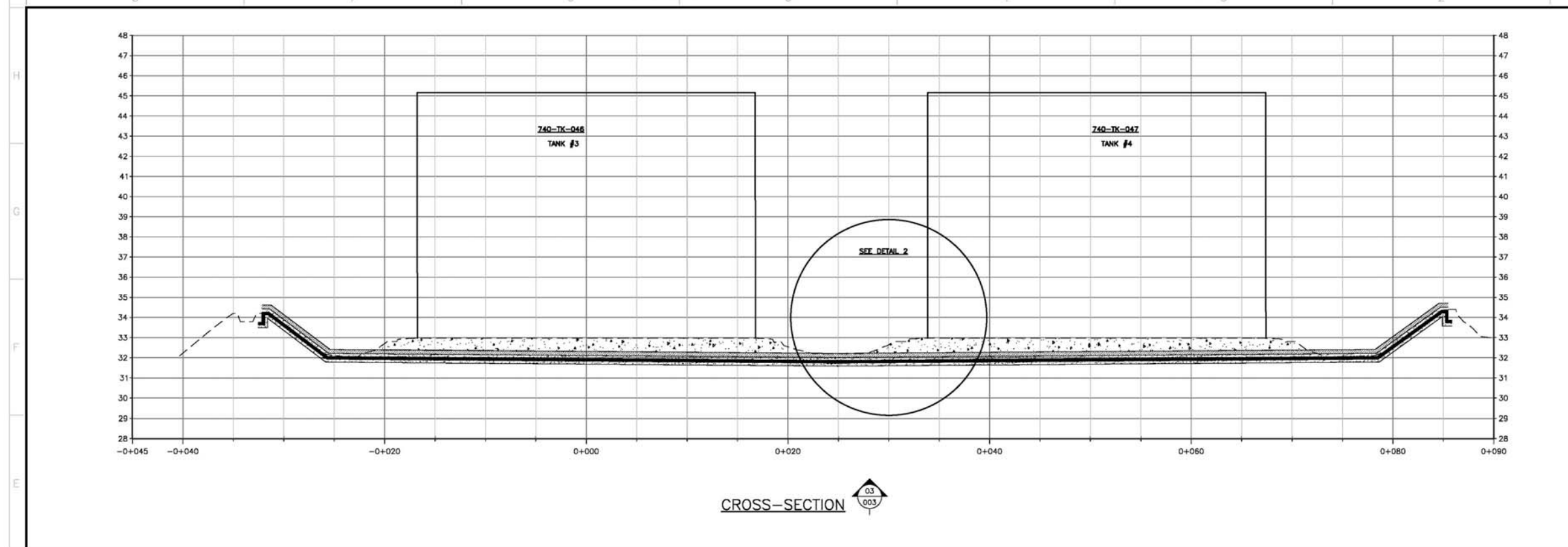
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PROJECT NO.: VD2259-2 REVISION: 1 SHEET: 4/12

DATE: 03/03/09

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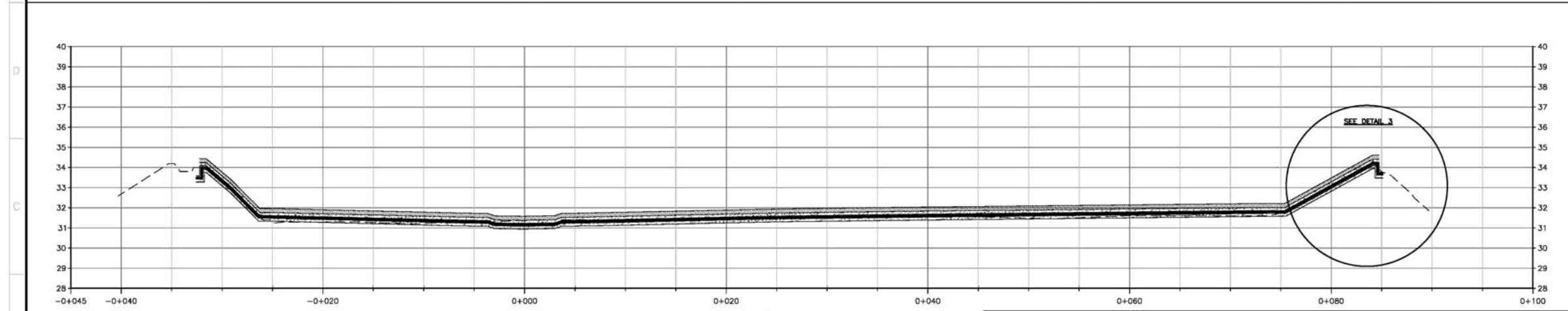


KEY PLAN

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ISSUED FOR CONSTRUCTION
 PATRICK GARD, P.ENG. 2009/03/07



NO. DESCRIPTION BY DATE

REFERENCE DRAWINGS



NO.	DATE	DESCRIPTION	BY	APP.
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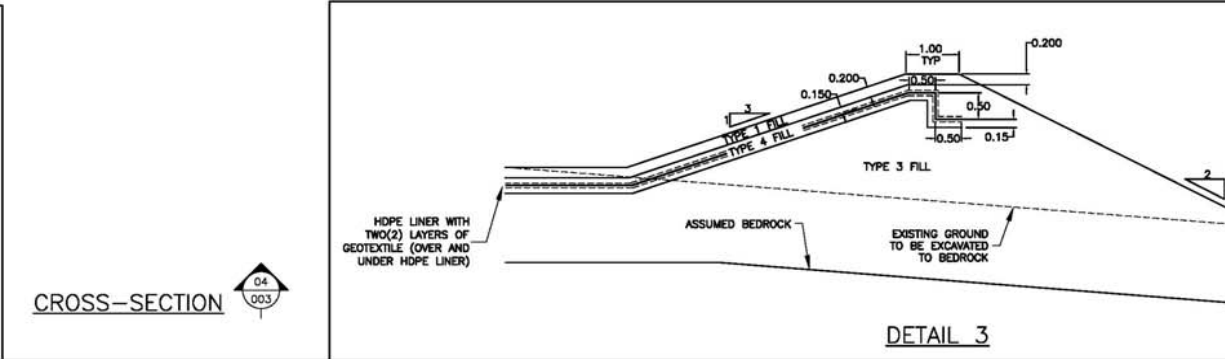
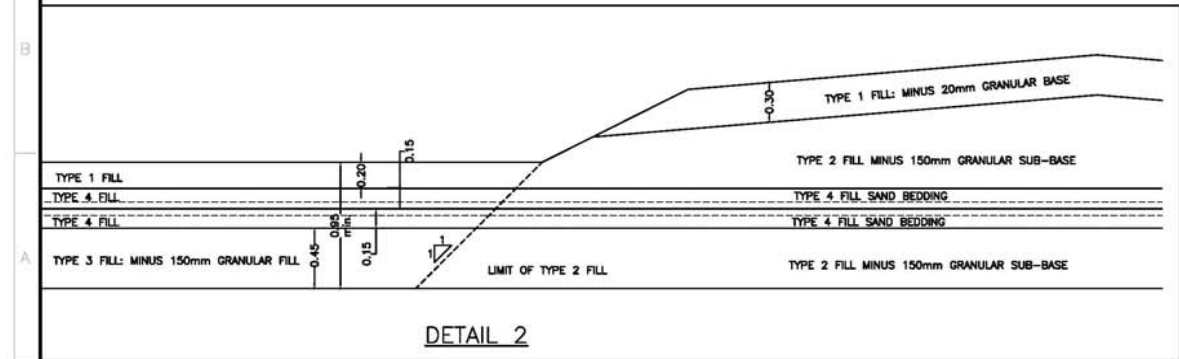
REVISIONS

AGNICO-EAGLE
MEADOWBANK DIVISION

TITLE: **AGNICO-EAGLE - MEADOWBANK DIVISION BAKER LAKE AREA 740**
 CROSS-SECTIONS PHASE 2-B (2009)

DESIGNED BY: FRANCIS ROSE, TECH. DATE: 2009-03-27
 CHECKED BY: PATRICK GARD, P.ENG.
 APPROVED BY: PATRICK GARD, P.ENG.

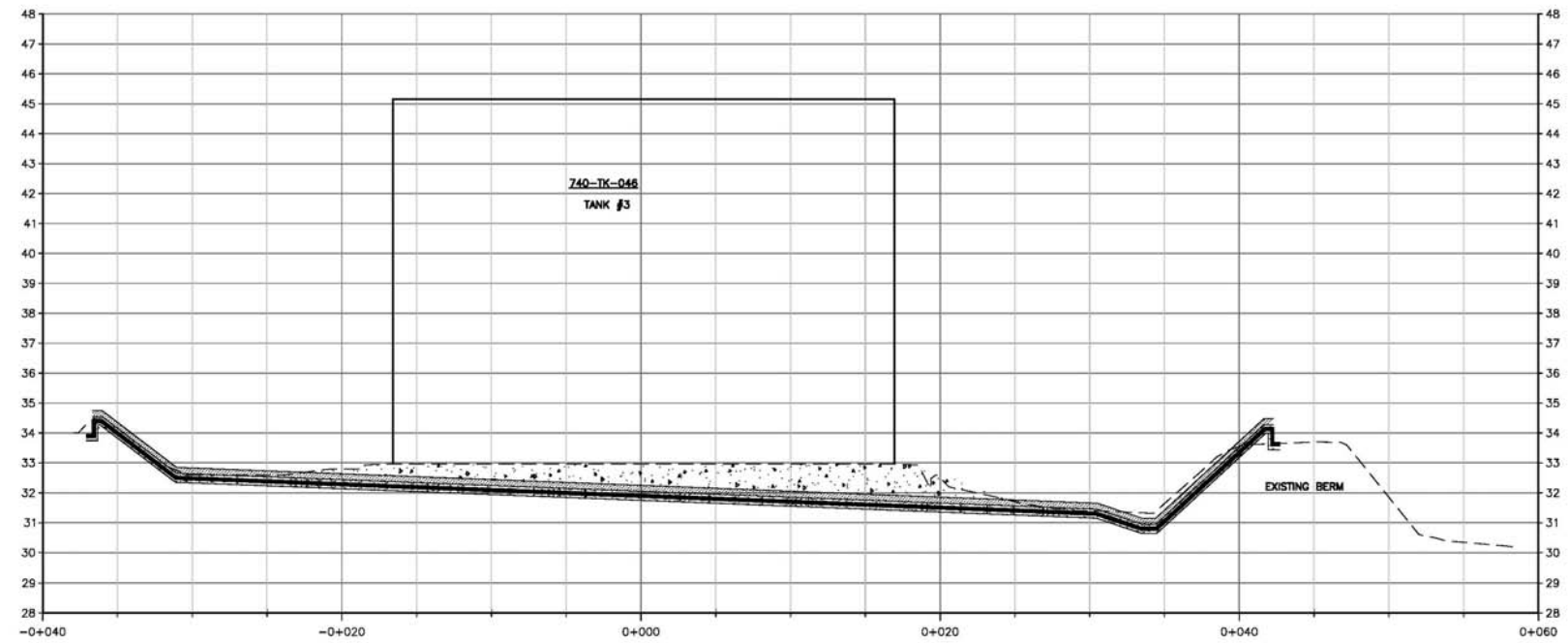
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 PROJECT NO.: **VD2259-2** REVISION: 1 SHEET: 8/12



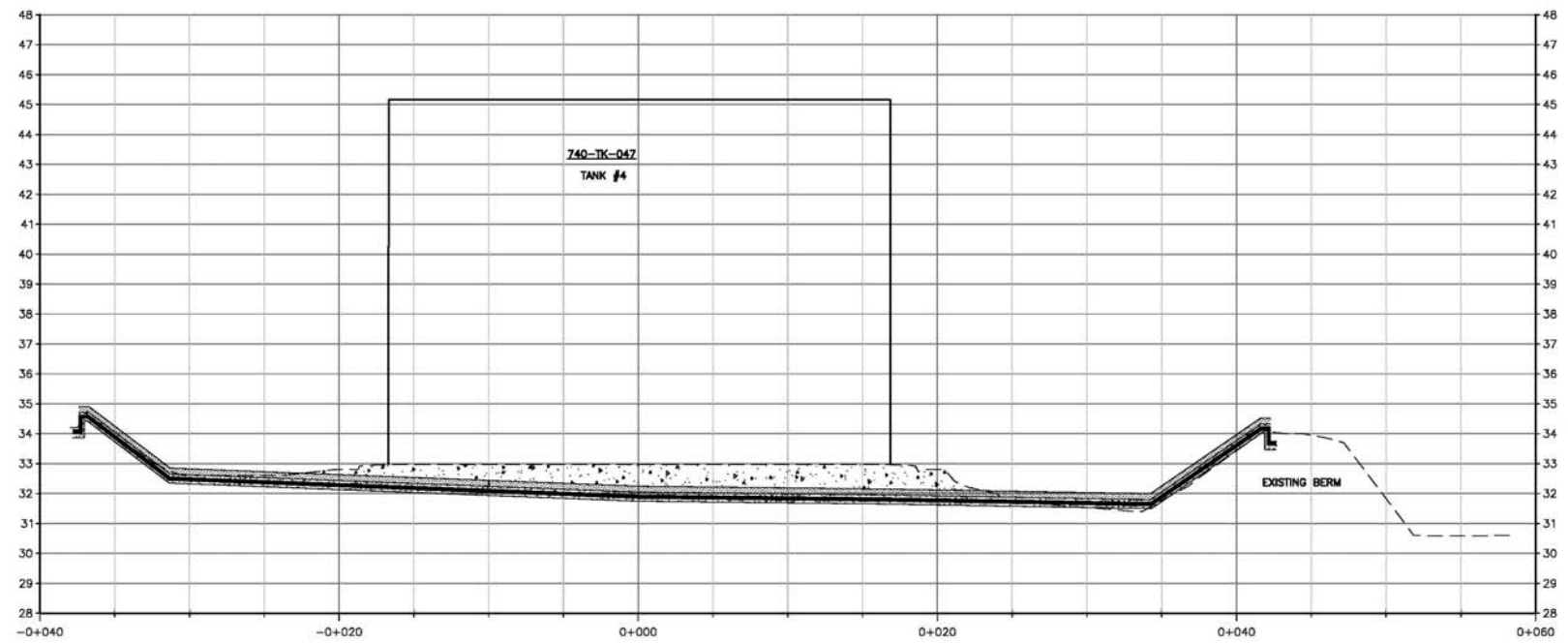
CROSS-SECTION $\frac{0.4}{0.03}$

DRAWING NO.

FORMAT ARCHD-LANDSCAPE



CROSS-SECTION



CROSS-SECTION



KEY PLAN

GENERAL NOTES

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 Site Internet: www.stavelbel.gc.ca

ISSUED FOR CONSTRUCTION
 PATRICK GARD, P.ENG. 2009/03/27

NO.	DATE	DESCRIPTION	BY	APP. SIGNATURE

REFERENCE DRAWINGS



NO.	DATE	DESCRIPTION	BY	APP. SIGNATURE
1	08-03-07	FOR CONSTRUCTION	P.A.	P.A.

AGNICO-EAGLE
 MEADOWBANK DIVISION

AGNICO-EAGLE - MEADOWBANK DIVISION
 BAKER LAKE AREA 740
 CROSS-SECTIONS
 PHASE 2-B (2009)

DRAWN BY: FRANCIS ROSE, TECH. DATE: 2009-03-27

CHECKED BY: PATRICK GARD, P.ENG.

APPROVED BY: PATRICK GARD, P.ENG.

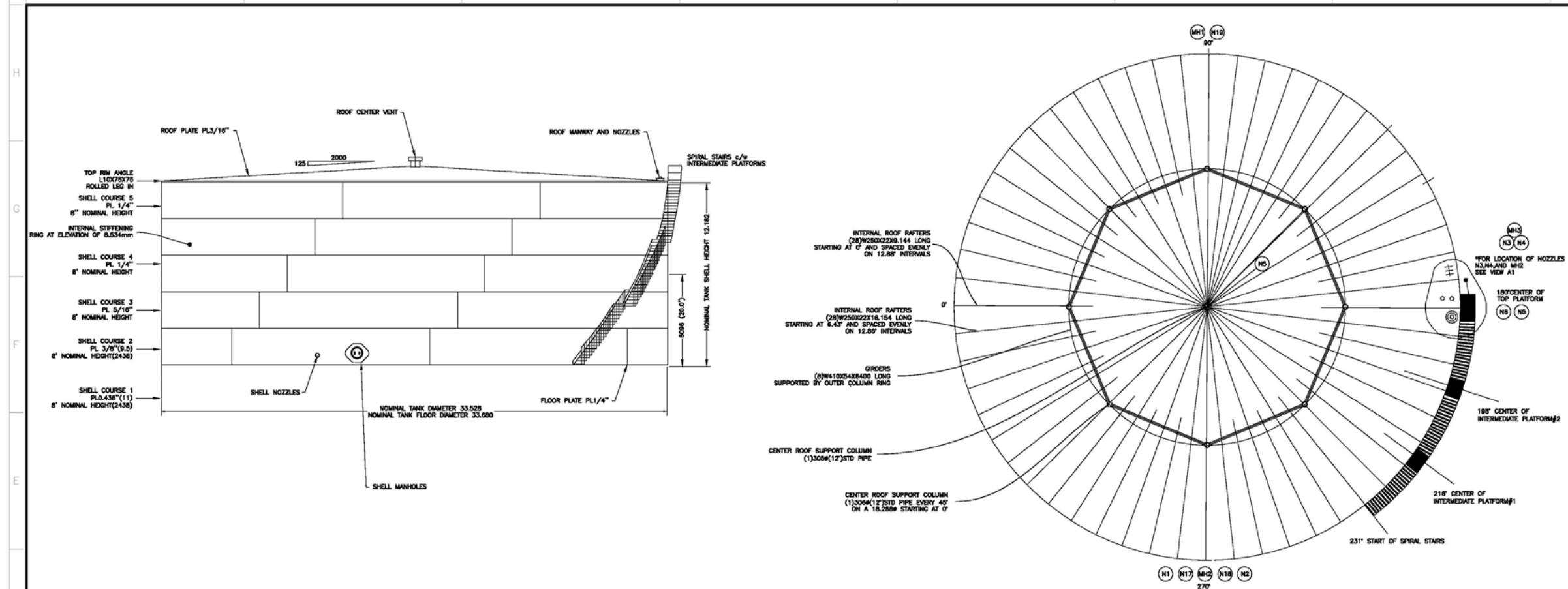
SCALE: HOR: 1:200 VER: 1:100 DATE: 2009-03-27

DRAWING NO. **VD2259-BKL-006**

PROJECT NO. **VD2259-2** REVISION **1** SHEET **8 / 12**

DRAWING NO.

FORMAT ARCHD-LANDSCAPE



FOUR(4) TANKS WERE BUILT WITH IDENTICAL NOZZLE SPECS : 740-TK-045
740-TK-046
740-TK-047
740-TK-048

GENERAL NOTES

DESIGN

1. CODE OF CONSTRUCTION: API-650, LATEST EDITION
2. ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE
3. PRODUCT STORED: DIESEL FUEL
4. DIAMETER: 33,528mm
5. HEIGHT: 12,182
6. NOMINAL CAPACITY: 10,780,000 LITRES
7. WORKING CAPACITY: 10,000,000 LITRES
8. DESIGN METAL TEMP: -40°C
9. PRODUCT SPECIFIC GRAVITY: 0.9@15°C

INSPECTION

1. VACUUM TESTING: FLOOR
2. RADIOGRAPHY: VERTICAL SHELL WELDS-SPOT AS PER API 650
3. AIR TEST: NOZZLES
4. VACUUM OR DIESEL TEST: SHELL WELDS

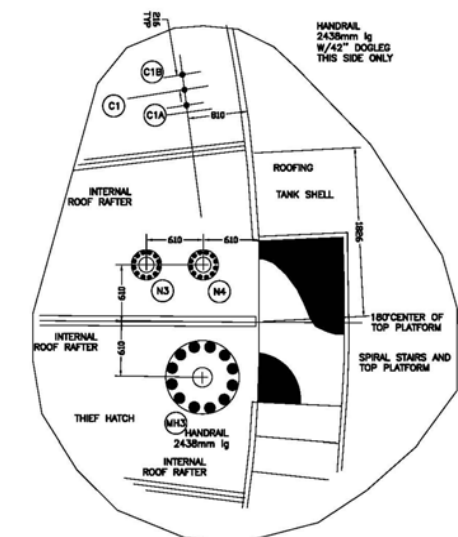
MATERIALS

1. BOLTS: A-325
2. PIPE NOZZLES: A333 Gr.6
3. FORGED FLANGES AND COUPLINGS: A350M, Gr. LF2 AND ANSI 816.5 LF2 CLASS D
4. PIPE FITTINGS: A402 Gr. WP-C-8
5. STRUCTURAL STEEL: G40.21 300W
6. SHELL STEEL PLATE: G40.21M-250WT, KILLED AND FINE-GRAIN PRACTICE, IMPACT ENERGY 15kJ/m²(20J/m²-40°C)
7. FLOOR AND ROOF STEEL PLATE: G40.21M-250WT
8. TANK MANWAYS: STRUCTURAL GRADE PIPE OR BETTER

API STANDARD 650 STORAGE TANKS

SHELL NOZZLES		CONNECTIONS						
MARK	NO REQ'D	SIZE	FLANGED	THREADED	REINFORCEMENT	ORIENTATION N=0	HEIGHT FROM BOTTOM (mm)	NAME/SERVICE
N1	1	6"	SFL 150RF		API 650 Flg 3-5	270°(OFFSET 450mm)	305	INLET FROM BARGE PIPELINE
N2	1	4"	SFL 150RF		API 650 Flg 3-5	270°(OFFSET 450mm)	305	OUTLET TO FUEL DISPENSING
N5	1	4"	SFL 150RF		API 650 Flg 3-5	180°	810	DRAIN PUMP/OUT
MH1	2	24"			API 650 Flg 3-5	90°	762	SHELL MANHOLES
MH2	2	24"			API 650 Flg 3-5	270°	762	SHELL MANHOLES
N8	1	3"	SFL 150RF		API 650 Flg 3-5	180°	305	WATER DRAHOFF
N17	1	2"	SFL 150RF		API 650 Flg 3-5	270°(OFFSET 155mm)	1000	PSV DISCHARGE
N18	1	2"	SFL 150RF		API 650 Flg 3-5	270°(OFFSET 155mm)	1000	(SPARE) INTENDED PSV
N19	1	2"	SFL 150RF		API 650 Flg 3-5	90°	1000	(SPARE) INTENDED PSV

MARK	NO REQ'D	SIZE	FLANGED	THREADED	REINFORCEMENT	ORIENTATION N=0	HEIGHT FROM BOTTOM (mm)	NAME/SERVICE
N3	1	3"	SFL 150RF*		API 650 Flg 3-5	175°	15,858	SPARE
N4	1	256X468			API 650 Flg 3-5	175°	15,838	INSPECTION-HATCH**
MH3	1	24"	SFL 150RF		API 2000	180°	15,048	EMERGENCY VENT/MANHOLE*
N5	1	24"	SFL 150RF		API 2000	0	0	CENTRE ROOF VENT**
C1	1							VAREC 2500 LEVEL INDICATOR



KEY PLAN

GENERAL NOTES

GEM STEEL

9080-24 STREET
EDMONTON, ALBERTA
CANADA T6P 1X5
PH. (780) 448-0000
FAX. (780) 448-0001

REFERENCE DRAWINGS

NO.	DATE	DESCRIPTION	BY	APP.
1	09-03-20	AS-BUILT	F.R.	P.A.
0	07-06-17	FOR DISCUSSION	A.D.C.	B.A.S.

REVISIONS

**AGNICO-EAGLE
MEADOWBANK DIVISION**

TITLE: AGNICO-EAGLE - MEADOWBANK DIVISION
BAKER LAKE AREA 740
STRUCTURE

OWNER BY: FRANCIS ROSE, TECH. DATE: 2008-03-30

CHECKED BY: PATRICK GARD, P.ENG.

APPROVED BY: GEM STEEL EDMONTON LTD.

SCALE: N.T.S. DATE: 2008-03-27

DRAWING NO.: VD2259-BKL-007

PROJECT NO.: VD2259-2

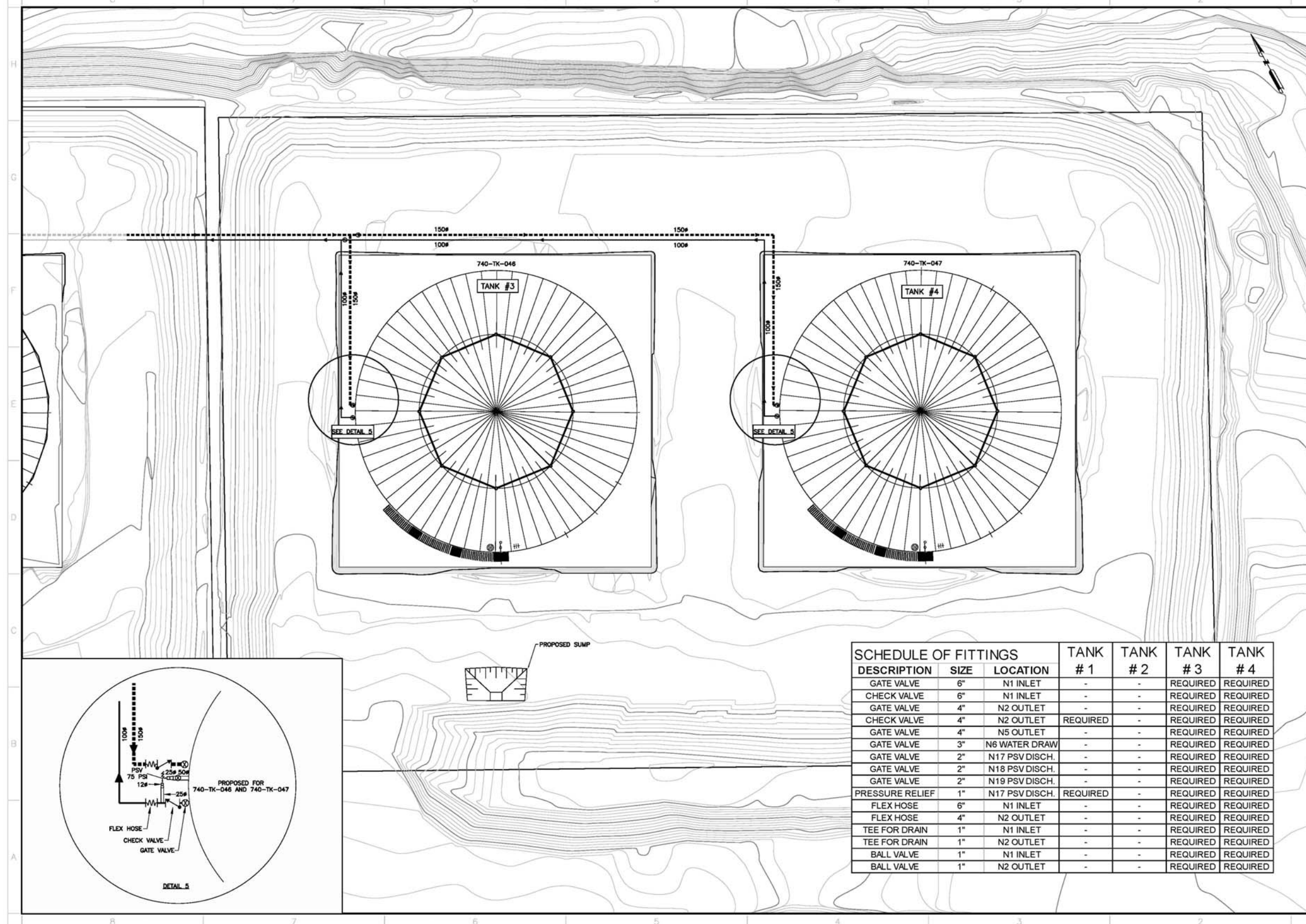
REVISION: 1

SHEET: 7/12

DATE: 03/27/09

0 50 100 150 200 250 300mm

FORMAT ARCHD-LANDSCAPE



KEY PLAN

GENERAL NOTES

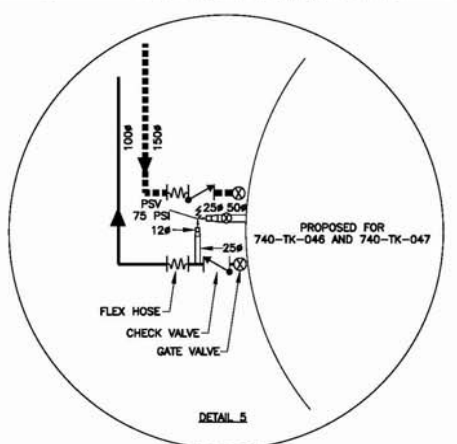
Groupe STAVIBEL
 Consultants en Ingénierie
 1271, 7e Rue
 St-Jovite (Québec) J0P 3S1
 Tél: (514) 825-2333 Téléc: (514) 825-1322
 Courriel : stavel@stabilbel.com
 Site Internet : www.stabilbel.com

ISSUED FOR CONSTRUCTION
 PATRICK GARD, P.ENG. 2009/04/07

NO.	DATE	DESCRIPTION	BY	APP.
1	2009-03-27	FOR CONSTRUCTION	P.A.	P.A.

REFERENCE DRAWINGS

SCHEDULE OF FITTINGS			TANK #1	TANK #2	TANK #3	TANK #4
GATE VALVE	6"	N1 INLET	-	-	REQUIRED	REQUIRED
CHECK VALVE	6"	N1 INLET	-	-	REQUIRED	REQUIRED
GATE VALVE	4"	N2 OUTLET	-	-	REQUIRED	REQUIRED
CHECK VALVE	4"	N2 OUTLET	REQUIRED	-	REQUIRED	REQUIRED
GATE VALVE	4"	N5 OUTLET	-	-	REQUIRED	REQUIRED
GATE VALVE	3"	N6 WATER DRAW	-	-	REQUIRED	REQUIRED
GATE VALVE	2"	N17 PSV DISCH.	-	-	REQUIRED	REQUIRED
GATE VALVE	2"	N18 PSV DISCH.	-	-	REQUIRED	REQUIRED
GATE VALVE	2"	N19 PSV DISCH.	-	-	REQUIRED	REQUIRED
PRESSURE RELIEF	1"	N17 PSV DISCH.	REQUIRED	-	REQUIRED	REQUIRED
FLEX HOSE	6"	N1 INLET	-	-	REQUIRED	REQUIRED
FLEX HOSE	4"	N2 OUTLET	-	-	REQUIRED	REQUIRED
TEE FOR DRAIN	1"	N1 INLET	-	-	REQUIRED	REQUIRED
TEE FOR DRAIN	1"	N2 OUTLET	-	-	REQUIRED	REQUIRED
BALL VALVE	1"	N1 INLET	-	-	REQUIRED	REQUIRED
BALL VALVE	1"	N2 OUTLET	-	-	REQUIRED	REQUIRED



NO.	DATE	DESCRIPTION	BY	APP.
1	2009-03-27	FOR CONSTRUCTION	P.A.	P.A.

AGNICO-EAGLE MEADOWBANK DIVISION

AGNICO-EAGLE - MEADOWBANK DIVISION
 BAKER LAKE AREA 740
 PIPING LAYOUT
 FOR PHASE 2-B (2009)

DATE: 2009-03-27

DESIGNED BY: FRANCIS ROSE, TECH

CHECKED BY: PATRICK GARD, P.ENG

APPROVED BY: PATRICK GARD, P.ENG

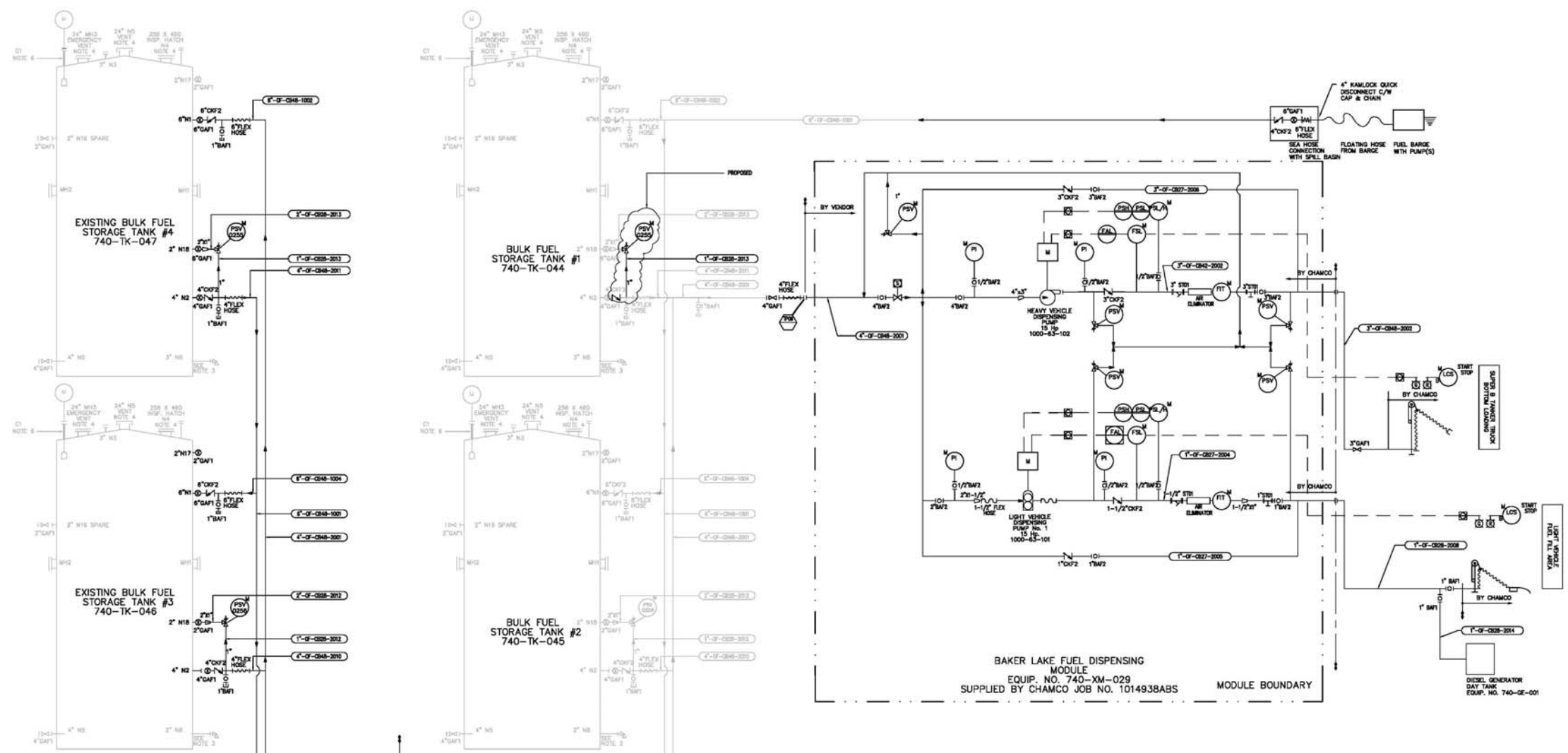
SCALE: 1:200 DATE: 2009-03-27

DRAWING NO: **VD2259-BKL-008**

PROJECT NO: **VD2259-2** REVISION: **1** SHEET: **8/12**

08000 01

FORMAT ARCHD-LANDSCAPE



- PIPING NOTES:**
1. INSTALL LOW POINT DRAINS
 2. PSV SHALL BE SUITABLE FOR FLUID AT -54 °C.
 3. 3" OCECO V-144 WATER DRAFFOFF VALVE (3" ANSI 150# FLG. SUPPLIED BY TANK VENDOR. VALVE TO BE HEAT TRACED AND INSULATED.
 4. DESIGN OF THESE TANKS TOP OPENINGS, BY TANK MANUFACTURER
 5. FLEXIBLE SS BRAIDED HOSE, 750mm LG. (FLEXONIC SENIOR, OR EQUAL)
 6. VAREC 2500 LEVEL INDICATOR BY TANK MANUFACTURER

*SEE PLAN 008 FOR SCHEDULE OF FITTINGS

KEY PLAN

GENERAL NOTES

Groupe STAVIBEL
 Consultants en Ingénierie
 1271, 7e Rue
 Val-d'Or (Québec) J9P 3S1
 Tél: (819) 825-2333 Téléc: (819) 825-1322
 Courriel : stavel@stabilbel.qc.ca
 Site Internet : www.stabilbel.qc.ca

ISSUED FOR CONSTRUCTION
 PATRICK GARD, P.ENG. 2009/04/17

REFERENCE DRAWINGS

NO.	DATE	DESCRIPTION	BY	APP.
1	08-03-07	FOR CONSTRUCTION	P.A.	P.A.

REVISIONS

AGNICO-EAGLE MEADOWBANK DIVISION

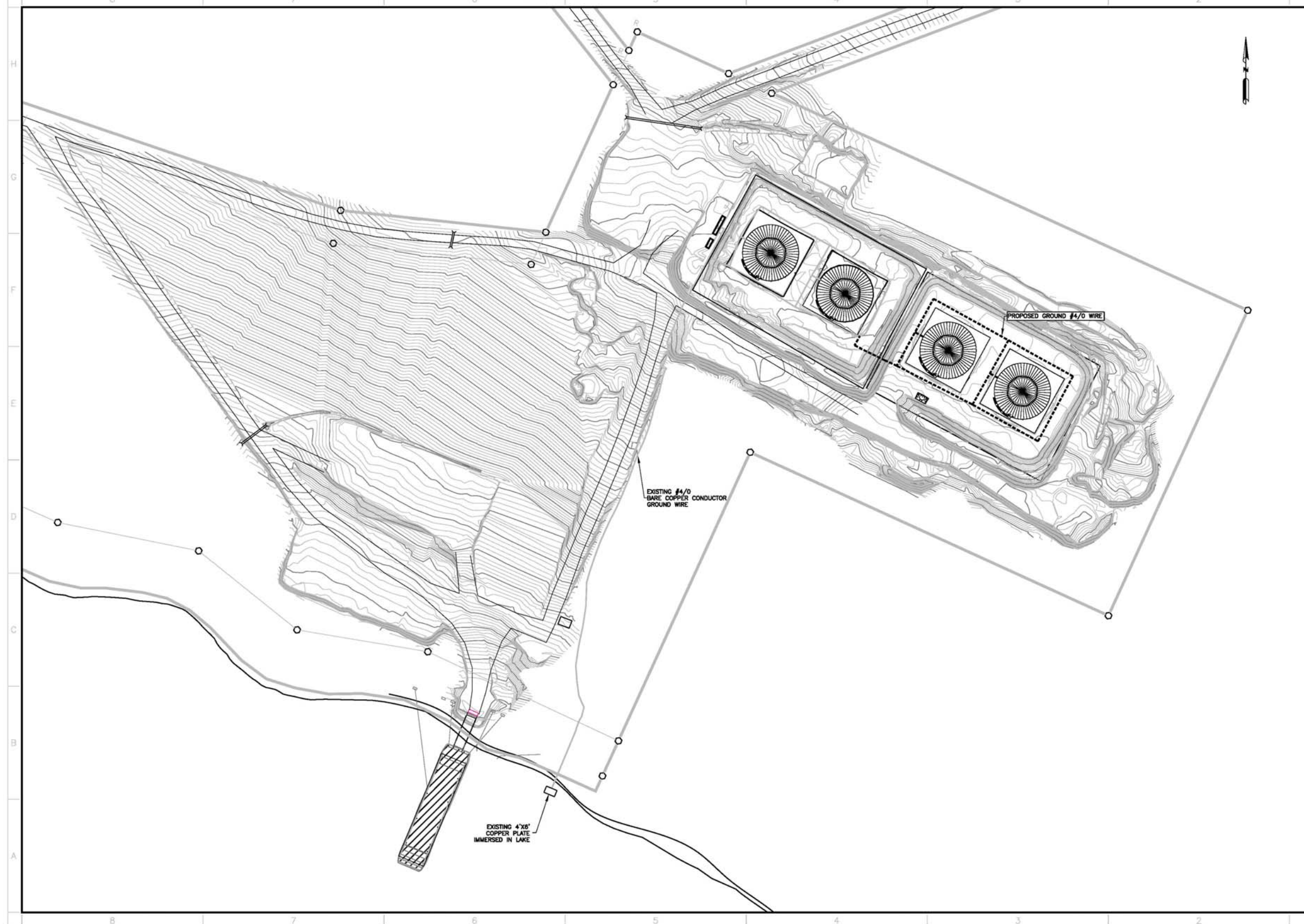
AGNICO-EAGLE - MEADOWBANK DIVISION
 BAKER LAKE AREA 740
 PROCESS AND INSTRUMENTATION DIAGRAM

OWNER BY	FRANCIS ROSE, TECH	DATE	2009-03-27
CHECKED BY	PATRICK GARD, P.ENG		
APPROVED BY	PATRICK GARD, P.ENG		
SCALE	N.T.S	DATE	2009-03-27
DRAWING NO.	VD2259-BKL-010		
PROJECT NO.	VD2259-2	REVISION	SHEET 1 / 12

Drawing No.

0 50 100 150 200 250 300mm

FORMAT ARCHD-LANDSCAPE



KEY PLAN



GENERAL NOTES

Groupe STAVIBEL
 Consultants en Ingénierie
 1271, 76 Rue
 Val-d'Or (Québec) J9P 3S1
 Tél: (819) 825-2233 Téléc: (819) 825-1322
 Courriel : stavel@stavel.com
 Site Internet : www.stavel.com

ISSUED FOR CONSTRUCTION
 PATRICK GARD, P.ENG. 2008/03/27

TITLE	#

REFERENCE DRAWINGS



NO.	DATE	DESCRIPTION	BY	APP. / SIGN.
1	03-03-27	FOR CONSTRUCTION	P.A.	P.A.

AGNICO-EAGLE
 MEADOWBANK DIVISION

TITLE
 AGNICO-EAGLE - MEADOWBANK DIVISION
 BAKER LAKE AREA 740
 GENERAL LAYOUT
 ELECTRICAL GROUND

DRAWN BY FRANCIS ROSE, TECH DATE 2008-03-27

CHECKED BY PATRICK GARD, P.ENG.

APPROVED BY PATRICK GARD, P.ENG.

SCALE 1:1000 DATE 2008-03-27

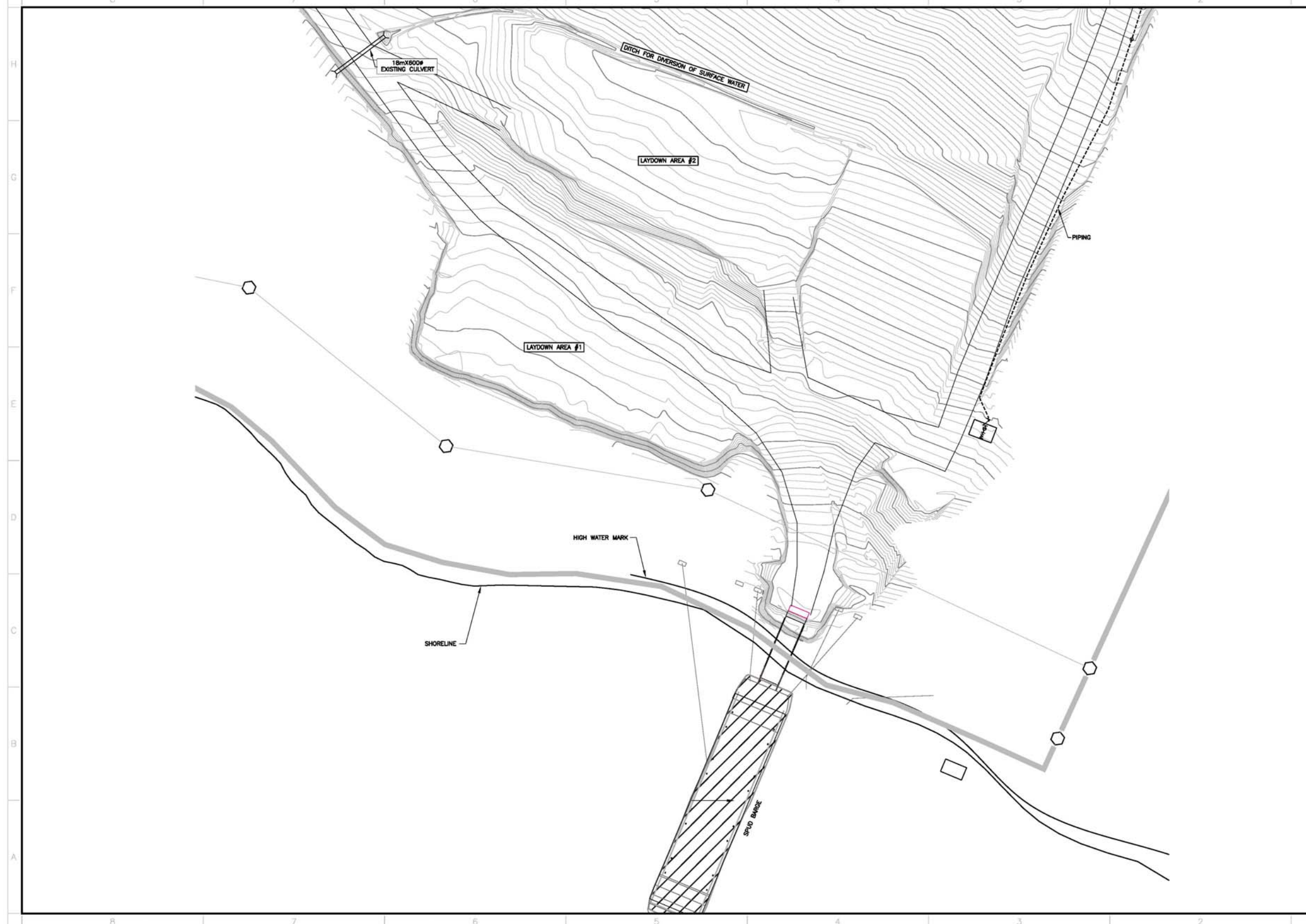
DRAWING NO. VD2259-BKL-011

PROJECT NO.	REVISION	SHEET
VD2259-2	1	11/12

DRAWING NO.

0 50 100 150 200 250 300mm

FORMAT ARCHD-LANDSCAPE



KEY PLAN

GENERAL NOTES

Groupe STAVIBEL
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 1271, 7e Rue
 Val-d'Or (Québec) J9P 3S1
 Tél: (819) 825-2233 Téléc: (819) 825-1322
 Courriel : stavel@stabilbel.qc.ca
 Site Internet : www.stabilbel.qc.ca

AS APPROVED BY THE BOARD OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF QUEBEC

NO.	DATE	DESCRIPTION	BY	APP.

REFERENCE DRAWINGS

NO.	DATE	DESCRIPTION

REVISIONS

NO.	DATE	DESCRIPTION	BY	APP.
1	08-03-07	AS-BUILT	F.A.	P.A.

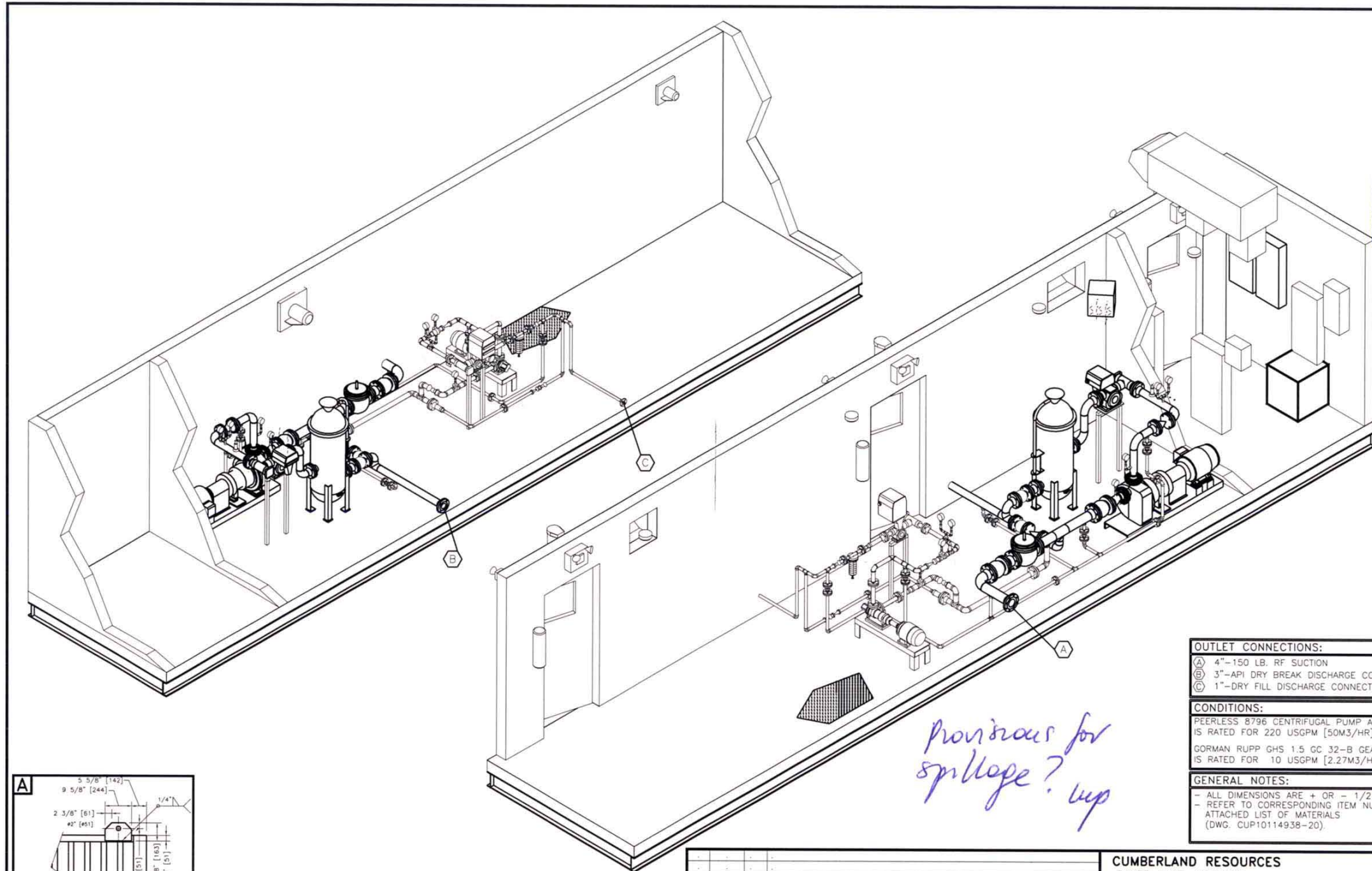
AGNICO-EAGLE MEADOWBANK DIVISION

AGNICO-EAGLE - MEADOWBANK DIVISION
 BAKER LAKE AREA 740
 GENERAL LAYOUT

DRAWN BY: FRANCIS ROSE, TECH. DATE: 2009-03-27
 CHECKED BY: PATRICK GARD, P.ENG.
 APPROVED BY: PATRICK GARD, P.ENG.
 SCALE: 1:500 DATE: 2009-03-27

DRAWING NO. **VD2259-BKL-012**

PROJECT NO. **VD2259-2** REVISION **1** SHEET **12/12**



HATCH

Code 1 "Proceed, No Exception Taken"

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Reviewed only for general conformity with the drawings and specifications. The Consulting Engineer does not warrant or represent that the information contained on this drawing is either accurate or complete. Sole responsibility for correct design, details and dimensions shall remain with the party submitting the drawing.

HATCH

By _____

Date _____

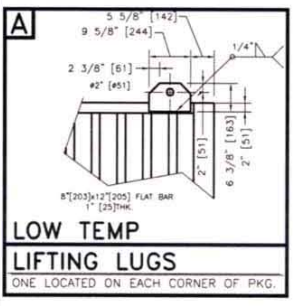
RECEIVED

JUL 18 2007

DRAWING CONTROL

HATCH

Provisions for spillage? up



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REV.	DATE	BY	DESCRIPTION

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OUTLET CONNECTIONS:

(A) 4"-150 LB. RF SUCTION

(B) 3"-API DRY BREAK DISCHARGE CONNECTION (HEAVY FILL)

(C) 1"-DRY FILL DISCHARGE CONNECTION (LIGHT FILL)

CONDITIONS:

PEERLESS 8796 CENTRIFUGAL PUMP AT DISCHARGE HEAD IS RATED FOR 220 USGPM [50M3/HR] AT 100' [30M] TDH.

GORMAN RUPP GHS 1.5 GC 32-B GEAR PUMP AT DISCHARGE HEAD IS RATED FOR 10 USGPM [2.27M3/HR] AT 110' [33.53M] TDH.

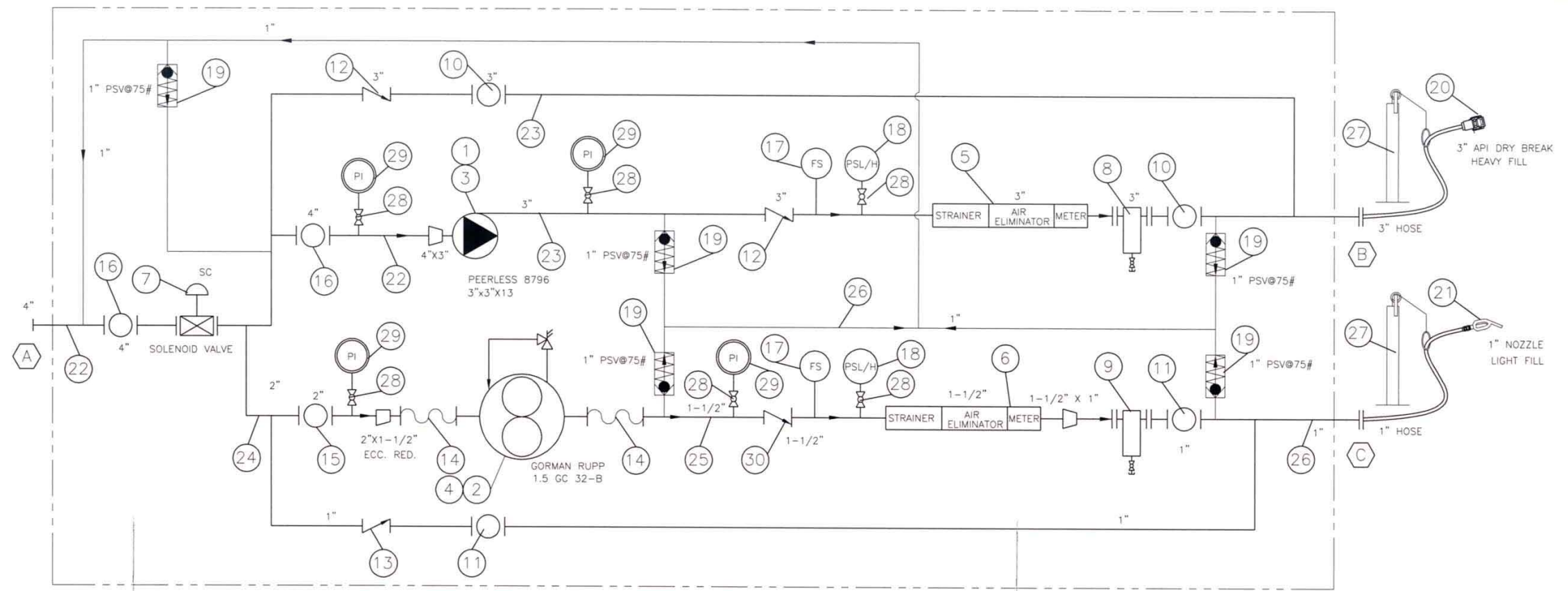
GENERAL NOTES:

- ALL DIMENSIONS ARE + OR - 1/2" [13 mm].

- REFER TO CORRESPONDING ITEM NUMBER ON THE ATTACHED LIST OF MATERIALS (DWG. CUP10114938-20).

CUMBERLAND RESOURCES		DESIGNED BY	D.J.C.
BAKER LAKE, NUNAVUT		DRAWN BY	G.R.M.
P.O. No. M268		CHECKED BY	
BAKER LAKE DISPENSING FUEL TRANSFER MODULE		JOB No.	1014938ABS
PEERLESS 8796, 3x3x13MTP CENTRIFUGAL PUMP (1)			
GORMAN RUPP GHS 1.5 GC 32-B GEAR PUMP (1)			
ISOMETRIC VIEW GENERAL ARRANGEMENT			
DATE	25-APRIL-07	SCALE	N.T.S.
DWG No.	CUP1014938-22	REV.	0

100-00-3900-1102



**BAKER LAKE
DISPENSING MODULE**

LEGEND	
①	PEERLESS - 3" X 3" - 13 MTP 8796 HEAVY FILL PUMP RATED AT 220 USGPM (1)
②	GORMAN RUPP GHS 1.5 GC 32-B PUMP RATED AT 10 USGPM - LIGHT FILL (1)
③	ELECTRIC MOTOR (15HP, 1800 RPM, 254T, 3/60/575V) - NOT SHOWN
④	ELECTRIC MOTOR (1.5HP, 1200 RPM, 182T, 3/60/575V) - NOT SHOWN
⑤	TCS 700-30 3" AIR ELLIMINATOR, DISCHARGE STRAINER AND FLOW METER
⑥	TCS 700-15 1-1/2" ELLIMINATOR, DISCHARGE STRAINER AND FLOW METER
⑦	4" 120VAC SOLENOID FIRE SAFE VALVE
⑧	3" BASKET FILTER
⑨	1" BASKET FILTER
⑩	3" BALL VALVE
⑪	1" BALL VALVE
⑫	3" CHECK VALVE
⑬	1" CHECK VALVE
⑭	1-1/2" FLEX HOSE
⑮	2" BALL VALVE
⑯	4" BALL VALVE
⑰	FLOW SWITCH
⑱	PRESSURE SWITCH HIGH/LO DISCHARGE PRESSURE ALARM
⑲	1" PSV SET AT 75PSI
⑳	3" API DRY BREAK (HEAVY FILL)
㉑	1" NOZZLE (LIGHT FILL)
㉒	4" LOW TEMP PIPE AND FITTINGS
㉓	3" LOW TEMP PIPE AND FITTINGS
㉔	2" LOW TEMP PIPE AND FITTINGS
㉕	1-1/2" LOW TEMP PIPE AND FITTINGS
㉖	1" LOW TEMP PIPE AND FITTINGS
㉗	HIGH HOSE RETRIEVER AND BUN
㉘	1/2" BALL VALVE
㉙	PRESSURE GAUGE
㉚	1-1/2" CHECK VALVE

HATCH

Code 1 "Proceed, No Exception Taken"

Code 2 "Proceed, with Exceptions as Noted and Re-submit"

Code 3 "Do not Proceed, Revise as Noted and Re-submit"

Code 4 "Information Only"

Reviewed only for general conformity with the drawings and specifications. The Consulting Engineer does not warrant or represent that the information contained on this drawing is either accurate or complete. Sole responsibility for correct design, details and dimensions shall remain with the part submitting the drawing.

HATCH

By _____

Date _____



H1325174-M268-11 0013

OUTLET CONNECTIONS:
Ⓐ 4"-150# RFWN FLANGE
Ⓑ 3"-API DRY BREAK- HEAVY FILL
Ⓒ 1"-DISCHARGE NOZZLE-LIGHT FILL
CONDITIONS:
EACH PEERLESS 8796 CENTRIFUGAL PUMP AT DISCHARGE HEAD IS RATED FOR 220 USgpm [50M3/HR] AT 100' [30M] TDH.
EACH GORMANN RUPP GHS 1.5 GC 32-B GEAR PUMP AT DISCHARGE HEAD IS RATED FOR 10 USgpm[2.27M3/HR] AT 110'[33.53M] TDH.
GENERAL NOTES:
- ALL DIMENSIONS ARE + OR - 1/2" [13 mm].

REV.	DATE	BY	DESCRIPTION

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VANCOUVER - CALGARY - EDMONTON - PRINCE GEORGE

CUMBERLAND RESOURCES BAKER LAKE, NUNAVUT P.O. No. M268	DESIGNED BY D.J.C.
BAKER LAKE DISPENSING FUEL TRANSFER MODULE PEERLESS 8796, 3x3x13MTP CENTRIFUGAL PUMP (1) GORMAN RUPP GHS 1.5 GC 32-B GEAR PUMP (1) FLOW DIAGRAM	DRAWN BY G.R.M.
DATE 25-APRIL-07	CHECKED BY
SCALE N.T.S.	JOB No. 1014938ABS
DWG No. CUP1014938-25	REV. 0

APPENDIX 2

SAFE FILL LEVELS FOR ALL FUEL TANKS

TEMPERATURE OF FUEL in the barge at discharge	MAXIMUM FUEL LEVEL to be read on the VAREC float level			
	TANK #1	TANK #2	TANK #3	TANK #4
0°C	11.68 m	11.64 m	11.70 m	11.70 m
+ 5°C	11.73 m	11.69 m	11.75 m	11.75 m
+10°C	11.79 m	11.75 m	11.81 m	11.81 m
+15°C	11.84 m	11.80 m	11.86 m	11.86 m

NOTE : EACH TANK HAS A SLIGHTLY DIFFERENT ELEVATION, SO CARE MUST BE TAKEN DURING HYDRAULIC BALANCING OF TANKS, ESPECIALLY WHEN THOSE ARE FULL.

Appendix A2

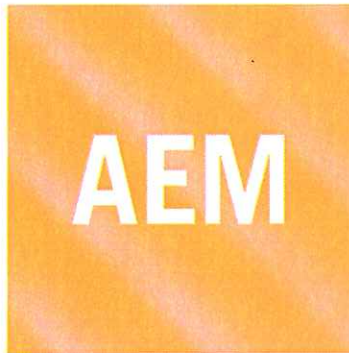
Baker Lake Diesel Fuel Storage Installations: Final Report Following Construction of Phase 2-B (2009)



**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

BAKER LAKE FUEL STORAGE INSTALLATIONS

**FINAL REPORT
FOLLOWING THE CONSTRUCTION
OF
PHASE 2-B (2009)**



**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

BAKER LAKE FUEL STORAGE INSTALLATIONS

FINAL REPORT

FOLLOWING THE CONSTRUCTION

OF

PHASE 2-B (2009)

PREPARED BY :

Patrick Giard, P.Eng., CCE

2009-12-07



**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

BAKER LAKE FUEL STORAGE INSTALLATIONS

FINAL REPORT

FOLLOWING THE CONSTRUCTION

TABLE OF CONTENTS

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2.2	Breach in middle berm.....	3
3.0	HDPE MEMBRANE WELDING	3
4.0	GEOTEXTILE INSTALLATION	4
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6.0	WELDING OF PIPELINE.....	4
7.0	PRESSURE TESTING OF PIPELINE.....	5
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APPENDIX 1 : AS-BUILT DRAWINGS

VD2259-BKL-001 (revision 2), VD2259-BKL-008 (revision 3)

APPENDIX 2

QUALITY CONTROL DOCS : HDPE welding log and instrument qualification

1.0 EXECUTIVE SUMMARY

Agnico-Eagle Mines Limited has undertaken construction of a gold mining project in the Kivalliq region of Nunavut, about 70 km north of Baker Lake.

The yearly operations of this mining operation requires the storage of a minimum of forty million (40 000 000) liters of diesel fuel, which represents four (4) bulk fuel storage tanks, each with a nominal capacity of ten million (10 000 000) liters.

PHASE 1 (2007)

During the summer of 2007, Agnico-Eagle Mines Limited has built the first two (2) bulk fuel tanks, with a combined capacity twenty million (20 000 000) liters of diesel fuel. An impervious enclosure was built around it in order to provide secondary containment around the fuel tanks. These first two (2) bulk fuel tanks were then in condition to be filled.

PHASE 2-A (2008)

During the summer of 2008, Agnico-Eagle Mines Limited has built another two (2) bulk fuel tanks, for a total combined capacity of forty million (40 000 000) liters of diesel fuel. Only a portion of the enclosure was built around it, with the final purpose being to provide secondary containment around the fuel tanks. These other two (2) bulk fuel tanks were completed in late October 2008, and they have remained empty during the winter of 2008-09.

PHASE 2-B (2009)

During 2009, Agnico-Eagle Mines Limited has completed the installation of an impermeable HDPE membrane, which provides adequate secondary containment around the fuel tanks. This has allowed to fill up all four (4) bulk fuel tanks in the summer of 2009, with the piping installation towards tanks 3 and 4 being completed.

PHASE 3

Consideration is currently being given to an expansion project for the fuel storage facilities in Baker Lake. The scale of the project has been defined in a set of drawings and technical specifications, which will be used for the permitting process.

2.0 SECONDARY CONTAINMENT BERMS

2.1 Final completion of berm enclosure

During the construction of fuel tanks 3 and 4 there was a small part of the secondary containment enclosure built in 2008 had been left open to provide easy access.

The granular material and rock fill that was used for civil works was taken from an approved quarry, which has been demonstrated not to produce Acid Rock Drainage and to be non-Metal Leaching.

Given that these fuel tanks were to be filled up in August 2009, the berm enclosure was fully completed in July 2009, exactly as shown on the construction drawings and at a minimal crest elevation of 34.20 m.

2.2 Breach in middle berm

Once the berm enclosure was fully completed, a breach was made in the middle berm between fuel tanks 2 and 3. At that moment, fuel tanks 1 and 2 had been fully drawn with truck tankers, and were totally empty. Meanwhile, the mine operations relied on the fuel tanks located at the Meadowbank site.

The breach section in this middle berm was capped with an HDPE membrane at the 33.00 m elevation mark, which is the same as the tank rim elevation. This HDPE membrane was welded to the existing ones on the berm crests, thus ensuring an impermeable transition from one side to the other of both secondary containment areas. An access ramp was built over this breach to provide vehicle access inside the secondary containment area around fuel tanks 3 and 4.

3.0 HDPE MEMBRANE WELDING

A specialized crew from Saskatchewan was mobilized to Baker Lake for the completion of the HDPE membrane installation. The contractor was Enviroline Services inc.

During July 2008, or prior to the construction of fuel tanks 3 and 4, some HDPE panels were laid out under the fuel tanks. The edges of this HDPE membrane had been protected with plywood sheets and covered with a layer of screened sand.

The work that took place in 2009 was to weld some HDPE membrane rolls to those existing panels, and extend all those HDPE membrane rolls right up to the berm crest. The membrane was anchored into a trench, as indicated on the construction drawings.

Detailed reports of wedge welder seam logs and qualification tests, as well as logs for extrusion welder and qualification tests are enclosed herein, in Appendix 1.

4.0 GEOTEXTILE INSTALLATION

As indicated on the construction drawings, a geotextile was placed directly under and over the HDPE membrane, as a means to reduce the risk of puncturing this membrane.

5.0 SCREENED SAND COVER

As indicated on the construction drawings, a layer of screened sand was placed directly under and over the geotextile, as an additional means to reduce the risk of puncturing the HDPE membrane. This sand was screened at the Blueberry Hill pit and hauled to the worksite by local truckers.

6.0 WELDING OF PIPELINE

A crew from the ABF Mines contractor, composed of a qualified welder and a pipefitter, have completed the extension of the barge discharge pipeline towards tanks 3 and 4.

Also, some additional piping was installed from the tank 3 and 4 towards the fuel dispensing module, thus allowing to draw fuel from these tanks, after barge delivery.

Some pressure release valves were installed on each of these pipelines, with a discharge pressure set at 75 psi and piped back into the fuel tanks. This constitutes a protection feature against the effects of thermal expansion of fuel which was indicated on the construction drawings.

Another feature of the modifications implemented in 2009 is the installation of some swing check valves at the N₂ nipple outlets of all fuel tanks. This will most likely help the fuel dispensing pump keeps its prime when the fuel levels get low in the tanks.

The only exception to the complete compliance of these installations with the piping drawings is that the containment sump for the fuel sea hose connection shown on section A of drawing 017202-1000-46D4-1004 from SNC-Lavalin has not been installed.

The flanges and gaskets that were use for mechanical joints are rated for 150 psi.

7.0 PRESSURE TESTING OF PIPELINE

7.1 Selection of test method and suitable air pressure for testing

The purpose of the leak detection program is to proof the fuel delivery system in a non-destructive manner. Fuel pipelines were pressure tested with a non-inert gas, given that no petroleum product had ever entered the pipelines prior to testing.

Section 6.2 of CCME PN_1326 states that the testing pressure must be greater than 350 kPa (50.8 psi), but without exceeding the manufacturer specifications for flanges and gaskets of 1034 kPa (150 psi). For that purpose, an evaluation was made of the maximum operating pressure at the fuel sea hose connection of the barge discharge pipeline. The results are as follows :

Expected discharge flow rate : 0.090 m³/s

Maximum operating pressure = static pressure + velocity pressure + friction loss

Maximum operating pressure = 29.64 m + 1.24 m + 35.80 m = **94.7 psi**

Whereas static pressure = elevation of (tank overflow - pump intake) x 0.8396
static pressure = (44.90 m - 9.60 m) x diesel fuel density @ 2°C

Whereas friction loss was evaluated to be :
Pressure Loss (psi): 50.95 psi Head Loss (ft): 139.83 ft of diesel fuel
for the barge discharge pipeline
Fluid: diesel fuel
Pipe/Tubing ID (in): 6" or 150 mm
Flow Rate (USGPM): 1426.5 USGPM or 0.090 m ³ /s
Dynamic Viscosity of diesel fuel (cP): 5.0 cP
Specific Gravity (water=1): 0.8396 at 35°F
Temperature (F): 35°F or 2°C
Pipe Roughness (ft): 0.00015
Fluid Velocity (ft/sec): 16.19 ft/s or 4.93 m/s
Friction Factor: 0.019
Piping Length (ft): 900
Pressure Loss (psi): 50.84 psi
Head Loss (ft): 139.88 ft or 42.64 m of diesel fuel @ 0.8396

7.2 Results of air pressure testing of fuel piping

The test pressure has been set at 690 kPa (100 psi), and the stabilization of pressure due to ambient temperature was noted after pressurization at 100 psi was achieved for testing. The piping system was not considered to be leaking due to a pressure variation occurrence of less than 2% within at least two (2) hours, after noted stabilization of air pressure. Detailed results are stated hereunder.

TESTING DAY ONE

Section of piping tested	100 mm pipe	from TANK 3 to TANK 4	
DATE OF TESTING :	2009-07-24	Air temperature :	N/A
TEST STARTED AT :	07:55 AM	TEST WAS ENDED AT :	02:57 PM
INITIAL PRESSURE	99 PSI	FINAL PRESSURE READING	102 PSI

Section of piping tested	150 mm pipe	from TANK 3 to TANK 4	
DATE OF TESTING :	2009-07-24	Air temperature :	N/A
TEST STARTED AT :	10:25 AM	TEST WAS ENDED AT :	02:55 PM
INITIAL PRESSURE	99 PSI	FINAL PRESSURE READING	102 PSI

TESTING DAY TWO

Section of piping tested	100 mm pipe	from TANK 2 to TANK 3	
DATE OF TESTING :	2009-07-25	Air temperature :	18°C
TEST STARTED AT :	01:08 PM	TEST WAS ENDED AT :	VOID TEST
INITIAL PRESSURE	100 PSI	FINAL PRESSURE READING	NIL

The cause of air pressure drop was located (missing gasket) and testing resumed.

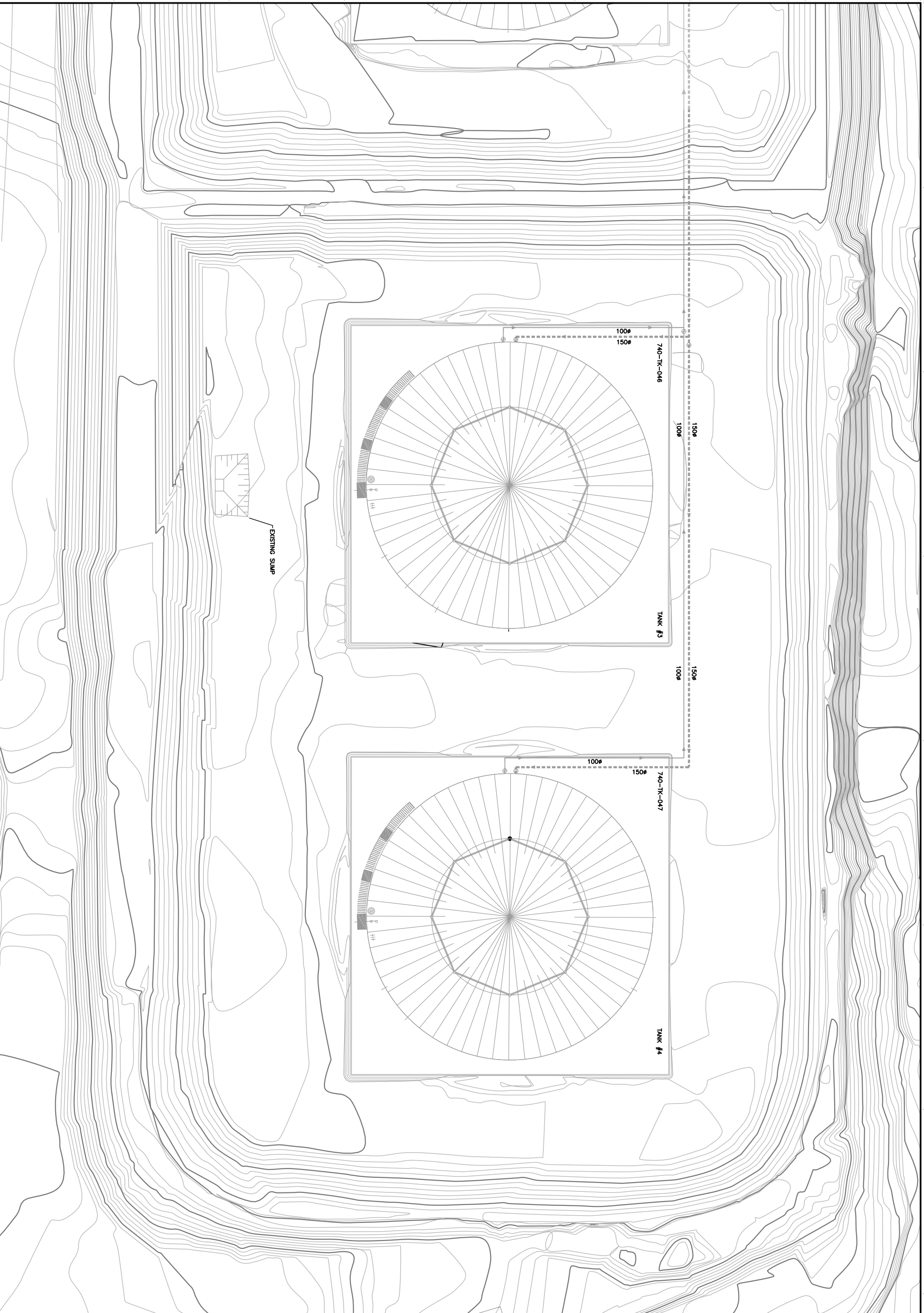
Section of piping tested	100 mm pipe	from TANK 2 to TANK 3	
DATE OF TESTING :	2009-07-25	Air temperature :	18°C
TEST STARTED AT :	02:12 PM	TEST WAS ENDED AT :	06:15 PM
INITIAL PRESSURE	100 PSI	FINAL PRESSURE READING	100 PSI

TESTING DAY THREE

Section of piping tested	150 mm pipe	from TANK 2 to TANK 3	
DATE OF TESTING :	2009-07-26	Air temperature :	15°C
TEST STARTED AT :	09:30 AM	TEST WAS ENDED AT :	VOID TEST
INITIAL PRESSURE	100 PSI	FINAL PRESSURE READING	80 PSI

The cause of air pressure drop was located (tightening bolts) and testing resumed.

Section of piping tested	100 mm pipe	from TANK 2 to TANK 3	
DATE OF TESTING :	2009-07-26	Air temperature :	18°C
TEST STARTED AT :	11:45 AM	TEST WAS ENDED AT :	04:25 PM
INITIAL PRESSURE	100 PSI	FINAL PRESSURE READING	101 PSI



GENERAL NOTES

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NO.	DESCRIPTION	DATE

NO.	DESCRIPTION	DATE
1	PROJET	12/07/09
2	REVISION	
3		
4		
5		

AGNICO-EAGLE
 MEADOWBANK DIVISION
 THE AGNICO-EAGLE - MEADOWBANK DIVISION
 BANGER LANE AREA 740
 PIPING LAYOUT
 FOR PHASE 2-3 (2009)

DESIGNED BY	FRANCOIS ROY, TECH	DATE	
CHECKED BY	FRANCOIS ROY, P.ENG	DATE	
APPROVED BY	FRANCOIS ROY, P.ENG	DATE	
SCALE	1:1000	SHEET	2
PROJECT NO.	VD2259-BKL-002	DATE	8 / 10
	VD2259-2		

AGNICO EAGLE MINES LTD
MEADOWBANK DIVISION
PROJECT REF. VD2415-000

BAKER LAKE: TANK FARM

IMPERMEABLE ENCLOSURE AROUND TANKS #3 AND #4
CONTRACTOR: ENVIROLINE SERVICES INC.

- Contents
- 1) AS BUILT
 - 2) WEDGE WELDER SEAM LOG
 - 3) WEDGE WELDER QUALIFICATIONS
 - 4) EXTRUSION LOG
 - 5) EXTRUSION WELDER QUALIFICATIONS

Enviroline Services Supervisor


DEREK PROVOST

JULY 08, 2009
ENVIROLINE

 2009/07/08
PATRICK GIARD, P.Eng.

WIRELINE services Inc.

7538 Sackman, St. SW 414 Tel. 306 242 8836 Fax 306 249 6721 Email: drhaines@wireline.com

Wedge Welder Seam Log

Project	TANK FARM	QC Tech.	MD	Drive Pressure	60
Location	BAKER LAKE	Wedge Temp.	400°C	Dwell Pressure	
Serial	60 mil	Wedge Gap		Comments	

Fusion Information

Testing Information

Run #	Tech.	HDPE Weld Temp	Weld Speed	Vise Grip	Peel Test		Air Test		60 psi Finish	Start Finish	Welded	Date Tested	Comments
					Inside	Outside	Start	Finish					
1	DAP	400	35%	✓	121	114	6:35	6:40	60	60	01	02	July 2009
2				✓	109	115	5:30	5:35			01	02	
3				✓	115	117	5:55	6:00			01	02	
4				✓	117	116	6:40	6:45			01	02	
5				✓	118	119	6:29	6:34			01	02	
6				✓	119	112	1:05	1:11			01	02	
7				✓	119	114	1:12	1:17			01	02	
8				✓	112	112	11:42	11:47			02	03	
9				✓	120	113	11:49	11:54			02	03	
10				✓	113	114	11:56	12:01			02	03	
11				✓	117	116	10:00	10:05			02	03	
12				✓	118	114	10:06	10:11			02	03	
13				✓	114	115	10:12	10:17			02	03	
14				✓	121	112	10:18	10:23			02	03	
15				✓	122	112	10:24	10:29			02	03	
16				✓	109	121	8:45	8:50			03	04	
17				✓	118	116	8:51	8:56			03	04	
18				✓	114	117	8:57	9:02			03	04	
19				✓	116	119	9:30	9:35			03	04	
20				✓	120	118	9:03	9:08			03	04	

MIROLING services Inc.

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Edge Welder Seam Log

Project	TANK FARM	QC Tech.	MD	Drive Pressure	60
Location	BAKER LAKE	Wedge Temp.	400°C	Dwell Pressure	
Serial	60 mil	Wedge Gap		Comments	

Fusion Information

Testing Information

Item #	Tech.	Temp	Weld Speed	Vise Grip	Peel Test		Air Test		60 psi Start	60 psi Finish	Date Welded	Date Tested	Comments
					Inside	Outside	Start	Finish					
1	DAP	400	35%	✓	116	121	8:16	8:21	60	60	04	05	July 2009
2				✓	117	123	8:22	8:27			05	05	
3				✓	112	119	2:25	2:30			05	05	
4				✓	108	117	2:31	2:36			05	05	
5				✓	114	119	2:37	2:42			05	05	
6				✓	115	121	2:49	2:54			05	05	
7				✓	110	120	2:55	3:00			05	06	
8				✓	113	118	6:10	6:15			05	06	
9				✓	117	114	6:16	6:21			05	06	
10				✓	117	113	6:22	6:27			05	06	
11				✓	116	117	6:28	6:33			05	06	
12				✓	112	119	6:15	6:20			06	06	
13				✓	113	121	6:21	6:26			06	06	
14				✓	115	120	6:27	6:32			06	06	
15				✓	117	116	6:33	6:38			06	06	
16				✓	114	115	6:39	6:44			06	06	
17				✓	112	117	6:45	6:50			06	06	
18				✓	118	120	6:51	6:56			06	07	
19				✓	113	114	6:57	7:02			06	07	
20				✓	113	118	7:03	7:08	✓	✓	06	07	

Welder Seam Log

TANK FARM	QC Tech.	MY	Drive Pressure	60
BAKER LAKE	Wedge Temp.	400°C	Dwell Pressure	
60 mil	Wedge Gap		Comments	

Testing Information

Tech.	HDPE Temp	Weld Speed	Grip	Peel Test		Air Test		Start	Finish	60 psi Start	60 psi Finish	Date Welded	Date Tested	Comments
				Inside	Outside	Start	Finish							
DAP	400	35%	✓	109	114	6:09	7:14	60	60	06	06	06	06	July 2009
			✓	114	118	2:30	2:35			06	06	06	06	
			✓	115	116	2:36	2:41			06	06	06	06	
			✓	114	118	2:42	2:47			06	06	06	06	
			✓	113	112	2:48	2:53			06	06	06	06	
			✓	112	111	3:00	3:05			06	06	06	06	
			✓	113	113	3:06	3:11			06	06	06	06	
			✓	110	115	3:12	3:17			06	06	06	06	
			✓	116	117	6:20	6:25			06	06	08	08	
			✓	118	118	6:26	6:31			06	06	08	08	
			✓	112	116	6:32	6:37			07	07	08	08	
			✓	114	117	6:38	6:43			07	07	08	08	
			✓	119	118	6:44	6:49			07	07	08	08	
			✓	117	116	6:50	6:55			07	07	08	08	
			✓	115	118	6:56	7:01			07	07	08	08	
			✓	114	115	7:06	7:11			07	07	08	08	
			✓	112	118	7:12	7:17			07	07	08	08	
			✓	109	119	7:18	7:23			07	07	08	08	
			✓	111	114	7:24	7:29			07	07	08	08	
			✓	115	117	7:30	7:35			07	07	08	08	

Arline services inc.

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Welder Seam Log

TANK FARM	QC Tech.	MY	Drive Pressure	60
BAKER LAKE	Wedge Temp.	400 °C	Dwell Pressure	
60 mil	Wedge Gap		Comments	

on Information

Testing Information

Tech.	HDPE	Weld	Temp	Speed	Vise	Grip	Peel Test		Air Test	psi	Start	Finish	Date	Welded	Date	Tested	Comments
							Inside	Outside									
DAP	400°C	35%			✓		116	117	11:30	11:35	60	60	02	02	02		July 2009
					✓		114	112	11:36	11:41			02	02	02		
					✓		119	114	11:42	11:47			03	03	04		
					✓		117	116	1:24	1:29			04	04	04		
					✓		113	119	1:30	1:35			04	04	04		
					✓		109	121	6:55	7:00			05	05	05		
					✓		111	109	7:00	7:05			05	05	05		
					✓		112	112	7:12	7:17			05	05	05		
					✓		118	117	7:18	7:23			05	05	05		
					✓		115	121	2:24	7:29			05	05	05		
					✓		112	119	11:42	11:47			02	02	02		
					✓		118	117	11:00	11:05			03	03	03		
					✓		116	112	1:10	1:15			06	06	07		
					✓		117	119	1:25	1:30			07	07	07		
					✓		116	114	2:31	2:36			03	03	03		
					✓		112	121	1:30	1:35			07	07	07		
					✓		119	117	8:00	8:05			07	07	08		

enviroline Services Inc.

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Wedge Welder Qualification Data

Date	July 1, 2009	Wedge Welder #	04
Project	Tank Farm	Travel Speed	35%
Work Area	Baker Lake	Drive Pressure	* 60
Material	60 mil	Dwell Pressure	*
QC tech.	MD	Wedge Setting	*
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	A.M.	Sheet Temp.	*
Test Location	ON SITE	Testing Temp.	14°C

Destructive Testing Results

Vice Grip Peel	
Outside Track	Inside Track
✓	✓
✓	✓

Tensometer Peel				
Outside Track		Inside Track		Comments
Lb/Inch	%Separation	Lb/Inch	% Separation	
118	0	117	0	P
104	0	107	0	P
116	0	116	0	P
102	0	122	0	P
107	0	104	0	P

Seam Tensile		
Lb/Inch	% Elongation	Comments
181	*	P
172	*	P

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Wedge Welder Qualification Data

Date	July 21, 2009	Wedge Welder #	C4
Project	Baker Lake	Travel Speed	40%
Work Area	Tank Farm	Drive Pressure	60
Material	60 mil	Dwell Pressure	
QC tech.	MD	Wedge Setting	
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	P.M.	Sheet Temp.	
Test Location	ON SITE	Testing Temp.	13°C

Destructive Testing Results

Vice Grip Peel	
Outside Track	Inside Track
✓	✓
✓	✓

Tensometer Peel				
Outside Track		Inside Track		Comments
Lb/Inch	% Separation	Lb/Inch	% Separation	
114	0	107	0	P
116	0	109	0	P
111	0	112	0	P
114	0	114	0	P
115	0	114	0	P

107 - 117

Seam Tensile		
Lb/Inch	% Elongation	Comments
179		P
188		P

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Wedge Welder Qualification Data

Date	July 02, 2009	Wedge Welder #	C4
Project	Baker Lake	Travel Speed	35%
Work Area	Tank Farm	Drive Pressure	60
Material	60 mil	Dwell Pressure	
QC tech.	MD	Wedge Setting	
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	P.M.	Sheet Temp.	
Test Location	ON SITE	Testing Temp.	18°C

Destructive Testing Results

Vice Grip Peel	
Outside Track	Inside Track
✓	✓

Tensometer Peel				
Outside Track		Inside Track		Comments
Lb/Inch	%Separation	Lb/Inch	% Separation	
113	0	116	0	P
112	0	115	0	P
114	0	114	0	P
110	0	111	0	P
119	0	113	0	P

Seam Tensile		
Lb/Inch	% Elongation	Comments
181		P
185		P

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Wedge Welder Qualification Data

Date	July 03, 2009	Wedge Welder #	C4
Project	Baker Lake	Travel Speed	35%
Work Area	Tank Farm	Drive Pressure	60
Material	60 mil	Dwell Pressure	
QC tech.	MD	Wedge Setting	
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	A.M.	Sheet Temp.	
Test Location	ON SITE	Testing Temp.	13°C

Destructive Testing Results

Vice Grip Peel

Outside Track	Inside Track
✓	✓
✓	✓

Tensometer Peel

Outside Track		Inside Track		Comments
Lb/Inch	% Separation	Lb/Inch	% Separation	
112	0	109	0	P
114	0	111	0	P
115	0	107	0	P
113	0	109	0	P
114	0	110	0	P

Seam Tensile

Lb/Inch	% Elongation	Comments
183		P
185		P

enviroline Services Inc.

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Wedge Welder Qualification Data

Date	July 04, 2009	Wedge Welder #	C4
Project	Baker Lake	Travel Speed	35%
Work Area	Tank Farms	Drive Pressure	60
Material	60 mil	Dwell Pressure	
QC tech.	MD	Wedge Setting	
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	A.M	Sheet Temp.	
Test Location	ON SITE	Testing Temp.	12°C

Destructive Testing Results

Vice Grip Peel	
Outside Track	Inside Track
✓	✓
✓	✓

Tensometer Peel				
Outside Track		Inside Track		Comments
Lb/Inch	% Separation	Lb/Inch	% Separation	
116	0	118	0	P
120	0	117	0	P
121	0	119	0	P
114	0	112	0	P
114	0	119	0	P

Seam Tensile		
Lb/Inch	% Elongation	Comments
191		P
188		P

enviroline Services Inc.

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Wedge Welder Qualification Data

Date	July 02, 2009	Wedge Welder #	04
Project	Baker Lake	Travel Speed	35%
Work Area	Tank Farm	Drive Pressure	60
Material	60 mil	Dwell Pressure	
QC tech.	MD	Wedge Setting	
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	P.M.	Sheet Temp.	
Test Location	ON SITE	Testing Temp.	18°C

Destructive Testing Results

Vice Grip Peel	
Outside Track	Inside Track
✓	✓
✓	✓

Tensometer Peel				
Outside Track		Inside Track		Comments
Lb/Inch	% Separation	Lb/Inch	% Separation	
119	0	113	0	P
116	0	119	0	P
118	0	115	0	P
112	0	114	0	P
113	0	116	0	P

Seam Tensile		
Lb/Inch	% Elongation	Comments
177	200	P
181	200	P

enviroline Services Inc.

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Wedge Welder Qualification Data

Date	July 05, 2009	Wedge Welder #	C4
Project	Baker Lake	Travel Speed	35%
Work Area	Tank Farm	Drive Pressure	60
Material	60 mil	Dwell Pressure	
QC tech.	MP	Wedge Setting	
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	A.M.	Sheet Temp.	
Test Location	ON SITE	Testing Temp.	14°C

Destructive Testing Results

Vice Grip Peel	
Outside Track	Inside Track
✓	✓
✓	✓

Tensometer Peel				
Outside Track		Inside Track		Comments
Lb/Inch	% Separation	Lb/Inch	% Separation	
116	0	118	0	P
113	0	112	0	P
117	0	110	0	P
119	0	116	0	P
118	0	115	0	P

Seam Tensile		
Lb/Inch	% Elongation	Comments
184	200	P
180	200	P

enviroline Services Inc.

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Wedge Welder Qualification Data

Date	July 06, 2009	Wedge Welder #	C4
Project	Baker Lake	Travel Speed	35%
Work Area	Tank Farm	Drive Pressure	60
Material	60 mil	Dwell Pressure	
QC tech.	MD	Wedge Setting	
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	A.M.	Sheet Temp.	
Test Location	ON SITE	Testing Temp.	14°C

Destructive Testing Results

Vice Grip Peel	
Outside Track	Inside Track
✓	✓
✓	✓

Tensometer Peel				
Outside Track		Inside Track		Comments
Lb/Inch	% Separation	Lb/Inch	% Separation	
116	0	115	0	P
113	0	115	0	P
112	0	119	0	P
119	0	121	0	P
117	0	113	0	P

Seam Tensile		
Lb/Inch	% Elongation	Comments
185	200	P
189	200	P

enviroline Services Inc.

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Wedge Welder Qualification Data

Date	July 07, 2009	Wedge Welder #	C4
Project	Baker Lake	Travel Speed	35%
Work Area	Tank Farm	Drive Pressure	60
Material	60 mil	Dwell Pressure	
QC tech.	MD	Wedge Setting	
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	A.M.	Sheet Temp.	
Test Location	ON SITE	Testing Temp.	12°C

Destructive Testing Results

Vice Grip Peel

Outside Track	Inside Track
✓	✓
✓	✓

Tensometer Peel

Outside Track		Inside Track		Comments
Lb/Inch	%Separation	Lb/Inch	% Separation	
112	0	119	0	P
119	0	116	0	P
116	0	111	0	P
117	0	117	0	P
114	0	113	0	P

Seam Tensile

Lb/Inch	% Elongation	Comments
180	200	P
184	200	P

enviroline Services Inc.

P O Box 7539 Saskatoon, SK. S7K 4L4 Tel: 306 242 8836 Fax 306 249 6721 Email: dvbarnes@home.com

Wedge Welder Qualification Data

Date	July 07, 2009	Wedge Welder #	C4
Project	Baker Lake	Travel Speed	35%
Work Area	Tank Farm	Drive Pressure	60
Material	60 mil	Dwell Pressure	
QC tech.	MP	Wedge Setting	
Welder/Operator	DAP	Wedge Temp.	400°C
Test Identification	P.M	Sheet Temp.	
Test Location	ON SITE	Testing Temp.	16°C

Destructive Testing Results

Vice Grip Peel	
Outside Track	Inside Track
✓	✓
✓	✓

Tensometer Peel				
Outside Track		Inside Track		Comments
Lb/Inch	%Separation	Lb/Inch	% Separation	
112	0	112	0	P
117	0	111	0	P
114	0	116	0	P
116	0	121	0	P
115	0	112	0	P

Seam Tensile		
Lb/Inch	% Elongation	Comments
181	200	P
182	200	P

enviroline services Inc.

PO Box 7539 Saskatoon SK. S7K 4L4

1306 242 8836 Fax 306 249 6721 email enviroline@sasktel.net

Extrusion Welding Qualification Data

Date	July 1, 09	Extruder#	X2-2
Project	Baker Laise	Operator	DAP
QC Tech:	MP	Preheat Temp.	280°C
Material	60 mil	Barrel Temp.	245°C
Test Identification	P.M.	Shoe Height	1/4"
Temp.	20	Weld Type	Flat

Destructive Testing Results

Vice Grip Peel	
Type of failure	Comments

Tensometer Peel	
Lb/Inch	% Separation
106	0
115	0
115	0
107	0
114	0

Seam Tensile		
Lb/inch	% Elongation	Comments
181	200	P
172	200	P

Seam Tensile		
Lb/inch	% Elongation	Comments
181	200	P
172	200	P

enviroline services inc.

PO Box 7539 Saskatoon SK. S7K 4L4

1306 242 8836 Fax 306 249 6721 email enviroline@sasktel.net

Extrusion Welding Qualification Data

Date	July 2, 2009	Extruder#	X2-2
Project	Baker Lake	Operator	DAP
QC Tech:	MP	Preheat Temp.	280°C
Material	60 mil	Barrel Temp.	245°C
Test Identification	A.M.	Shoe Height	1/4"
Temp.	8°C	Weld Type	Flat

Destructive Testing Results

Vice Grip Peel

Type of failure	Comments

Tensometer Peel

Lb/Inch	% Separation	Comments
113	0	P
117	0	P
116	0	P
115	0	P
116	0	P

Seam Tensile

Lb/inch	% Elongation	Comments
179	200	P
178	200	P

enviroline services inc.

PO Box 7539 Saskatoon SK. S7K 4L4

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Extrusion Welding Qualification Data

Date	July 03, 2009	Extruder#	XZ-2
Project	Baker Lake	Operator	DAP
QC Tech:	MD	Preheat Temp.	280°C
Material	60 mil	Barrel Temp.	230°C
Test Identification	A.M.	Shoe Height	1/4"
Temp.	10°	Weld Type	Flat

Destructive Testing Results

Vice Grip Peel

Type of failure	Comments

Tensometer Peel

Lb/Inch	% Separation	Comments
117	0	P
114	0	P
112	0	P
112	0	P
118	0	P

Seam Tensile

Lb/inch	% Elongation	Comments
183	200	P
177	200	P

enviroline Services Inc.

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306 242 8836 Fax 306 249 6721 email enviroline@sasktel.net

Extrusion Welding Qualification Data

Date	July 4 2009	Extruder#	X2-Z
Project	Baker Lake	Operator	DAP
QC Tech:	MD	Preheat Temp.	280°C
Material	60 mil	Barrel Temp.	245°C
Test Identification	AM	Shoe Height	1/4"
Temp.	14°C	Weld Type	flat

Destructive Testing Results

Vice Grip Peel

Type of failure	Comments

Tensometer Peel

Lb/Inch	% Separation	Comments
117	0	P
114	0	P
116	0	P
112	0	P
113	0	P

Seam Tensile

Lb/inch	% Elongation	Comments
183	200	P
177	200	P

enviroline services inc.

PO Box 7539 Saskatoon SK. S7K 4L4
 1306 242 8836 Fax 306 249 6721 email enviroline@sasktel.net

Extrusion Welding Qualification Data

Date	July 5 2009	Extruder#	X2-2
Project	Baker Lake	Operator	DAP
QC Tech:	MP	Preheat Temp.	270°C
Material	60 mil	Barrel Temp.	235°C
Test Identification	A.M.	Shoe Height	1/4"
Temp.	7°	Weld Type	Flat

Destructive Testing Results

Vice Grip Peel

Type of failure	Comments

Tensometer Peel

Lb/Inch	% Separation	Comments
110	0	P
117	0	P
109	0	P
111	0	P
118	0	P

Seam Tensile

Lb/inch	% Elongation	Comments
178	200	P
173	200	P

enviroline services inc.

PO Box 7539 Saskatoon SK. S7K 4L4

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Extrusion Welding Qualification Data

Date	July 6, 2009	Extruder#	X2-2
Project	Baker Lake	Operator	DAP
QC Tech:	MD	Preheat Temp.	272°C
Material	60 mil	Barrel Temp.	238°C
Test Identification	A.M.	Shoe Height	1/4"
Temp.	11°C	Weld Type	Flat

Destructive Testing Results

Vice Grip Peel

Type of failure	Comments

Tensometer Peel

Lb/Inch	% Separation	Comments
114	0	P
115	0	P
118	0	P
112	0	P
117	0	P

Seam Tensile

Lb/inch	% Elongation	Comments
181	200	P
176	200	P

enviroline Services Inc.

PO Box 7539 Saskatoon SK. S7K 4L4

1 306 242 8836 Fax 306 249 6721 email enviroline@sasktel.net

Extrusion Welding Qualification Data

Date	July 2, 09	Extruder#	X2-2
Project	Baker Lake	Operator	DAP
QC Tech:	MP	Preheat Temp.	270°C
Material	60 mil	Barrel Temp.	239°C
Test Identification	A.M.	Shoe Height	1/4"
Temp.	7°C	Weld Type	Flat

Destructive Testing Results

Vice Grip Peel

Type of failure	Comments

Tensometer Peel

Lb/Inch	% Separation	Comments
	0	P
114	0	P
115	0	P
115	0	P
119	0	P
114	0	P

Seam Tensile

Lb/inch	% Elongation	Comments
	200	P
183	200	P
188		

Appendix A3

Baker Lake Diesel Fuel Storage Installations: Final Report Following Construction of Phase 3 (2010)



**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

**BAKER LAKE FUEL STORAGE INSTALLATIONS
TANK # 5 AND # 6**

2010

**FINAL REPORT
FOLLOWING THE CONSTRUCTION
OF
PHASE 3 (2010)**



AEM

**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

BAKER LAKE FUEL STORAGE INSTALLATIONS

FINAL REPORT

FOLLOWING THE CONSTRUCTION

OF

PHASE 3 (2010)

PREPARED BY :



**France Bérubé, Eng..Jr
Civil
STAVIBEL**



**Serge Beaulé, Eng. associate
Head Department Civil
STAVIBEL**



2011-02-23

JANUARY 2011

**AGNICO-EAGLE MINES LTD
MEADOWBANK DIVISION**

BAKER LAKE FUEL STORAGE INSTALLATIONS TANK # 5 AND # 6

FINAL REPORT

**FOLLOWING THE CONSTRUCTION
PHASE 3 (2010)**

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APPENDIX 1 : DRAWINGS

APPENDIX 2 : SAFE FILL LEVEL FOR ALL FUEL TANK

A. DESCRIPTION OF MANDATE

Agnico-Eagle Mines has given a mandate to Stavibel, engineering services in order to verify the compliance with applicable regulations of its fuel storage installations in Baker Lake, Nunavut.

Accord to the terms of reference, the mandate consists summarily in the following activities.

- A. Review and compilation of the available documentation;
- B. Collection of any information that may be missing;
- C. REVISION OF CONSTRUCTION DRAWINGS
 - Preparation of « *AS BUILT* » drawing of the construction tank #5 and #6, of phase 3.
- D. Verifications to the storage capacity within the existing containment berms of phase 3.

B. DOCUMENTATION READILY AVAILABLE

GOLDER ASSOCIATES – Vancouver office (phase 1, 2, 3)

For the Baker Lake bulk fuel storage facilities, this firm has produced some construction specifications on 2006-04-25, which were given reference SP-GAL-03 under their project number 06-1413-009.

NISHI-KHON/SNC LAVALIN LTD – Vancouver office (phase 1, 2)

For the Baker Lake bulk fuel facilities, this firm has produced a set of drawings issued **for construction** on 2007-08-03, under their project number 017202. Some specifications for fuel piping and valves were also issued.

EARTHWORK DRAWINGS	017202-1000-41D1-0006	17202-1000-46ES-1001A	017202-8000-46DC-9150
017202-1000-41D1-0001	FUEL PIPING DRAWINGS	17202-1000-46ES-1001B	017202-8000-46DC-9152
017202-1000-41D1-0002	017202-1000-41D1-0007	ELECTRICAL DRAWINGS	017202-8000-46DC-9153
017202-1000-41D1-0003	017202-1000-46D4-1004	017202-1000-46D6-1001	017202-8000-46DC-9156
017202-1000-41D1-0004	017202-1000-46D4-1005	017202-1000-47D2-2001	017202-8000-46DC-9157
017202-1000-41D1-0005	017202-1000-46D4-1006	017202-8000-47DA-9004	017202-8000-46DC-9166

GEM STEEL EDMONTON LTD (phase 1, 2, 3)

This vendor has submitted a set of « AS BUILT » drawings issued for the completion and permitting, which consist in four (4) structural drawings showing the details of a fuel tank of 10 million liters nominal capacity. These fuel tanks are shown on revision 1 of drawings BL-2010-1, BL210-2, BL-2010-3 and BL-2010-4.

CHAMCO INDUSTRIES LTD (phase 1, 2)

This vendor has submitted a set of drawings issued **for construction** under their project number 1014938ABS, consisting of the following drawings. These documents have all been received by HATCH and approved.

DRAWING NUMBER	H325174-M268-VD-0040	H325174-M268-VD-0041	H325174-M268-VD-0010
H325174-M268-VD-0011	H325174-M268-VD-0012	H325174-M268-VD-0013	H325174-M268-VD-0014
H325174-M268-VD-0015	H325174-M268-VD-0016	H325174-M268-VD-0017	H325174-M268-VD-0019
H325174-M268-VD-0020	H325174-M268-VD-0021	H325174-M268-VD-0029	H325174-M268-VD-0030
H325174-M268-VD-0031	H325174-M268-VD-0032	H325174-M268-VD-0033	H325174-M268-VD-0034
H325174-M268-VD-0035	H325174-M268-VD-0036	H325174-M268-VD-0037	H325174-M268-VD-0039

C. STAVIBEL, ROUYN-NORANDA OFFICE (phase 3)

This firm has produced a set of construction and has built drawings consisting of the following drawings.

Fuel tanks of phase 3 are shown on these drawing as well as the earthwork, the piping and electrical grounding details.

Earthwork drawings

DRAWING NUMBER
740-C-0123
740-C-0124
740-C-0125

Fuel piping drawings

DRAWING NUMBER
740-M-0100

Electrical drawings

DRAWING NUMBER
740-E-0120

D. ADDITIONAL COLLECTION OF INFORMATION

TECHNIC EXPERT INC.

Role during construction phase #3: Field supervision during construction of phase 3 (2010)

Mr. Luc Croisetière, which is a civil consultant at the time and Julie Bacon (AEM employee), have supervised the construction of the fuel containment area around tank #5 and #6, in phase 3 of this project. A specialized crew coming from Saskatoon (Enviroline Service inc.) was hired in May 2010 to install an HDPE membrane over the berms. This HDPE membrane has been covered with a minimum layer of about 150 mm thickness of crushed stone.

The installation of the liners has been done and completed on October 5th 2010 before the blizzard and snow arrival. Also, before any fuel fill in these new set of tank.

QAMANITUAP, SANA, GILBERT GOUP.

Role during construction phase #3

In early May 2010, and considering a short window of time for the 2010 tanks construction, (2) diamond drills and (1) crew of blasters were required 24 hr/day considering an estimated \pm 125 000 tons of rock to blast, excavate and haul to a dump area. The bottom final floor was cutted at the elevation \pm 35.5 and completely on slip rock.

GEM STEEL EDMONTON LTD

Role during construction phase #3: Fabrication and field assembly of 10 M liters fuel tanks

Construction of phase 3 (tanks #5 and #6) took place from July to September 2010, with a crew of about 16 workers.

Following phase 3 of this field work, a crew from ACUREN has proceeded to X-RAY testing of horizontal and vertical welds according to specifications described in the latest edition of API Standard 650. According to the report made by ACUREN, minor repairs of defective welds were required, either on the tank shell or nozzles.

SM CONSTRUCTION INC.

Role during construction phase #3

As the connection and pipe were already built in 2009 for the phase 3 future development a crew of 4 welders have installed pipeline from existing tank #4 to reach tank #5 and #6. This work have been completed on September 30th 2010. The tank fuel filling planned in mid-october 2010.

E. REVISION OF CONSTRUCTION DRAWINGS

AEM has hired Stavibel Engineering Services, a firm based in Rouyn-Noranda, in order to complete the drawings that were used in producing this report. Those drawings are enclosed in Appendix 1 of this report.

Drawing 740-C-0123 shows the general layout of fuel storage area. It has been compiled using surveying data by a crew from NUNA and Agnico Eagle.

Drawing 740-C-0124 shows the cross sections of the containment area of phase 3. They are generated using AutoCad CIVIL 3D software and based on the informations collected by Agnico Eagle.

Drawing 740-C-0125 shows the details of the HDPE membrane, its limits and the components of the phase3.

Drawing 740-M-0100 G shows the general of the piping layout and also the specification of the main equipment (valves, check valves, etc.)

Drawing 740-E-0120 shows the layout and the details of the electrical grounding of fuel storage area. It's based on the informations collected by Agnico Eagle.

Drawing BL2010-01 shows the general tank elevation of the fuel storage tanks.

Drawing BL2010-02 shows the roof and the nozzle plan of the fuel storage tanks.

Drawing BL2010-03 shows the details of the assembly of the fuel storage tanks.

Drawing BL2010-04 shows also the details of the assembly of the fuel storage tanks.

F. VERIFICATION TO STORAGE CAPACITY WITHIN BERMS

Stavibel Engineering Services has completed verifications on the liquid storage capacity inside the containment berms, which create an impermeable enclosure around tank #5 and #6.

The method used was volume calculation using AutoCad CIVIL 3D software.

The maximum storage capacity of fuel tanks #5 and #6 is 15 500 m³ of diesel fuel at a standard temperature of fifteen degrees Celcius (15 °C).

It has been verified using the above software that the impermeable enclosure built in phase 3 will effectively hold 100% of the maximum storage capacity of the biggest tank, plus 10% of the maximum storage of the other tank. This calculation has been summarized in a worksheet that is shown on page 7, here under.

The containment volume for tanks #3 and #4 is 15 500 m³.

Thus, the lowest point of the HDPE membrane that sits atop the containment area is sufficiently high (at elevation 39.3 m) to meet the above criteria.

A worst case scenario has been simulated, and consists in either a rupture of the first course of side plates in the tank shell, or a failure in the outlet piping, when either one of fuel tank is 100% full.

This simulation shows that, in such a worst case scenario, the hydraulic balancing level inside the containment area would not exceed the point with the lowest elevation (39.3 m) on the surrounding berms, which is located on the south-west side. On north-east side, the berm gives more elevation at an elevation of approximative ±45 m.

The containment volume for tanks #5 and #6 is 15 500 m³ as a result, this new containment requirement of 110% of the biggest tank volume (or 11 843 m³), expressed while considering all two (2) tanks as a whole, will then be exceeded by 45%.

DESIGN REVIEW – FOR FUEL SPILL CONTAINMENT BERMS AT BAKER LAKE

ÉQUIPEMENTS	DIAM (ft)	RIM EL. (m)	Radius (m)	Surface (m ²)	TOP EL. (m)	Height (m)	Volume (m ³)
740-TK-044-TANK #5	110	*37.846	16.764	882.89	50.04	12.195	10.767
740-TK-044-TANK #5	110	*37.831	16.764	882.89	50.03	12.195	10.767

Let's say berms are 5' 3" higher than the average tank floor (so 1.60 m total height) with variable slopes and that the tanks are sitting on cones made of crushed stone of 20 m diameter x 1.0 m height.

*Average tank #5 = $(37.839 + 37.846 + 37.848 + 37.852)/4 = 37.846$

*Average tank #6 = $(37.835 + 37.825 + 37.830 + 37.833)/4 = 37.831$

Volume

Secondary Containment Requirement → 11 843 m³

according to ref. PN-1326, Section 3.9.1 (1) 2-b-ii → 110%

Containment volume to be subtracted for the two (2) cones made of crushed stone: already reduced from AutoCad 3D

<u>Volume</u>
NET CONTAINMENT 15 500 m ³ or 144% > 110%

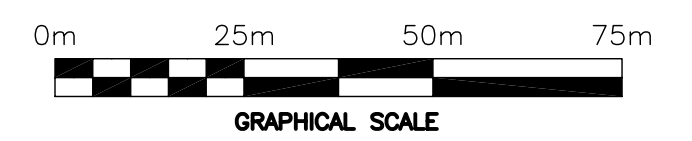
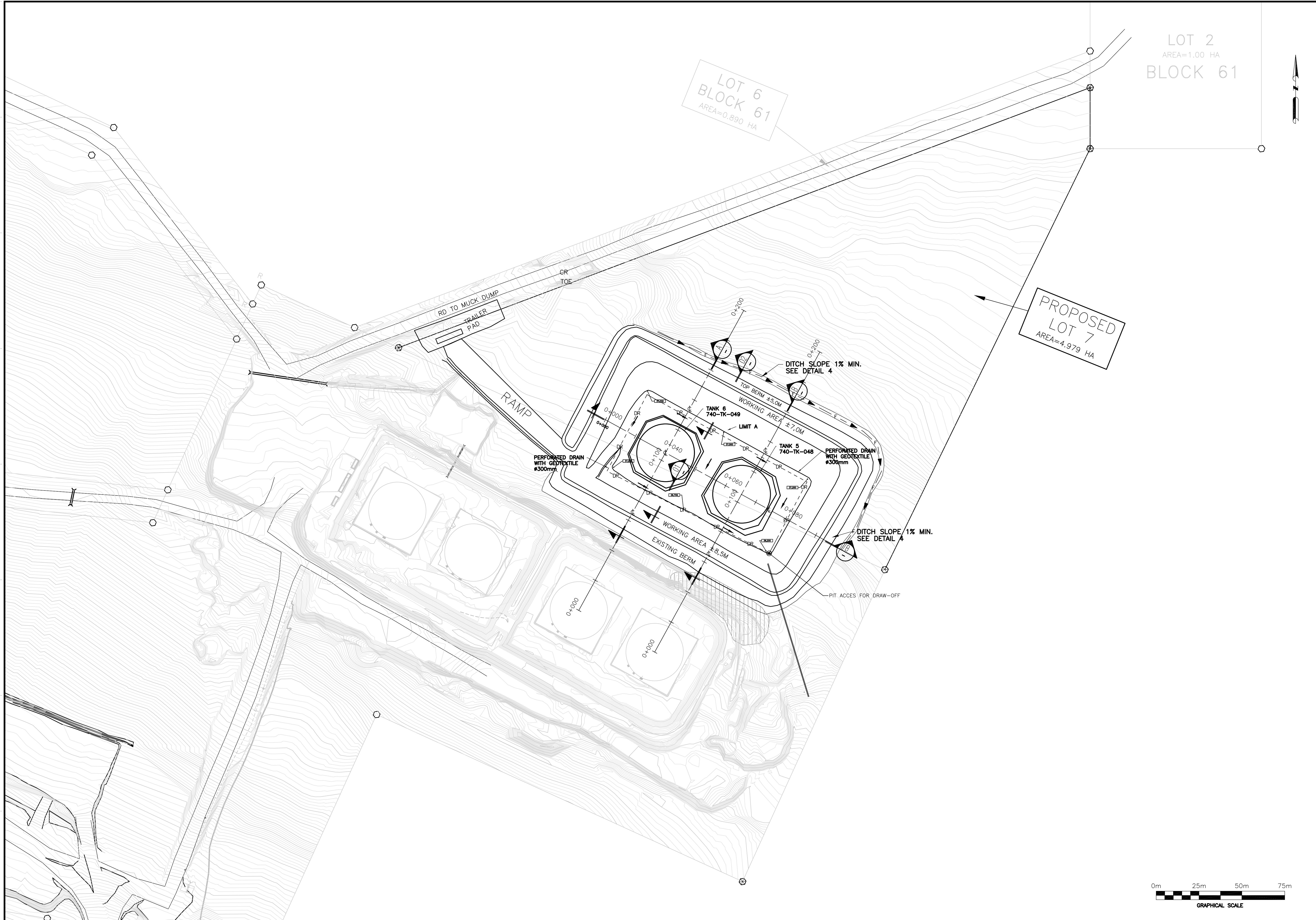
APPENDIX 1

AS BUILT DRAWINGS FOR PHASE 3

DRAWINGS NUMBER			
Earthwork drawings	Fuel piping drawing	GEM Steel drawings	BL2010-4
740-C-0123	740-M-0100	BL2010-1	
740-C-0124	Electrical drawings	BL2010-2	
740-C-0125	740-E-0120	BL2010-3	

IFC DRAWING FOR PHASE 3

DRAWINGS NUMBER			
Earthwork drawings	Fuel piping drawing	GEM Steel drawings	BL2010-4
740-C-0123	740-M-0100	BL2010-1	
740-C-0124	Electrical drawings	BL2010-2	
740-C-0125	740-E-0120	BL2010-3	



PLAN CLE
KEY PLAN

LOT 2
AREA=1.00 HA
BLOCK 61

LOT 6
BLOCK 61
AREA=0.890 HA

PROPOSED
LOT 7
AREA=4.979 HA

RD TO MUCK DUMP

TRAILER PAD

RAMP

CR TOE

TOP BERM ±5.0M

WORKING AREA ±7.0M

LIMIT A

TANK 6
740-TK-049

TANK 5
740-TK-048

PERFORATED DRAIN WITH GEOTEXTILE #300mm

DITCH SLOPE 1% MIN. SEE DETAIL 4

EXISTING BERM ±8.5M

PIT ACCES FOR DRAW-OFF

TEL QUE CONSTRUIT
AS BUILT

DATE : 21/01-2011

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DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO-EAGLE

REV.	DATE	DESCRIPTION	PAR/ÉVI	APP.	CLIENT
C	21-01-2011	AS BUILT	J-F.S.	S.B.	
B	20-07-2010	APPROVAL	J-F.S.	S.B.	
A	16-07-2010	APPROVAL	J-F.S.	S.B.	

REVISIONS

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Courriel : stavibel-m@stavibel.qc.ca
www.stavibel.qc.ca

Projet No. : -

TITRE / TITLE
AGNICO-EAGLE - MEADOWBANK DIVISION
BAKER LAKE AREA 740
TANK #5 AND #6
GENERAL LAYOUT

DESSINÉ PAR DRAWN BY	DATE
J-F SYLVESTRE, TECH.	2010-07-20

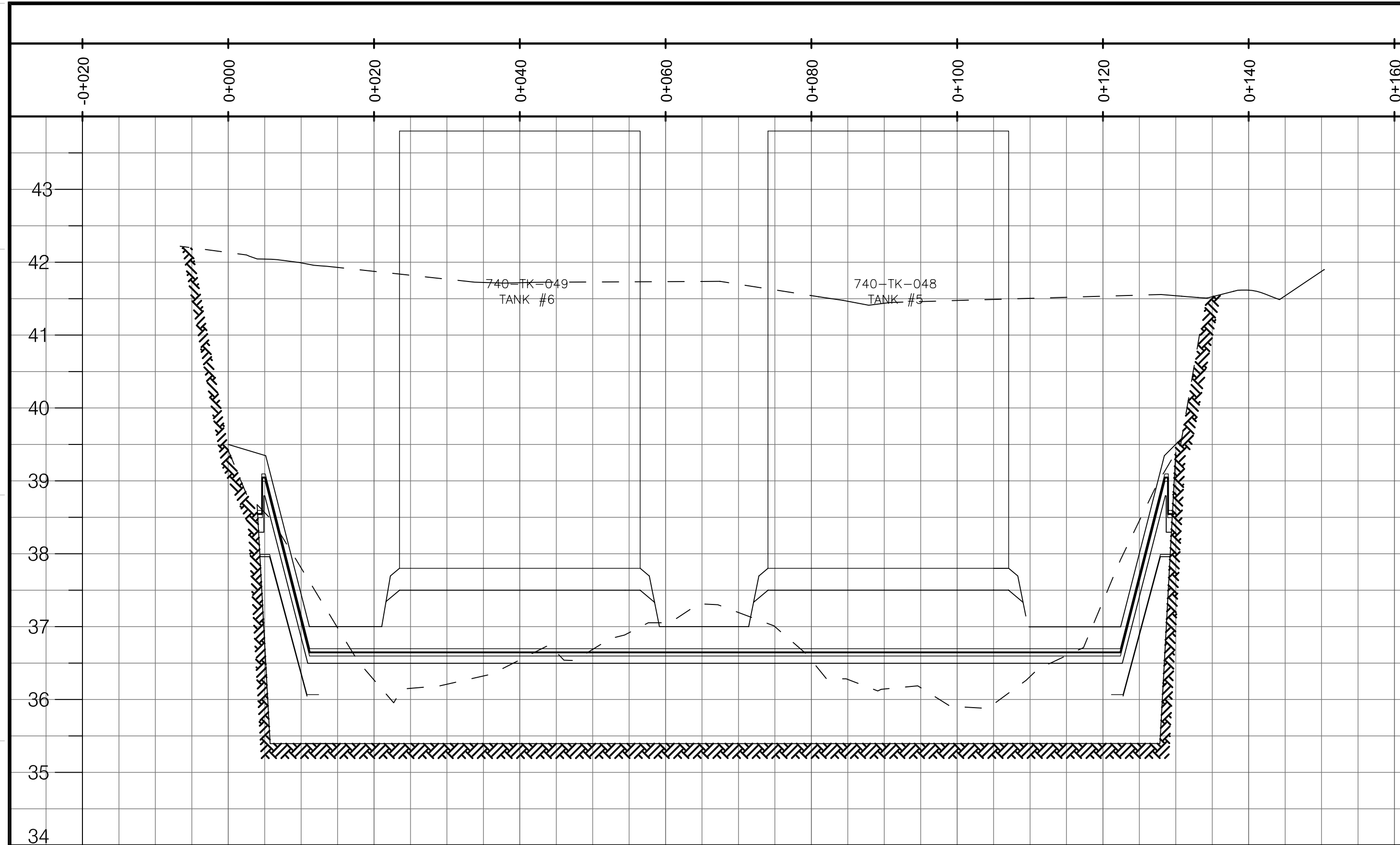
VERIFIÉ PAR CHECKED BY	DATE
FRANCE BÉRUBÉ, ING. JR.	2010-07-20

APPROUVÉ PAR APPROVED BY	DATE
SERGE BEAULÉ, ING.	2010-07-20

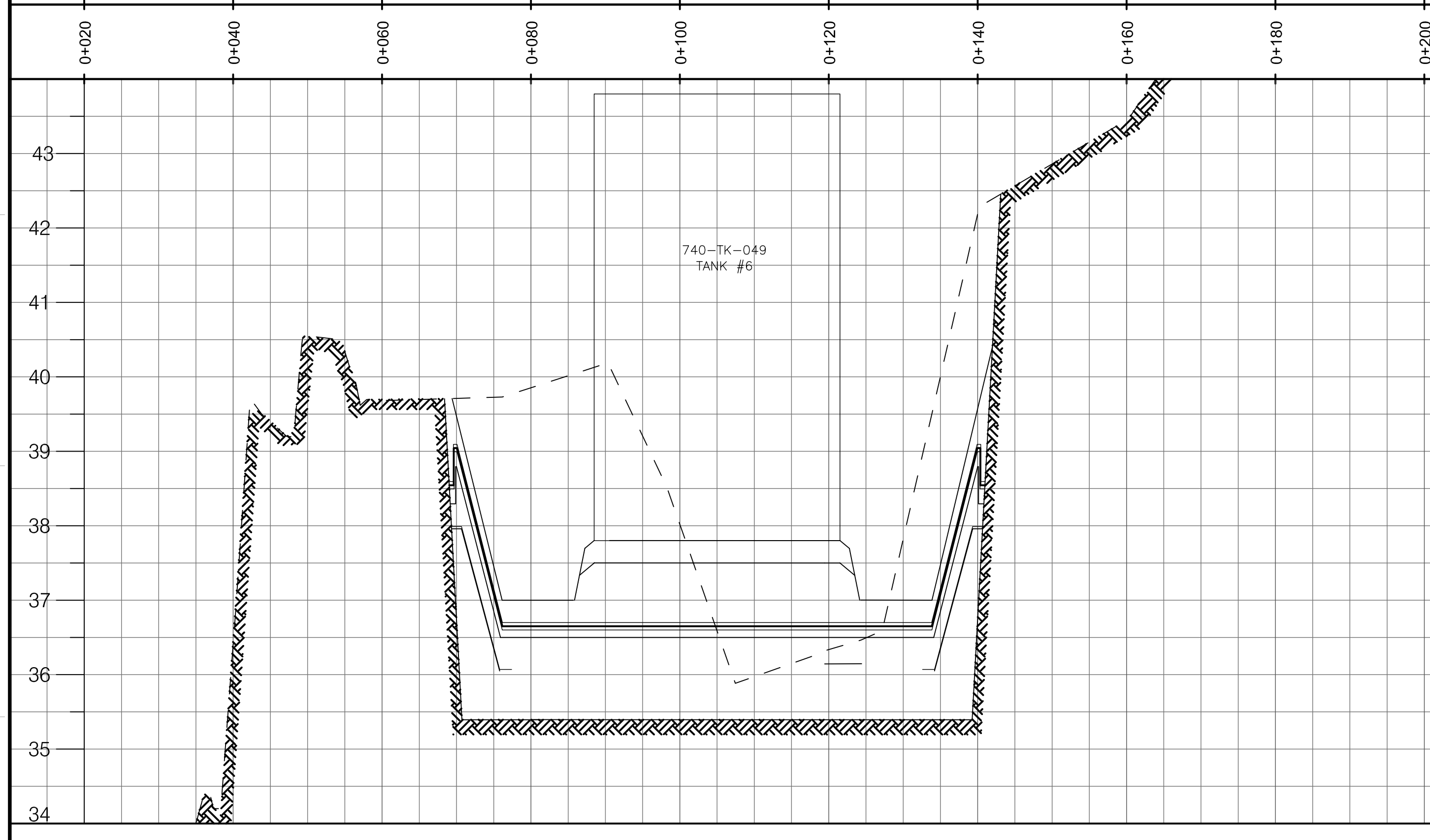
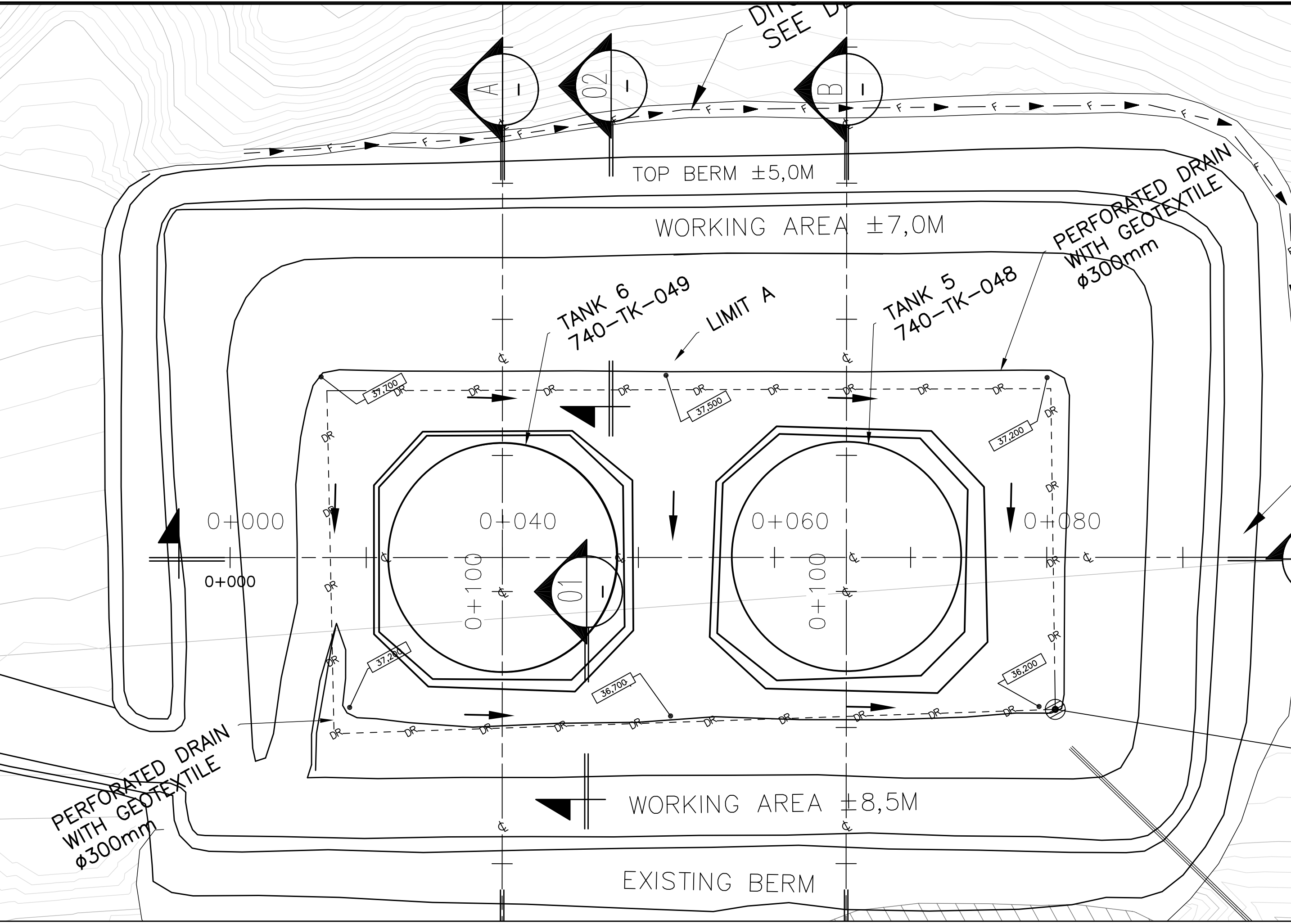
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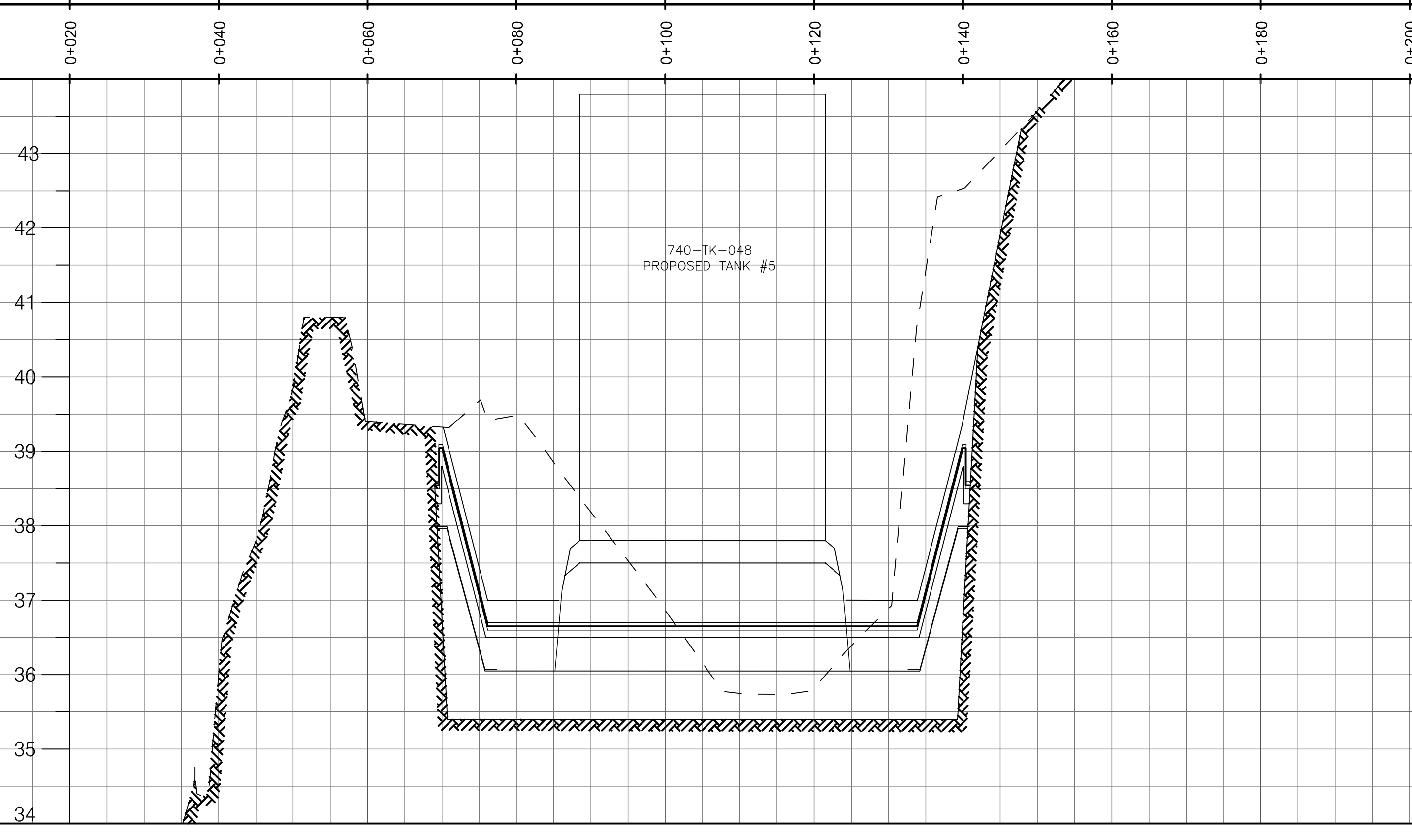
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MEAD-I-400	C	1 / 3



PROFIL TANK 5 & 6
CROSS SECTION C



PROFIL TANK 6
CROSS SECTION A



PROFIL TANK 5
CROSS SECTION B

PLAN CLE
KEY PLAN

NOTES GENERAL / GENERAL NOTES

TEL QUE CONSTRUIT
AS BUILT

DATE : 21/01-2011

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DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
-	-
-	-
-	-
-	-
-	-

AGNICO-EAGLE

REV.	DATE	DESCRIPTION	PAR/ÉTR.	APP.	CLIENT
C	21-01-2011	AS BUILT	J-F.S.	S.B.	
B	20-07-2010	APPROVAL	J-F.S.	S.B.	
A	16-07-2010	APPROVAL	J-F.S.	S.B.	

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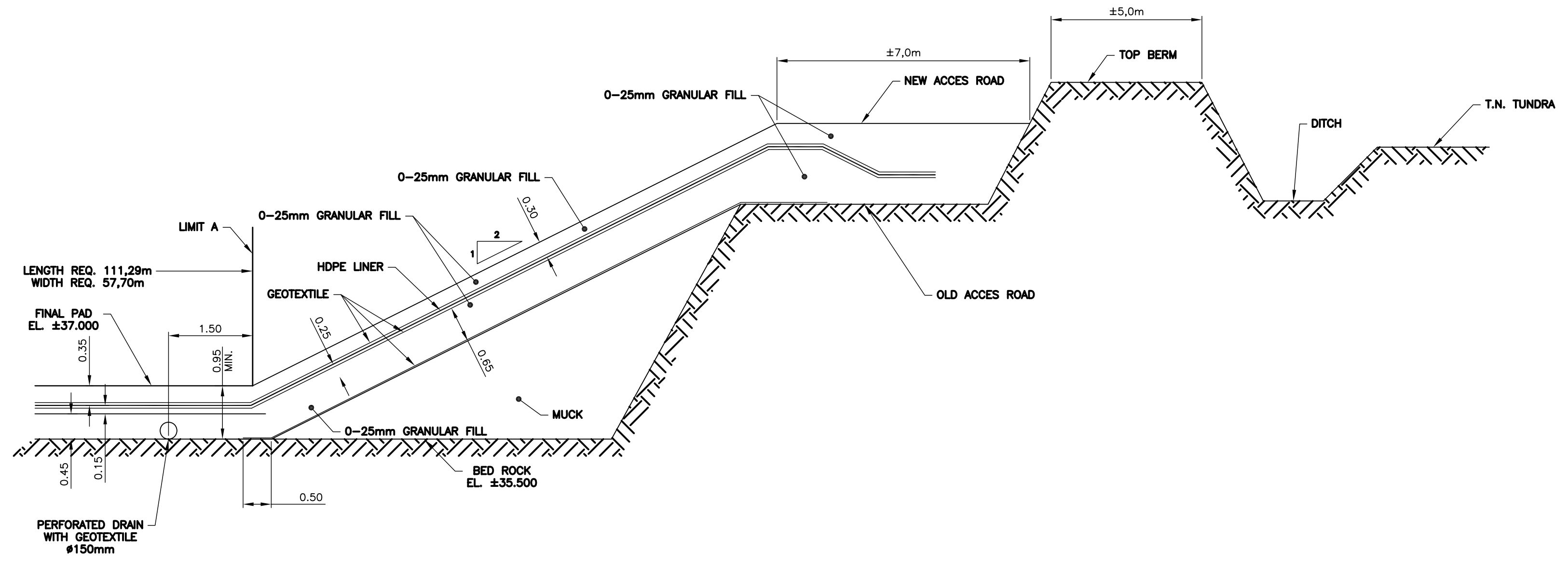
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TITRE / TITLE
AGNICO-EAGLE - MEADOWBANK DIVISION
BAKER LAKE AREA 740
TANK #5 AND #6
PLAN VIEW AND CROSS SECTION

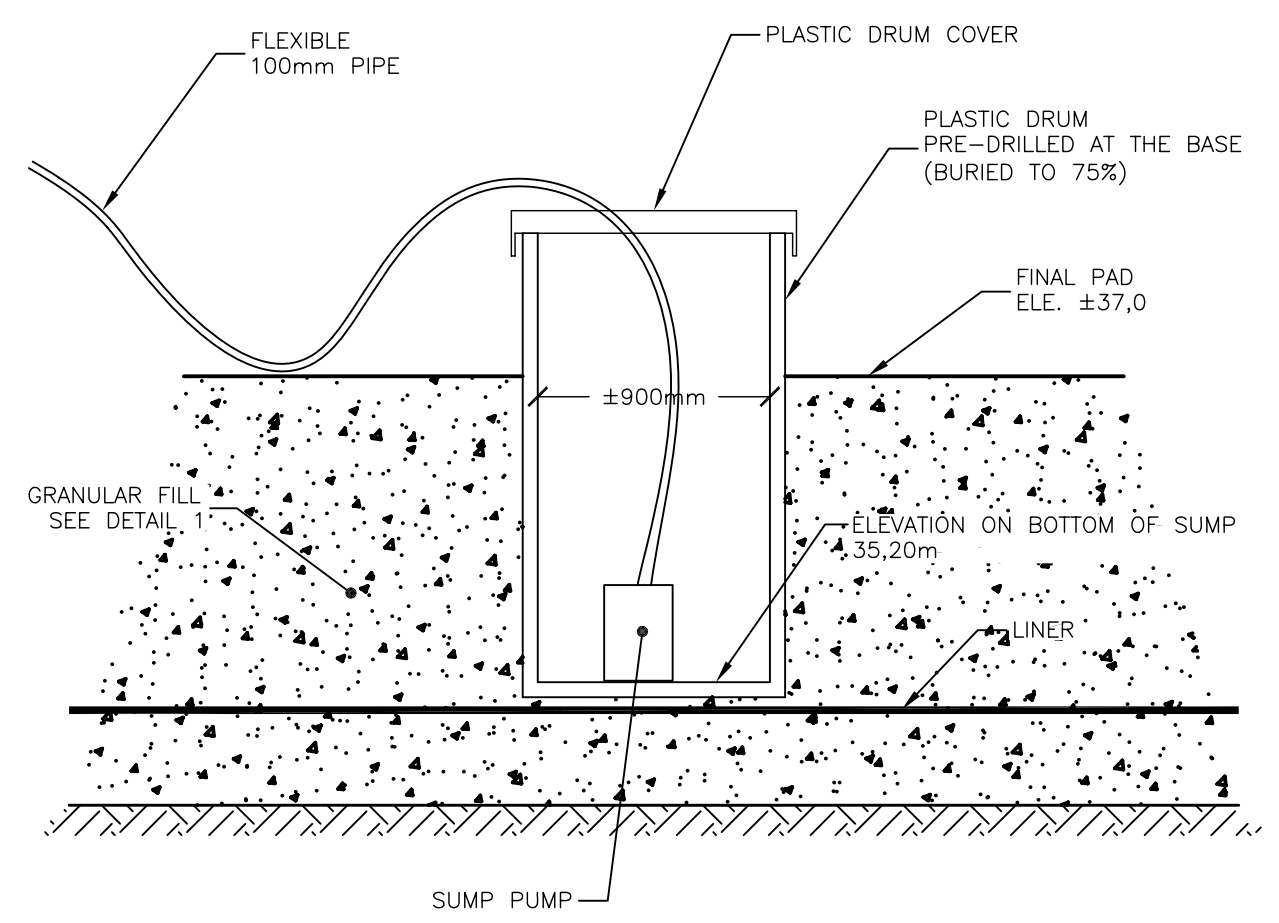
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VÉRIFIÉ PAR CHECKED BY	FRANCE BÉRUBÉ, ING. JR.	2010-07-20
APPROUVÉ PAR APPROVED BY	SERGE BEAULÉ, ING.	2010-07-20
ÉCHELLE SCALE	N/A	DATE 30-06-2010

NO. DESIGN DRAWING NO. 740-C-0124

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHEET
MEAD-I-400	C	2 / 3

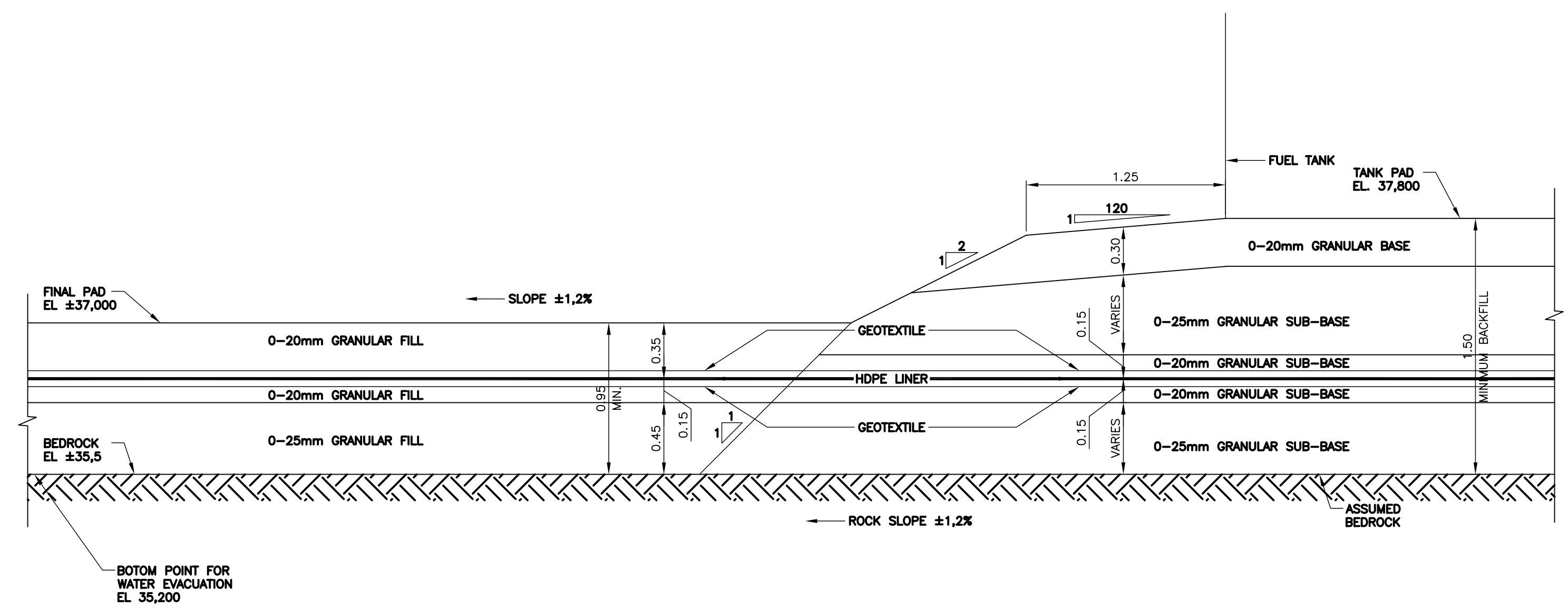


TYPICAL SECTION - DAM
SCALE : NONE
DETAIL 2



NOTES :
• THE WATER WILL BE REJECTED TO THE INFERIOR BASIN WHERE IT WILL BE TREATED WITH AN OIL SEPARATOR.

ACCESS WELL FOR DRAINING
SCALE : NONE
DETAIL 3



TYPICAL SECTION - PAD
SCALE : NONE
DETAIL 1

PLAN CLE
KEY PLAN

NOTES GENERAL / GENERAL NOTES

**TEL QUE CONSTRUIT
AS BUILT**
DATE : 21/01-2011

INFORMATIONS GÉNÉRALES ET LA PRÉSENCE DE AGNICO-EAGLE INC. ET/OU D'UN AUTRE PROPRIÉTAIRE. TOUTES MODIFICATIONS DOIVENT ÊTRE PRÉVUES, NOTÉES ET APPRouvÉES PAR AGNICO-EAGLE INC. / GENERAL INFORMATION AND THE PRESENCE OF AGNICO-EAGLE INC. AND/OR ANOTHER OWNER. ALL CHANGES MUST BE FORESEEN, NOTED AND APPROVED BY AGNICO-EAGLE INC.

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS			
TITRE / TITLE	#	DWG	

REVISIONS			
REV.	DATE	DESCRIPTION	PAR/ENI APP. CLIENT
C	21-01-2011	AS BUILT	J-F.S. S.B.
B	20-07-2010	APPROVAL	J-F.S. S.B.
A	16-07-2010	APPROVAL	J-F.S. S.B.

Stavibel Inc.
150, rue Gamble Ouest
Rouyn-Noranda (Québec) J9X 2R7
Tél. : 819 764-5181 Téléc. : 819 797-0158
Courriel : stavibel-m@stavibel.qc.ca
www.stavibel.qc.ca

Projet No. : -

TITRE / TITLE
AGNICO-EAGLE - MEADOWBANK DIVISION
BAKER LAKE AREA 740
TANK #5 AND #6
DETAILS

DESSIN PAR DRAWN BY	DATE
J-F SYLVESTRE, TECH.	2010-07-20

VERIFIÉ PAR CHECKED BY	DATE
FRANCE BÉRUBÉ, ING. JR.	2010-07-20

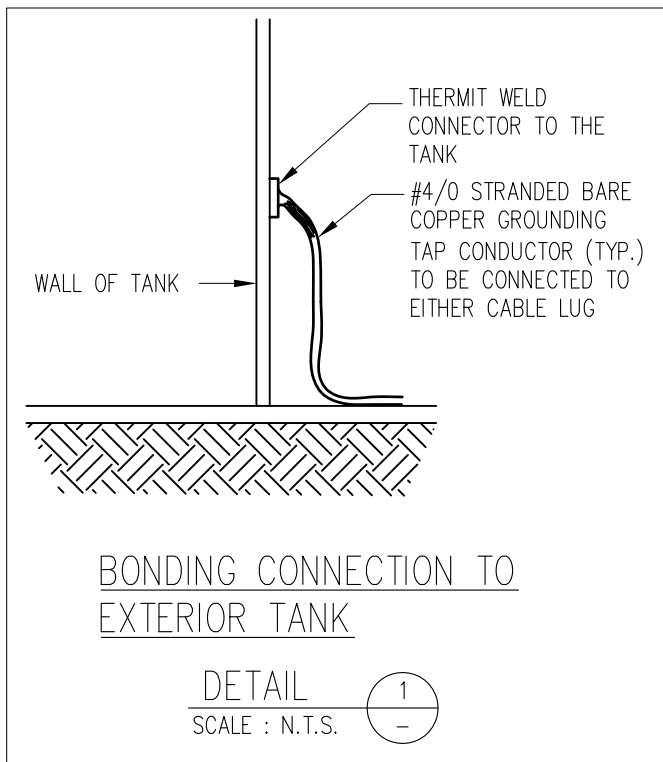
APPROUVÉ PAR APPROVED BY	DATE
SERGE BEAULÉ, ING.	2010-07-20

ÉCHELLE
SCALE N/A

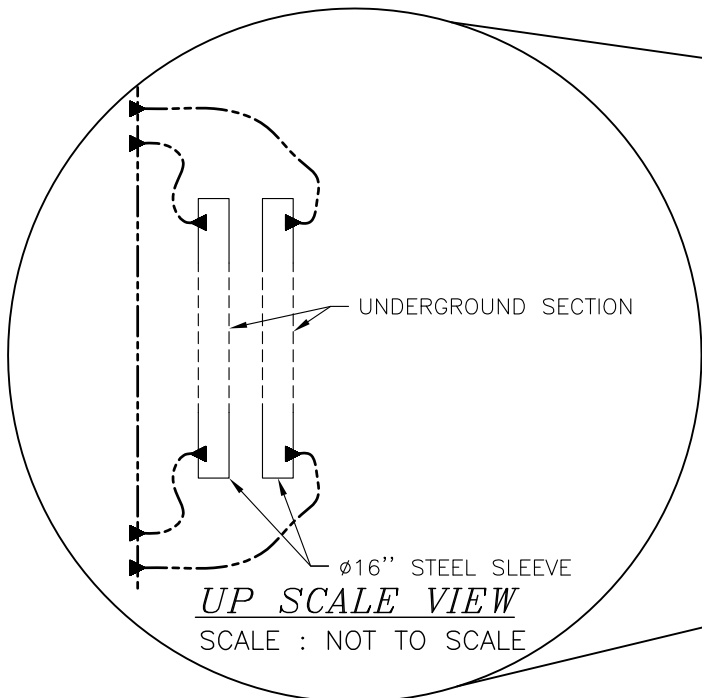
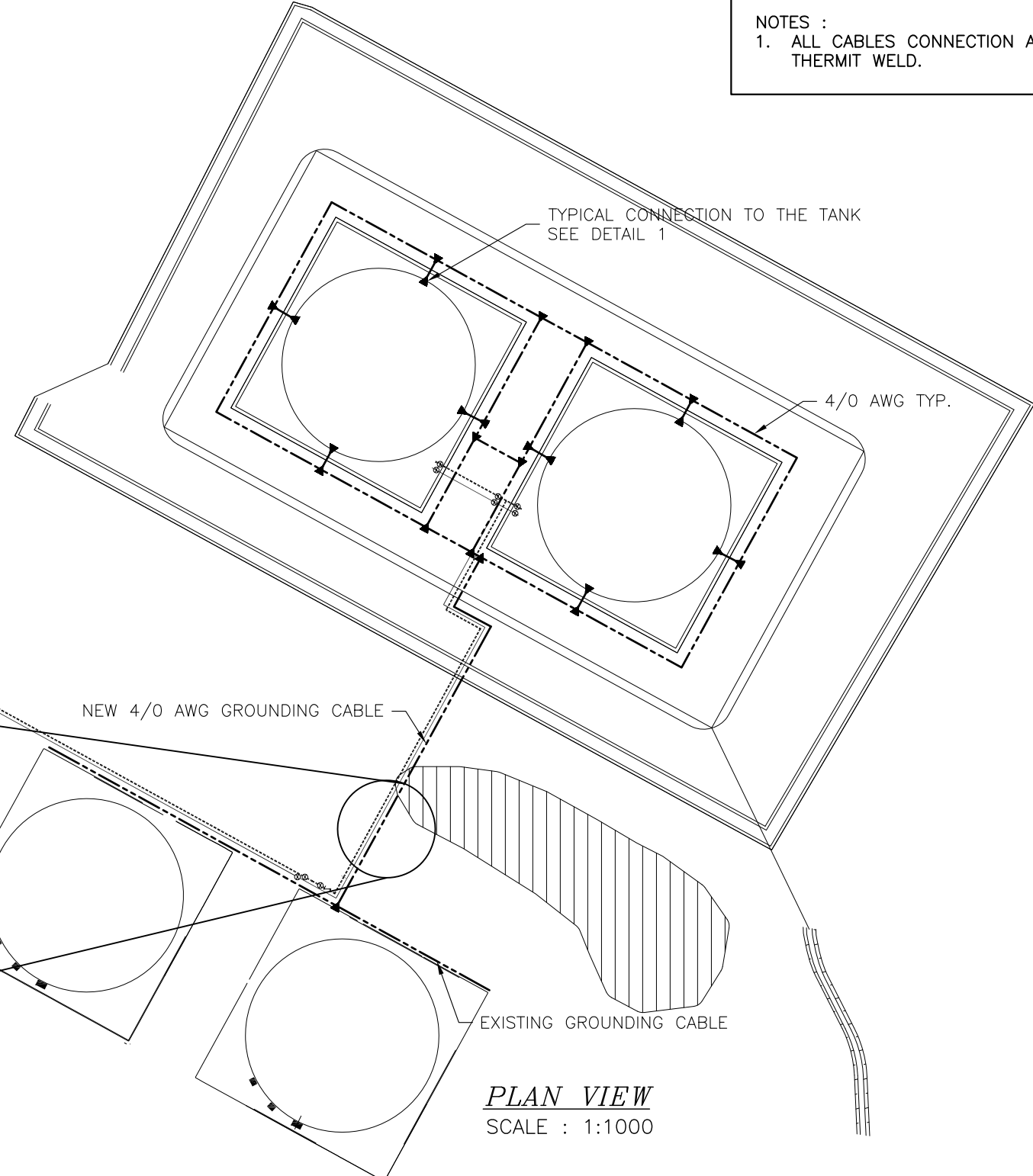
DATE 30-06-2010

NO. DESSIN
DRAWING NO. 740-C-0125

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHIT
MEAD-1-400	C	3 / 3



NOTES :
1. ALL CABLES CONNECTION ARE THERMIT WELD.

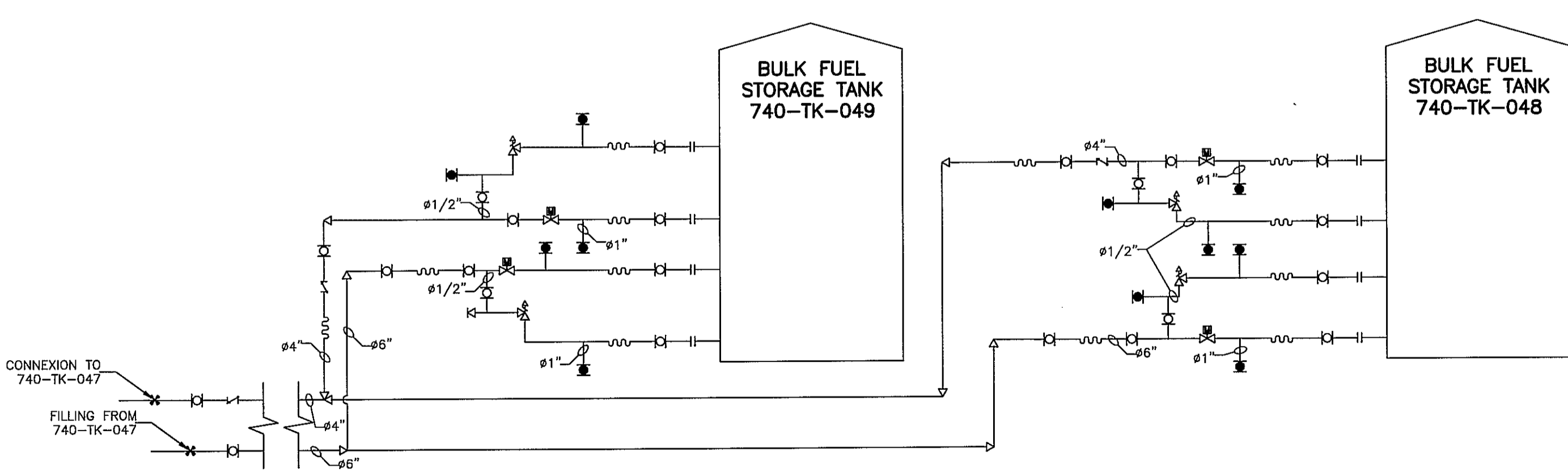
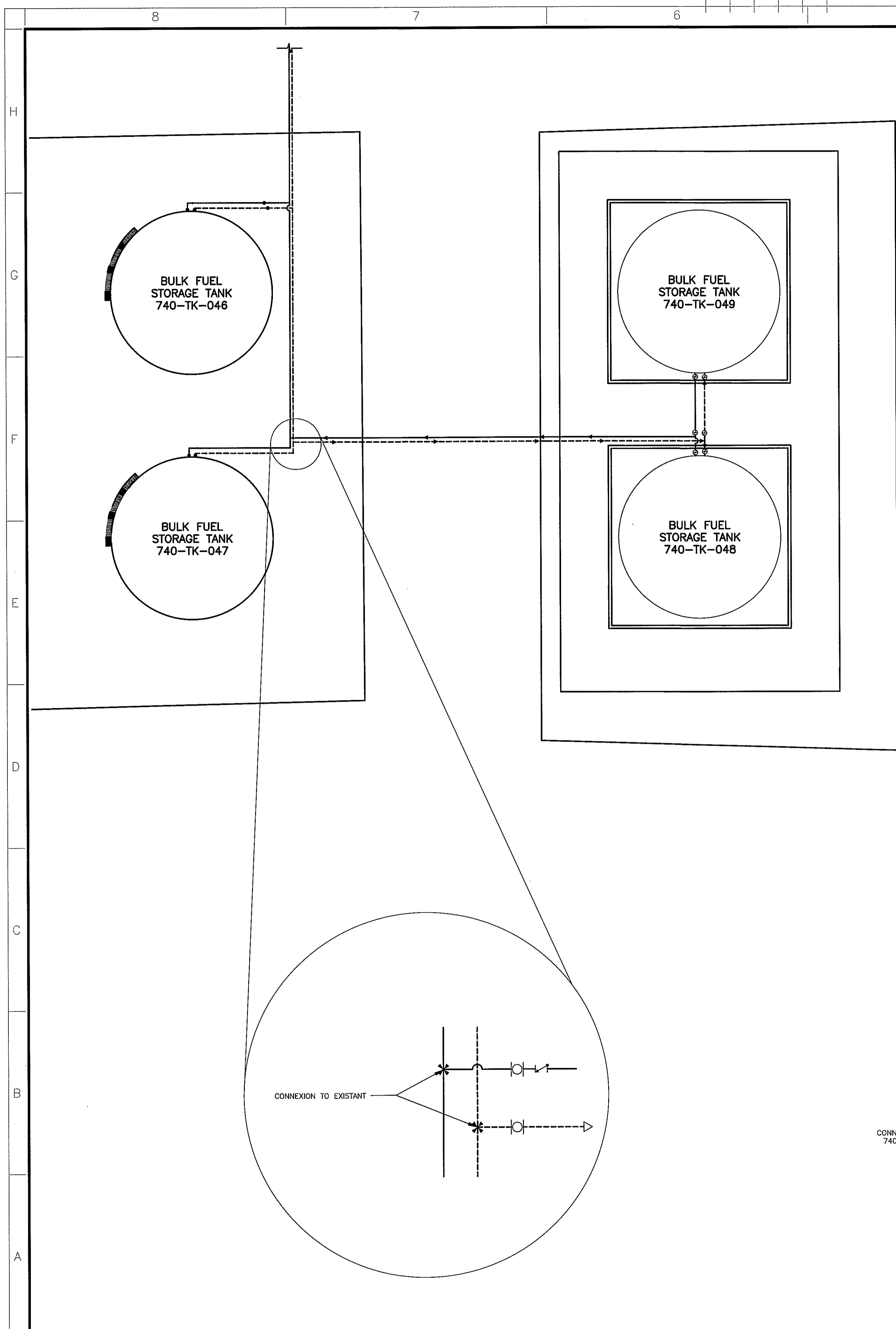


TITRE / TITLE	# DWG	REV	DESCRIPTION	DATE	PAR BY
DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS		0	AS BUILD	14-01-2011	M.O.
REVISIONS					



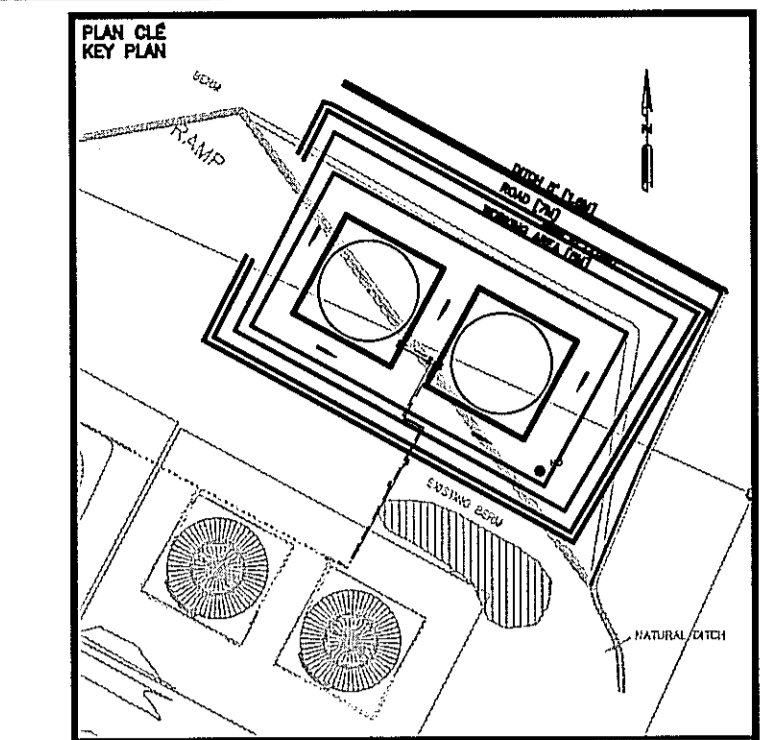
DESSINÉ PAR / DRAWN BY	M.MATTEAU, T.P.	DATE	2011-01-12
VÉRIFIÉ PAR / CHECKED BY	M. OUELLETTE (AEM)		
APPROUVÉ PAR / APPROVED BY			
No. PROJET / PROJECT NO.	VD2622-001		
DATE	2011-01-12		

TITRE / TITLE			
AGNICO-EAGLE - MEADOWBANK			
AREA 740 BAKER LAKE			
ELECTRICAL			
GROUNDING PLAN			
ECHELLE / SCALE	INDICATED	FICHER / FILE	740-E-0120.DWG
No. DESSIN / DRAWING NO.	740-E-0120	REVISION	0
		FEUILLE / SHT	1 / 1



Piping	Symbol	Equipment	Details	Type	Models	Diameter	Quantity
Filling of Tank 740-TK-048 Tank 740-TK-049		Gate Valve	Integrally reinforced extended body gate, female socket weld outboard end; API STD 602; forged carbon steel; ASTM A 105/A 105M; OS&Y; welded bonnet or bolted bonnet with flexible graphite-filled spiral wound gasket; trim #8; flexible graphite packing; metal tagged V903; Class 800	NA	Velan W-DD-2-17-4W-02-TY (1") or equivalent	1"	2
		Gate Valve	Class 150; flanged, raised-face; API STD 602; carbon steel body; ASTM A 105/A 105M or ASTM A 216/A 216M Grade WCB; OS&Y; solid or flexible wedge; bolted bonnet with stainless steel reinforced flexible graphite bonnet gasket; trim #8; flexible graphite packing; metal tagged VG401; full port.	NA	Velan F-DD-0-06-4C-02-TY (6") or equivalent	6"	7
		Flanged Metallic flexible tube	- Flanges: Class 150, raised face and ANSI B16.5; - Metallic flexible tube: 18" length in Stainless Steel	NA	CONNECTALL AA1-096-0180 or equivalent	6"	4
		Motorized Valve	- 6" direct mount split body ball valve; - Body material: Carbon Steel Body; - SS 316 Trim, Seat Reinforced TFE Seats; - Flanges: Class 150 raised face and ANSI B16.5; - C/W: Actuator Electric Serie XE (XE-6900) ATEX certified for Flame Proof Exd IIB T4 + Heater	NA	Matheson valves D9C-F1-600-XHE3-XX 6.00	6"	2
		Gasket	Composition: Aramid fibers with a nitril binder Thickness: 3/8"	NA	Garlock Blue guard Style 3000	1" 6"	as required
		Piping	Carbon steel piping sch. 40 ASTM A53 gr. B seamless	NA	NA	1" 6"	as required
Distribution from Tank 740-TK-048 Tank 740-TK-049		Gate Valve	Class 150; flanged, raised-face; API STD 602; carbon steel body; ASTM A 105/A 105M or ASTM A 216/A 216M Grade WCB; OS&Y; solid or flexible wedge; bolted bonnet with stainless steel reinforced flexible graphite bonnet gasket; trim #8; flexible graphite packing; metal tagged VG401; full port.	NA	Velan F-DD-0-06-4C-02-TY (4") or equivalent	4"	7
		Gate Valve	Integrally reinforced extended body gate, female socket weld outboard end; API STD 602; forged carbon steel; ASTM A 105/A 105M; OS&Y; welded bonnet or bolted bonnet with flexible graphite-filled spiral wound gasket; trim #8; flexible graphite packing; metal tagged V903; Class 800	NA	Velan W-DD-2-17-4W-02-TY (1") or equivalent	1"	2
		Flanged Metallic flexible tube	- Flanges: Class 150, raised face and ANSI B16.5; - Metallic flexible tube: 18" length in Stainless Steel	NA	CONNECTALL AA1-064-0150 or equivalent	4"	4
		Check valve	- Cast steel flanged check valve; - Body material: Low temperature cast carbon steel to ASTM A352, grade LCB; - Trim material: Disc - Stainless steel, 13% Cr - Seat - Stainless steel, 13% Cr; - Valve: Face to face dimension to ANSI B16.10; - Flanges: Class 150, raised face and ANSI B16.5.	CKF1 (H)	Kitz 150 SCOB L or equivalent	4"	3
		Motorized Valve	- 4" direct mount split body ball valve; - Body material: Carbon Steel Body; - SS 316 Trim, Seat Reinforced TFE Seats; - Flanges: Class 150 raised face and ANSI B16.5; - C/W: Actuator Electric Serie XE (XE-2640) ATEX certified for Flame Proof Exd IIB T4 + Heater	NA	Matheson valves D9C-F1-400-XEE-1-XX 4.00	4"	2
		Gasket	Composition: Aramid fibers with a nitril binder Thickness: 3/8"	NA	Garlock Blue guard Style 3000	1" 4"	as required
Overpressure line filling tank 740-TK-048 filling tank 740-TK-049		Gate Valve	Integrally reinforced extended body gate, female socket weld outboard end; API STD 602; forged carbon steel; ASTM A 105/A 105M; OS&Y; welded bonnet or bolted bonnet with flexible graphite-filled spiral wound gasket; trim #8; flexible graphite packing; metal tagged V903; Class 800	NA	Velan W-DD-2-17-4W-02-TY (1") or equivalent	1.5"	8
		Flanged Metallic flexible tube	- Flanges: Class 150, raised face and ANSI B16.5; - Metallic flexible tube: 18" length in Stainless Steel	NA	CONNECTALL AA-B1B1-HH-0180-0150 or equivalent	1.5"	4
		Pressure safety valve	- Stainless steel; - Set pressure at 75 PSI	NA	Swagelok SS-RL4MFB8-BU	1.5"	2
		Gasket	Composition: Aramid fibers with a nitril binder Thickness: 3/8"	NA	Garlock Blue guard Style 3000	1.5"	as required
	Piping	Carbon steel piping sch. 40 ASTM A53 gr. B seamless	NA	NA	1.5"	as required	

^(H) Reference to "PIPE AND VALVE SPECIFICATION" #0 17202-0000-46ES-1001 by SNC Lavalin 15th august 2007



NOTES GENERAL / GENERAL NOTES

1-ALL THE PIPING CONNECTION MUST BE AT THE BOTTOM OF THE TANK

POUR CONSTRUCTION FOR CONSTRUCTION
DATE : 12/08/2010

AGNICO-EAGLE

DESSINS EN REFERENCE / REFERENCE DRAWINGS

TITRE / TITLE	#	CHG



REV.	DATE	DESCRIPTION	PREP.	APP.	CLIENT
O	2010-08-12	FOR CONSTRUCTION	MALBÉD	JMLC	
B	2010-07-20	FOR APPROVAL	V.Chn	JMLC	
A	2010-07-16	FOR APPROVAL	V.Chn	JMLC	

REVISIONS

J. Michal
L-2198
2010-08-12

TITRE / TITLE
AGNICO-EAGLE - MEADOWS DIVISION
BAKER LAKE AREA 740
TANK #5 AND #6
FUEL DISTRIBUTION PIPING
LAYOUT AND DETAILS

DESSINÉ PAR VICKY CRÉTE, TECH. DATE 2010-07-16

VÉRIFIÉ PAR J-M CHARRON, Ing.

APPROUVÉ PAR J-M CHARRON, Ing.

ÉCHELLE SCALE N/A

NO. DESSIN DRAWING NO. 740-M-0100

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHEET
MEAD-I-400	0	1 / 1

APPENDIX 2

SAFE FILL LEVELS FOR ALL FUEL TANKS

TEMPERATUE OF FUEL in the barge at discharge	MAXIMUM FUEL LEVEL To be read on the VAREC float level	
	TANK # 5	TANK #6
0 °C	9,63	9,63
+ 5 °C	9,67	9,67
+ 10 °C	9,72	9,72
+ 15 °C	9,76	9,76

NOTE: EACH TANK HAS A SLIGHTLY DIFFERENT ELEVATION, SO CARE MUST BE TAKEN DURING HYDRAULIC BALANCING OF TANKS, ESPECIALLY WHEN THOSE ARE FULL

Appendix A4

Baker Lake Jet-A Fuel Storage Installations: As-built Report (2013)



AGNICO EAGLE
MEADOWBANK

AGNICO EAGLE MINES LTD
MEADOWBANK DIVISION

BAKER LAKE JET A FUEL STORAGE INSTALLATIONS

2013

AS BUILT CONSTRUCTION REPORT

PREPARED BY:

Yanick Simard

Project General Foreman

AEM.

APPROVED BY:



AGNICO EAGLE MINES LTD

MEADOWBANK DIVISION

BAKER LAKE JET A FUEL STORAGE INSTALLATIONS

2013

AS BUILT CONSTRUCTION REPORT

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2.2 Construction of the pad Phase 1	2
2.3 Installation of the bituminous liner	3
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3. DESCRIPTION OF THE FACILITIES AND MECHANICAL PARTS ASSEMBLING	4
3.1 New tanks placement and installation of the pump house	4
3.2 Piping connection and electrical assembling phase 1	4
3.2 Piping connection and electrical assembling Phase 2	5
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APPENDIX 2: STAVIBEL'S CONSTRUCTION DAILY REPORTS	
APPENDIX 3: SM'S TECHNICAL DATA SHEETS & DRAWINGS DOCUMENT	

1- DESCRIPTION OF CONSTRUCTION ACTIVITIES

Agnico Eagle mines has contracted Stavibel Engineering Services to design the Jet A fuel storage facilities located in Baker Lake, Nunavut, complying with specifications required by environmental and governmental regulations, namely Environment Canada's Fuel Tank Storage Regulations and the CCME Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.

Stavibel provided the design, planning and construction oversight related to the installation of infrastructure of AEM's new Jet A Fuel Storage facility which consists of 20 – 100,000L double walled tanks, associated piping and pumping systems and secondary requirement. AEM prepared a site survey to ensure proper measurements and elevation of the existing area.

The main activities related to the construction were scheduled as follow:

- I: AEM sent surveyed data of the existing area to Stavibel
- II: Stavibel sent first design plans for comments
- III: AEM moved the existing tanks and prepared the field for the construction
- IV: Construction of the infrastructure pad
- V: Assembling of all the installation of tanks and mechanical infrastructure.

2- DESCRIPTION OF THE FUEL CONTAINEMENT PAD CONSTRUCTION STEPS

2.1 EXCAVATION OF THE EXISTING AREA. July 14th 2013.

Quality control and quality approval: Stavibel

Construction contractor: Quamanittuap-Sana (FGL)

General supervision and foreman: AEM

Starting with test pits, the presence of water was observed in the excavation area. It was then decided to increase the elevation of the pad by +300mm. Presence of contaminated soil was found as well; it was removed, analyzed by environmental department and sent to the soil landfarm at Meadowbank. The total amount was 128m³. All non-contaminated soil and rock that was removed and was placed aside to be used during the backfilling of the pad. (1) 365 CAT excavator, (1) D6 CAT dozer, (1) operator and (1) surveyor were necessary for the initial phase.

2.2 CONSTRUCTION OF THE PAD PHASE 1. July 15th – July 25th 2013.

Quality control and quality approval: Stavibel

Construction contractor: Quamanittuap-Sana (FGL)

Material transportation: BLCS

General supervision and foreman: AEM

During this phase of the project, a (1) 365 CAT excavator, (1) 320 CAT excavator, (1) Komatsu 39PX dozer, (1) Hamm 3625 compactor and (1) 740 CAT haul truck were utilized. In addition, staff included were (1) operator plus (1) surveyor. The first step was to backfill the pad up to the determined level with 0-200mm NPAG rock, and then enlarge the road south of the pad. Excess water (clean) was drained in order to construct the containment berms around the pad as showed in appendix 1 B. Once the rock pad was at the determined elevation, crushed 0-20mm NPAG material was placed on top of the berms. Correctives measures around the pad were undertaken due to some instability in the area where the fuel cabinet would be installed. Crushed 0-20mm NPAG material was placed on the top of the pad, compacted to prepare for the installation of the bituminous liner. Excavation in the surrounding ditches was completed in accordance with design specifications. A total amount of 1217m³ of NPAG 0-200mm and 455m³ of NPAG 0-20mm was used to complete this phase of the construction.

2.3 INSTALATION OF THE BITOUMINOUS LINER.

July 25th – July 27th 2013

Quality control and quality approval: Stavibel

Construction contractor: Quamanittuap-Sana (FGL)

Liner crew: Texcel

General supervision and foreman: AEM

Equipment and manpower used included (1) 365 CAT excavator to unroll the liner and we had (1) operator, (1) surveyor, (2) liner installers and (3) laborers from Baker Lake. The liner was installed over a two day period. After installation, any holes that resulted were repaired and conformity tests were undertaken (pressure and tension). In addition, soft geotextile was placed under and over the liner to prevent puncturing that could occur while walking on the liner or during placement of the covering granular material. It was calculated that 2400m² of bituminous liner and 2625m² of soft geotextile was placed.

2.4 CONSTRUCTION OF THE TANK PAD PHASE 2.

July 27th- July 31st 2013

Quality control and quality approval: Stavibel

Construction contractor: Quamanittuap-Sana (FGL)

Material transportation: BLCS

General supervision and foreman: AEM

Phase 2 of construction of the pad was to place crushed 0-20mm NPAG over the bituminous liner (previously covered with geotextile). The following equipment and manpower were used, (1) 365 CAT excavator, (1) 307 Cat excavator, (1) 39 PX Komatsu bulldozer, (1) 740 CAT haul truck, (1) Hamm 3625 compactor, (1) operator and (1) surveyor. During this phase the contractor's (BLCS) was out of service due to mechanical issues so the 0-20mm NPAG layer was screened to maintain quality. Any materials that screened larger than 0-20mm were removed by hand. A total of 728m³ of 0-20mm NPAG granular material were used to build the 300mm thick layer of liner protection. A sloped trench was excavated (1000mm up to ground level) to place an 8 inches steel conduit for electrical cable necessary to operate the pump house.

- FURTHER INFORMATION, PICTURES AND PLANS FOR THOSE STEPS CAN BE FOUND IN THE APPENDIX 1 AND 2

3- DESCRIPTION OF THE FACILITIES AND MECHANICAL PARTS ASSEMBLING.

3.1 NEW TANKS PLACEMENT AND INSTALATION OF THE PUMP HOUSE. Aug 5th –Aug 12th 2013

Installation crew: SM Construction

Field supervisor: Quamanittuap-Sana (FGL)

Crane and operator: J.M Francoeur

General supervision and foreman: AEM

20, double walled, 100,000L fuel storage tanks meeting CCME ULC requirements were placed on the pad described in Sec 2 above. Equipment and manpower used during this phase included (1) 35tns MCR crane, (6) technicians, (1) welder and (1) electrician. The tanks were placed according to the design specifications, ie level. Once the tanks placement was completed, foot bridges were installed as well as the pump house. * See figure at page 523 in SM'S manual, appendix 3

3.2 PIPING CONNECTION AND ELECTRICAL ASSEMBLING PHASE 1. Aug 12th – Aug 19th 2013

Installation crew: SM Construction

Field supervisor: Quamanittuap-Sana (FGL)

General supervision and foreman: AEM

During this phase (6) technicians and (1) welder assembled the 4 inch pipe and connections between the tanks and pump house. Also (1) electrician started the installation of electrical cables and control panels for the facility. All piping, pumps, electrical connections, etc. conformed to all applicable codes, specifications and regulations. * See SM'S manual under the technical data section, Pp. 3 to 512, APPENDIX 3.

3.3 PIPING CONNECTION AND ELECTRICAL ASSEMBLING PHASE 2.

Aug 29th – Sept 17th

Installation crew: SM Construction

Field supervisor: Quamanittuap-Sana (FGL)

General supervision and foreman: AEM

For the final phase of the project, (6) technicians and (1) welder completed assembling and installation of the pipe connections between the tanks and inside the pump house. An (1) electrician connected all of the main cables, the panels and computers inside the pump hose. Hi-level alarms were also placed on all tanks and were tested as per specifications. All alarms were noted to be functional. After installation, all tanks were cleaned and washed inside and pressure tested as per specifications. During the pressure test, one tank indicated a loss of pressure. A small crack was found between the inside two layers of the tank. This might have occurred during the placement of this tank. It was decided not to add fuel to this tank this year. Repairs will be undertaken prior to re-fueling. At this point the tanks were ready to use for fuel storage.

- FURTHER INFORMATIONS, PARTS DESCRIPTIONS, PHOTOGRAPH, INSTALLATION AND ELECTRICAL PLANS CAN BE FOUND IN APPENDIX 3.

APPENDIX 1.

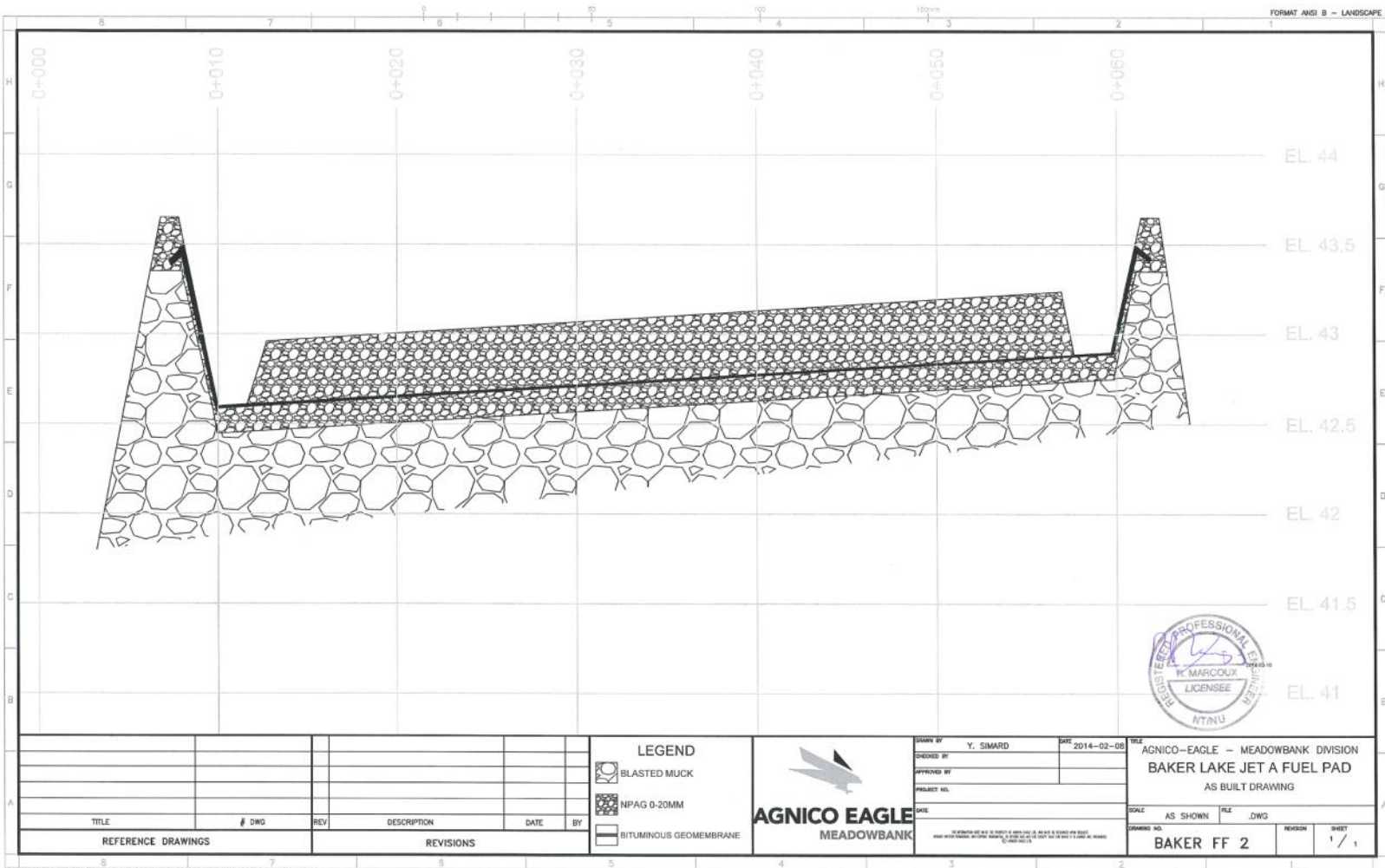
DRAWINGS.

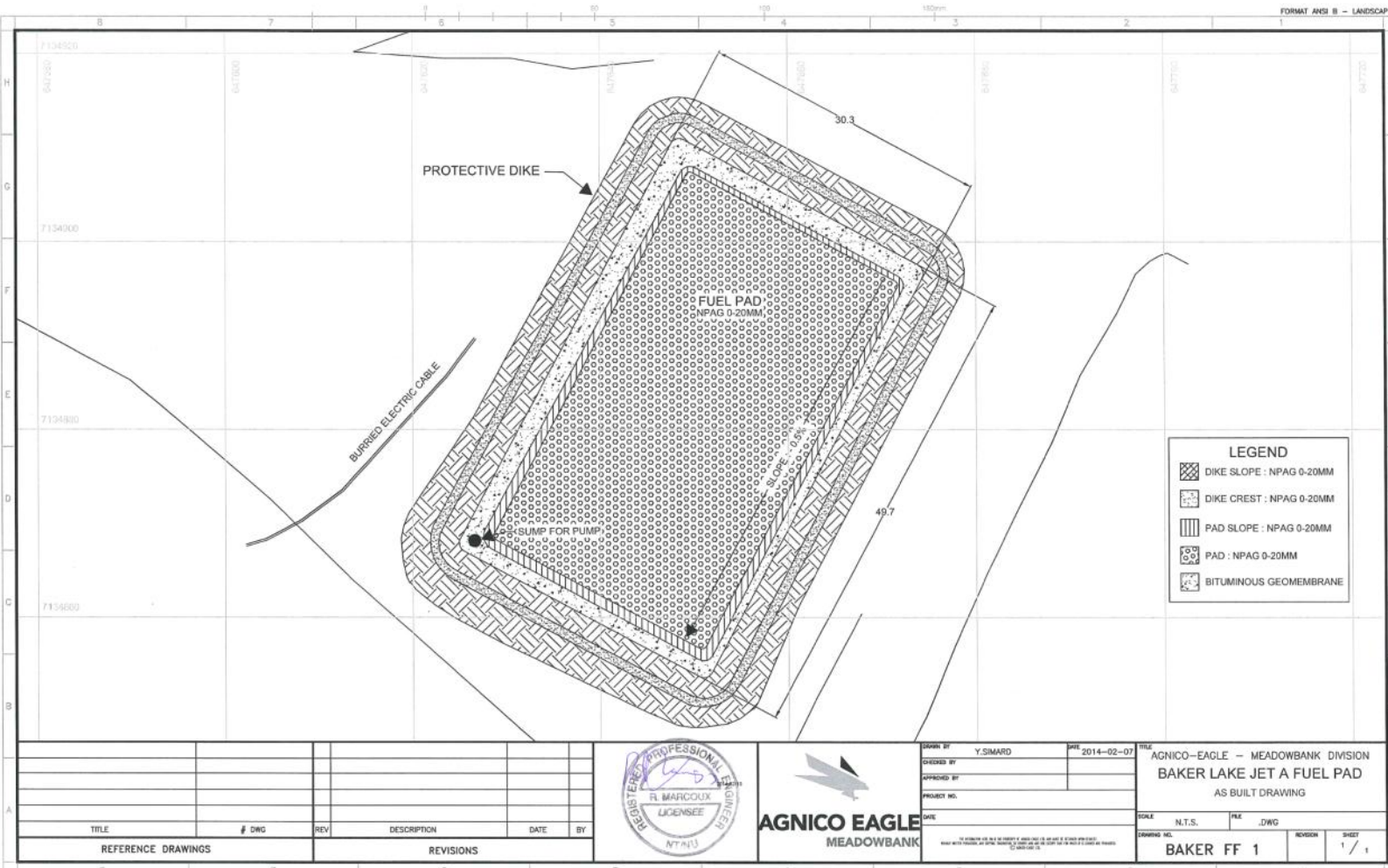
A. DESIGN PLAN FOR COMMENTS:

Drawing number: 61-740-230-211_A

B. AS BUILT DRAWINGS:

Drawing number:	BAKER FF 1	PLANIMETRICAL VIEW
	BAKER FF 2	SECTION VIEW





TITLE	#	DWG	REV	DESCRIPTION	DATE	BY
REFERENCE DRAWINGS				REVISIONS		



DRAWN BY	Y. SIMARD	DATE	2014-02-07
CHECKED BY			
PROJECT NO.			
DATE			

FILE	AGNICO-EAGLE - MEADOWBANK DIVISION
	BAKER LAKE JET A FUEL PAD
	AS BUILT DRAWING
SCALE	N.T.S.
DWGING NO.	BAKER FF 1
REVISION	
SHEET	1 / 1

C:\Users\ysimard\Desktop\baker FF AS BUILT PLAN.dwg, 08 Feb 2014

APPENDIX 2.

STAVIBEL'S CONSTRUCTION DAILY REPORT.

DESCRIPTION OF THE FUEL CONTAINEMENT PAD CONSTRUCTION STEPS.



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-14
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-01
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 10 à 16°C Wind : 5 à 15 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
1 Shovel CAT 365C L	FGL	11
Operator	FGL	12
Surveyor	FGL	9
10 tons roller compactor	BLCS	0
Bulldozer CAT D6 (DOZ09)	AEM	1
Field inspector	Stavibel	12

- **7h à 9h** Shovel 365 moves from Baker Lake to the Fuel Farm.
- **9h à 10h** Shovel 365 makes pit test at the North extremity of the projected pond.
- **10h à 12h** Shovel 365 removes the 0-20mm crushed stone in place.
- **13h à 17h30** Shovel 365 stockpiles the contaminated material outside the projected pond.
- **17h30 à 18h30** Bulldozer D6 profiles the infra.

Comments :

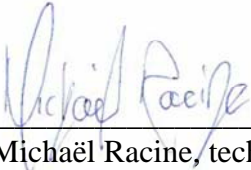
- Visit of Jean-François Béland (AEM foreman) and Dany Pageault (FGL superintendant) de 12h à 16h30
- After 3 test pits in the excavation zone, we found the presence of water and frozen material above the proposed elevation of the excavation. We need to increase the elevation of the project of 300mm.
- Presence of contaminated material and organic soil. The materials are stockpile and will be analyse by the environment. Thereafter, they will indicate how to dispose of it.

- Photo #1 – 3 test pits. Smell of Jet-A fuel and water arrival.



- Photo #2 – Excavation and stockpile of the contaminated material until the final level of the infra.



Par : 
Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-15
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-02
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 8 à 17°C Wind : 5 à 30 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours	Volume (m3)
1 Shovel CAT 365C L	FGL	7	
Opérateur	FGL	12	
Surveyor	FGL	12	
Roller compactor	BLCS	1.9	
Bulldozer CAT D6T (DOZ09)	AEM	5	
Shovel 330C	BLCS	8.5	
2 articulated trucks CAT 740	BLCS	8.5	576
Field inspector	Stavibel	12	

- **6h30 à 18h30** Shovel 365 and Bulldozer D6T backfill with blasted rock 0-200 mm from quarry #1.
- **9h30 à 18h30** Loader 966 et 2 trucks haul the blasted rock 0-200 mm from quarry #1.
- **6h30 à 18h30** Compactor compacts the blasted rock when required.

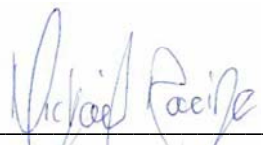
Comments :

- Attempt to cover the stockpile of contaminated material with tarps after the request of the environment. Unfortunately the wind make this operation impossible.
- The water accumulations are pumped before backfilling above.

- Photo #1 – Overview of the infra. Some water accumulations caused by the thaw of the material in place. A small ditch will be made to try to drain this water during night.



Par :



Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-16
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-03
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 8 à 17°C Wind : 5 à 30 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours	Volume (m3)
1 Shovel CAT 365C L	FGL	11	
Operator	FGL	12	
Surveyor	FGL	12	
Roller compactor Protec Boxer 114	BLCS	0	
Bulldozer CAT D6T (DOZ09)	AEM	0	
Shovel CAT 330C	BLCS	11	
2 Articulated trucks CAT 740	BLCS	11	816
Field inspector	Stavibel	12	

- **6h30 à 18h30** Loader 966 and 2 trucks haul the blasted rock 0-200 mm from quarry #1.
- **6h30 à 12h00** Shovel 365 widens the road on the south side of the pond Sud with blasted rock 0-200 mm from quarry #1.
- **6h30 à 18h30** Shovel 365 backfills with blasted rock 0-200 mm from quarry #1.

Comments :

- Beginning of haulage of the contaminated material to the mine (4 loads per day).

- Photo #1 – Widening of the road on the south side of the pond





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- Photo #2 – Drainage of the water on north side of the pad. The ground is more stable at the end of the day.



Par : Richard Racine
Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



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**RAPPORT DE VISITE DE
CHANTIER**



Title of project :	Baker Lake Jet-A Fuel Farm	Date :	2013-07-17
Project # :	OP-84541-J /VD3356	Doc #:	VD3356-003-RV-04
Prepared by :	Michaël Racine	Contractor :	Fernand Gilbert Ltée
Verified by :	Richard Marcoux, ing.	Temperature :	8 à 17°C Wind : 30 à 70 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours	Volume (m3)
1 Shovel CAT 365C L	FGL	11	
Operator	FGL	12	
Surveyor	FGL	12	
Loader CAT 966H + operator	AEM	10	
Roller compactor Protec Boxer 114	BLCS	2.54	
Bulldozer CAT D6T (DOZ09)	AEM	0	
Shovel CAT 330C	BLCS	5	
2 articulated trucks CAT 740	BLCS	11	muck : 254.4 0-20mm : 272.5
Fiel inspector	Stavibel	12	

- **6h30 à 18h30** Shovel 365 builds the mini dikes with blasted rock 0-200 mm.
- **6h30 à 11h30** Shovel 330 and 2 trucks (BLCS) haul the blasted rock 0-200 mm from quarry #1.
- **7h30 à 10h15** Loader 966 separates the contaminated and the non-contaminated material.
- **10h15 à 18h30** Loader 966 builds the mini dikes.
- **13h à 18h** 2 trucks 740 (BLCS) haul the 0-20mm.

Comments :

- Haulage of the contaminated material to the mine (4 loads of 10 wheeler per day).
- The non-contaminated material that contain a bit of organic soil is stockpile in order to do the access road for the pump house.

- Photo #1 – Construction of the mini dikes around the pad. Stockpile of the 0-20mm on the pad.





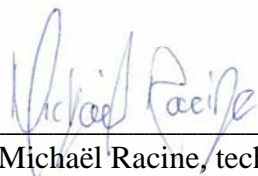
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- Photo #2 – Loading of the contaminated material.



Par : 
Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



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**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-18
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-05
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 5 à 10°C Wind : 30 à 50 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
1 Shovel CAT 365C L	FGL	9
Operator	FGL	12
Surveyor	FGL	12
Loader CAT 966H + operator	AEM	8
Roller compactor Protec Boxer 114	BLCS	0
Bulldozer CAT D6T (DOZ09)	AEM	0
Field inspector	Stavibel	12

- **6h30 à 12h00** Shovel 365 builds the mini dikes with blasted rock 0-200 mm.
- **6h30 à 15h30** Loader 966 loads the contaminated material, moves the contaminated stockpile that disturbed the construction of the ditch and moves the sea-cans.
- **13h à 15h** Shovel 365 stands by for mechanical problems.
- **15h à 18h30** Shovel 365 puts the 0-20mm on the mini dike.

Comments :

- Haulage of the contaminated material to the mine (6 loads of 10 wheeler per day).
- The crushed stone 0-20mm is stockpile and survey. The results give 18,17 m³/trucks instead of 24m³ as specified in the spec of the truck. Here are the adjusted volumes for the last days :

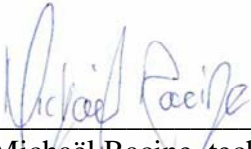
	2013-07-15		2013-07-16		2013-07-17		Cumulatif	
	load	volume (m3)	load	volume (m3)	load	volume (m3)	load	volume (m3)
Muck quarry 1	24	436,048	34	617,7347	14	254,3613	72	1308,144
0-3/4" BLCS		0		0	15	272,53	15	272,53

- Photo #1 – Placing the crushed stone 0-20mm on the mini dike.



- Photo #2 – Moving the contaminated stockpile to make the drainage ditch behind the north dike.



Par : 
Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



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**RAPPORT DE VISITE DE
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STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-19
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-06
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 8 à 18°C Wind : 20 à 30 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
1 Shovel CAT 365C L	FGL	11
Opérateur	FGL	12
Arpenteur	FGL	12
Rouleau compacteur Protec Boxer 114	BLCS	1.21
Chargeur CAT 966H + opérateur	AEM	3.5
Camion 10 roues + opérateur	AEM	5.5
Bulldozer CAT D6T (DOZ09)	AEM	0
Surveillant de chantier	Stavibel	12

- **6h30 à 12h00** Shovel 365 loads the truck with the non-contaminated material that contain organic soil.
- **6h30 à 12h00** 10 wheels truck hauls the material containing organic soil for the construction of the access road for the pump house.
- **6h30 à 10h00** Loader 966 moves the concrete blocks and other small jobs.
- **13h à 18h30** Shovel 365 builds the mini dike and the infra on the north side of the pad.

Comments :

- Haulage of the contaminated material to the mine (6 loads of 10 wheeler per day).



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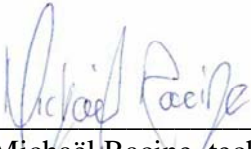
STAVIBEL

- Photo #1 – Loading the truck with the non-contaminated material that contain organic soil for the construction of the access road for the pump house.



- Photo #2 – Reparation of an instability on the North-East side of the pad.



Par : 
Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



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**RAPPORT DE VISITE DE
CHANTIER**



Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-20
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-07
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 8 à 18°C Wind : 5 à 10 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	2
Shovel CAT 320	FGL	5
Bulldozer Komat'su 39px	FGL	4
Operator	FGL	12
Surveyor	FGL	12
Roller compactor Protec Boxer 114	BLCS	0.4
Truck CAT 740	BLCS	114.1 m3
Bulldozer CAT D6T (DOZ09)	AEM	0
Field inspector	Stavibel	12

- **6h30 à 8h30** Shovel 365 builds the mini dike.
- **8h30 à 10h30** Shovel 320 is moving from Baker Lake to the field.
- **10h30 à 14h30** Shovel 320 builds the mini dike and profile the ditch.
- **14h30 à 18h30** Bulldozer 39px places the 0-20mm crushed stone.
- **14h30 à 18h30** Truck CAT 740 places the 0-20mm crushed stone.

Comments :

- Survey of a load of 0-20mm crushed stone to confirm the volume. Recalculation of the volumes with 16.3m³/load.

	2013-07-15		2013-07-16		2013-07-17		2013-07-20		Cumulative	
	load	volume	load	volume	load	volume	load	volume	load	volume
Muck quarry 1	24	391,2	34	554,2	14	228,2			72	1173,6
0-3/4" BLCS		0		0	15	244,5	7	114,1	15	407,5



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- Photo #1 – There is frost in the north ditch that prevent the excavation to the desired elevation.





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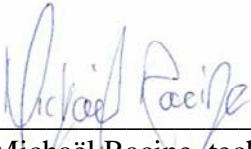


- Photo #2 – A bit of water on the pad because of the ditch that is to high. No instability.



- Photo #3 – Placing the 0-20mm crushed stone.



Par : 
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Richard Marcoux, ing.
No OIQ : 38724
Project manager



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**RAPPORT DE VISITE DE
CHANTIER**



Title of project :	Baker Lake Jet-A Fuel Farm	Date :	2013-07-21
Project # :	OP-84541-J /VD3356	Doc #:	VD3356-003-RV-08
Prepared by :	Michaël Racine	Contractor :	Fernand Gilbert Ltée
Verified by :	Richard Marcoux, ing.	Temperature :	8 à 18°C Wind : 5 à 10 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	0
Shovel CAT 320	FGL	9
Bulldozer Komat'su 39px	FGL	2
Operator	FGL	12
Surveyor	FGL	12
Roller compacter Hamm 3625	FGL	2
Truck CAT 740	BLCS	48.9 m3
Bulldozer CAT D6T (DOZ09)	AEM	0
Field inspector	Stavibel	12

- **6h30 à 15h30** Shovel 320 builds the dike, builds the access road and places the concrete blocks for the pump house.
- **15h30 à 17h30** Bulldozer 39px places the 0-20mm crushed stone.
- **17h30 à 18h30** Shovel 320 digs the ditch.
- **15h30 à 17h00** Truck CAT 740 hauls the 0-20mm crushed stone.

Comments :

- Volumes of material hauled by BLCS :

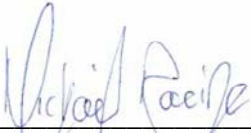
	2013-07-15		2013-07-16		2013-07-17		2013-07-20		2013-07-21		Cumulative	
	load	volume	load	volume	load	volume	load	volume	load	volume	load	volume
Muck quarry 1	24	391,2	34	554,2	14	228,2					72	1173,6
0-3/4" BLCS		0		0	15	244,5	7	114,1	3	48,9	15	407,5

- Photo #1 – Placing the 0-20mm crushed stone. All the 0-20mm is on the field at the end of the day.



- Photo #2 – Excavation of the north ditch at the good elevation to drain the pad infra.



Par : 
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Richard Marcoux, ing.
No OIQ : 38724
Project manager



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**RAPPORT DE VISITE DE
CHANTIER**



Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-22
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-09
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 8 à 15°C Wind : 5 à 10 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	0
Shovel CAT 320	FGL	2.5
Bulldozer Komat'su 39px	FGL	0
Operator	FGL	5.5
Surveyor	FGL	5.5
Roller compactor Hamm 3625	FGL	0
Field inspector	Stavibel	12

- **16h à 18h30** Shovel 320 digs the ditch around the pad.

Comments :

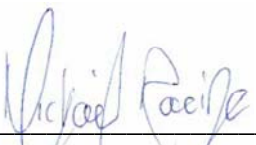
- Cross shift. No activity on the field before 16h. I make a roundtrip to Meadowbank to go get the new operator and surveyor.
- Volumes of material hauled by BLCS :

	2013-07-15		2013-07-16		2013-07-17		2013-07-20		2013-07-21		Cumulative	
	load	volume	load	volume	load	volume	load	volume	load	volume	load	volume
Muck quarry 1	24	391,2	34	554,2	14	228,2					72	1173,6
0-3/4" BLCS		0		0	15	244,5	7	114,1	3	48,9	15	407,5

- Photo #1 – Excavation of the north ditch to the frost. There is a groundwater artery.



Par :


Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



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**RAPPORT DE VISITE DE
CHANTIER**



Title of project :	Baker Lake Jet-A Fuel Farm	Date :	2013-07-23
Project # :	OP-84541-J /VD3356	Doc #:	VD3356-003-RV-10
Prepared by :	Michaël Racine	Contractor :	Fernand Gilbert Ltée
Verified by :	Richard Marcoux, ing.	Temperature :	8 à 15°C Wind : 5 à 10 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	0
Shovel CAT 320	FGL	9
Bulldozer Komat'su 39px	FGL	1
Operator	FGL	12
Surveyor	FGL	12
Roller compactor Hamm 3625	FGL	5
Truck CAT 740	BLCS	32.6 m3
Field inspector	Stavibel	12

- **6h30 à 11h** Shovel 320 places the 0-20mm crushed stone.
- **8h à 9h** Truck CAT 740 hauls the 0-20mm crushed stone.
- **11h à 12h** Bulldozer 39px places the 0-20mm crushed stone.
- **12h à 15h** Shovel 320 finishes the mini dike and builds the key for the membrane.
- **15h à 18h30** Shovel 320 builds the acces road for the pump house.

Comments :

- Volumes of material hauled by BLCS :

	2013-07-15		2013-07-16		2013-07-17		2013-07-20		2013-07-21		2013-07-23		Cumulative	
	load	volume	load	volume	load	volume	load	volume	load	volume	load	volume	load	volume
Muck	24	391,2	34	554,2	14	228,2							72	1173,6
0-3/4"					15	244,5	7	114,1	3	48,9	2	32,6	15	440,1

- Photo #1 – Overview of the pond ready for the geotextile and the bituminous geomembrane.



- Photo #2 – Small key trench for the membrane.



- Photo #3 – Construction of the access road for the pump house.





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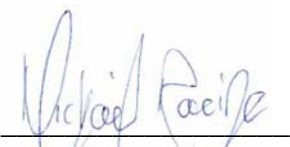
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- Photo #4 – Arrival of 11 tanks of 100 000L and 2 tanks of 50 000L on the barge.



Par :


Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



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**RAPPORT DE VISITE DE
CHANTIER**



Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-24
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-11
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 15 à 23°C Wind : 5 à 20 km/h

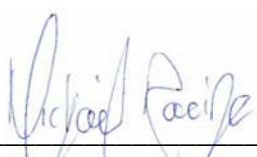
Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	0
Shovel CAT 320	FGL	0
Bulldozer Komat'su D39px	FGL	1
Operator	FGL	12
Surveyor	FGL	12
Roller compactor Hamm 3625	FGL	0
3 labours	FGL	4
2 membrane installers	Texcel	3.5
Shovel CAT 307	AEM	4.5
Field inspector	Stavibel	12

- **6h30 à 7h30** Stand by
- **7h30 à 12h** Shovel 307 cleans the membrane in prevision of the reparations between the existing diesel tanks #1 and 2.
- **8h à 12h** 3 labours place the crushed stone 0-20 mm crushed stone to make sure the foundation for the bituminous geomembrane is flat.
- **17h à 18h** Bulldozer 39px places the 0-20mm crushed stone on the access road for the pump house.

Comments:

- The membrane installers arrive at 15h.

Par : 
 Michaël Racine, tech.

Richard Marcoux, ing.
 No OIQ : 38724
 Project manager



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**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-25
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-12
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 15 à 24°C Wind : 5 à 20 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	9
Shovel CAT 320	FGL	0
Bulldozer Komat'su 39px	FGL	0
Roller compactor Hamm 3625	FGL	0
Operator	FGL	12
Surveyor	FGL	12
3 Labours	FGL	12
Vibratory plate (small)	BLCS	1 jour
2 membrane installers	Texcel	12
Field inspector	Stavibel	12

- **6h30 à 11h30** Shovel 365 places the geotextile and failed attempt for the installation of the bituminous geomembrane.
- **11h30 à 16h30** Stand by
- **16h30 à 20h** Shovel 365 places the bituminous geomembrane.

Comments :

- Impossible to place the membrane with the membrane rack available. Waiting for the rack with bearings to roll out the membrane from 11h30 to 16h30. The wasted time is caught up after souper.



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CHANTIER**

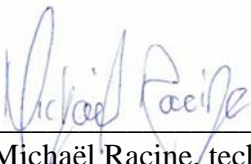


- Photo #1 – Compaction of the slopes with the vibratory plate to avoid rock punching in the membrane.



- Photo #2 – Placing the geotextile and the bituminous geomembrane.



Par : 
Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



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**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-26
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-13
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 15 à 26°C Wind: 5 à 20 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	4.5
Shovel CAT 320	FGL	0
Bulldozer Komat'su 39px	FGL	0
Roller compactor Hamm 3625	FGL	0
Operator	FGL	12
Surveyor	FGL	12
3 labours	FGL	12
2 membrane installers	Texel	12
Field inspector	Stavibel	12

- **6h30 à 18h30** 4 labours (FGL) et 2 labours (Texcel) place the bituminous geomembrane.
- **6h30 à 9h** Shovel 365 places the bituminous geomembrane.
- **9h à 12h** Shovel 320 works on another project for the diesel fuel tanks.
- **13h à 15h** Shovel 365 places the bituminous geomembrane.
- **15h à 16h** Shovel 320 works on another project for the diesel fuel tanks.
- **16h à 18h30** Shovel 365 places the bituminous geomembrane.

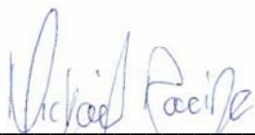
Comments :

- Photo #1 – Placing the bituminous geomembrane with a geotextile under.



- Photo #2 – Reparation of hole in the bituminous geomembrane.



Par : 
Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-27
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-14
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 15 à 23°C Wind : 0 à 10 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	5.5
Shovel CAT 320	FGL	0
Bulldozer Komat'su 39px	FGL	0
Roller compactor Hamm 3625	FGL	0
Operator	FGL	12
Surveyor	FGL	12
3 Labours	FGL	4
Generator 6000 W	BLCS	1 jour
Truck Cat 740	BLCS	55.2 m3
2 membrane installers	Texel	6.5
Field inspector	Stavibel	12

- **6h30 à 12h** Shovel 365 et 2 labours (Texcel) place the bituminous geomembrane.
- **6h30 à 10h30** 3 labours (FGL) place the bituminous geomembrane.
- **13h à 15h** 2 labours (Texcel) test the resistance of the welds in the bituminous geomembrane.
- **13h à 18h30** Operator and surveyor (FGL) stand by.
- **17h à 18h30** Truck CAT 740 hauls the 0-20mm crushed stone.

Comments :

- Inspection of the membrane.
- The 0-20 mm crushed stone produce by BLCS for the pad above the bituminous geomembrane is non-compliant. It contains particules up to 1-1/2". The material is rescreened and the placing of the 0-20 mm crushed stone begins at the end of the day.
- I inspect the membrane before filling above to make sure that no hole and no punching remains. Small rocks are detected under the membrane. Pieces of membrane are added on it.



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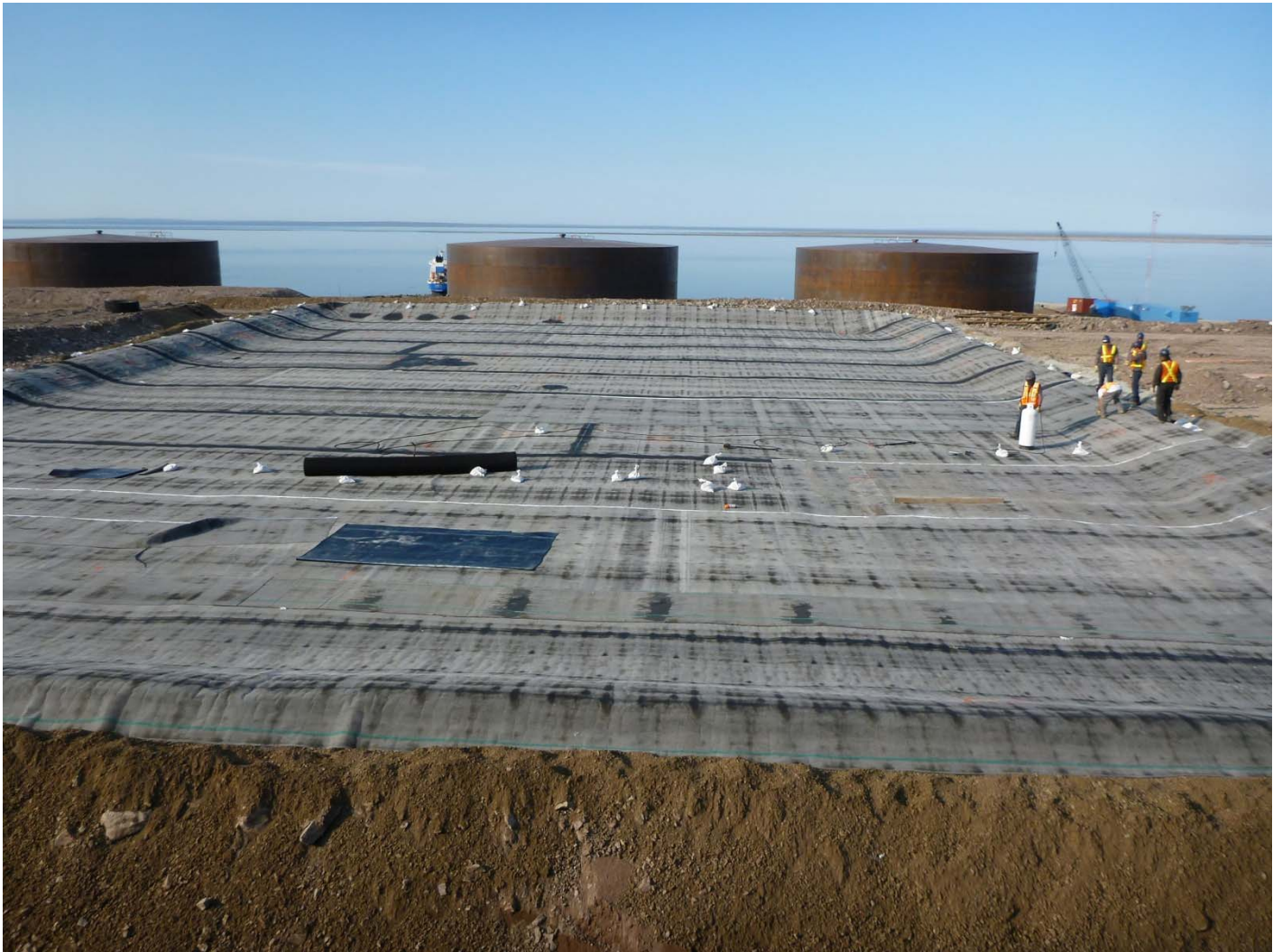
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- Survey of a load of 0-20 mm crushed stone. The result is 18.4 m³/load. Here are the corrected quantities according to this new volume:

	0-3/4"		Muck quarry 1	
	load	volume (m3)	load	volume (m3)
2013-07-15			24	441,6
2013-07-16			34	625,6
2013-07-17	15	276	14	257,6
2013-07-20	7	128,8		
2013-07-21	3	55,2		
2013-07-23	2	36,8		
2013-07-27	3	55,2		
Cumulative	30	552	72	1324,8

- Photo #1 – Installing the bituminous geomembrane with a geotextile under.



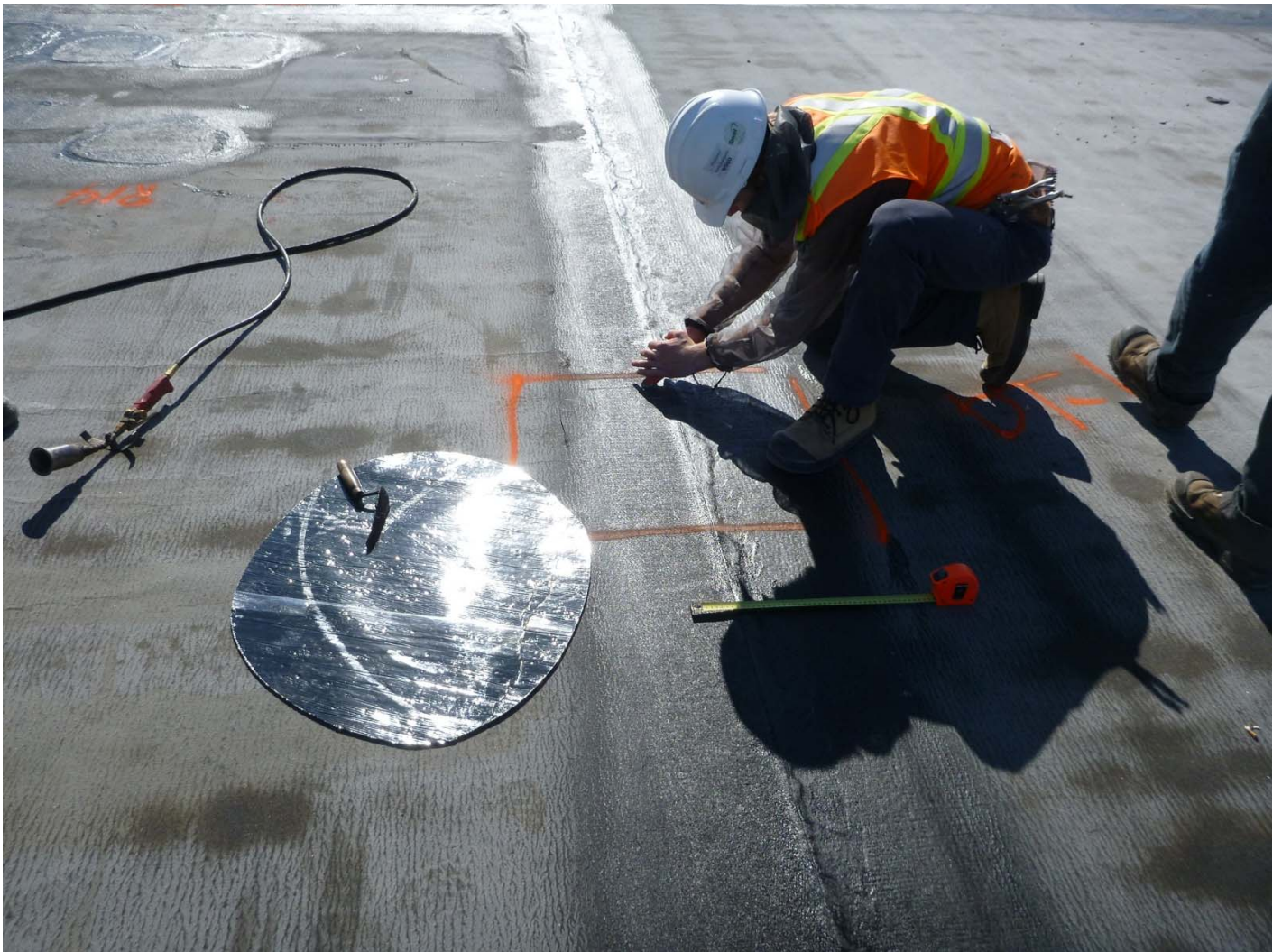


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STAVIBEL

- Photo #2 – Sampling of Colétanche in place to test the welds resistance with the tensometer. The results are compliant according to the Texel membrane installers.





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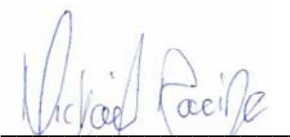
**RAPPORT DE VISITE DE
CHANTIER**



- Photo #3 – Inspection of the membrane. Small prominent rocks (10mm and less) are detected at some place under the membrane. A second tickness of colétanche is added on these spots to make sure there will not be any punching.



Par :



Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-28
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-15
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 15 à 23°C Wind : 0 à 10 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	8
Shovel CAT 320	FGL	0
Bulldozer Komat'su 39px	FGL	2
Roller compactor Hamm 3625	FGL	0
Operator	FGL	12
Surveyor	FGL	12
Truck Cat 740	BLCS	239.2 m3
Shovel Cat 307	AEM	1
Field inspector	Stavibel	12

- **6h30 à 18h30** Shovel 365, Shovel 320 et Bulldozer 39px (alternating) place the 0-20mm crushed stone on the bituminous geomembrane.
- **8h à 18h30** Truck CAT 740 hauls the 0-20mm crushed stone.

Comments :

- After comparison of the specs of the shovel CAT 307 and the bulldozer Komat'su 39px, we decide to use the bulldozer instead of the shovel 307. The ground pressure is 33.34 kPa (with the bulldozer) instead of 32.3 kPa (with the shovel).
- Big waiting time for the BLCS material. Only 1 truck. Around 2 loads/hour.



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**RAPPORT DE VISITE DE
CHANTIER**



- Summary of the volumes hauled by BLCS (18.4 m³/load) :

	0-3/4"		Muck quarry 1	
	load	volume (m3)	load	volume (m3)
2013-07-15			24	441,6
2013-07-16			34	625,6
2013-07-17	15	276	14	257,6
2013-07-20	7	128,8		
2013-07-21	3	55,2		
2013-07-23	2	36,8		
2013-07-27	3	55,2		
2013-07-28	13	239,2		
Cumulative	43	791,2	72	1324,8

- Photo #1 – Sreening of the 0-20mm and loading of the trucks at the Nuna Pad (BLCS).



- Photo #2 – Placing the 0-20mm above the bituminous geomembrane. A geotextile is place before.



Par :


Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-29
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-16
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 15 à 17°C Wind : 20 à 30 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	7.5
Shovel CAT 320	FGL	0
Bulldozer Komat'su 39px	FGL	3.5
Rolle compactor Hamm 3625	FGL	0
Operator	FGL	12
Surveyor	FGL	12
Truck Cat 740	BLCS	257.6 m3
Shovel Cat 307	AEM	0
Field inspector	Stavibel	12

- **6h30 à 18h30** Shovel 365 et Bulldozer 39px (alternating) place the 0-20mm on the bituminous geomembrane.
- **7h à 18h30** Camion CAT 740 hauls the 0-20mm.

Comments :

- Big waiting time for the BLCS material. Only 1 truck. About 40 minutes between loads.
- The BLCS crusher is out of use. The 0-20mm will be make entirely by the screener.



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**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

- Summary of the volumes hauled by BLCS (18.4 m³/load) :

	0-3/4"		Muck quarry 1	
	load	volume (m3)	load	volume (m3)
2013-07-15			24	441,6
2013-07-16			34	625,6
2013-07-17	15	276	14	257,6
2013-07-20	7	128,8		
2013-07-21	3	55,2		
2013-07-23	2	36,8		
2013-07-27	3	55,2		
2013-07-28	13	239,2		
2013-07-29	14	257,6		
Cumulative	57	1048,8	72	1324,8



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**RAPPORT DE VISITE DE
CHANTIER**



- Photo #1 – Lot of particules bigger than 20mm in the 0-20mm brought by BLCS. We advise BLCS to check the screener. Indeed, there was a gap on the side of the screen because of a missing inner bar. After the reparation of the screener, there is still presence of particules up to 100mm in the material from an unknow source. We remove them by hand on the field, but there is still a lot of rocks around 1 1/2" big.





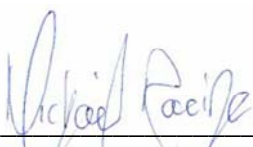
AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



- Photo #2 – Placing the 0-20mm above the bituminous geomembrane. A geotextile is placed before.



Par : 
Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-30
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-17
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 15 à 17°C Wind : 20 à 30 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	7
Shovel CAT 320	FGL	0
Bulldozer Komat'su 39px	FGL	4
Roller compactor Hamm 3625	FGL	0
Operator	FGL	12
Surveyor	FGL	12
Truck Cat 740	BLCS	202.4 m3
Shovel Cat 307	AEM	0
Field inspector	Stavibel	12

- **6h30 à 18h30** Shovel 365 and Bulldozer 39px (alternating) place the 0-20mm on the bituminous geomembrane.
- **8h à 18h00** Truck CAT 740 hauls the 0-20mm.

Comments :

- Big waiting time for the BLCS material. Only 1 truck. About 40 minutes between loads.
- The BLCS crusher is out of use. The 0-20mm will be make entirely by the screener.
- Taking of 2 samples of 0-20mm on the field and 1 more sample in the BLSC stockpile at the Nuna Pad.



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



- Summary of the volumes hauled by BLCS (18.4 m³/load) :

	0-3/4"		Muck quarry 1	
	load	volume (m3)	load	volume (m3)
2013-07-15			24	441,6
2013-07-16			34	625,6
2013-07-17	15	276	14	257,6
2013-07-20	7	128,8		
2013-07-21	3	55,2		
2013-07-23	2	36,8		
2013-07-27	3	55,2		
2013-07-28	13	239,2		
2013-07-29	14	257,6		
2013-07-30	11	202,4		
Cumulative	68	1251,2	72	1324,8



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**RAPPORT DE VISITE DE
CHANTIER**



- Photo #1 – I measured the mesh size of the BLCS screener. The opening of 30mm explain the presence of particules higher than 20 mm. BLCS affirmed that they don't have a smaller screen on July 27th when they change the screen. Also, there is still several rocks up to 100 mm in the 0-20 mm. We remove them by hand on the field.



- Photo #2 – Placing the 0-20mm above the bituminous geomembrane. A geotextile is placed before.





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**RAPPORT DE VISITE DE
CHANTIER**



- Photo #3 – Compaction test with the roller compacter Hamm 3625 on low vibration directly on the 0-20mm uncompacted and without any covering above. Not any hole nor any deformation are noticed on the bituminous geomembrane. The decision is taken to use the roller compacter for the compaction of the pad above the Colétanche membrane.



Par :

Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



STAVIBEL

Title of project : Baker Lake Jet-A Fuel Farm	Date : 2013-07-31
Project # : OP-84541-J /VD3356	Doc #: VD3356-003-RV-18
Prepared by : Michaël Racine	Contractor : Fernand Gilbert Ltée
Verified by : Richard Marcoux, ing.	Temperature : 15 à 17°C Wind : 20 à 30 km/h

Object : Contractor's schedule (approximative hours)

Labour and machinery	Company	Working hours
Shovel CAT 365C L	FGL	5
Shovel CAT 320	FGL	4.5
Bulldozer Komat'su 39px	FGL	1.5
Roller compactor Hamm 3625	FGL	2
Operator	FGL	12
Surveyor	FGL	12
Truck Cat 740	BLCS	33.8 m3
Water tanker	Hamlet	2
Shovel Cat 307	AEM	0
Field inspector	Stavibel	12

- **6h30 à 10h** Shovel 365 and Bulldozer 39px (alternating) place the 0-20mm on the bituminous geomembrane.
- **8h30 à 10h30** Water tanker moistens the 0-20mm using a total of 15234 L of water.
- **10h30 à 13h30** Compactor compacts the pad of 0-20mm.
- **10h à 14h** Shovel 365 moves the contaminated stockpile to profile better the ditch.
- **14h à 18h30** Shovel 320 backfills the small key trench for the bituminous geomembrane and installs a steel pipe for the electric wire feeding the pump house..

Comments :

- Departure of the field inspector (myself) on August 1st around 7h.



AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**



- Survey of 42 loads of 0-20mm in place uncompacted. Here is the summary of the volumes haules by BLCS (estimate with an average of 16.9 m³/load) :

	0-3/4"		Muck quarry 1	
	load	volume (m3)	load	volume (m3)
2013-07-15			24	405,6
2013-07-16			34	574,6
2013-07-17	15	253,5	14	236,6
2013-07-20	7	118,3		
2013-07-21	3	50,7		
2013-07-23	2	33,8		
2013-07-27	3	50,7		
2013-07-28	13	219,7		
2013-07-29	14	236,6		
2013-07-30	11	185,9		
2013-07-31	2	33,8		
Cumulative	70	1183	72	1216,8



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CHANTIER**



- Photo #1 – Moistening and compaction of the 0-20mm. Compaction: 2 static passes, 1 vibratory pass in each direction and 2 last static passes.





AGNICO EAGLE

**RAPPORT DE VISITE DE
CHANTIER**

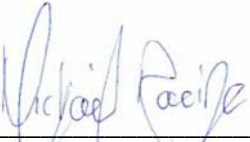


- Photo #2 – Installation of a steel pipe with a rope inside in prevision of passing the electric wire to the pump house.



- Photo #3 – Overview of the second containment system ready to take the Jet-A tanks.



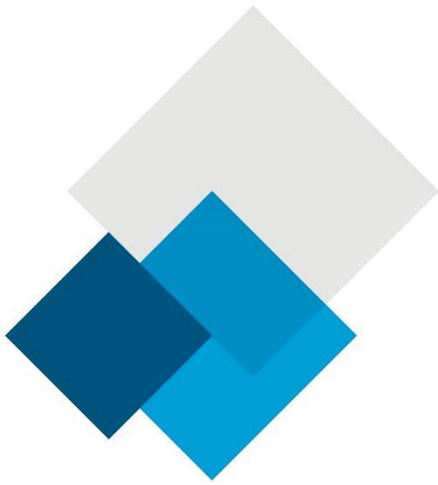
Par : 

Michaël Racine, tech.

Richard Marcoux, ing.
No OIQ : 38724
Project manager

Appendix A5

Construction Summary Report: Baker Lake Fuel Storage Tank 7 and Containment Facilities (2020)



SNC • LAVALIN

Building what matters

CONSTRUCTION SUMMARY REPORT

Baker Lake Fuel Storage Tank 7 and Containment Facilities

Agnico Eagle Mines Ltd

Report

653281-0004-40ER-0005_0

January 17, 2020

Authorized Signatory:



2020-01-16

Israël Gagnon, P.Eng., MBA
Mechanical engineer

EXECUTIVE SUMMARY

SNC Lavalin Stavibel Inc. was retained by Agnico Eagle Mines Limited to prepare a construction summary (as built) report for the fuel storage tank and containment facilities of the Meadowbank Gold Project, Nunavut. SNC Lavalin Stavibel Inc. previously prepared the construction drawings and specifications as well as the design report for the fuel storage tank and containment facilities.

SNC Lavalin Stavibel Inc. wasn't involved in the construction of the fuel storage tank and containment facilities, the information presented in this report was provided in part by Agnico Eagle.

The construction of the fuel storage tank and containment facilities were completed in September 2019. The construction monitoring and quality assurance was managed by Agnico Eagle.

This report summarizes the construction as-built information for the fuel storage tank and containment facilities.

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<hr/>	
2. Construction Summary	4
2.1 Site location plan.....	4
2.2 Fuel tank size	5
2.3 Tank Foundations Design	5
2.4 Berms Design.....	5
2.5 Secondary Containment Capacity	6
2.6 Secondary Containment Imperviousness	7
2.7 Secondary Containment Drainage	7
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4. Mitigation measure	8
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5. Construction monitoring and inspection test plan	8
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5.2 Tank weld.....	8
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Appendices	
Appendix A	Final Construction drawings
Appendix B	As built drawings
Appendix C	Photographs
Appendix D	Fuel tank handover package

1. Introduction

This document presents the fuel storage tank 7 and containment facilities construction summary report required by the Water Licence 2AM-MEA1526 Part D Item 14 and Part G Item 4. As required by Water Licence Schedule D, this report contains the final design and construction drawings, a summary of construction activities including pictures recorded before, during and after construction. The as-built drawings, detailed explanation of field decision to reflect any deviations from the original construction drawings/plans and how such deviations may affect performance of engineered structures, a discussion of the mitigation measures implemented during construction and its effectiveness are also presented.

2. Construction Summary

2.1 Site location plan

Agnico Eagle is developing the Whale Tail Project in the Kivalliq Region of Nunavut (65°24'25" N, 96°41'50" W). The 99,878-hectare Amaruq property is located on Inuit-owned and federal crown land, approximately 55 km north of the Meadowbank mine. The Meadowbank mine is accessible from Baker Lake, located 70 kilometers to the south. The Baker Lake Bulk Fuel Storage Tank Facility is located east of the hamlet of Baker Lake, on the north shore of Baker Lake.



Figure 1 – Baker Lake Fuel Farm Site Overview (tank 7 in construction)

2.2 Fuel tank size

Baker Lake fuel farm now includes seven (7) fuel storage tank. This report is base on the seventh tank built in spring/summer 2019.

The Table 1 below presents the tank main dimensions.

Table 1 – Description of the fuel farm

Fuel farm Description	Baker Lake fuel tank 7
Product	Diesel
Volume (liter)	10 M
Diameter (m)	33.5
Height (m)	12.2

The detailed design of the Fuel Farm is presented in drawings in Appendix A.

2.3 Tank Foundations Design

The tank foundation pad is built 2 meters lower than the surrounding ground with a minimum total thickness of 800 mm of compacted material which includes the liner system. A 3 m shoulder surround the tank with a slope of 1V:2H away from the tank. The embankments of the foundation pad are no steeper than 1V:2H.

The Table 2 below presents the design parameters for the tank foundations.

Table 2 – Design parameters for the tank foundations

Tank Foundation Pad	
Tank Diameter (m)	33.5
Tank foundation pad top (m)	2x 18.0 x 18.0
Tank foundation pad average thickness, above surrounding ground (m)	1.2
Slope on shoulder	1V:2H
Embankment slope	1V:2H

2.4 Berms Design

The storage tank is enclosed inside berms to contain accidental spillage of fuel product. The berms are made of granular material and are made impervious with a geomembrane.

The design parameters for the berms surrounding the fuel tank are presented in the table below.

Table 3 - Design parameters for fuel farm Berms

Tank Farm Berms	
Berms length (distance between the outer sides of the Berms) (m)	125
Berms width (distance between the outer sides of the Berms) (m)	71
Berms height (min) (m)	3
Containment height (m)	2
Berms flat top width (m)	1.5
Berms embankment slope	1V:2H
Impervious area (m ²)	10 000

2.5 Secondary Containment Capacity

The required capacity of the fuel farms new section was calculated based on the following codes and regulations:

- National Fire Code of Canada (NFCC);
- National Fire Protection Association (NFPA); and
- Design Rationale for Fuel Storage and Distribution Facility (DRFS).

As per the latest edition of NFCC, art. 4.3.7.3, the required secondary containment capacity for a fuel farm must have a volumetric capacity of not less than the sum of:

- A) The capacity of the largest storage tank located in the contained space, and;
- B) 10% of the greater of:
 - i. The capacity specified in Clause (A), or;
 - ii. The aggregate capacity of all other storage Tanks located in the contained space.

The volume occupied by the Tank foundation is considered in the total secondary containment capacity. The height of the secondary containment capacity is 300 mm lower than the berms' maximum elevation. Based on the above-mentioned, the secondary containment capacity requirements and the available capacity for fuel farms are summarized in the Table 4.

Table 4 – Fuel farm new section containment capacity

New section	
Volume (liter)	20 M (2X 10M)
Required Containment Capacity (liter)	11 M
Available Containment Capacity (liter)	20M

2.6 Secondary Containment Imperviousness

As per NFCC art. 4.3.7.2, the base and walls of the fuel farms secondary containment are designed, constructed and maintained to withstand full hydrostatic head and provide a permeability of not more than 10^{-6} cm/s to the flammable liquids or combustible liquids contained in the storage tank. The berm is impervious to avoid any seepage into the environment. A 5.10 mm ES-2 Coletanche geomembrane provide adequate imperviousness.

2.7 Secondary Containment Drainage

The finished grade of the secondary containment is sloped away from the Tank to drain the runoff water. The bottom of the berms surface is built with slopes that will allow accidental spills to be concentrated at a low point. A drainage basin located at the low point allows the recovery by pumping accumulations of rainwater and accidental spills.

2.8 Drawings and photographs

Fuel farm tank and containment final design and construction drawings are available in the Appendix A, construction pictures are available in Appendix C.

2.9 Timeline

The baker lake fuel storage tank number 7 and containment facility where built in 2019. Civil and earth work started on April 2019, followed by tank and piping fabrication in August 2019. Construction work were finalised on September 17th, 2019.

3. Field decisions

3.1 Equipment and controls

Equipment where build in containers and installed without modification on site document 6120-C-260-001-REP-001 Fuel Tank Storage and Containment Facilities Design Report and Drawings, present the rational and decisions that led to its construction. No modifications were performed, and the Fuel storage tank and containment facilities are operational as they were designed.

3.2 Piping

Piping between filling and distributing container and the fuel tank respect the point to point design. The piping isn't exactly as per drawing (can be seen on photos in Appendix C) but respect the P&ID. As built drawings can be consulted in Appendix B.

4. Mitigation measure

Quarrying activities to build the berm was at Quarry #2 situated at KM 13 on AWAR. No blast were done on the construction site. During the fuel storage tank and containment facilities construction, no sediments were released in water from construction areas and no water was used to manage dust emissions from construction activity.

5. Construction monitoring and inspection test plan

5.1 Membrane

The manufacture and supply of the liner system for the fuel farm comply with ASTM standard. The manufacturer provided a certification stating that the material proposed has physical properties that meet the required values. The rolls of liner were labelled, packaged, shipped, off-loaded, stored and handled by appropriate means to prevent damage to the material.

The subgrade surface was inspected by an engineer to verify suitability prior to installation of the liner system. A minimum thickness of fill covering the liner is maintained for operating equipment over the liner to prevent any damage. The installation of the liner system was performed by a qualified technician. All seaming, patching, welding operations, and testing were performed by a qualified technician. Joints/seams between liners panels were welded using the manufacturer's recommended procedures and equipment. The backfill material was placed in accordance with the drawings and specifications for the maximum lift thickness, compaction requirements and final grade levels.

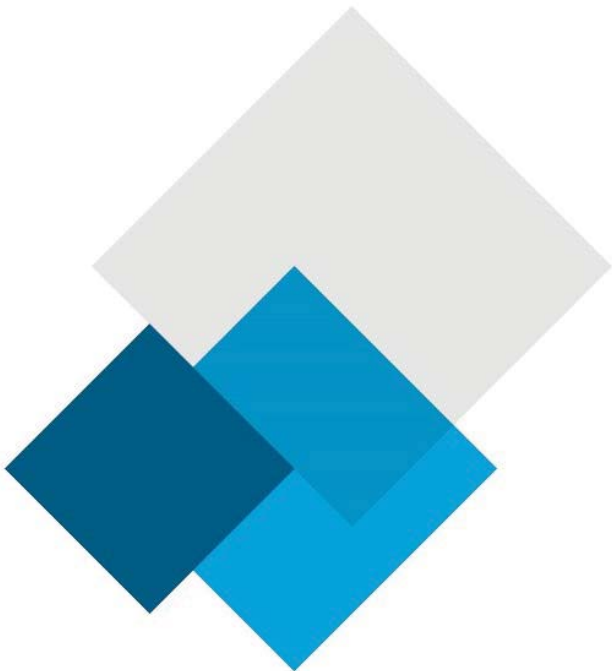
During membrane installation, visual testing by a qualified worker was carried. Those tests were done on cooled bitumen. Joints were tested with a round-tipped trowel to ensure that the welds were not separating. All defects were clearly marked for repair.

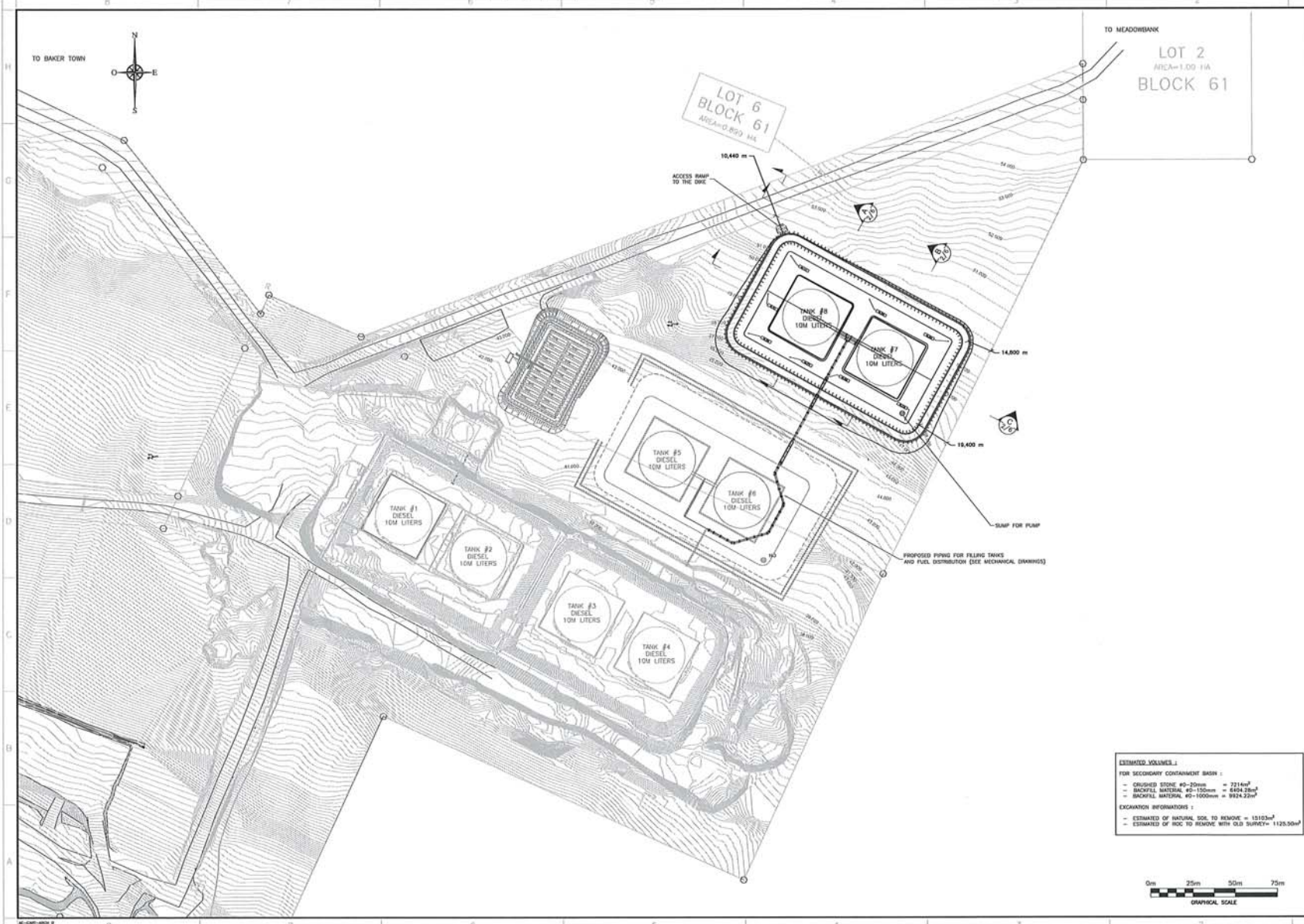
5.2 Tank weld

During the tank construction, a testing protocol was followed by the construction team. To meet API Standard 650, companies building tank are required to monitor their work through an inspection program. In this program, the contractor registers welder's qualifications, confirm construction material quality and outlines its testing protocol. The results from weld tests are also registered there. All that information is required by API 650 standard. Testing on welds took place during the whole construction process. To attest welds quality, inspector relied on visual inspection, magnetic particulate tests and high penetration oil tests. To review those tests results, the materials quality and weld inspection results can be consulted in Appendix D.

Appendix A

Final construction drawing





NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION FOR CONSTRUCTION
 AGNICO EAGLE DATE: 2018-05-08

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

NO. 61-740-210-201-1RC	2.00
------------------------	------

AGNICO EAGLE

REV.	DATE	DESCRIPTION	BY	CHK.
1	2018-05-08	FOR CONSTRUCTION	MAN	MAN
2	2018-05-08	FOR CONSTRUCTION	MAN	MAN
3	2018-05-08	FOR CONSTRUCTION	MAN	MAN



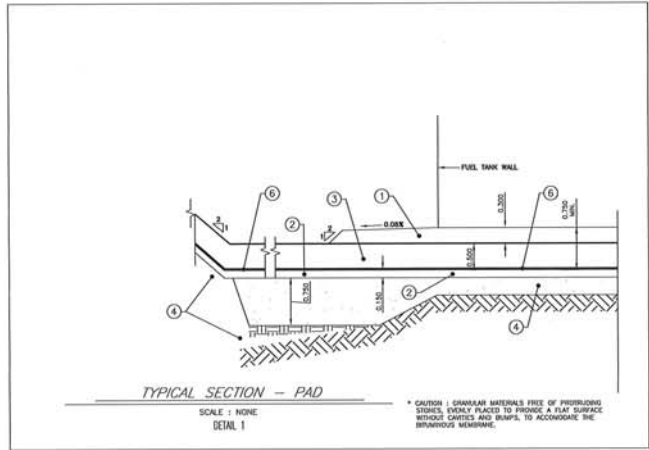
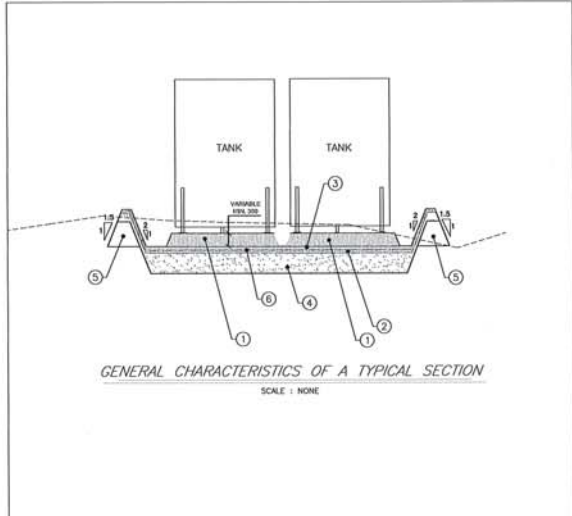
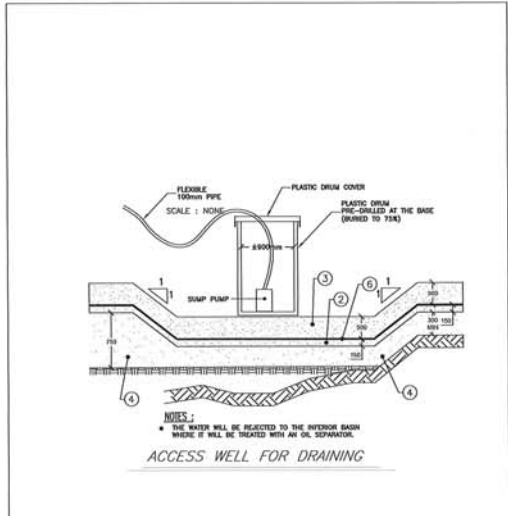
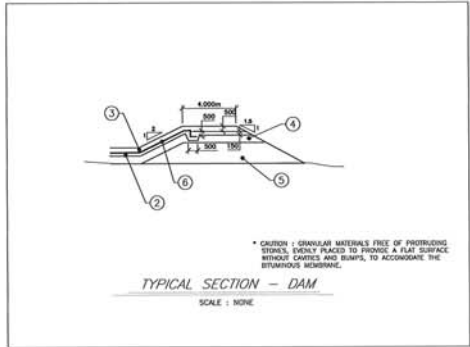
AGNICO-EAGLE - MEADOWBANK DIVISION
 740 SHAKER LAKE AREA
 GENERAL ARRANGEMENT
 PLAN VIEW
 10M LITERS TANKS LOCATION
 TANKS #1 & #8

DESIGN BY FRANCIS PERRON, TECH. 2018-12-10
 CHECKED BY RICHARD MARCOU, ENG. 2018-12-10
 APPROVED BY MARC DEHAUTE, P. ENG. 2018-12-10

GRAPHICAL SCALE: 1 : 1000 DATE: 2018-07-18
 NO. 61-740-210-201-1RC
 61-740-230-200
 SHEET NO. 61 REVISION 1 OF 1

ESTIMATED QUANTITIES:
 FOR SECONDARY CONTAINMENT BASIN:
 - CONCRETE (3000) 40-200mm = 221m³
 - BACKFILL MATERIAL 40-150mm = 6494.28m³
 - BACKFILL MATERIAL 40-1000mm = 9324.22m³
 EXCAVATION INFORMATIONS:
 - ESTIMATED OF NATURAL SOIL TO REMOVE = 15153m³
 - ESTIMATED OF ROC TO REMOVE WITH OLD SURVEY = 1123.50m³





Description	Quantity
1. TANK BEDDING	CRUSHED STONE #4-10mm VARIABLE THICKNESS MINIMUM 300mm COMPACTED TO 95% P.M.
2. MEMBRANE	BITUMEN 150mm COMPACTED TO 95% P.M.
3. MEMBRANE	BITUMEN 150mm COMPACTED TO 95% P.M.
4. MEMBRANE	BITUMEN 150mm COMPACTED TO 95% P.M.
5. MEMBRANE	BITUMEN 150mm COMPACTED TO 95% P.M.
6. MEMBRANE	BITUMEN 150mm COMPACTED TO 95% P.M.

CAUTION: GRANULAR MATERIALS FREE OF PROTRUDING STONES, ROCKY PLACES TO PROVIDE A FLAT SURFACE WITHOUT CAVERTS AND BUMPS, TO ACCOMMODATE THE BITUMINOUS MEMBRANE.

NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION FOR CONSTRUCTION
DATE: 2019-05-06

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

NO. / NO.	TITRE / TITLE	DATE
1	2018-03-04-04 FOR CONSTRUCTION	2018-12-10
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3	2018-04-04-04 FOR CONSTRUCTION	2018-12-10

REVISIONS

AGNICO EAGLE

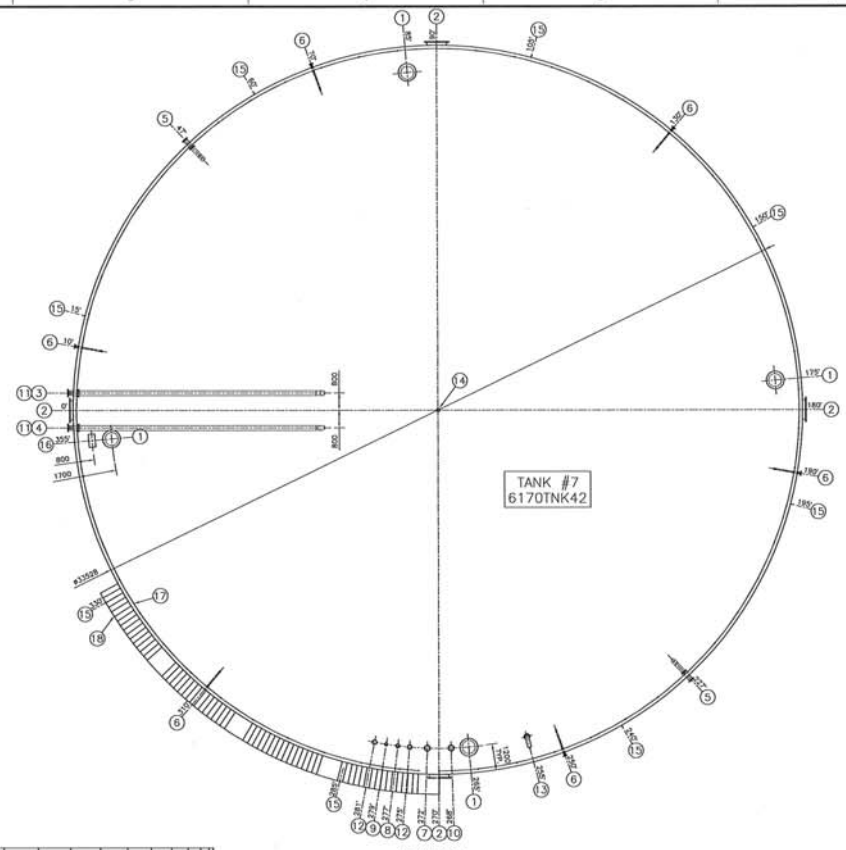
PROJEC / PROJ
NO. / NO.
61-740-230-204

PROJEC / PROJ
NO. / NO.
61

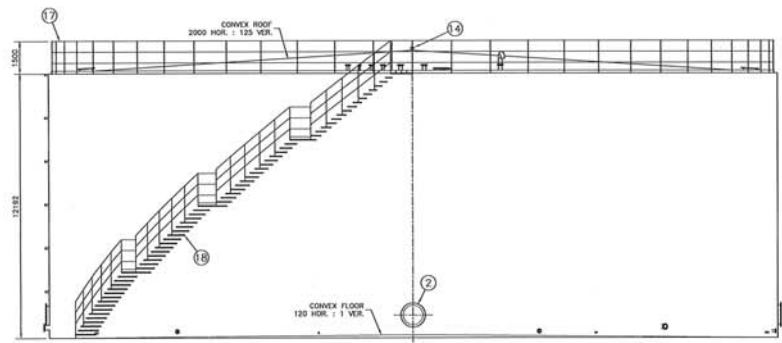
TANK #7 - 6170TNK42 - DIESEL

NOMINAL DIAMETER (METERS): ± 33.50m (TO BE CONFIRMED BY MANUFACTURER)
 ORIGINAL NOMINAL HEIGHT (METERS): ± 12.102m (TO BE CONFIRMED BY MANUFACTURER)
 NOMINAL CAPACITY: 10,700,000 LITERS
 WORKING CAPACITY: 10,000,000 LITERS

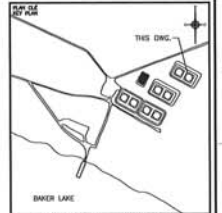
SAG	QTY.	DN.	DESCRIPTION	REMARKS
1	4	100	ROOF MANHOLE	TO API 650 STANDARDS
2	4	300	SHELL MANHOLE	TO API 650 STANDARDS
3	1	200	FIXED PIPE - TANK LOADING 11.7m L/D.	TO API 650 STANDARDS, SEE DETAIL.
4	1	200	FIXED PIPE - TANK UNLOADING 11.7m L/D.	TO API 650 STANDARDS, SEE DETAIL.
5	2	150	PUMPING LOW LEVEL	TO API 650 STANDARDS, SEE DETAIL.
6	6	80	WATER DRAIN-OFF	TO API 650 STANDARDS, SEE DETAIL.
7	1	150	GAUGE HATCH	TO API 650 STANDARDS, SEE DETAIL.
8	1	80	OVERFILL PROTECTION	TO API 650 STANDARDS, SEE DETAIL.
9	1	50	TEMPERATURE & WATER DETECTION PROBE	TO API 650 STANDARDS, SEE DETAIL.
10	1	150	RAAGAR - LEVEL DETECTION	TO API 650 STANDARDS, SEE DETAIL.
11	2	50	ROOF PRESSURE RELIEF LINE CONNECTION W/45° COUPLING 25mm DN. (STRENGTHENED)	TO API 650 STANDARDS AND NBC, SEE DETAIL.
12	2	100	SPLASH	TO API 650 STANDARDS, SEE DETAIL.
13	-	-	VENT OPENING	TO API 2000 & 850 STANDARDS, QTY. AND QTY. TO BE DETERMINATE BY THE MANUFACTURER, SEE DETAIL.
14	1	100	PAINTER SCAFFOLD CABLE SUPPORT	TO API 650 STANDARDS
15	8	-	SECUREMENT LOG	TO API 650 STANDARDS, SEE DETAIL.
16	1	-	ROOF INSPECTION FRAME	TO API 650 STANDARDS
17	1	-	ROOF GUARDRAIL	TO API 650 STANDARDS AND NBC
18	1	-	SPRINKLER STAIRWAY, GUARDRAIL & HANORAIL	TO API 650 STANDARDS AND NBC



PLAN VIEW
SCALE: 1:100



ELEVATION VIEW
SCALE: 1:100



NOTES GÉNÉRALES / GENERAL NOTES

NE PAS UTILISER POUR CONSTRUCTION NOT FOR CONSTRUCTION
 APPROVED BANK DATE: 2019-03-12

POUR SOUMISSION FOR TENDER
 APPROVED BANK DATE: 2019-03-12

SNC-LAWALIN
 Project #: 660534-0000

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

NO.	TITRE / TITLE	NO.	TITRE / TITLE
1	2018-02-10	2	2018-02-10
2	2018-02-10	3	2018-02-10
3	2018-02-10	4	2018-02-10
4	2018-02-10	5	2018-02-10

REVISIONS

NO.	DESCRIPTION	DATE
1	2018-02-10	2018/02/10
2	2018-02-10	2018/02/10
3	2018-02-10	2018/02/10
4	2018-02-10	2018/02/10

AGNICO EAGLE

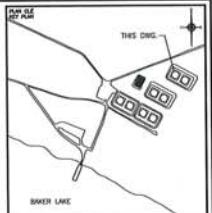
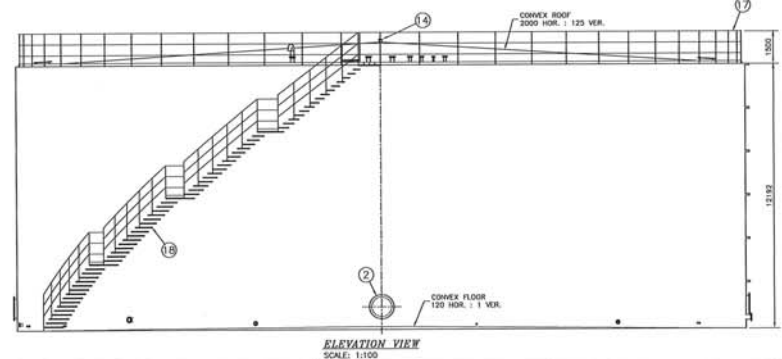
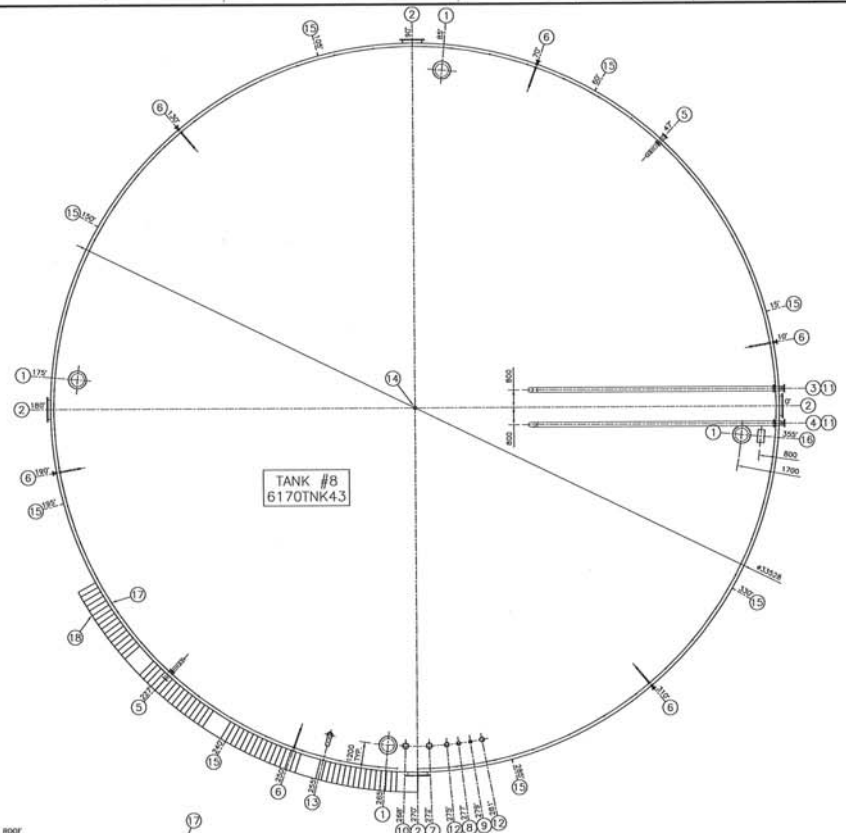
AGNICO EAGLE - MEADOWBANK DIVISION
 740 BAKER LAKE AREA
 PLAN & ELEVATION
 10M LITERS DIESEL TANK
 TANK #7 - 6170TNK42

NO.	DESCRIPTION	DATE
1	2018-02-10	2018/02/10
2	2018-02-10	2018/02/10
3	2018-02-10	2018/02/10
4	2018-02-10	2018/02/10

61-740-260-200

TANK #8 - 6170TNK43 - DIESEL

SPECIFICATIONS:	NOMINAL DIAMETER (METERS)	± 33.538m (TO BE CONFIRMED BY MANUFACTURER)		
	ORIGINAL NOMINAL HEIGHT (METERS)	± 12.190m (TO BE CONFIRMED BY MANUFACTURER)		
	NOMINAL CAPACITY:	10,700,000 LITERS		
	WORKING CAPACITY:	10,000,000 LITERS		
TAG	QTY.	DL.	DESCRIPTION	REMARKS
1	4	400	ROOF RIMWALK	TO API 650 STANDARDS
2	4	900	SHELL MANHOLE	TO API 650 STANDARDS
3	1	200	FIBED PIPE - TANK LOADING 11.3m LG.	TO API 650 STANDARDS, SEE DETAIL
4	1	200	FIBED PIPE - TANK UNLOADING 11.3m LG.	TO API 650 STANDARDS, SEE DETAIL
5	2	150	PUMPING LIFT LEVEL	TO API 650 STANDARDS, SEE DETAIL
6	6	80	WATER DRAIN-OFF	TO API 650 STANDARDS, SEE DETAIL
7	1	150	GAUGE HATCH	TO API 650 STANDARDS, SEE DETAIL
8	1	80	OVERFILL PROTECTION	TO API 650 STANDARDS, SEE DETAIL
9	1	50	TEMPERATURE & WATER DETECTION PROBE	TO API 650 STANDARDS, SEE DETAIL
10	1	150	RAISAR - LEVEL DETECTION	TO API 650 STANDARDS, SEE DETAIL
11	2	50	ROOF PRESSURE RELIEF LINE CONNECTION, HALF COUPLING 25mm DN. (THREADED)	TO API 650 STANDARDS AND NBC, SEE DETAIL
12	2	100	SPARE	TO API 650 STANDARDS, SEE DETAIL
13	-	-	VENT OPENING	TO API 2000 & 650 STANDARDS, DN. AND QTY. TO BE DETERMINATE BY THE MANUFACTURER, SEE DETAIL.
14	1	100	PAINTER SCAFFOLD CABLE SUPPORT	TO API 650 STANDARDS
15	8	-	CIRCUMFERENCE LUG	TO API 650 STANDARDS, SEE DETAIL
16	1	-	ROOF INSPECTION FRAME	TO API 650 STANDARDS
17	1	-	ROOF GUARDRAIL	TO API 650 STANDARDS AND NBC
18	1	-	SPRAL STAIRWAY, GUARDRAIL & HANDRAIL	TO API 650 STANDARDS AND NBC



NOTES GÉNÉRALES / GENERAL NOTES

NE PAS UTILISER POUR CONSTRUCTION NOT FOR CONSTRUCTION
 DATE: 2019-03-12

POUR SOUMISSION FOR TENDER
 DATE: 2019-03-12

SNC-LAVALIN
 SNC-Lavalin Inc. 100, rue de la Montée, 1000
 Montréal, Québec H3T 1M6
 Tel. 514 740-0100 Fax: 514 740-0109
 www.snc-lavalin.com

Project #: 660534-0000

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

NO.	NO. / TAG	DATE
1	61-740-260-201	2018/11/18
2	61-740-260-201	2018/11/18
3	61-740-260-201	2018/11/18

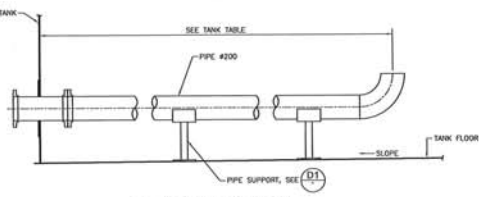
REVISIONS

NO.	DESCRIPTION	DATE
1	2018-03-12 ISSUED FOR TENDER	2018/03/12
2	2018-03-12 ISSUED FOR TENDER	2018/03/12
3	2018-03-12 ISSUED FOR TENDER	2018/03/12

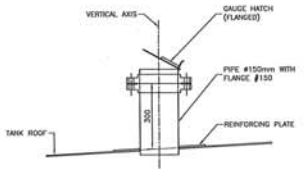


AGNICO EAGLE - MEADOWBANK DIVISION
 740 BAKER LAKE AREA
 PLATEWORK
 PLAN & ELEVATION
 10M LITERS DIESEL TANK
 TANK #8 - 6170TNK43

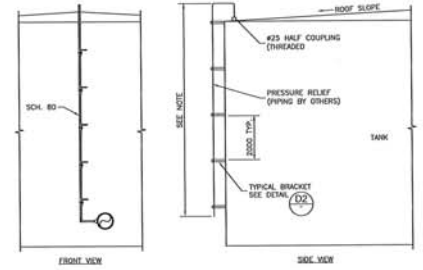
DATE / DATE: 2018/11/18
 DRAWN BY: B. LARIVE, Tech.
 CHECKED BY: B. LARIVE, Jr. Eng.
 APPROVED FOR: M. HONANUT, P. Eng.
 SCALE: INDICATED
 NO. SHEETS: 61-740-260-201
 SHEET NO.: 1 / 1



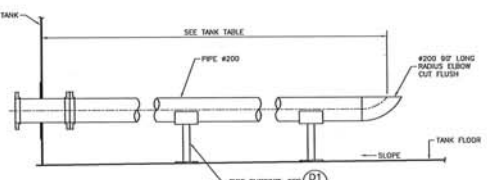
3 TANK LOADING DETAIL
SCALE: 1:20



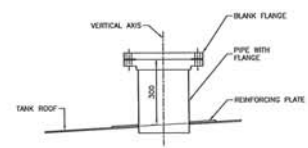
7 GAUGE HATCH DETAIL
SCALE: 1:10



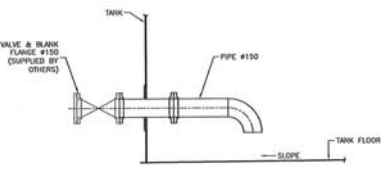
11 PRESSURE RELIEF LINE DETAIL
SCALE: N.T.S.



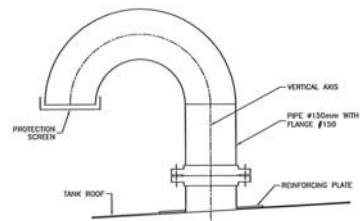
4 TANK UNLOADING DETAIL
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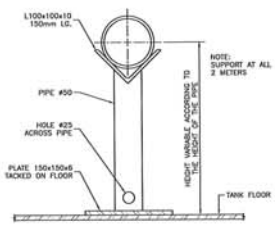
8, 9, 10, 12 NOZZLE DETAIL
SCALE: 1:10



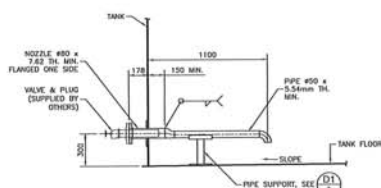
5 PUMPING LOW LEVEL DETAIL
SCALE: 1:20



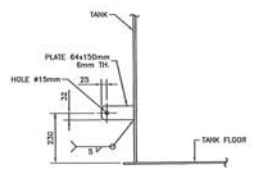
13 VENT DETAIL
SCALE: 1:10



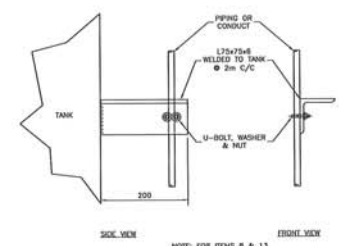
D1 PIPE SUPPORT
SCALE: 1:5



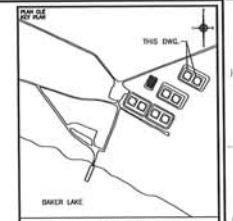
6 WATER DRAW-OFF DETAIL
SCALE: 1:20



13 GROUNDING LUGS DETAIL
SCALE: 1:10



D2 BRACKET FOR PIPING OR ELECTRICAL CONDUCT TO THE SHELL TANK
SCALE: 1:5



NOTES GÉNÉRALES / GENERAL NOTES

NE PAS UTILISER POUR CONSTRUCTION NOT FOR CONSTRUCTION
POUR SOUMISSION FOR TENDER
AGNICO EAGLE DATE: 2018-12-10

SNC-LAVALIN
Project #: 660534-0000
AGNICO EAGLE - MEADOWBANK DIVISION
740 BAKER LAKE AREA
PLATEWORK
DETAILS
10M LITERS DIESEL TANK
TANK #7 & #8

REVISIONS	
NO.	DESCRIPTION

DATE: 2018-11-16

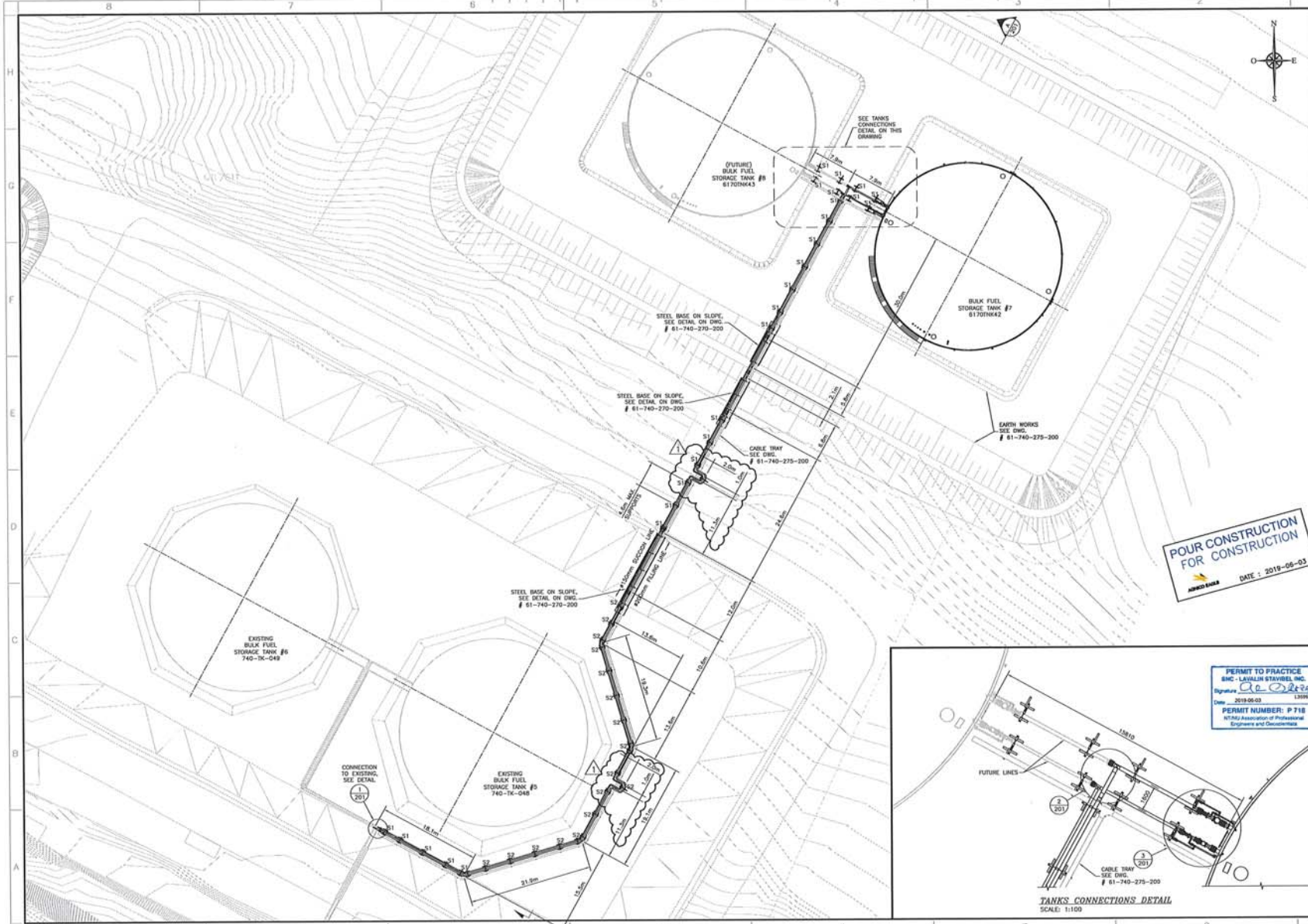
AGNICO EAGLE - MEADOWBANK DIVISION
740 BAKER LAKE AREA
PLATEWORK
DETAILS
10M LITERS DIESEL TANK
TANK #7 & #8

DESIGNED BY	B. LEWEL, Tech.	DATE	2018/11/16
CHECKED BY	R. LAROCHE, Jr. Eng.	DATE	2018/11/16
APPROVED BY	M. HONALUT, P. Eng.	DATE	2018/11/16

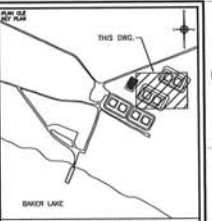
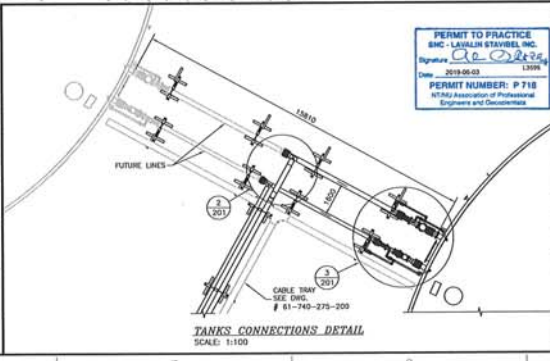
SCALE: AS INDICATED DATE: 2018/11/16

61-740-260-202

NO. SHEETS	6120	REVISION	A	FOUR / SHEET	1 / 1
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POUR CONSTRUCTION FOR CONSTRUCTION
 AGNICO EAGLE
 DATE : 2019-05-03



NOTES GÉNÉRALES / GENERAL NOTES

- S1: PIPE SUPPORT TYPE 1
- S2: PIPE SUPPORT TYPE 2
- SEE DWG. # 61-740-270-202

SNC-LAVALIN
 SNC-Lavalin Inc.
 100, rue de la Couronne
 Reproduction © SNC-Lavalin 2019
 Tél. 514 393-8111 Fax 514 393-8118
 www.snc-lavalin.com

Project #: 605534-0000

AGNICO EAGLE is the owner of the project. It is the responsibility of the contractor to ensure that the work is done in accordance with the permit conditions and the applicable regulations.

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

DESIGNATION	NO. / NO.
GENERAL EARTH WORKS	61-740-270-200 TO 205
ELECTRICAL	61-740-270-200 TO 202
P&ID	61-740-2-0100_3/2
PIPE	61-740-2-0100_3/2
PIPE / S & B PIPE SUPPORTS - DETAILS	61-740-270-202
PIPE / S & B PIPE - STUDY & DETAILS	61-740-270-201

AGNICO EAGLE

NO.	DESCRIPTION	DATE	BY	CHECKED
1	ISSUED FOR CONSTRUCTION	2019-05-03	B. LAROCHE	A. CHELLEY
2	ISSUED FOR TENDER			
3	REVISION			

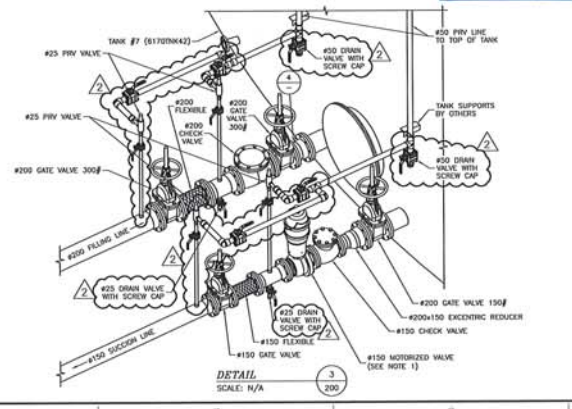
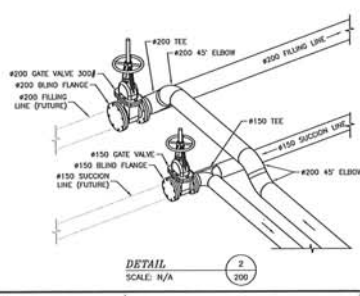
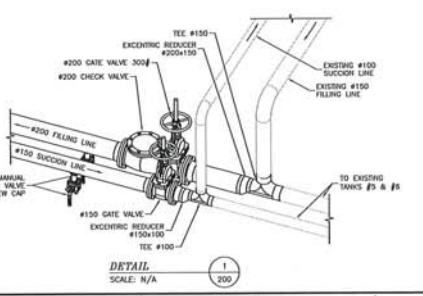
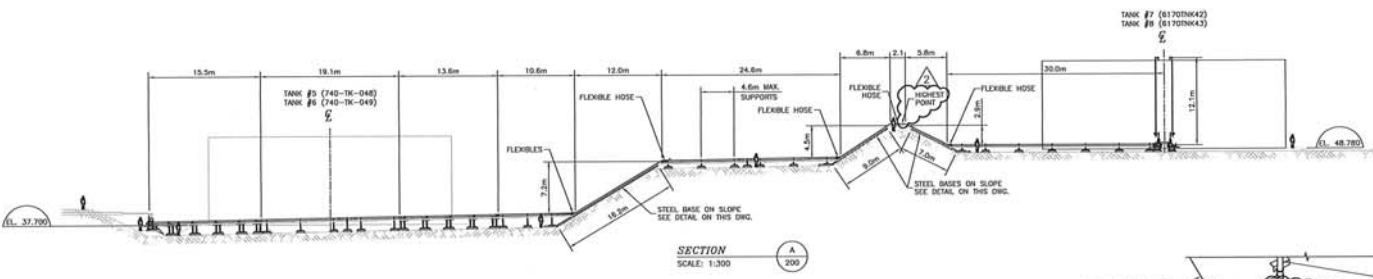
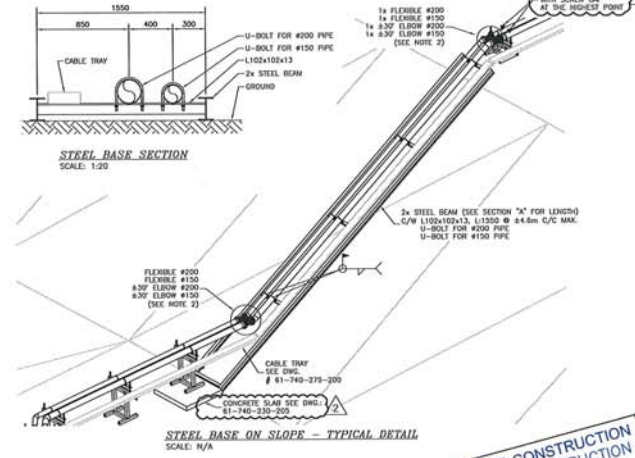
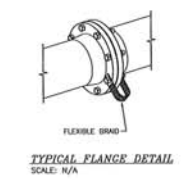
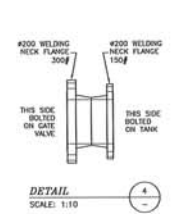
PERMIT TO PRACTICE
SNC - LAVALIN STAVBEL INC.
 Signature: [Signature]
 Date: 2019-05-03
PERMIT NUMBER: P 7118
 (NYS) Association of Professional Engineers and Geoscientists

2019-05-03
AGNICO EAGLE - MEADOWBANK DIVISION
 740 BAKER LAKE AREA
 PIPING
 PLAN VIEW
 10M LITERS DIESEL TANK #7 (61709K42)
 & TANK #8 (61709K43) PIPING

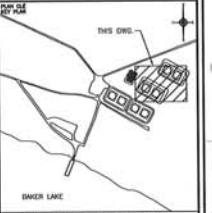
DESIGN BY	DATE
B. LEMUEUX, T. WAIN	2019/02/15
DESIGNED BY	
R. LAROCHE, Jr., Eng.	2019/02/15
APPROVED FOR CONSTRUCTION BY	
A. CHELLEY, P. Eng.	2019/02/15
SCALE	1 : 300
DATE	2019/02/15
NO. SHEET	61-740-270-200

NO. SHEET	TOTAL	REVISION	DETAILS / WIT
6120	1	1	1 / 1

BILL OF MATERIAL						
ITEM	DIAMETER	DESCRIPTION	TYPE	CLASS / SCHEDULE	QTY	QTY FUTURE
1	200	PIPE	CARBON STEEL, ASTM A333 GR 6	SCH STD	190 m	7 m
2	200	45° ELBOW	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	7	-
3	200	130° ELBOW (CUSTOM FROM 45°)	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	6	-
4	200	TEE	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	1	-
5	200	FLANGE WELDING NECK	FORGED STEEL, ASTM A350 GR LF2	CLASS 3000	17	5
6	200	FLANGE WELDING NECK	FORGED STEEL, ASTM A350 GR LF2	CLASS 3000	2	2
7	200	BLIND FLANGE	FORGED STEEL, ASTM A350 GR LF2	CLASS 3000	1	-
8	200	450mm LG. FLEXIBLE HOSE	FLEXTRONIC SENSOR SA-BSPS SERIES, FLANGED	CLASS 3000	6	1
9	200x150	EXCENTRIC REDUCER	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	2	1
10	150	PIPE	CARBON STEEL, ASTM A333 GR 6	SCH STD	190 m	7 m
11	150	45° ELBOW	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	4	-
12	150	130° ELBOW (CUSTOM FROM 45°)	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	6	-
13	150	TEE	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	2	-
14	150	FLANGE WELDING NECK	FORGED STEEL, ASTM A350 GR LF2	CLASS 3000	17	5
15	150	BLIND FLANGE	FORGED STEEL, ASTM A350 GR LF2	CLASS 3000	1	-
16	150	450mm LG. FLEXIBLE HOSE	FLEXTRONIC SENSOR SA-BSPS SERIES, FLANGED	CLASS 3000	6	1
17	150x100	EXCENTRIC REDUCER	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	1	-
18	100	PIPE	CARBON STEEL, ASTM A333 GR 6	SCH STD	1 m	-
19	100	TEE	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	1	-
20	50	PIPE	CARBON STEEL, ASTM A333 GR 6	SCH 80	28 m	26 m
21	50	90° ELBOW	CARBON STEEL, ASTM A350 GR LF2, SW	CLASS 3000	10	4
22	50x25	CONCENTRIC REDUCER	FORGED STEEL, ASTM A350 GR LF2, SW	CLASS 3000	4	2
23	25	PIPE	CARBON STEEL, ASTM A333 GR 6	SCH 80	5 m	3 m
24	25	THREADOLET	FORGED STEEL, ASTM A350 GR LF2	CLASS 3000	8	4
25	200	GATE VALVE	BERIC, ASTM A352, FLANGED, API STD 600, LCC BODY	CLASS 3000	4	1
26	200	GATE VALVE	BERIC, ASTM A352, FLANGED, API STD 600, LCC BODY	CLASS 3000	1	1
27	150	GATE VALVE	BERIC, ASTM A352, FLANGED, API STD 600, LCC BODY	CLASS 3000	3	-
28	200	CHECK VALVE	BERIC, ASTM A352, FLANGED, API STD 600, LCC BODY	CLASS 3000	2	1
29	150	CHECK VALVE	BERIC, ASTM A352, FLANGED, API STD 600, LCC BODY	CLASS 3000	1	1
30	150	MOTORIZED BALL VALVE (SEE NOTE 1)	FT CAM TEE 316SS WITH RCS SURE-150-15 1800 NIBLS ACTUATOR	CLASS 3000	1	1
31	50	BALL VALVE	APOLLO B35-240-24 SERIES, SW	CLASS 3000	8	4
32	25	BALL VALVE	APOLLO B35-240-24 SERIES, SW	CLASS 3000	4	2
33	25	PRESSURE RELIEF VALVE	FARRIS 2700 SERIES, THREADED, SET PRESSURE 80 PSIG	CLASS 3000	4	2
34	-	FLEXIBLE BRAND	NVENT M91 35-250-25	CLASS 3000	44	15
35	200	90° ELBOW	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	8	-
36	150	90° ELBOW	CARBON STEEL, ASTM A420 GR WPL6, BW	SCH STD	8	-
37	50	TEE	FORGED STEEL, ASTM A350 GR LF2, SW	CLASS 3000	4	2



FOR CONSTRUCTION
DATE: 2019-08-03



NOTES GÉNÉRALES / GENERAL NOTES

NOTE 1:
SUPPLY OF MOTORIZED VALVE BY AEM AND INSTALLATION BY CONTRACTOR.

NOTE 2:
THE EXACT SIZES OF 45° ELBOWS IS TO BE VALIDATED WITH THE FINAL GRADE OF THE DAM. 45° ELBOWS ARE TO BE MODIFIED ON FIELD, FROM A STD. 45° ELBOW.

Project #: 660534-0000

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

GENERAL NOTES	61-740-270-201 TO 208
CLASSIFICATION	61-740-270-200 TO 203
FIELD	61-740-270-202, 203
FIELD	61-740-270-202, 203
FIELD	61-740-270-202, 203
FIELD	61-740-270-202, 203
FIELD	61-740-270-202, 203
FIELD	61-740-270-202, 203

AGNICO EAGLE

PERMIT TO PRACTICE
SNC-LAVALIN
Signature: [Signature]
Date: 2019-08-03
Permit Number: P 715
N/A National Association of Professional Engineers and Geoscientists

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK
1	2019-08-03	ISSUED FOR CONSTRUCTION	B. LEMOUE	
2	2019-08-15	ADD ADDITIONAL DRAWING	R. LAVOIE	
3	2019-08-15	ADD ADDITIONAL DRAWING	R. LAVOIE	

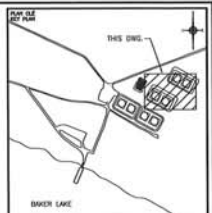
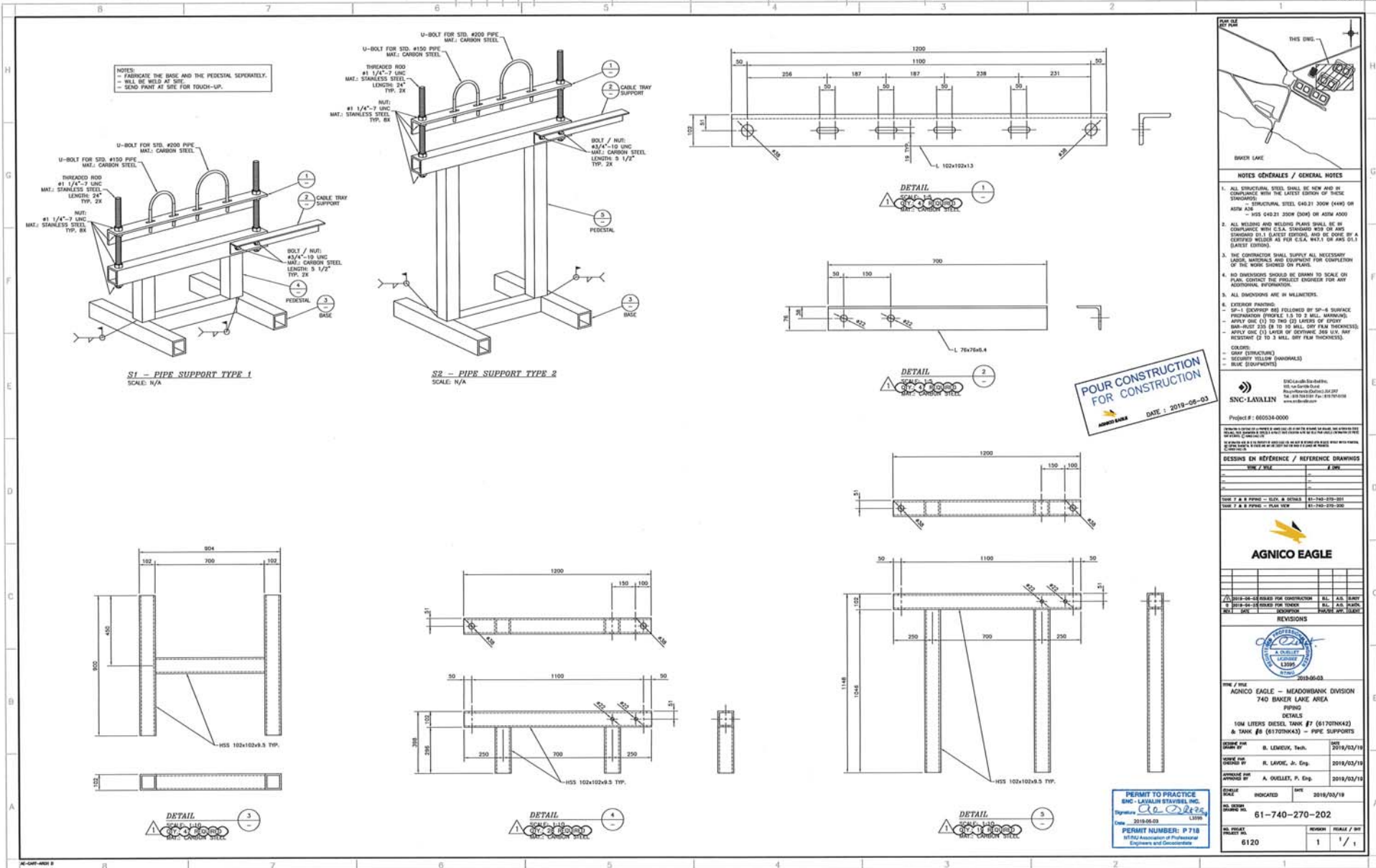
TITLE / RNE
AGNICO EAGLE - MEADOWBANK DIVISION
740 BAKER LAKE AREA

SECTION & DETAILS
10M LITERS DIESEL TANK #1 (61707NK42) & TANK #2 (61707NK43) PIPING

DATE: 2019/02/15
BY: B. LEMOUE, Tech.
CHECKED BY: R. LAVOIE, Jr. Eng.
APPROVED BY: A. OUELLET, P. Eng.

61-740-270-201

NO. SHEET: 2 / 1



NOTES GÉNÉRALES / GENERAL NOTES

1. ALL STRUCTURAL STEEL SHALL BE NEW AND IN COMPLIANCE WITH THE LATEST EDITION OF THESE STANDARDS:
 - STRUCTURAL STEEL: AISC 360 (448) OR
 - SPS 400.21 2008 (304) OR ASTM A500
2. ALL WELDING AND WELDING PLANT SHALL BE IN COMPLIANCE WITH C.S.A. STANDARD W88 OR AND STANDARD D-1 LATEST EDITION, AND BE DONE BY A CERTIFIED WELDER AS PER C.S.A. W88-11 OR AWS D1.1 (LATEST EDITION).
3. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY LARGE MATERIALS AND EQUIPMENT FOR COMPLETION OF THE WORK SHOWN ON PLANS.
4. NO DIMENSIONS SHOULD BE DRAWN TO SCALE ON PLANS. CONTACT THE PROJECT ENGINEER FOR ANY ADDITIONAL INFORMATION.
5. ALL DIMENSIONS ARE IN MILLIMETERS.
6. EXTERIOR FINISHING:
 - SP-1 EQUIPMENT ARE FOLLOWED BY SP-6 SURFACE PREPARATION (PROFILE 1.5 TO 3 MILL. MAXIMUM).
 - APPLY COC (2) TO THE 22 LAYERS OF EQUIP.
 - BAK-JUST 205 IS TO 30 MILL. GRY FILM THICKNESS).
 - APPLY COC (1) LAYER OF EQUIPMENT, AND U.V. RAY RESISTANT (2 TO 3 MILL. GRY FILM THICKNESS).

POUR CONSTRUCTION FOR CONSTRUCTION
 APPROVED BANK DATE : 2019-08-03

SNC-LAVALIN
 Project #: 680234-0000

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

NO. / NO.	FILE / FILE	DATE / DATE
1	61-740-270-201	2018-03-20
2	61-740-270-200	2018-03-20

AGNICO EAGLE

REVISIONS

NO.	DESCRIPTION	DATE
1	2018-03-20-DESIGNED FOR CONSTRUCTION	2018/03/20
2	2018-03-20-DESIGNED FOR TENDER	2018/03/20

2018-05-03

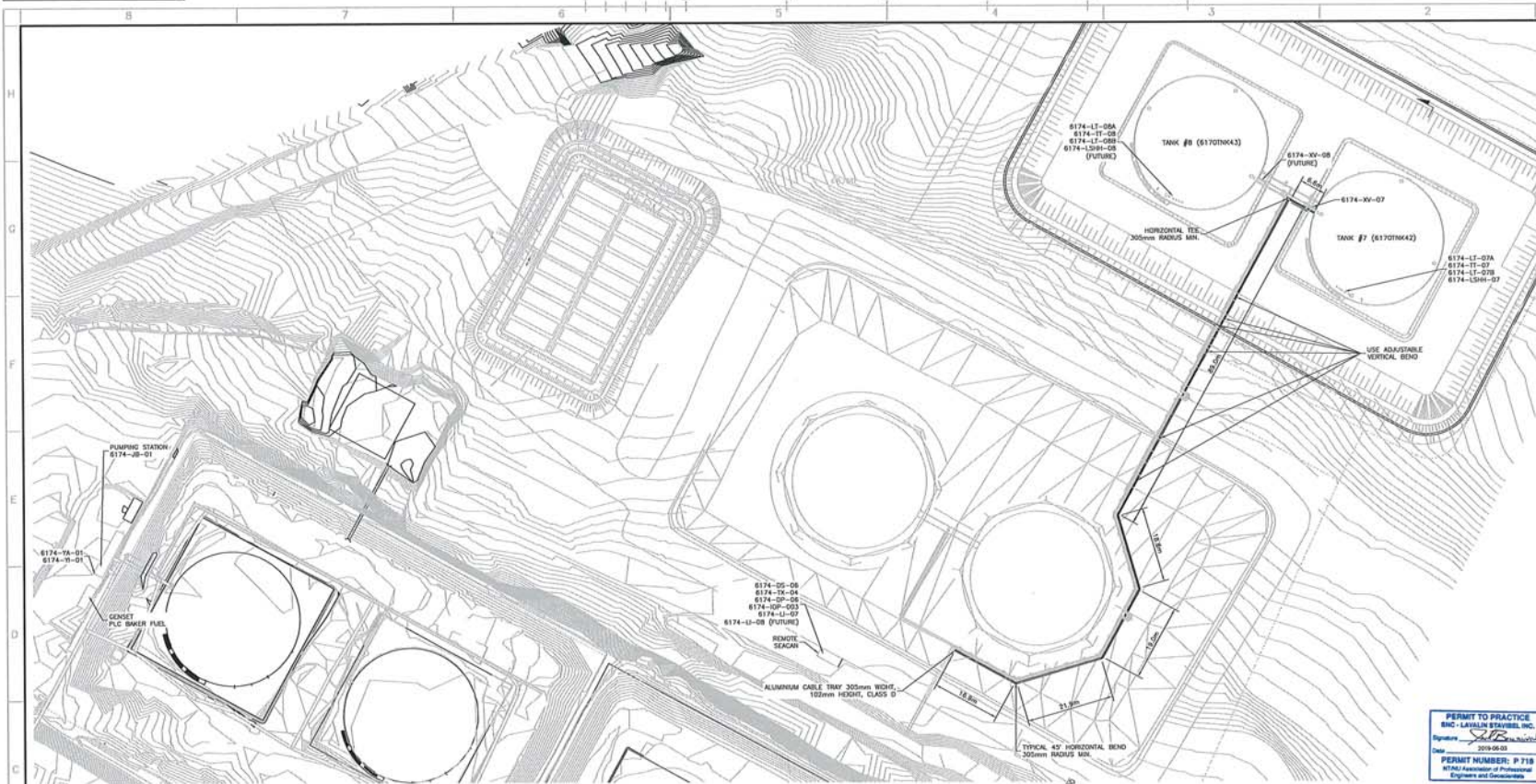
AGNICO EAGLE - MEADOWBANK DIVISION
 740 BAKER LAKE AREA
 PIPING
 DETAILS
 10M LITERS DIESEL TANK #7 (61707N42)
 & TANK #8 (61707N43) - PIPE SUPPORTS

DESIGNED BY: B. LEMKIE, Tech. 2018/03/19
 CHECKED BY: R. LAPOUC, Jr. Eng. 2018/03/19
 APPROVED BY: A. OUELLET, P. Eng. 2018/03/19

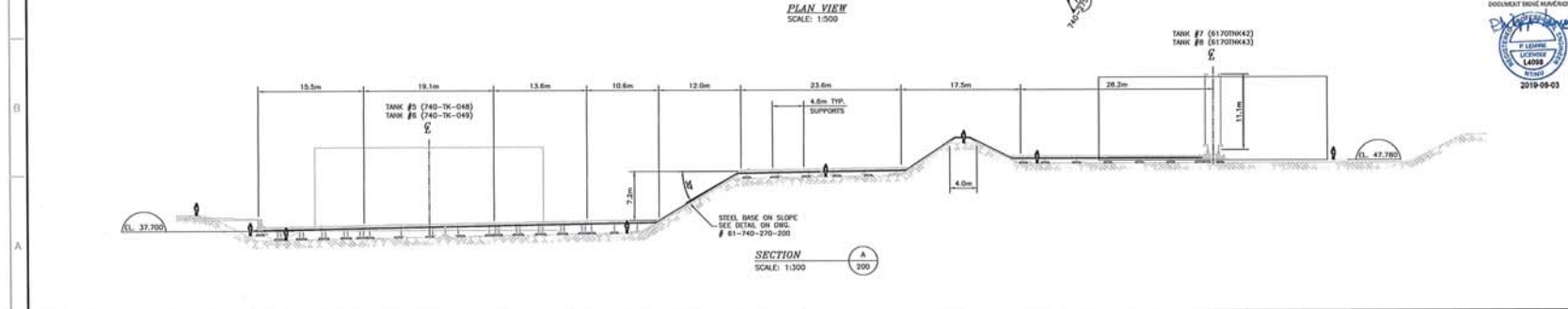
61-740-270-202

PERMIT TO PRACTICE
 ENC - LAVALIN STAVISEL INC.
 Signature: *A. Ouellet*
 Date: 2019-08-03
 PERMIT NUMBER: P 718
 NRS Association of Professional Engineers and Geoscientists

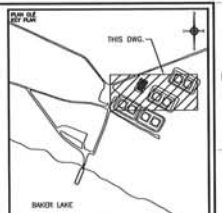
NO. DRAWING	REVISION	DATE / DATE
6120	1	1 / 1



PLAN VIEW
SCALE: 1:500



SECTION
SCALE: 1:300



NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION FOR CONSTRUCTION
 APPROVED DATE: 2019-06-03

SNC-LAVALIN
 505 rue de la Courbe
 Montréal, Québec H3T 2R7
 Tél: 514 340-6101 Fax: 514 379-1018
 www.snc-lavalin.com

Project # : 660534-0000

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

NO.	DESIGN / NO.	DATE
1	61-740-270-200	2019-06-03



PERMIT TO PRACTICE
 SNC-LAVALIN SERVICES INC.
 Philippe Lemire, P. Eng.
 Date: 2019-06-03
PERMIT NUMBER: P 715
 10740, Montclair de Professional Engineers and Geoscientists



REVISIONS

NO.	DESCRIPTION	DATE
1	2019-06-03	2019-06-03

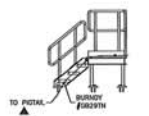
TITLE / TITRE
 AGNICO EAGLE - MEADOWBANK DIVISION
 740 - BAKER LAKE AREA
 POWER ELECTRICAL
 SECTION A, DETAILS
 10M LITERS DIESEL TANK #7 (6170THK42)
 & TANK #8 (6170THK43) CABLE TRAY

DESIGNED BY	PHILIPPE LEMIRE, P. Eng.	DATE	2019-04-24
CHECKED BY	PHILIPPE LEMIRE, P. Eng.	DATE	2019-06-03
APPROVED BY	PHILIPPE LEMIRE, P. Eng.	DATE	2019-06-03
DATE	2019-04-24		
NO. SHEET	61-740-275-200		
TOTAL SHEETS	1		

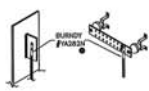
POUR CONSTRUCTION FOR CONSTRUCTION
 ARMED MARK DATE: 2019-06-03



C-TAPS
 SCL: NTS
 CONDUCTOR TO CONDUCTOR CONNECTOR



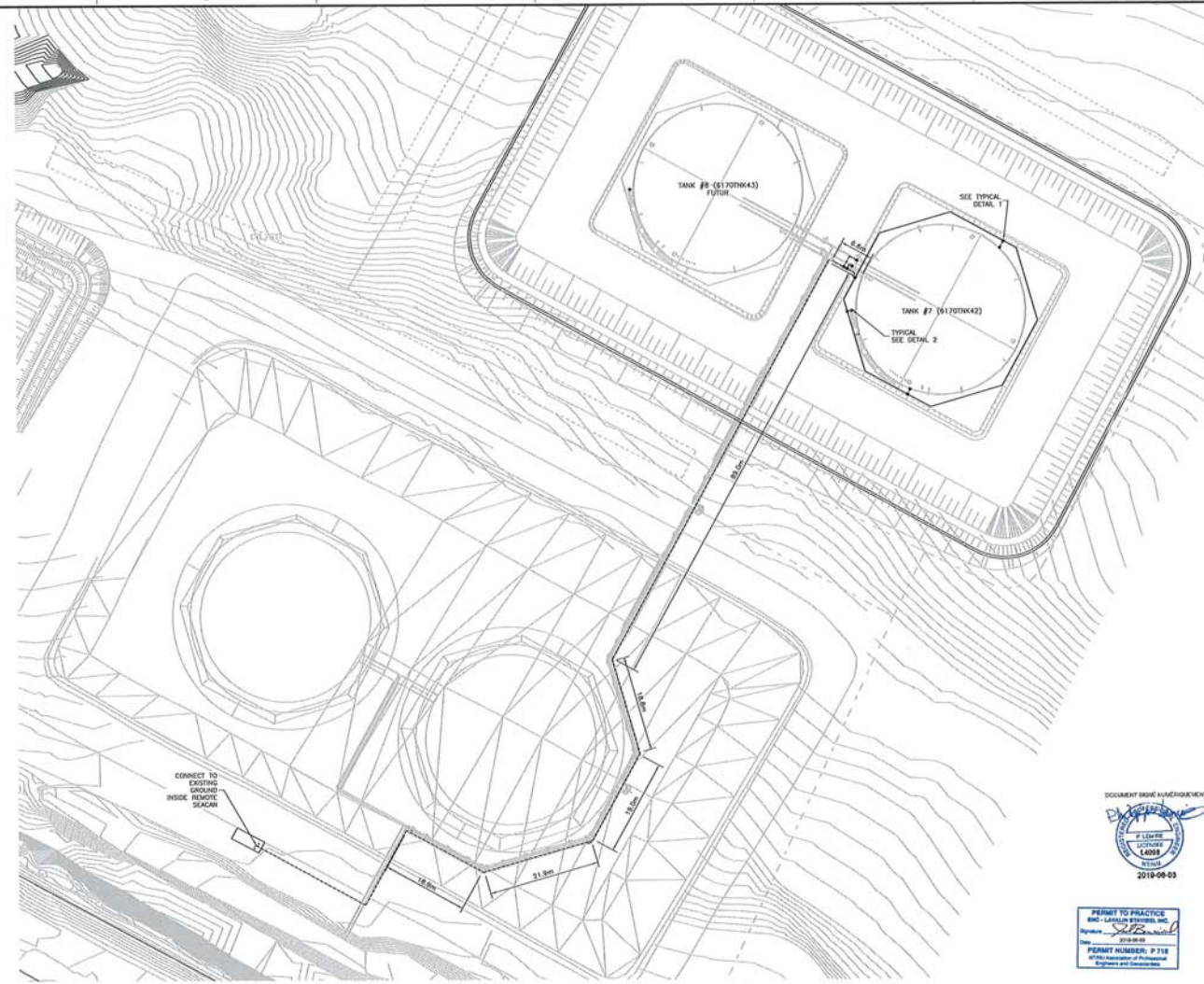
STAIRS
 SCL: NTS



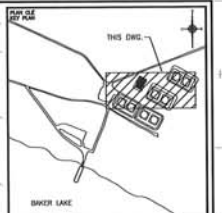
LUC YA-28
 SCL: NTS
 EQUIPMENT, CONTAINER, GROUND BAR



CABLE TRAY
 SCL: NTS



PLAN VIEW
 SCALE: 1:400



NOTES GENERALES / GENERAL NOTES

- LEGENDE**
- BURRED STRANDED THINNED BARE COPPER CONDUCTOR #4/0 AWG
 - SURFACE STRANDED THINNED BARE COPPER CONDUCTOR #4/0 AWG IN CABLE TRAY

- NOTES**
- THE PERIMETER GROUND CONDUCTOR OF THE TANK MUST BE ABOVE THE GROUNDLINE.
 - THE GROUND CONDUCTOR MUST BE FIXED TO THE CABLE TRAY TO ALL 15 METER MINIMUM WITH MECHANICAL CONNECTOR, BUNRDY WOOD 0829

SNC-LAVALIN
 SNC-Lavalin Inc. 100, rue de la Couronne, 1000
 100, rue de la Couronne, 1000
 100, rue de la Couronne, 1000

Project #: 600234-0000

DESIGNS EN REFERENCE / REFERENCE DRAWINGS

NO.	NO. / REV.	DATE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		



REVISIONS

NO.	DATE	DESCRIPTION	BY	CHKD.
1	2018-04-24	ISSUED FOR CONSTRUCTION	PLM	PLM
2	2018-05-03	ISSUED FOR TENDER	PLM	PLM
3	2019-06-03	ISSUED FOR TENDER	PLM	PLM



PERMIT TO PRACTICE
 SNC-Lavalin Inc.
 100, rue de la Couronne, 1000
 100, rue de la Couronne, 1000
 100, rue de la Couronne, 1000

FILE / NO. AGNICO EAGLE - MEADOWBANK DIVISION
 740 - BAKER LAKE AREA
 275 - POWER ELECTRICAL
 ARRANGEMENT
 10M LITERS DIESEL TANK #7 (6170THK42)
 & TANK #8 (6170THK43) GROUNDING

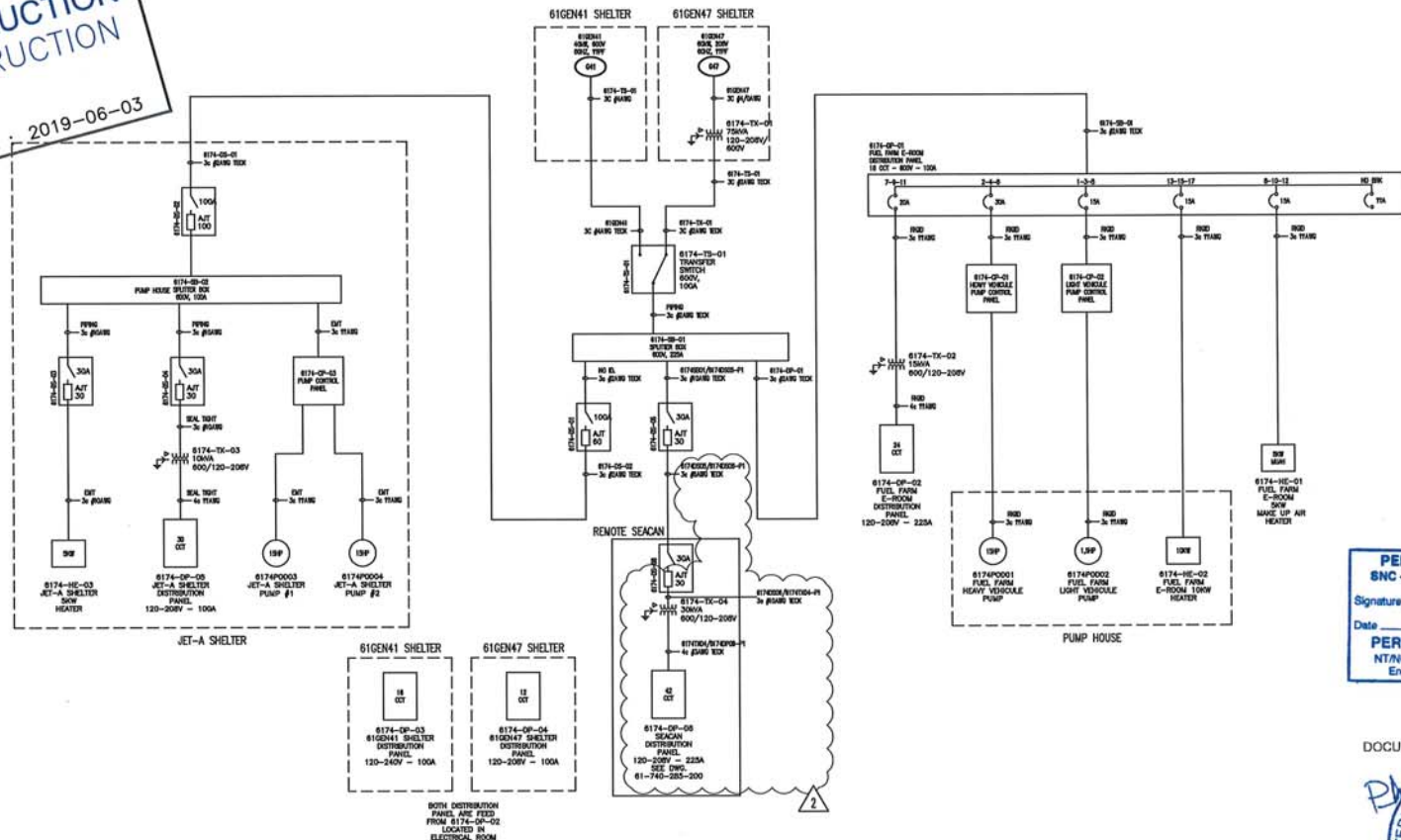
DESIGNER	DATE
DONALD PELLERIN, Tech.	2018-04-24
PHILIPPE LEMIRE, P. Eng.	2018-04-25
PHILIPPE LEMIRE, P. Eng.	2018-05-03

SCALE: INDICATED **DATE:** 2019-06-24

NO. DRAWING: 61-740-275-201

NO. PROJECT	NO. DRAWING	NO. SHEET	TOTAL SHEETS
6120	1	1	1

**POUR CONSTRUCTION
FOR CONSTRUCTION**
AGNICO EAGLE
DATE : 2019-06-03



**PERMIT TO PRACTICE
SNC - LAVALIN STAVIBEL INC.**
Signature: *[Signature]*
Date: 2019-06-03
PERMIT NUMBER: P 718
NTNU Association of Professional
Engineers and Geoscientists

DOCUMENT SIGNÉ NUMÉRIQUEMENT
P. LEMIRE
REGISTERED PROFESSIONAL ENGINEER
LICENCEE L4098
NTNU
2019-06-03

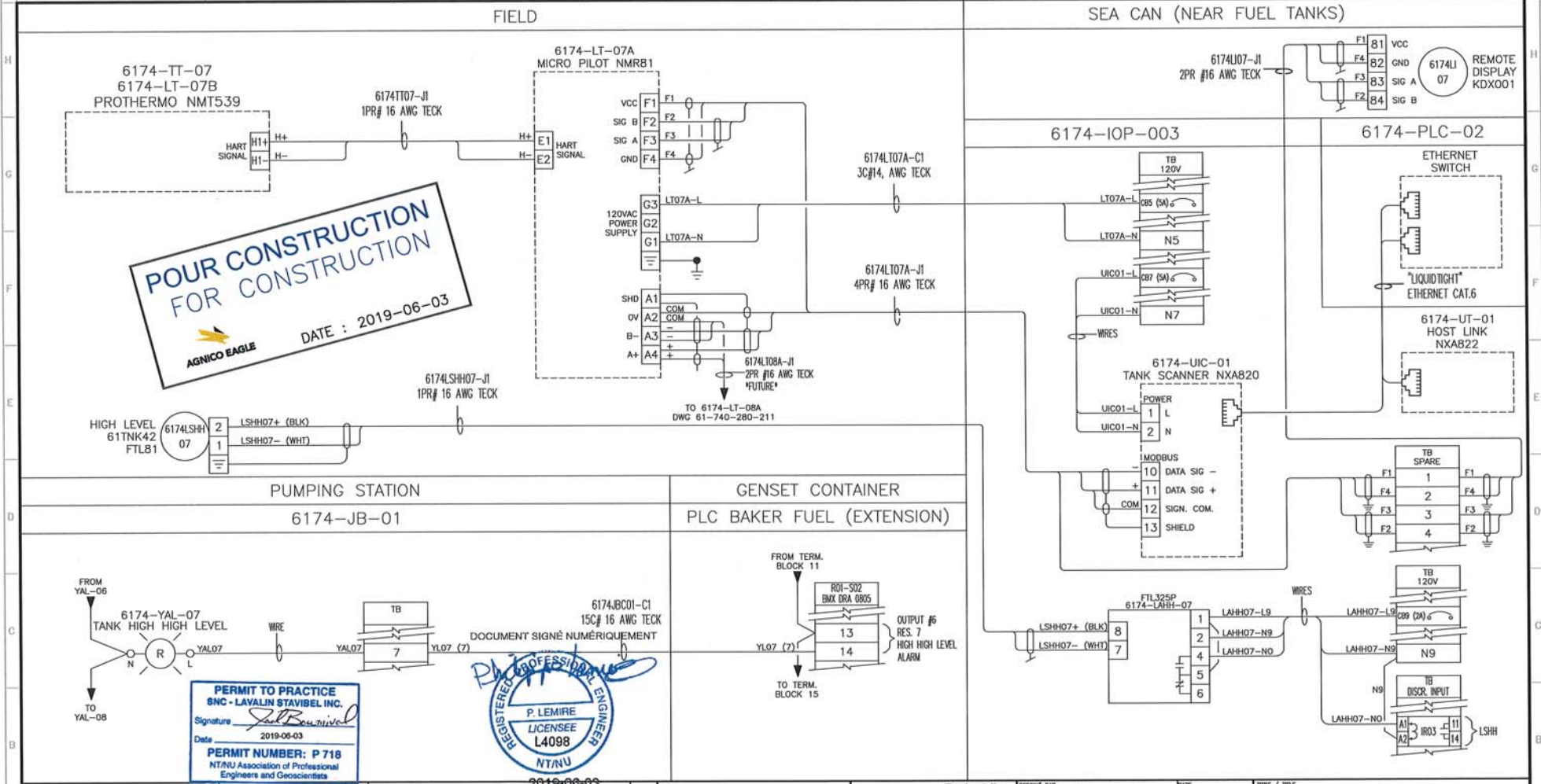
TITRE / TITLE	# DWG	REV	DESCRIPTION	DATE	PAR BY
		2	ISSUED FOR CONSTRUCTION	2019-06-03	P.LEM
		1	ISSUED FOR TENDER	2019-05-03	P.LEM
		0	ORIGINAL DRAWING WAS 6174-E-003	JUNE/16	M.B.
DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS					
REVISIONS					



SNC • LAVALIN
150, rue Gamble Ouest
Royn-Noranda (Québec) J8X 2R7
Tel. : 819 764-5181 Fax : 819 797-0158
www.snc-lavalin.com

DESIGNER PWR	ST	DATE	MAY/16
DRAWN BY	ST	DATE	JUNE/16
CHECKED BY	ST	DATE	
APPROVED PWR		DATE	
NO. PROJECT	6120	DATE	MAY/16
PROJECT NO.	6120	DATE	MAY/16

AGNICO EAGLE - MEADOWBANK DIVISION BAKER LAKE AREA 740 275 - POWER ELECTRICAL SINGLE LINE ELECTRICAL ROOM BAKER LAKE FUEL FARM DISTRIBUTION	
SCALE	N/A
PROJECT FILE	61-740-275-202_R2.dwg
NO. DESIGNS/DRAWINGS	61-740-275-202
REVISION	2
TOTAL SHEETS	1 / 1



PERMIT TO PRACTICE
SNC - LAVALIN STAVIBEL INC.
Signature: *[Signature]*
Date: 2019-06-03
PERMIT NUMBER: P 718
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
P. LEMIRE
LICENSEE L4098
NT/NU
2019-06-03

6174JBC01 - ARRANGEMENT / WIRING	61-740-280-214				
PLC BAKER FUEL (EXT.) - WIRING DIAGRAM	61-740-280-213				
6174IOP003 - WIRING DIAGRAM	61-740-280-207	1	ISSUED FOR CONSTRUCTION	2019-06-03	P.LEM
6174LTK43 - LEVEL MONITORING	61-740-280-211	0	ISSUED FOR TENDER	2019-05-03	P.LEM
TITRE / TITLE	# DWG	REV	DESCRIPTION	DATE	PAR / BY
DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS			REVISIONS		

AGNICO EAGLE

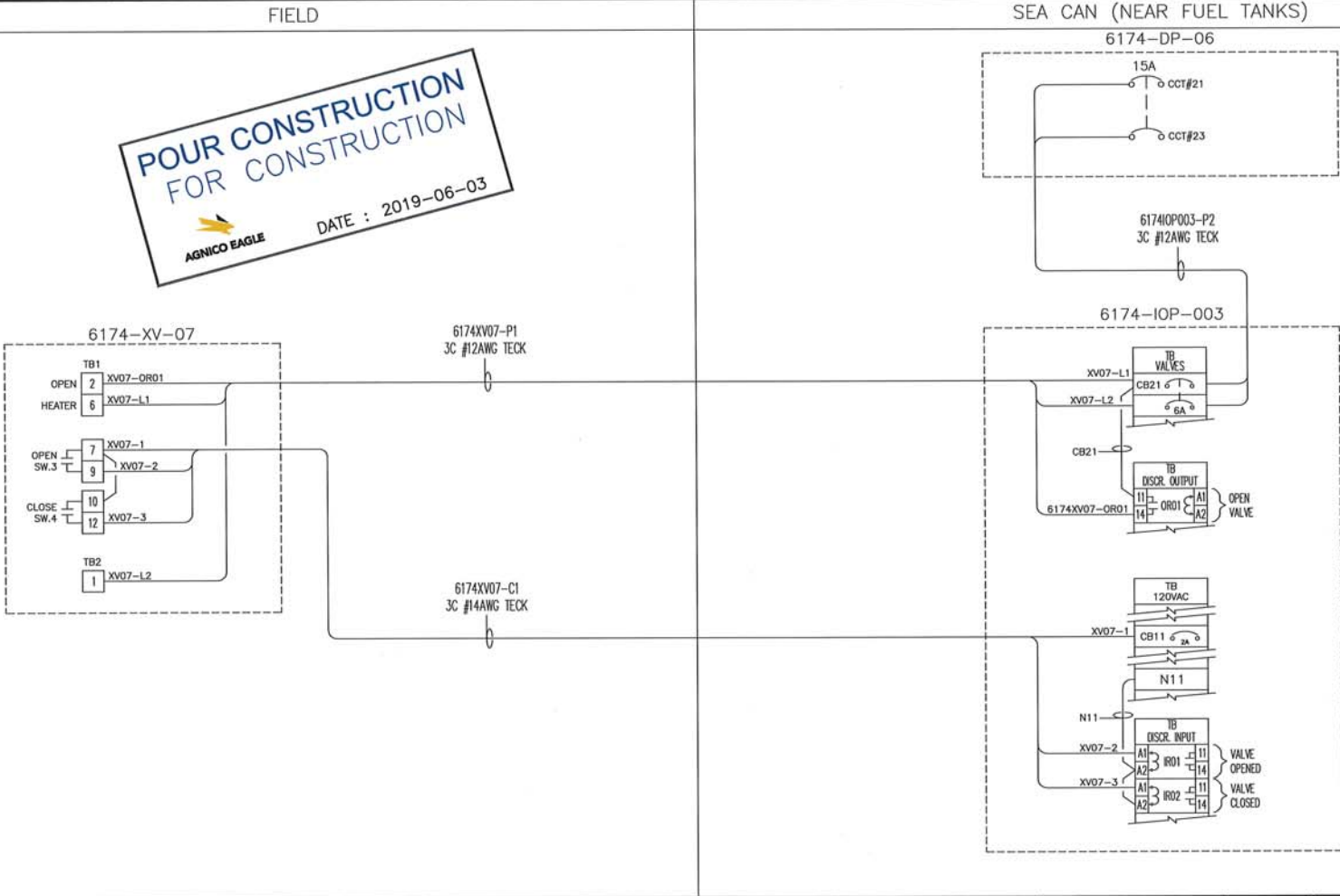
Project #: 660534-0000

SNC-LAVALIN
150, rue Gamble Ouest
Rouyn-Noranda (Québec) J9X 2R7
Tel.: 819 764-5181 Fax: 819 797-0158
www.snc-lavalin.com

DESIGNÉ PAR / DRAWN BY: S.MARCOTTE, TECH.	DATE: 2019-04-29	TITRE / TITLE: AGNICO EAGLE - MEADOWBANK DIVISION
VÉRIFIÉ PAR / CHECKED BY: PHILIPPE LEMIRE, P.ENG.	DATE: 2019-04-29	BAKER LAKE AREA 740
APPROUVÉ PAR / APPROVED BY: PHILIPPE LEMIRE, P.ENG.	DATE: 2019-05-03	280 - INSTRUMENTATION & CONTROL
No. PROJET / PROJECT NO.: 6120		WIRING DIAGRAM
DATE: 2019-04-29		6174LTK42 - LEVEL MONITORING
DESIGNÉ PAR / DRAWN BY: NTS	PROJET / PROJECT NO.: 61-740-280-209_R1.dwg	
No. DESSIN / DRAWING NO.: 61-740-280-209	REVISION: 1	FEUILLE / SHEET: 1 / 1

**POUR CONSTRUCTION
FOR CONSTRUCTION**

 DATE : 2019-06-03



**PERMIT TO PRACTICE
SNC - LAVALIN STAVIBEL INC.**
 Signature: *[Signature]*
 Date: 2019-06-03
PERMIT NUMBER: P 718
 NT/NU Association of Professional
 Engineers and Geoscientists

DOCUMENT SIGNÉ NUMÉRIQUEMENT

[Signature]
REGISTERED PROFESSIONAL ENGINEER
 P. LEMIRE
 LICENSEE
 L4098
 NT/NU
 2019-06-03

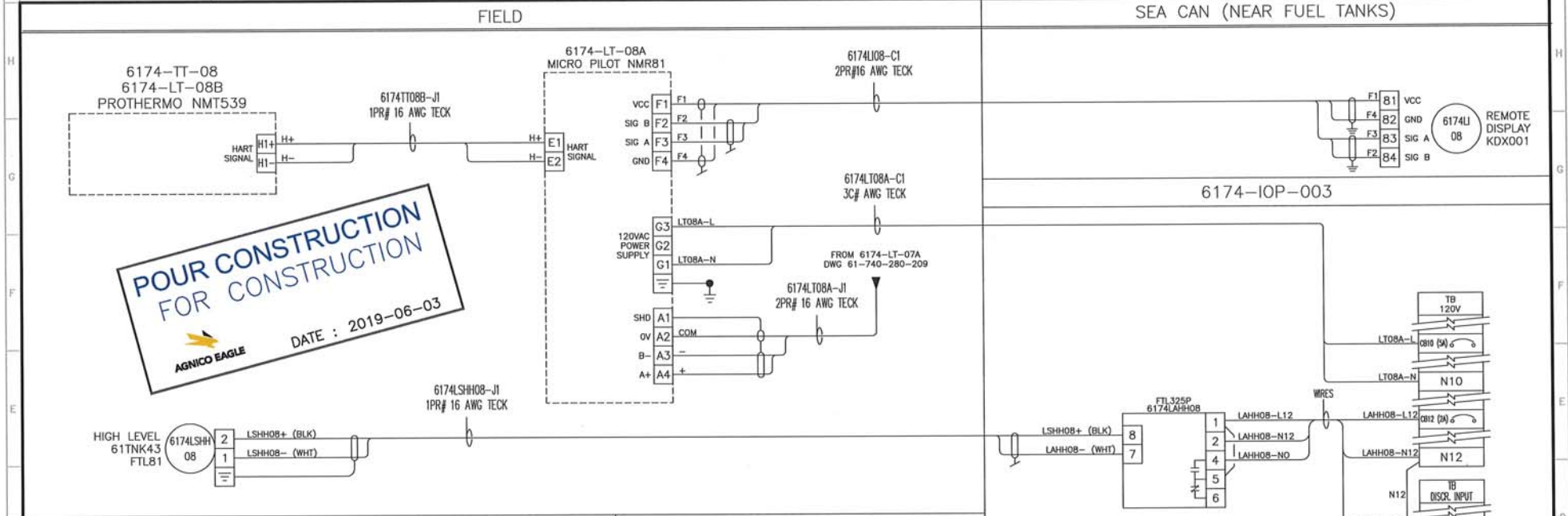
TITRE / TITLE	# DWG	REV	DESCRIPTION	DATE	PAR BY
6174-DP-06 - SCHEDULE	61-740-285-200	1	ISSUED FOR CONSTRUCTION	2019-06-03	P.LEM
6174HOPO03- WIRING DIAGRAM	61-740-280-207	0	ISSUED FOR TENDER	2019-05-03	P.LEM
DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS			REVISIONS		



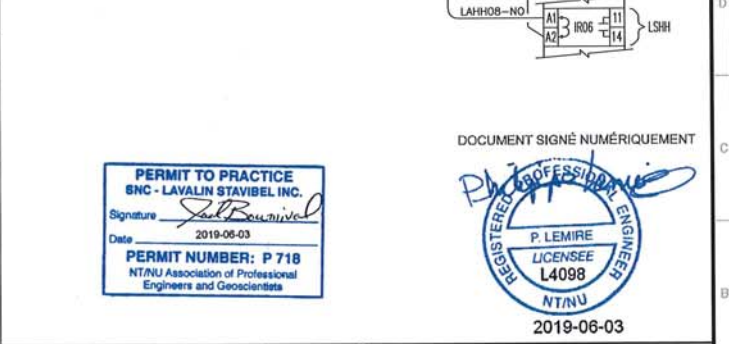
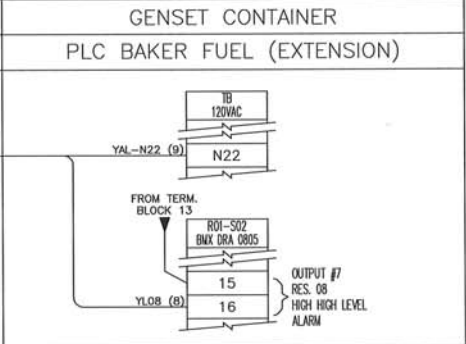
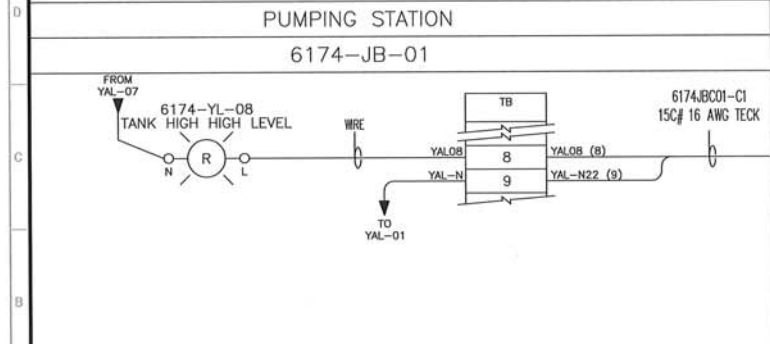
SNC-LAVALIN
 150, rue Gamble Ouest
 Rouyn-Noranda (Québec) J9X 2R7
 Tel.: 819 764-5181 Fax: 819 797-0158
 www.snc-lavalin.com

DESIGNÉ PAR DRAWN BY	S.MARCOTTE, TECH.	DATE	2019-04-29
VÉRIFIÉ PAR CHECKED BY	PHILIPPE LEMIRE, P.ENG.	DATE	2019-04-29
APPROUVÉ PAR APPROVED BY	PHILIPPE LEMIRE, P.ENG.	DATE	2019-05-03
NO. PROJET PROJECT NO.	6120	DATE	2019-04-29

TITRE / TITLE		AGNICO EAGLE - MEADOWBANK DIVISION	
BAKER LAKE AREA 740		280 - INSTRUMENTATION & CONTROL	
WIRING DIAGRAM		6170TNK42 - VALVE 6174-XV-07	
ÉCHELLE / SCALE	NTS	FIGURE / FILE	61-740-280-210_R1.dwg
NO. DESSIN / DRAWING NO.	61-740-280-210	REVISION	1
		FEUILLE / SHEET	1 / 1



**POUR CONSTRUCTION
FOR CONSTRUCTION**
AGNICO EAGLE
DATE : 2019-06-03



**PERMIT TO PRACTICE
SNC - LAVALIN STAVIBEL INC.**
Signature: *Philippe Lemire*
Date: 2019-06-03
PERMIT NUMBER: P 718
NTNU Association of Professional Engineers and Geoscientists

DOCUMENT SIGNÉ NUMÉRIQUEMENT
REGISTERED PROFESSIONAL ENGINEER
P. LEMIRE
LICENSEE L4098
NTNU
2019-06-03

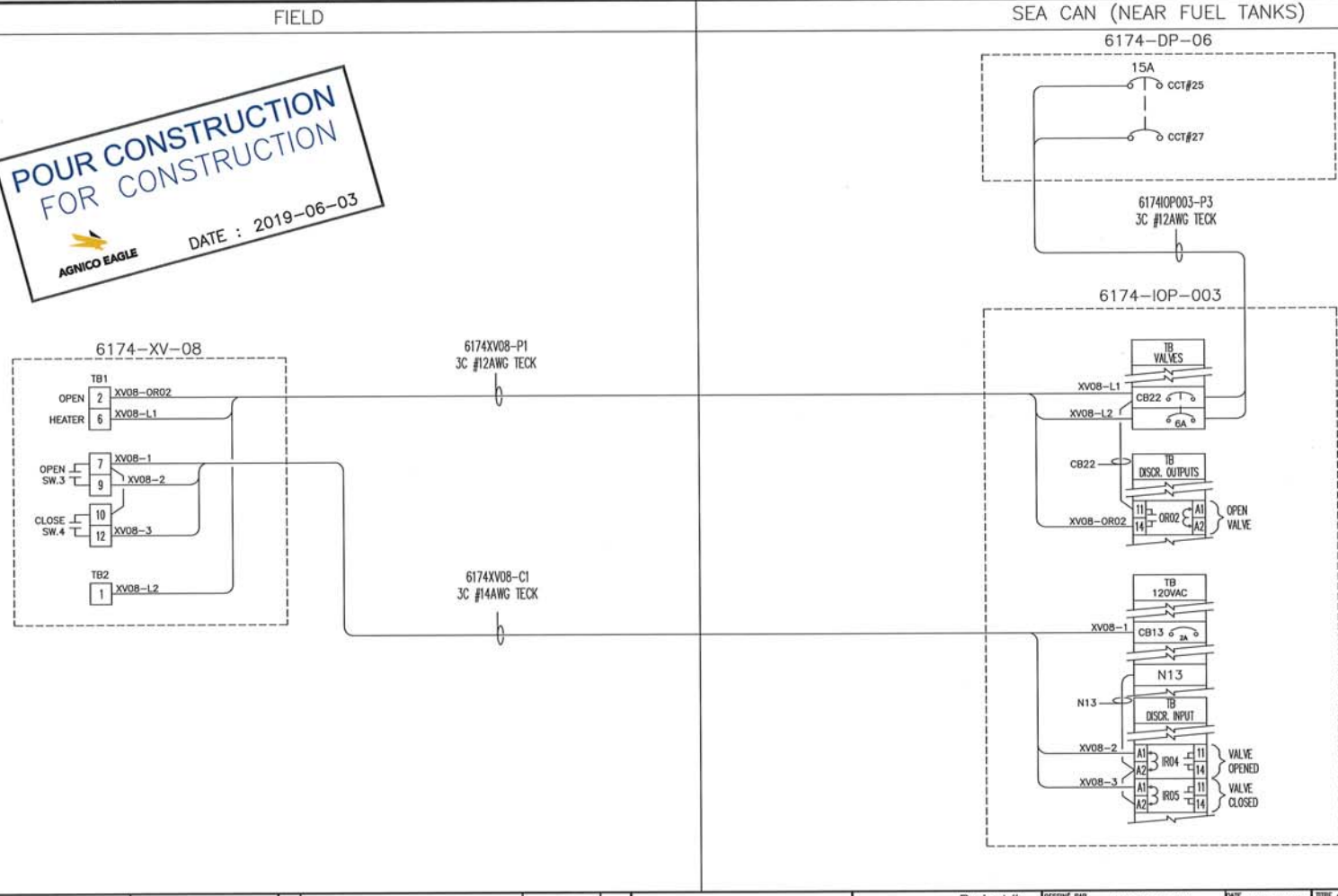
DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS	REVISIONS					
TITRE / TITLE	# DWG	REV	DESCRIPTION	DATE	PAR	REV
6174JBC01 - ARRANGEMENT / WIRING	61-740-280-214					
PLC BAKER FUEL (EXT.) - WIRING DIAGRAM	61-740-280-213					
6174IOP003 - WIRING DIAGRAM	61-740-280-207	1	ISSUED FOR CONSTRUCTION	2019-06-03	P.LEM	
6174LNK42 - LEVEL MONITORING	61-740-280-209	0	ISSUED FOR TENDER	2019-05-03	P.LEM	

AGNICO EAGLE

SNC-LAVALIN
150, rue Gambelle Ouest
Rouyn-Noranda (Québec) J9X 2R7
Tel.: 819 784-5181 Fax: 819 797-0158
www.snc-lavalin.com

DESSIN PAR DRAWN BY: S.MARCOTTE, TECH.	DATE: 2019-04-29	TITRE / TITLE AGNICO EAGLE - MEADOWBANK DIVISION
VÉRIFIÉ PAR CHECKED BY: PHILIPPE LEMIRE, P.ENG.	2019-04-29	BAKER LAKE AREA 740
APPROUVÉ PAR APPROVED BY: PHILIPPE LEMIRE, P.ENG.	2019-05-03	280 - INSTRUMENTATION & CONTROL
No. PROJET PROJECT NO.: 6120		WIRING DIAGRAM
DATE: 2019-04-29		6174LNK43 - LEVEL MONITORING
ÉCHELLE / SCALE: NTS	REVISION: 1	FEUILLE / SHEET: 1 / 1
No. DESSIN / DRAWING NO.: 61-740-280-211		

**POUR CONSTRUCTION
FOR CONSTRUCTION**
AGNICO EAGLE
DATE : 2019-06-03



**PERMIT TO PRACTICE
SNC - LAVALIN STAVIBEL INC.**
Signature *Paul Bernier*
Date 2019-06-03
PERMIT NUMBER: P 718
NT/NU Association of Professional
Engineers and Geoscientists

DOCUMENT SIGNÉ NUMÉRIQUEMENT
P. Lemire
REGISTERED PROFESSIONAL ENGINEER
P. LEMIRE
LICENSÉE
L4098
NT/NU
2019-06-03

TITRE / TITLE	# DWG	REV	DESCRIPTION	DATE	PAR BY
6174-DP-06 - SCHEDULE	61-740-285-200	1	ISSUED FOR CONSTRUCTION	2019-06-03	P.LEM
6174IOP003 - WIRING DIAGRAM	61-740-280-207	0	ISSUED FOR TENDER	2019-05-03	P.LEM

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS	REVISIONS
AE-CART-ANSI B	



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150, rue Gamble Ouest
Rouyn-Noranda (Québec) J9X 2R7
Tel.: 819 784-5181 Fax: 819 797-0158
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DESSINÉ PAR DRAWN BY	S.MARCOITTE, TECH.	DATE 2019-04-30
COPIÉ PAR CHECKED BY	PHILIPPE LEMIRE, P.ENG.	2019-04-30
APPROUVÉ PAR APPROVED BY	PHILIPPE LEMIRE, P.ENG.	2019-05-03
NO. PROJET PROJECT NO.	6120	
DATE	2019-04-30	

TITRE / TITLE	AGNICO EAGLE - MEADOWBANK DIVISION BAKER LAKE AREA 740 280 - INSTRUMENTATION & CONTROL WIRING DIAGRAM 6170TNK43 - VALVE 6174-XV-08		
FOUILLE / SCALE	NTS	FICHIER / FILE	61-740-280-212_R1.dwg
NO. DESSIN / DRAWING NO.	61-740-280-212	REVISION	1
		FEUILLE / SHEET	1 / 1

**POUR CONSTRUCTION
FOR CONSTRUCTION**
AGNICO EAGLE
DATE : 2019-06-03

Panel Ident.: 6174-DP-06

Power source:	120/208	Volts
Feeder :	6174-TX-04	
Mount:	Surface	
Localisation:	BAKER LAKE SEA CAN	
Type:	Schneider QO Series	

Encl. Type :	NEMA 1
Main breaker:	N/A
Nb. of circuit:	42
Bars (Amps):	225A
Cap. rupt. (kA)	10

Local and description	TYPE REF	Qty	WATTS	DISJ.			CT #	DISJ. TYPE	WATTS	TYPE REF	Local and description
				TYPE	AMP	T #					
6174-PLC-02 Power	D			15	1	A	2	15		E	Sea Can Lighting
6174-XV-01 - Elect. Actuator valve	M			15	3	B	4	15		P	Sea Can Receptacle
6174-XV-02 - Elect. actuator valve	M			15	5	C	6	15			Spare breaker
6174-XV-03 - Elect. actuator valve	M			15	7	A	8	15			Spare breaker
6174-XV-04 - Elect. actuator valve	M			15	9	B	10	15			Spare breaker
6174-XV-05 - Elect. actuator valve	M			15	11	C	12	15			Spare breaker
6174-XV-06 - Elect. actuator valve	M			15	13	A	14	15			Spare breaker
6174-IOP-003 power	D			15	15	B	16	15			Spare breaker
Spare breaker				15	17	C	18	30			Spare breaker
Spare breaker				15	19	A	20				
6174-XV-07 Res. #7 Valve Actuator	M			15	21	B	22	15	GFI	C	6174-HEA-07 Res. #7 Valve Heating
6174-XV-08 Res. #7 Valve Actuator	M			15	23	C	24	15	GFI	C	6174-HEA-08 Res. #7 Valve Heating
Space				27	27	B	28				
Space				29	C	30					
Space				31	A	32					
Space				33	B	34					
Space				35	C	36					
Space				37	A	38					
Space				39	B	40					
Space				41	C	42					

2
2
2

2
2

TYPE (REF)	(W) total	Qty
(E) Lighting	0	0
(P) Parking plug	0	0
(C) Heating	0	0
(M) Motor	0	0
(W) Water heater	0	0
(D) Other	0	0
	0	0

TYPE (REF)	Qty (ref)
(L) Spare	0
(S) Space	0

	Watts	Amp
Phase A	0	0,00
Phase B	0	0,00
Phase C	0	0,00
Total R	0	0,00

PERMIT TO PRACTICE
SNC - LAVALIN STAVIBEL INC.
Signature *P. Lemire*
Date 2019-05-03
PERMIT NUMBER: P 718
NTNU Association of Professional Engineers and Geoscientists

DOCUMENT SIGNÉ NUMÉRIQUEMENT

REGISTERED PROFESSIONAL ENGINEER
P. LEMIRE
LICENSEE L4098
NTNU
2019-06-03

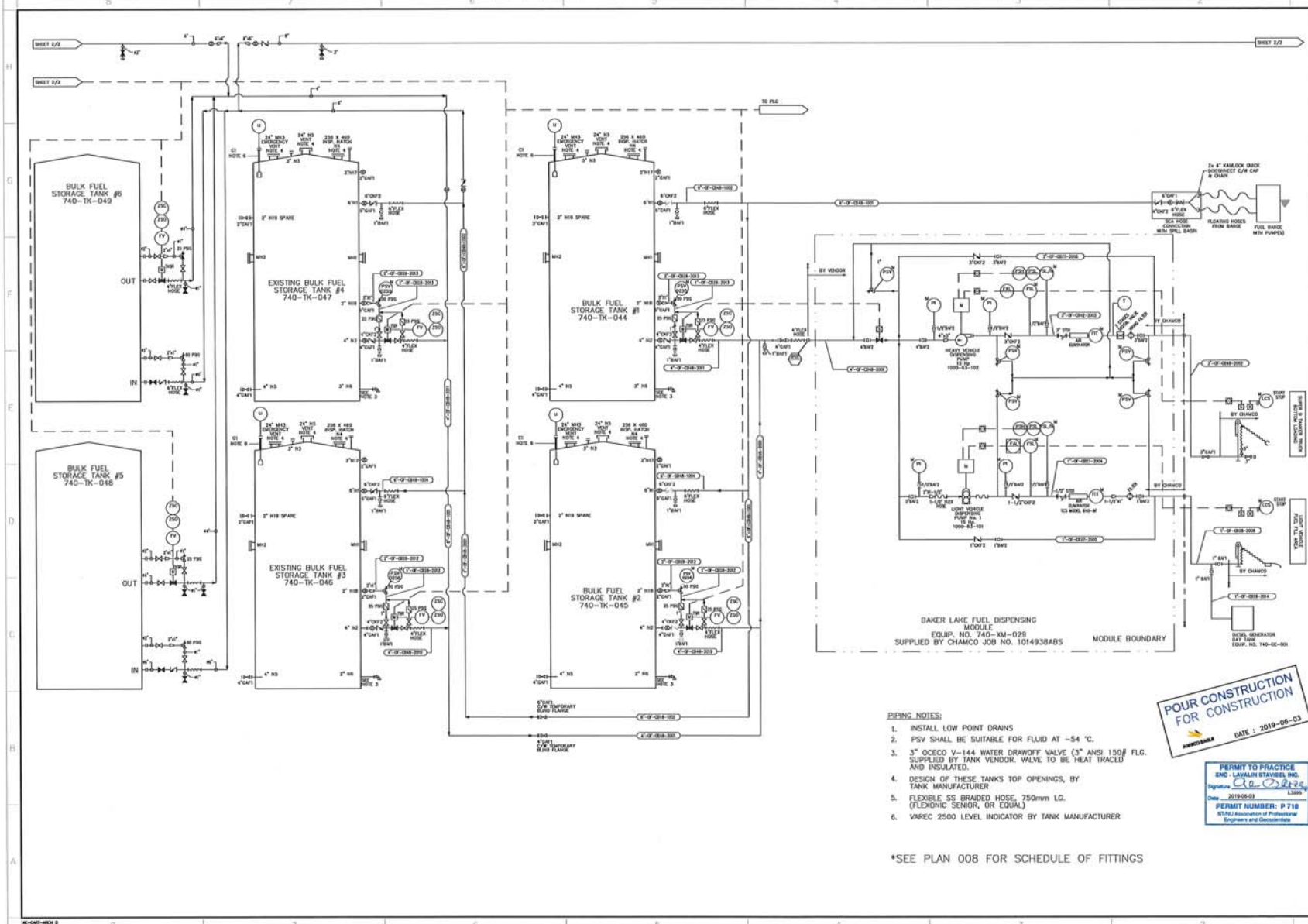
TITRE / TITLE	# DWG	REV	DESCRIPTION	DATE	M.B. PAR BY
ISSUED FOR CONSTRUCTION	2			2019-06-03	P.LEM
ISSUED FOR TENDER	1			2019-05-03	P.LEM
ORIGINAL DRAWING WAS 6174-E-002	0			JUNE/16	M.B.



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150, rue Gamble Ouest
Rouyn-Noranda (Québec) J9X 2R7
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www.sncilavalin.com

DESIGNER / DRAWN BY	MV	DATE	MAY/16
CHECKED BY	ST	DATE	JUNE/16
APPROVED BY	ST	DATE	JUNE/16
PROJECT NO.	6120		
DATE	JUNE/16		

TITRE / TITLE	AGNICO EAGLE - MEADOWBANK DIVISION BAKER LAKE AREA 740 285 - SERVICE ELECTRICAL - LIGHT AND DISTRIBUTION 6174-DP-06 PANEL SCHEDULE BAKER LAKE SEA CAN - DISTRIBUTION PANEL 120/208VAC		
SCALE	N/A	REVISION	61-740-285-200_R2.dwg
NO. DESSIN / DRAWING NO.	61-740-285-200	REVISION	2
DATE	JUNE/16	DATE	1 / 1



BAKER LAKE FUEL DISPENSING MODULE
EQUIP. NO. 740-MM-029
SUPPLIED BY CHAMCO JOB NO. 1014938A8S

- PIPING NOTES:**
1. INSTALL LOW POINT DRAINS
 2. PSV SHALL BE SUITABLE FOR FLUID AT -54 °C.
 3. 3" OCEC V-144 WATER DRAW-OFF VALVE (3" ANSI 150# FLG. SUPPLIED BY TANK VENDOR. VALVE TO BE HEAT TRACED AND INSULATED.
 4. DESIGN OF THESE TANKS TOP OPENINGS, BY TANK MANUFACTURER
 5. FLEXIBLE SS BRAIDED HOSE, 750mm LG. (FLEXONIC SENSOR, OR EQUAL)
 6. WAREC 2500 LEVEL INDICATOR BY TANK MANUFACTURER

*SEE PLAN 008 FOR SCHEDULE OF FITTINGS

POUR CONSTRUCTION FOR CONSTRUCTION
DATE: 2019-06-03

PERMIT TO PRACTICE
SNC - LAVALLIN STAVISEL INC.
Signature: [Signature]
Date: 2019-06-03
PERMIT NUMBER: # 718
AT/PA Association of Professional Engineers and Geoscientists

NOTES GÉNÉRALES / GENERAL NOTES

SNC-LAVALLIN
Project #: 00034-0000 REV: 7
SNC-Lavalin Inc. 2019-06-03
Baker Lake Fuel Dispensing Module

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

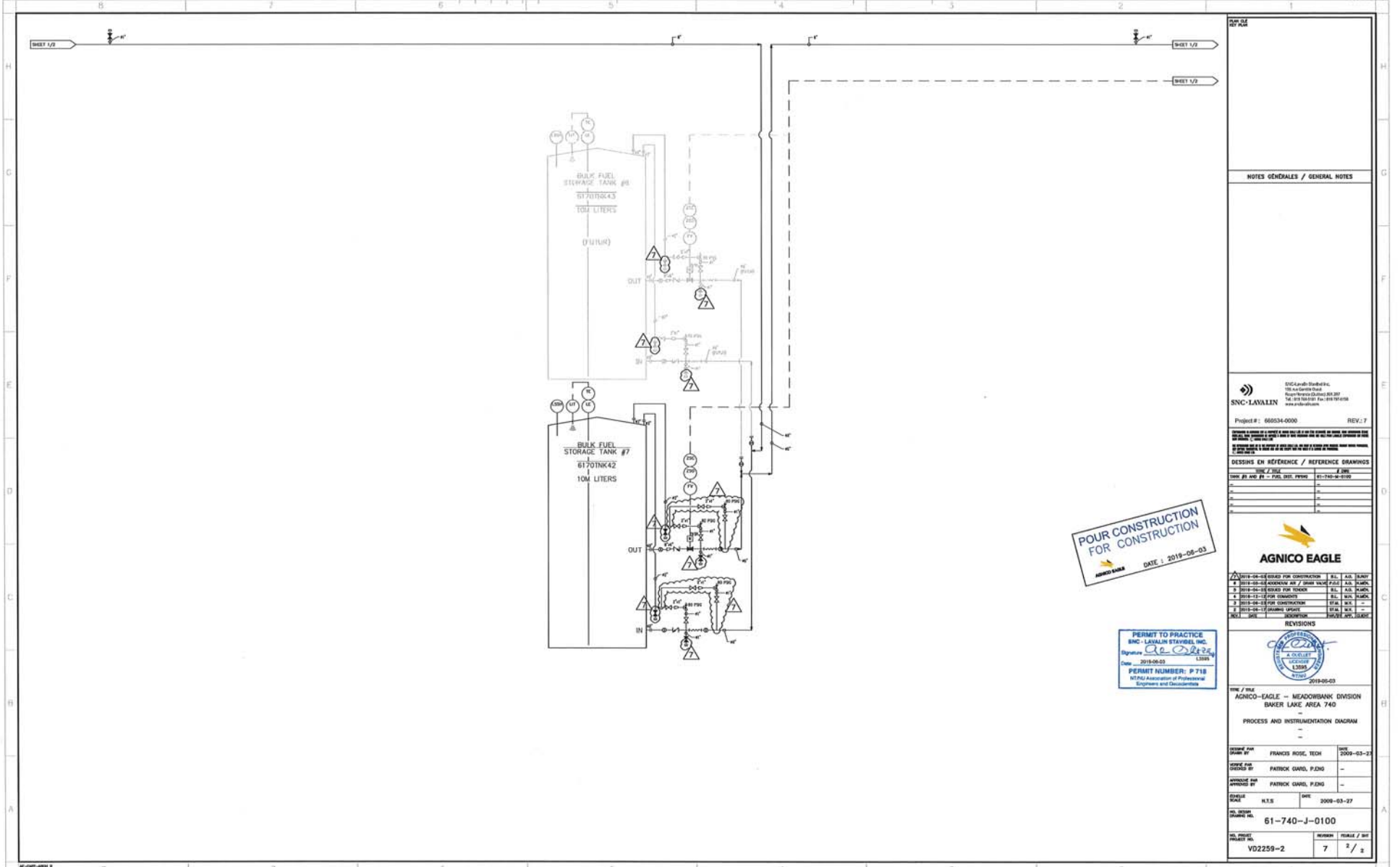
NO. / NO.	DESCRIPTION / DESCRIPTION	DATE / DATE
1	000-00-0000	2019-06-03
2	000-00-0000	2019-06-03
3	000-00-0000	2019-06-03
4	000-00-0000	2019-06-03
5	000-00-0000	2019-06-03
6	000-00-0000	2019-06-03
7	000-00-0000	2019-06-03
8	000-00-0000	2019-06-03
9	000-00-0000	2019-06-03
10	000-00-0000	2019-06-03

AGNICO EAGLE

2019-06-03
AGNICO-EAGLE - MEADOWBANK DIVISION
BAKER LAKE AREA 740
PROCESS AND INSTRUMENTATION DIAGRAM

NO. / NO.	DESCRIPTION / DESCRIPTION	DATE / DATE
1	000-00-0000	2019-06-03
2	000-00-0000	2019-06-03
3	000-00-0000	2019-06-03
4	000-00-0000	2019-06-03
5	000-00-0000	2019-06-03
6	000-00-0000	2019-06-03
7	000-00-0000	2019-06-03
8	000-00-0000	2019-06-03
9	000-00-0000	2019-06-03
10	000-00-0000	2019-06-03

61-740-J-0100
VD2259-2 7 1/2



NOTES
NOTES GÉNÉRALES / GENERAL NOTES

DESIGNER & ENGINEER
SNC-LAVALIN
Project #: 660534-0000 REV: 7

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

DATE	NO.	REV.	DESIGNER	DATE	NO.	REV.	DESIGNER
2019-05-03	1	1	FRANCIS ROSE	2009-03-27	1	1	FRANCIS ROSE

FOUR CONSTRUCTION FOR CONSTRUCTION
DATE: 2019-05-03

AGNICO EAGLE
2019-05-03

PERMIT TO PRACTICE
ENG. LAVALIN STAVEL, INC.
Date: 2019-05-03
PERMIT NUMBER: P 718

REVISIONS
2019-05-03

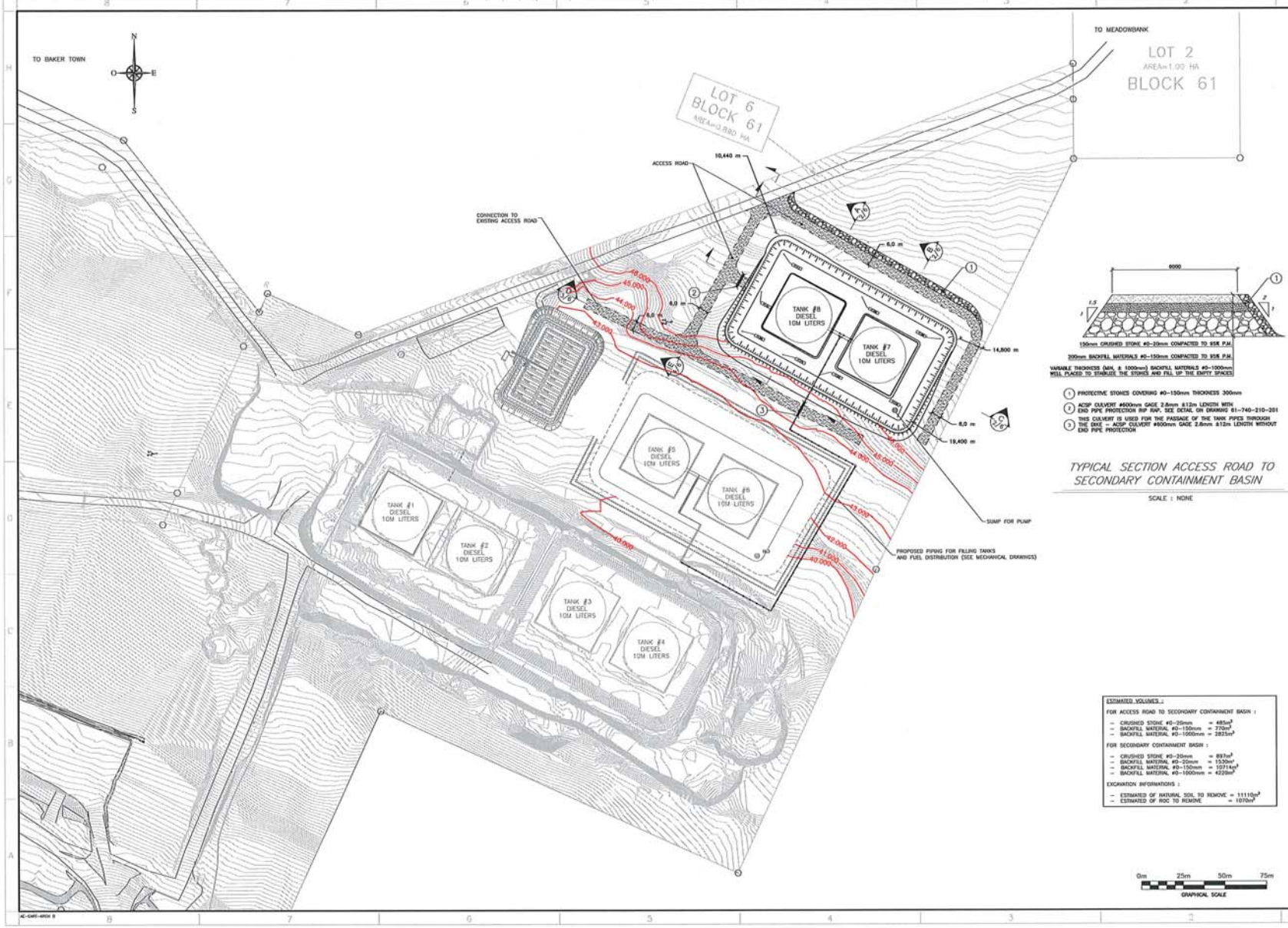
AGNICO-EAGLE - MEADOWBANK DIVISION
BAKER LAKE AREA 740
PROCESS AND INSTRUMENTATION DIAGRAM

DATE	BY	DATE
2009-03-27	FRANCIS ROSE, TECH	2009-03-27
-	PATRICK GARD, P.ENG	-
-	PATRICK GARD, P.ENG	-

NO. 8208	NO. PROJECT	REVISION / REV
61-740-J-0100	VD2259-2	7 / 2

Appendix B

As built drawing

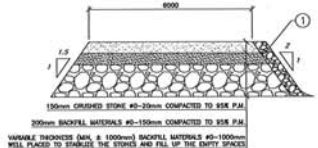


TO MEADOWBANK
 LOT 2
 AREA=1.00 HA
 BLOCK 61

LOT 6
 BLOCK 61
 AREA=0.990 HA

NOTES GENERALES / GENERAL NOTES

POUR CONSTRUCTION FOR CONSTRUCTION
 APPROVED
 DATE : 2019-03-11



- ① PROTECTIVE STONES COVERING 40-100mm THICKNESS 300mm
- ② ACIP CULVERT #600mm GAGE 2.6mm 812m LENGTH WITH END PIPE PROTECTION RIP TOP. SEE DETAIL ON DRAWING 61-740-210-201 THIS CULVERT IS USED FOR THE PASSAGE OF THE TANK PIPES THROUGH THE DIRT - ACIP CULVERT #600mm GAGE 2.6mm 812m LENGTH WITHOUT END PIPE PROTECTION

TYPICAL SECTION ACCESS ROAD TO SECONDARY CONTAINMENT BASIN
 SCALE : NONE

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

NO. / NO.	DESCRIPTION	DATE

AGNICO EAGLE

REV.	DATE	DESCRIPTION	BY	CHK.
1	2018-03-11	CONSTRUCTION	RL	ML

REVISIONS

ESTIMATED VOLUMES :

FOR ACCESS ROAD TO SECONDARY CONTAINMENT BASIN :

- CRUSHED STONE #0-25mm = 485m³
- BACKFILL MATERIAL #0-150mm = 775m³
- BACKFILL MATERIAL #0-1000mm = 2825m³

FOR SECONDARY CONTAINMENT BASIN :

- CRUSHED STONE #0-25mm = 897m³
- BACKFILL MATERIAL #0-25mm = 1320m³
- BACKFILL MATERIAL #0-100mm = 10714m³
- BACKFILL MATERIAL #0-1000mm = 6226m³

EXCAVATION INFORMATIONS :

- ESTIMATED OF NATURAL SOIL TO REMOVE = 11110m³
- ESTIMATED OF ROC TO REMOVE = 1070m³

FILE / FICHE
 AGNICO-EAGLE - MEADOWBANK DIVISION
 740 BAKER LAKE AREA
 GENERAL ARRANGEMENT
 PLAN VIEW
 10M LITERS TANKS LOCATION
 TANKS #1 & #8

DESIGN AND DRAWN BY	DATE
FRANCIS PERRON, TECH.	2018-12-10

CHECKED BY	DATE
RICHARD MARCOUX, INC.	2018-12-10

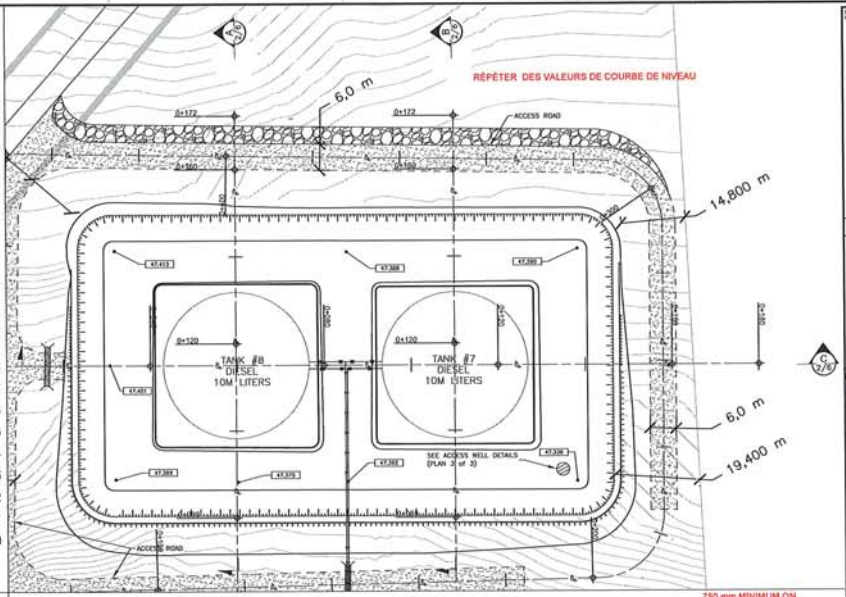
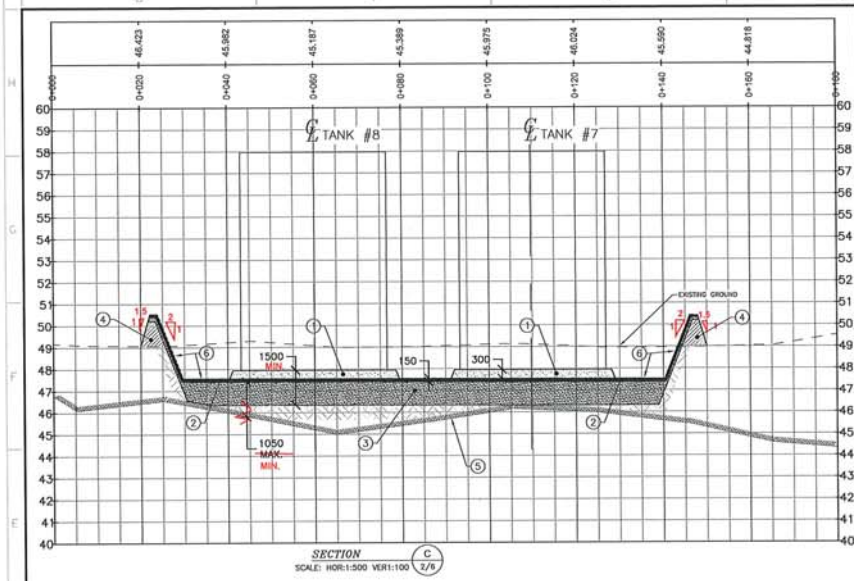
APPROVED AND AUTHORIZED BY
 MARC HENRIKSSON, P. ENG.
 2018-12-10

GRAPHIC SCALE
 1 : 1000
 DATE : 2018-07-18

PROJECT NO.
 61-740-230-200

NO. / NO.	REVISION	SCALE / ÉC.
61	1	1 / 0

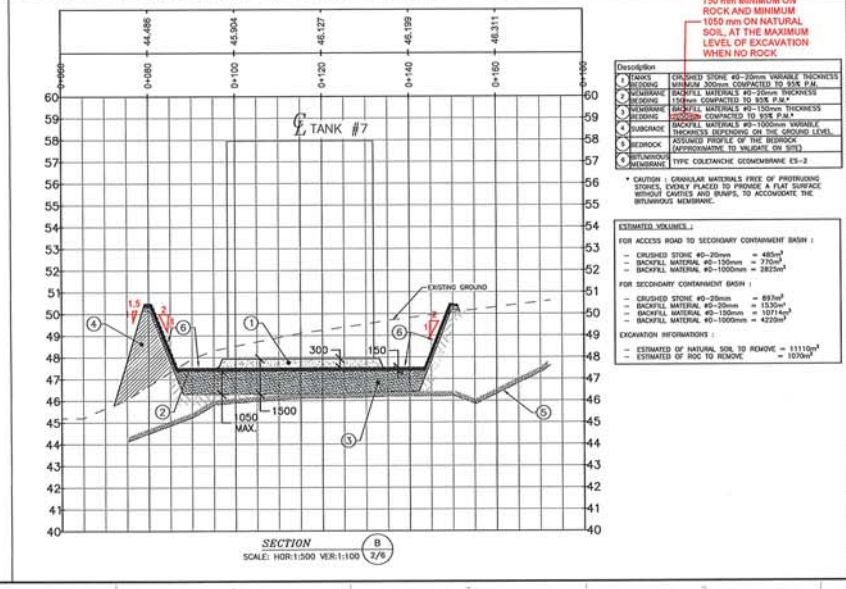
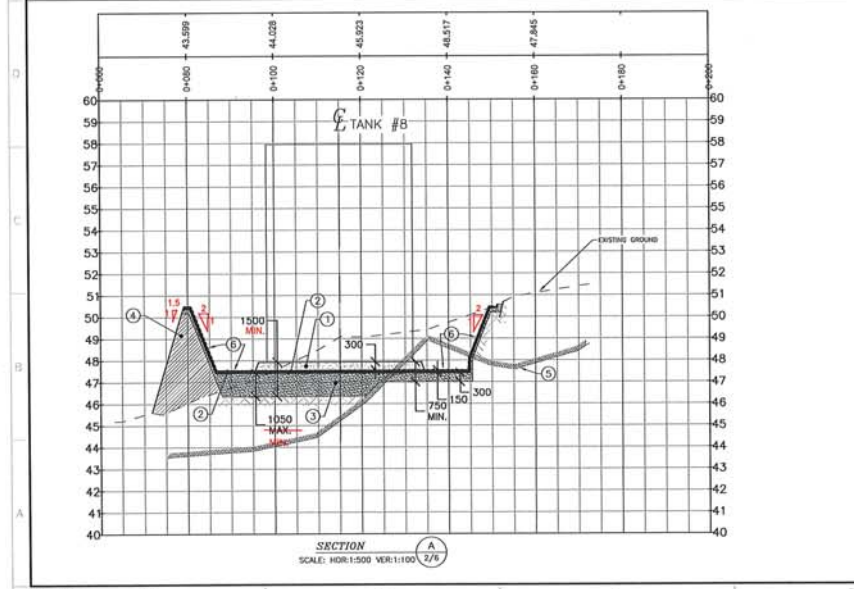




NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION FOR CONSTRUCTION
DATE: 2018-03-11

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS:
1-2/6



- 750 mm MINIMUM ON ROCK AND MINIMUM 1500 mm ON NATURAL SOIL, AT THE MAXIMUM LEVEL OF EXCAVATION WHEN NO ROCK.**
- TANKS: CRUSHED STONE #0-20mm VARIABLY THICKNESS MINIMUM 200mm COMPACTED TO 95% P.M.
 - MEMBRANE: BACKFILL MATERIAL #0-20mm THICKNESS 150mm COMPACTED TO 95% P.M.
 - MEMBRANE: BACKFILL MATERIAL #0-150mm THICKNESS 150mm COMPACTED TO 95% P.M.
 - MEMBRANE: BACKFILL MATERIAL #0-100mm VARIABLY THICKNESS EXPANDED TO THE GROUND LEVEL.
 - SUBGRADE: ASSUMED PROFILE OF THE BEDROCK (REFER DRAWING TO SUBJECT OF SITE).
 - BEDROCK: TYPE COLÉCHANCHE GÉOMÉMBRANE ES-2
 - MEMBRANE: TYPE COLÉCHANCHE GÉOMÉMBRANE ES-2
- * CAUTION: GRANULAR MATERIALS FREE OF PROTRUDING STONES, EVENLY PLACED TO PROVIDE A FLAT SURFACE WITHOUT CAIRNS AND TRAPS, TO ACCOMMODATE THE BITUMINOUS MEMBRANE.**
- ESTIMATED VOLUMES:**
- FOR ACCESS ROAD TO SECONDARY CONTAINMENT BASH:**
- CRUSHED STONE #0-20mm = 485m³
 - BACKFILL MATERIAL #0-150mm = 770m³
 - BACKFILL MATERIAL #0-1000mm = 2825m³
- FOR SECONDARY CONTAINMENT BASH:**
- CRUSHED STONE #0-20mm = 837m³
 - BACKFILL MATERIAL #0-20mm = 1530m³
 - BACKFILL MATERIAL #0-150mm = 1074m³
 - BACKFILL MATERIAL #0-1000mm = 4225m³
- EXCAVATION INFORMATION:**
- ESTIMATED OF NATURAL SOIL TO REMOVE = 11110m³
 - ESTIMATED OF SOIL TO REMOVE = 1070m³

AGNICO EAGLE

1 2018-03-11 FOR CONSTRUCTION P.N. S.A. -
REV. DATE DESCRIPTION PREPARED BY/DATE

REVISIONS

REV OF / P.N.
AGNICO-EAGLE - MEADOWBANK DIVISION
740 SHAKER LAKE AREA
GENERAL ARRANGEMENT
PLAN VIEW AND PROFILE
10M LITERS TANKS LOCATION
TANKS #7 & #6

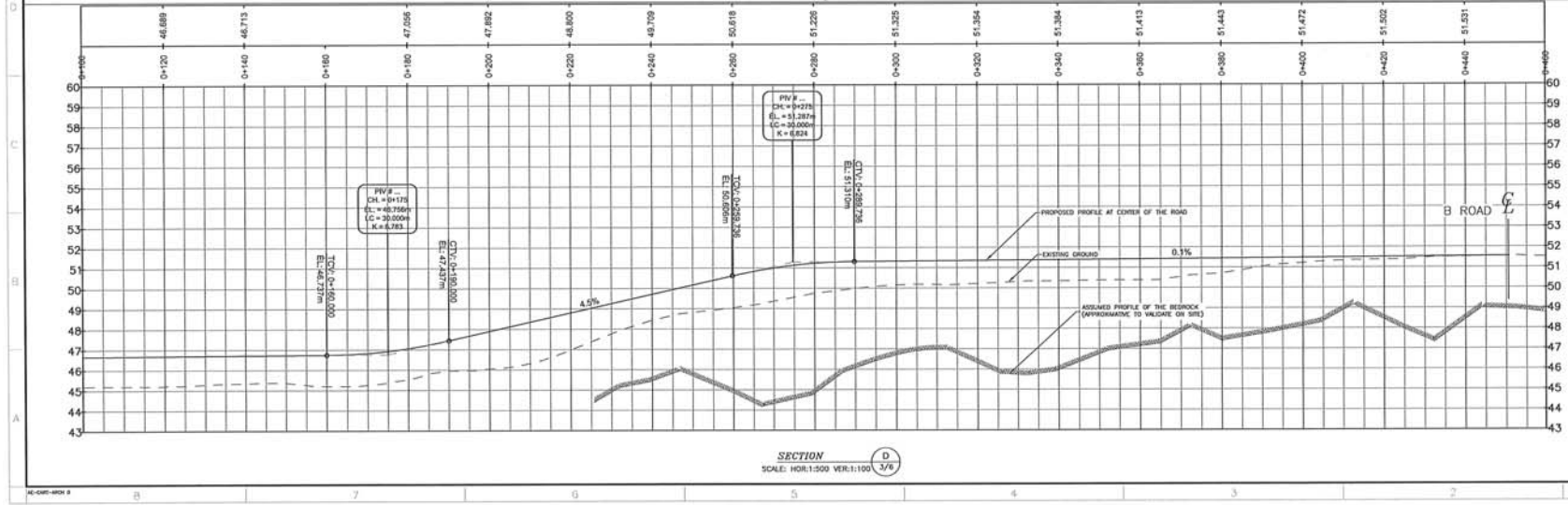
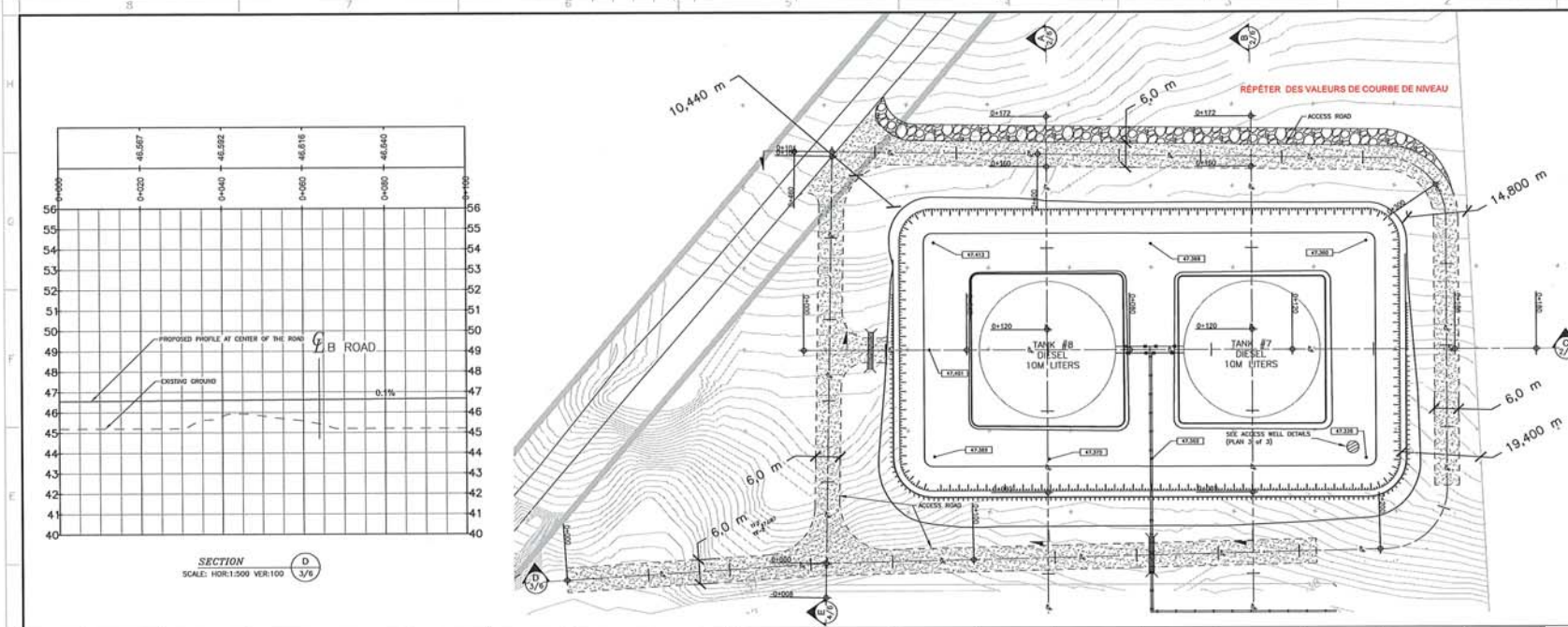
DESIGNÉ PAR FRANCIS PERROD, TECH. 2018-12-10
Dessiné PAR ROYALD MARCOUX, ENG. 2018-12-10
APProuvé PAR MARC HÉVALT, P. ENG. 2018-12-10

Échelle 1 : 500 DATE 2018-07-18

NO. DE PLAN 61-740-230-201

NO. REV. 61

REVISION: 1 / 2



NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION FOR CONSTRUCTION

AMVIC BARRÉ DATE: 2019-03-11

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

FILE 7.5/2

AGNICO EAGLE

REV	DATE	DESCRIPTION	DESIGNER	CHECKED
1	2018-03-11	FOR CONSTRUCTION	FRANCOIS PERROD, TECH.	FRANCOIS PERROD, TECH.

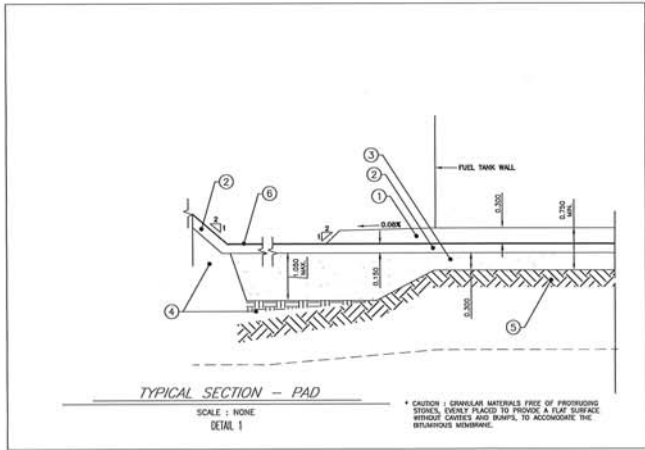
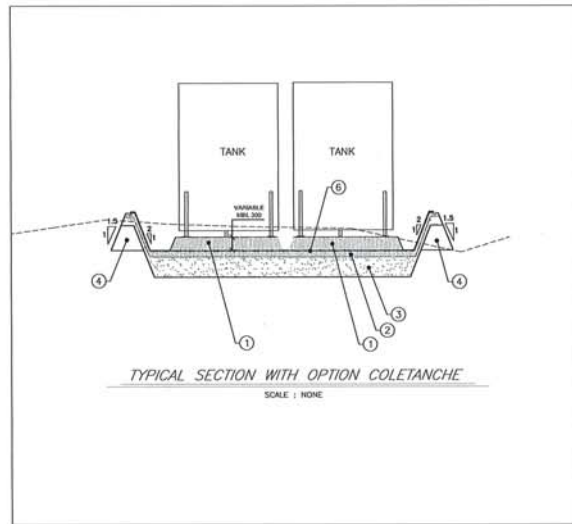
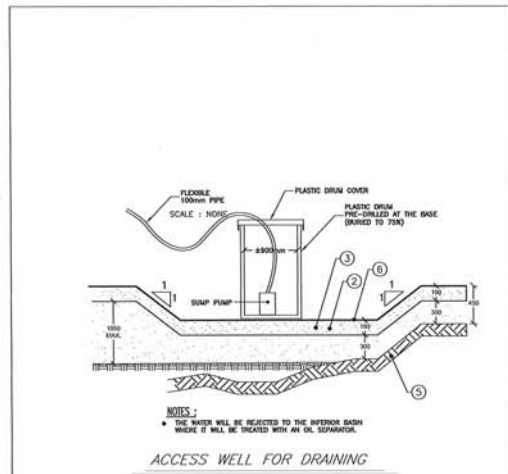
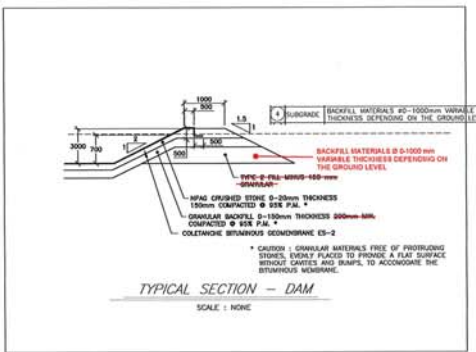
NAME OF FILE
AGNICO-EAGLE - MEADOWBANK DIVISION
740 BAKER LAKE AREA
GENERAL ARRANGEMENT
PLAN VIEW AND PROFILE
10M LITERS TANKS LOCATION
TANKS #7 & #8

DESIGNER AND DRAWN BY: FRANCIS PERROD, TECH. DATE: 2018-12-10
CHECKED BY: RICHARD MARCOUX, ENG. DATE: 2018-12-10
APPROVED BY: MARC HENRIKAT, P. ENG. DATE: 2018-12-10

SCALE: 1 : 500 DATE: 2018-07-18

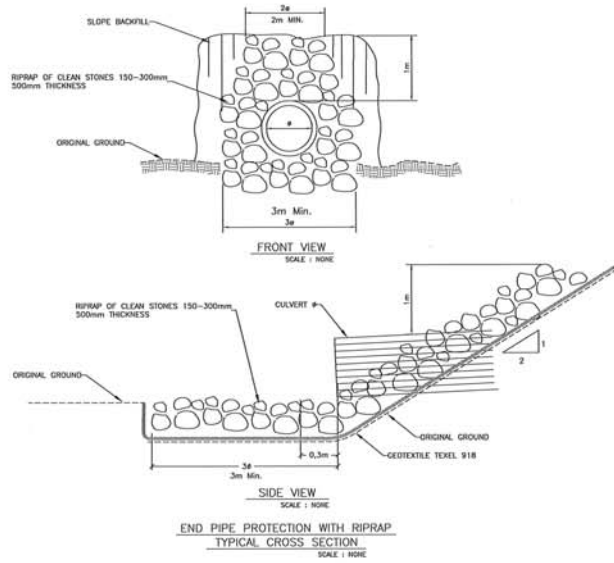
61-740-230-202

NO. SHEET	REVISION	PROJ. / SHEET
61	1	3 / 6



Description	Quantity
1 CRUSHED STONE # 20-25mm VARIABLE THICKNESS MINIMUM 300mm COMPACTED TO 85% P.A.M.	
2 BACKFILL MATERIALS # 2-100mm THICKNESS 150mm COMPACTED TO 85% P.A.M.	
3 BACKFILL MATERIALS # 0-100mm THICKNESS 300mm MIN. COMPACTED TO 85% P.A.M.	
4 GRANULAR BACKFILL # 150mm THICKNESS 300mm MIN. COMPACTED TO 85% P.A.M.	
5 COLETANICHE BITUMINOUS GEOMEMBRANE ES-2	
6 FLEXIBLE PIPE OF THE BEDROCK APPROPRIATE TO VALIDATE ON SITE	
7 MEMBRANE TYPE COLETANICHE GEOMEMBRANE ES-2	

* CAUTION: GRANULAR MATERIALS FREE OF PROTRUDING STONES, EVENLY PLACED TO PROVIDE A FLAT SURFACE WITHOUT CAVITIES AND BUMP, TO ACCOMMODATE THE BITUMINOUS MEMBRANE.



REV. NO. REV. DATE

NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION FOR CONSTRUCTION

APPROUVE DATE: 2019-02-11

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

NO. / NO.	DESCRIPTION



REVISIONS

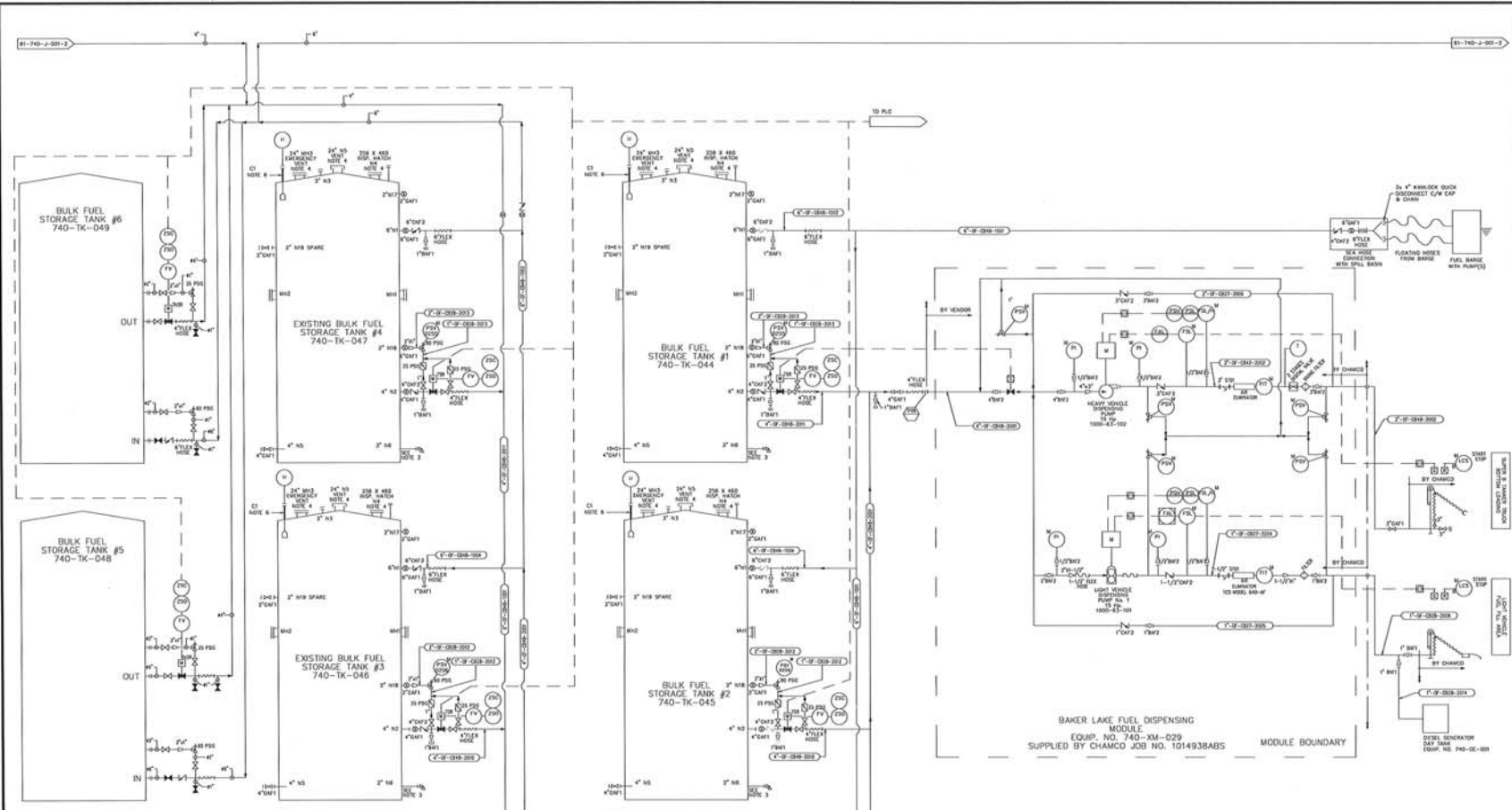
NO.	DESCRIPTION	DATE

TITRE / TITLE: AGNICO-EAGLE - MEADOWBANK DIVISION 740 BAKER LAKE AREA GENERAL ARRANGEMENT DETAILS 15M LITERS TANKS LOCATION TANKS #1 & #2

DESIGNER	DATE
FRANÇOIS PERROD, TECH.	2018-12-10
CHECKED BY	
REVISED BY	
APPROVED BY	
DATE	
SCALE	
NO. SHEET	
TOTAL SHEETS	
NO. PROJECT	
PROJECT NO.	
NO. SHEET	
TOTAL SHEETS	

61-740-230-204

NO. SHEET	TOTAL SHEETS
61	1 / 6



NOTES GÉNÉRALES / GENERAL NOTES

TEL QUE CONSTRUIT AS BUILT
 AMÉRIQUE DATE : 2019-12-16

SNC-LAVALIN
 605034-0000 REV: 7

DESIGNS EN RÉFÉRENCE / REFERENCE DRAWINGS

NO. 61-740-J-0100-001	DATE	BY	CHKD.

AGNICO EAGLE

REV. 7
 2019-03-27
 2019-03-27
 2019-03-27
 2019-03-27

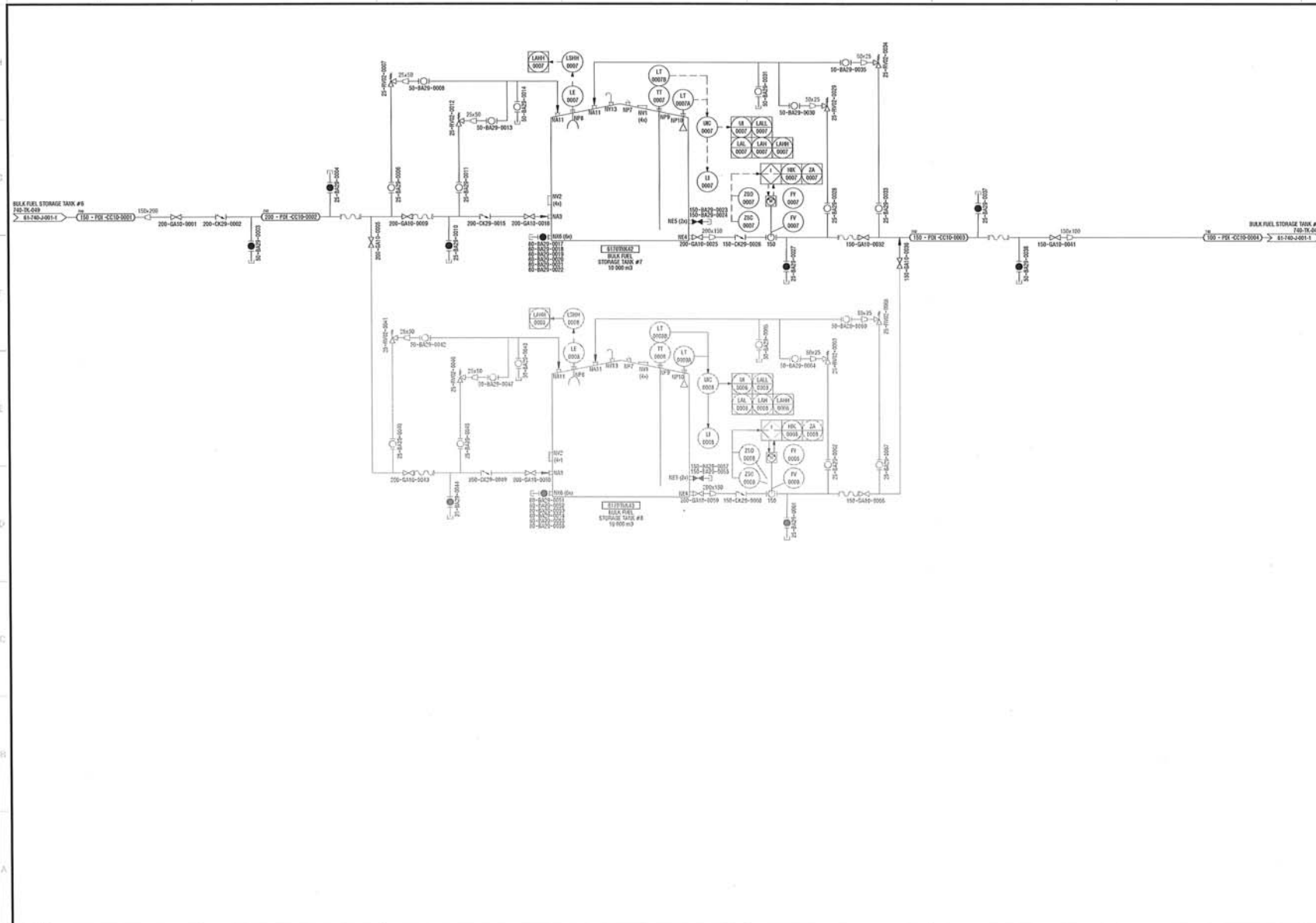
REVISIONS

NO. / REV.	DESCRIPTION	DATE
1 / 1		

DATE: 2019-03-27
 PROJECT: 61-740-J-0100-1
 SHEET: 6120 / 8

- PIPING NOTES:**
1. INSTALL LOW POINT DRAINS
 2. PSV SHALL BE SUITABLE FOR FLUID AT -54 °C.
 3. 3" OCECO V-144 WATER DRAFFOFF VALVE (3" ANSI 150# FLG. SUPPLIED BY TANK VENDOR. VALVE TO BE HEAT TRACED AND INSULATED.
 4. DESIGN OF THESE TANKS TOP OPENINGS, BY TANK MANUFACTURER
 5. FLEXIBLE SS BRAIDED HOSE, 750mm LG. (FLEXONIC SENIOR, OR EQUAL)
 6. YAREC 2500 LEVEL INDICATOR BY TANK MANUFACTURER

*SEE PLAN 008 FOR SCHEDULE OF FITTINGS



NOTES GÉNÉRALES / GENERAL NOTES

**TEL QUE CONSTRUIT
AS BUILT**

AMÉRIQUE DATE : 2019-12-16

SNC-LAVALLIN SNC-Lavalin (Canada) Inc.
100 rue de la Vallée
Montréal, Québec H3A 2R4
Tel: 514 351-1111 Fax: 514 351-1110
www.snc-lavalin.com

Project #: 600534-0000 REV. 7

AGNICO EAGLE

NO.	DATE	DESCRIPTION	BY	CHK
1	2019-12-16	AS BUILT	S.P.	S.P.
2	2019-08-05	REVISED FOR CONSTRUCTION	S.P.	A.S.
3	2019-05-05	ADDITIONAL AND / OTHER VALUES	P.O.J.	A.S.
4	2019-04-29	REVISED FOR TENDER	S.P.	A.S.
5	2019-12-16	FOR CONSTRUCTION	S.P.	S.P.
6	2019-08-12	FOR CONSTRUCTION	S.P.	S.P.

REVISED FOR CONSTRUCTION

DRG. / N° 61-740-J-0100-2
AGNICO-EAGLE - MEADOWBANK DIVISION
BAKER LAKE AREA 740
PROCESS AND INSTRUMENTATION DIAGRAM

DESIGNER: FRANCIS ROSE, TECH DATE: 2009-03-22
CHECKED BY: PATRICK GARD, P.ENG
APPROVED BY: PATRICK GARD, P.ENG

SCALE: N.T.S. DATE: 2009-03-27

PROJECT NO.: 61-740-J-0100

NO. SHEET	REVISION	TOTAL / SHEET
6120	8	2 / 2

Appendix C

Photographs



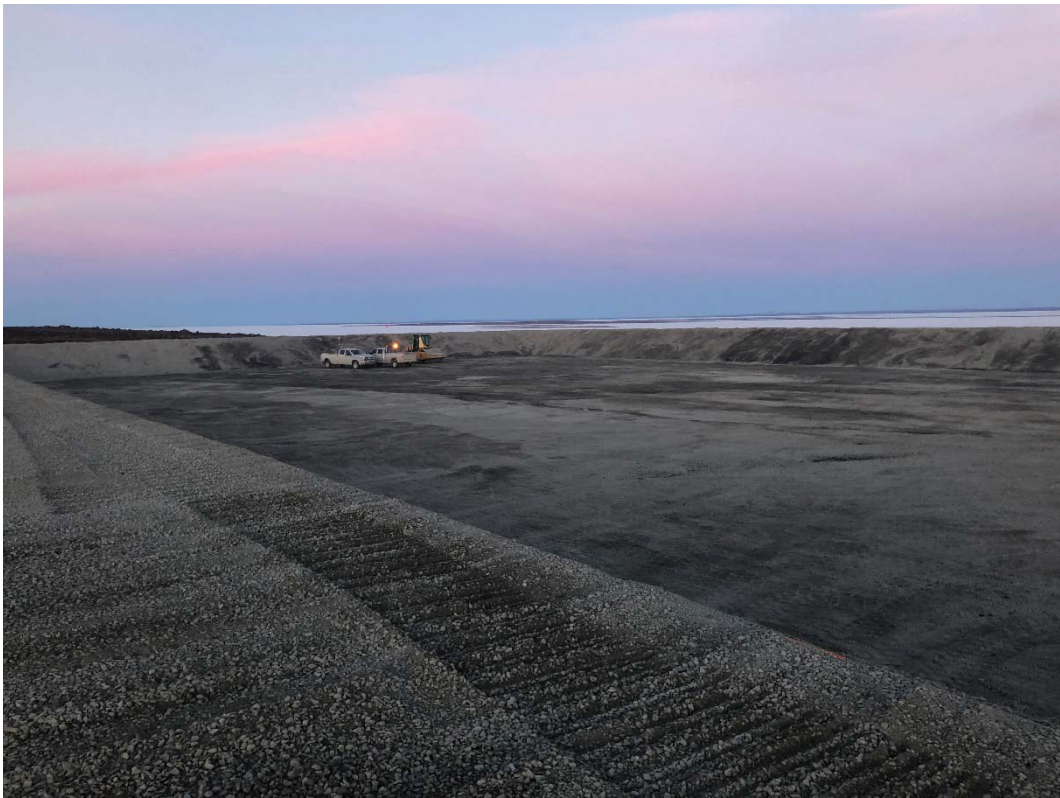
General site view before tank and containment construction



Overburden excavation



Pad and Berm construction



Containment overview



Tank pad construction



Tank floor construction



Tank wall welding



Tank roof structure



Piping to and from fuel tank



Tank general view

Appendix D


Fuel tank handover package

TURNOVER PACKAGE TANK #7

BAKER LAKE , NU

PREPARED FOR



 Vendor Document Status	
1	<input type="checkbox"/> Proceed to next submission and status.
2	<input type="checkbox"/> Proceed with exceptions as noted to next submission and status.
3	<input type="checkbox"/> Do not proceed. Revise as noted and resubmit next submission and status.
4	<input checked="" type="checkbox"/> Complete, no further submission required.
By: _____ Date: _____	
<small>Review and authorization to fabricate are only for general conformance with the design concept of the Project as expressed in the Contract Documents. Sole responsibility for the accuracy and completeness of this document, including but not limited to dimensions and quantities, remains with the Supplier/Contractor. Agnico Eagle does not warrant the accuracy or completeness of any of the information contained herein, nor does Agnico Eagle authorize or approve any construction means, methods, techniques, sequences or any safety precautions or procedures.</small>	
Agnico Eagle No. _____ Turnover #1 Rev. A R: _____	
DOCUMENT FOR INFORMATION	

ENGINEERING DESIGN AND MATERIAL PROVIDED BY

Inukshuk Construction Limited
Industrial Contracting  Project Management

ERECTED BY


STS STORAGE TANK
SOLUTIONS

Rev. A

SEPTEMBER 12, 2019

INSPECTION & TEST PLAN

Tank: TK#7 6170TNK42		Project: AEM Baker Lake Fuel Tanks		Document: TK#7 ITP		
By: Inukshuk Construction Ltd.		Proj. #: 315		Revision: 2 - Issued for Construction		
Item	Component	Activity	ITP Type	Documentation	Acceptance Criteria	Notes
1	Kick-Off Meeting	Kickoff Meeting	N/A	Meeting Minutes	N/A	
2	Signature Log	Verify	N/A	Signature Log	N/A	
3	Welder Qualification	Verify	N/A	Individual Welder Qualifications / Welder Log	API-650 / ASME IX	
4	Inspector Qualification	Verify	N/A	In house Inspector & 3 rd Party Qualifications	API-650	
5	Weld Procedures	Verify	N/A	Approved Weld Procedures	API-650 / ASME IX, CWB W47.1	
6	Welding Consumable	Electrode Storage	N/A	N/A	Manufacturer's Instructions	
7	Foundation	Foundation Survey	DC	Foundation Acceptance Report, Compaction Report & Survey from 3rd Party	API-650 Para 7.5.5	
8	Floor	Materials	FI	MTR Confirmation to Dwg	Drawing & API-650 Sect. 4	MTR issued prior to shipping
		Fit up	VE, DC	As Built Drawing	Drawing	per API-650 5.1.5.4 - bottom plates under the shell shall have the outer ends of the joints fitted and lap-welded
		Welding	VE	Weld Map, Visual Report	API-650 Para 7.2 & 8.5 & WPS	
		Vacuum Test	VB	Vacuum Box Test Report	API-650 Para 7.3.3(a) & 8.6	
9	Shell to Floor Seams	Initial Weld Pass	VE	Weld Map, Visual Report	API-650 Para 8.5, 7.2.4.1	
		Final Weld Pass	VE	Weld Map, Visual Report	API-650 Para 8.5, 7.2.4.1	
		LPT	NDT	Diesel Test Report	API-650 Para 7.2.4.1 d	LPT inside of shell to floor seam
10	Shell	Materials	FI	MTR Confirmation to Dwg	Drawing & API-650 Sect. 4	MTR issued prior to shipping
		Fit up 1 st Course	VE, DC	As Built Drawing	Drawing	
		Roundness	DC	Dimension Report	API-650 Para 7.5.3	
		Welding	VE	Weld Map, Visual Report	API-650 Para 7.2, 7.5, 8.5 & WPS	
		Diesel Test	NDT	Diesel Test Report	API-650 Para 7.2.4.1 d	Diesel Test inside of shell butt weld joints
		Tolerance Check - Plumbness & Local Deviations	DC	Dimension Report from 3rd party	API-650 Para 7.5	
11	Compression Ring	Fit up	VE, DC	As Built Drawing	Drawing	
		Welding	VE	Weld Map, Visual Report	API-650 Para 7.2 & 8.5 & WPS	
12	Roof	Fit up	VE, DC	As Built Drawing	Drawing	
		Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS	
		Vacuum Test	VB	Vacuum Box Test Report	API-650 Para 7.3.8(b) & 8.8	
13	Roof Structure	Fit up	VE, DC	As Built Drawing	Drawing	
		Column Plumbness	DC	Dimension Report	API-650 Para 7.5.2 b)	
		Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS	
14	Nozzles	Layout	VE, DC	As Built Drawing	Drawing	
		Fit up	VE, DC	As Built Drawing	Drawing	
		Shop Prep Welding	VE	Weld Map, Visual Report	API-650 Para 7.2 & 8.5 & WPS	
		Welding	VE	Weld Map, Visual Report	API-650 Para 7.2 & 8.5 & WPS	
		Tolerance Check - Plumbness & Local Deviations	DC	Dimension Report	API-650 Para 7.5	
		Shell Nozzle Repad Air test	AT	Leak Test Report	API-650 Para 7.3.5	
15	Manways	Layout	VE, DC	As Built Drawing	Drawing	
		Fit up	VE, DC	As Built Drawing	Drawing	All welds of Shell Nozzles

		Welding	VE	Weld Map, Visual Report	API-650 Para 7.2 & 8.5 & WPS	
15	Manways	Tolerance Check – Plumbness & Local Deviations	DC	Dimension Report	API-650 Para 7.5	
		Shell Manway Repad Air test	AT	Leak Test Report	API-650 Para 7.3.5	
		MPI	NDT	MPI Report	API-650 Para 7.2.3.6	All welds of Shell Manways
		Layout	VE, DC	As Built Drawing	Drawing	
16	Internals	Fit up	VE, DC	As Built Drawing	Drawing	
		Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS	
		Layout	VE, DC	As Built Drawing	Drawing	
17	Externals	Fit up	VE, DC	As Built Drawing	Drawing	
		Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS	
		Layout	VE, DC	As Built Drawing	Drawing	
18	Stairs & Platforms	Fit up	VE, DC	As Built Drawing	Drawing	
		Welding	VE	Visual Report	API-650 Para 7.2 & 8.5 & WPS	
		Inspection	VE, DC	As Built Drawing	Drawing	Bolt Torque
19	Boils & Nuts					
Item	Component	Activity	ITP Type	Documentation	Acceptance Criteria	Notes
21	Final	Name Plate Verification	N/A	Scan of Name Plate	Drawings	
		Final Inspection	FI	As Built Drawings, Data Sheet, Manufacturer's Certification (3 rd Party), Punch List	Drawings	

DEFINITIONS:

AT - AIR TEST: Specified component and/or installation to be air tested according to specified documentation and specifications.

DC - DIMENSION CHECK: Physical dimensions of component and/or installation to be verified according to specified documentation and specifications.

FI - FINAL INSPECTION: Specified inspection procedures to be executed prior to release of the component and/or installation and verified according to specified documentation and specifications.

NDT - NON DESTRUCTIVE TESTING: Specified component and/or installation to be inspected using a named non destructive testing method according to specified documentation and specifications.

VE - VISUAL Examination: Specified component and/or installation to be examined visually according to specified documentation and specification.

VB - VACUUM-BOX TEST: Specified component and/or installation to be vacuum box tested according to specified documentation and specifications.

ALL CAN INSPECTION SERVICES (2011) INC.

Report # J1706

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4
 SHOP: 780-462-1072 OFFICE: 780-462-9797 FAX: 780-462-6664
 EMAIL: shop@allcaninspection.com www.allcaninspection.com

Client:	Storage Tank Solutions	Client Job #	Welder Coupons
Address:	9 Well Head Street, Devon AB, T9G1Z6	P.O. #	Sebastien
Contact:	Name: Sebastien Ouellet	Date:	Feb 25/19
	Phone: 780-982-3980		
Work Location:	All Can Inspection Shop	Work Description:	

- CODES**
1. ASME B31.3 N/S
 2. ASME B31.3 S/C
 3. ASME Sec. VIII Div. 1 UW51
 4. ASME Sec. VIII Div. 1 UW52
 5. CSA Z662
 6. CSA Z662 (Sour)
 7. API 650
 8. Other: QW191.2

NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	IQI	Technique Number	Source side of Object to Film		Number of Exposures	Welder ID	LF - Lack of Fusion IP - Incomplete Penetration IC - Internal Concavity BT - Burn Through TI - Tungsten Inclusion IU: Internal Undercut EU: External Undercut	EP - Excessive Penetration P - Porosity S - Slag HL - High-Low C - Crack AB - Arc Burn HB - Hollow Bead		Severity	Accept	Reject	
						Inches	Inches				Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject)	Discontinuity				
2G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	KW							
3G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	KW							
4G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	KW							
2G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	MM							
3G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	MM							
4G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	MM							
2G Subarc	1/2" SPOT 0-15"	P1	8	2	RT-2	0.625	25.000	1	MM							
												P @ 0"	1	✓		
2G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	CJ							
3G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	CJ							
4G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	CJ							
2G Subarc	1/2" SPOT 0-15"	P1	8	2	RT-2	0.625	25.000	1	CJ							

RT Technician: <u>Gordon Thomas</u>	CGSB Level: <u>2</u>	Reg. #: <u>6</u>	SNT-TC-1A Level: <u>III</u>	SNT-TC-1A No: <u>6</u>
RT Assistant # 1 <u>Adele Kezama</u>	CEDO #: <u>18988</u>		SNT-TC-1A Level: <u>II</u>	SNT-TC-1A No: <u>18988</u>
RT Assistant # 2 _____	CEDO #: _____		SNT-TC-1A Level: _____	SNT-TC-1A No: _____

IMPORTANT: See reverse side of this form for All Can Inspection Services (2011) Inc. LIMITED LIABILITY POLICY	
Technician Signature _____ Date <u>Feb 25/19</u> Client Representative Signature _____ Evaluation Date _____	Film Make / Brand <u>AGFA</u> Film Class / Type: <u>1-D5</u> Screens Lead <u>Front 0.010" Back 0.010"</u> One (no.) film per screen Film Density in H & D: Min. <u>2.0</u> Max. <u>4.0</u> Penetrometer (IQI hole type) designation: <u>N/A</u> Recommended Max. U.G.: <u>0.20"</u> Source Isotope: <u>IRIDIUM-192 (Gamma)</u> Wall Viewing: <u>Single</u> Effective Focal Spot Size: <u>0.146 inches</u> Processing: <u>Automatic</u>
The above interpretation is a technical opinion, not a guarantee. Client signature indicates acceptance of the report and results. Clock tape marker and start arrow marked on weldment. It is the customer's responsibility to map welds on drawings.	

RADIOGRAPHIC EXAMINATION REPORT

ALL CAN INSPECTION SERVICES (2011) INC.

Report # J1778

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4
 SHOP: 780-462-1072 OFFICE: 780-462-9797 FAX: 780-462-6664
 EMAIL: shop@allcaninspection.com www.allcaninspection.com

PAGE 1 OF 1

Client:	Storage Tank Solutions	Client Job #	Welder Coupons	CODES
Address:	9 Well Head Street, Devon AB, T9G1Z6	P.O. #	Sebastien	1. ASME B31.3 N/S
Contact:	Name: Sebastien Ouellet	Date:	Mar 1/19	2. ASME B31.3 S/C
	Phone: 780-982-3980			3. ASME Sec. VIII Div 1 UW51
Work Location:	All Can Inspection Shop	Work Description:		4. ASME Sec. VIII Div. 1 UW52
				5. CSA Z662
				6. CSA Z662 (Sour)
				7. API 650
				8. Other: QW191.2

NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	IQI	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	Defects		Severity	Accept	Reject
										LF - Lack of Fusion IP - Incomplete Penetration IC - Internal Concavity BT - Burn Through TI - Tungsten Inclusion IU: Internal Undercut EU: External Undercut	EP - Excessive Penetration P - Porosity S - Slag HL - High-Low C - Crack AB - Arc Burn HB - Hollow Bead			
Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject)										Discontinuity		1-3	v	x
2G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	SO					
	0-6"												√	
3G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	SO					
	0-6"												√	
4G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	SO					
	0-6"												√	
2G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	DZ					
	0-6"												√	
3G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	DZ					
	0-6"												√	
4G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	DZ					
	0-6"												√	
2G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	JN					
	0-6"												√	
3G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	JN					
	0-6"												√	
4G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	JN					
	0-6"												√	
2G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	TM					
	0-6"												√	
3G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	TM					
	0-6"												√	
4G SMAW	5/8" SPOT	P1	8	2	RT-2	0.750	25.000	1	TM					
	0-6"												√	

RT Technician: <u>Gordon Thomas</u>	CGSB Level: <u>2</u>	Reg. #: <u>6</u>	SNT-TC-1A Level: <u>III</u>	SNT-TC-1A No: <u>6</u>
RT Assistant # 1 <u>Adele Kezama</u>	CEDO #: <u>18988</u>		SNT-TC-1A Level: <u>II</u>	SNT-TC-1A No: <u>18988</u>
RT Assistant # 2 _____	CEDO #: _____		SNT-TC-1A Level: _____	SNT-TC-1A No: _____

IMPORTANT: See reverse side of this form for All Can Inspection Services (2011) Inc. LIMITED LIABILITY POLICY	
Technician Signature _____ Date <u>Mar 1/19</u>	Film Make / Brand <u>AGFA</u> Film Class / Type: <u>1-D5</u>
Client Representative Signature _____ Evaluation Date _____	Screens Lead <u>Front 0.010" Back 0.010" One (no.) film per screen</u>
The above interpretation is a technical opinion, not a guarantee. Client signature indicates acceptance of the report and results. Clock tape marker and start arrow marked on weldment. It is the customer's responsibility to map welds on drawings.	Film Density in H & D: Min. <u>2.0</u> Max. <u>4.0</u>
	Penetrometer (IQI hole type) designation: <u>N/A</u> Recommended Max. U.G.: <u>0.20"</u>
	Source Isotope: <u>IRIDIUM-192 (Gamma)</u> Wall Viewing: <u>Single</u>
	Effective Focal Spot Size: <u>0.146 inches</u> Processing: <u>Automatic</u>

RADIOGRAPHIC EXAMINATION REPORT

ALL CAN INSPECTION SERVICES (2011) INC.

Report # J3424

9323-37 Avenue, NW, Edmonton, Alberta T6E 5N4
 SHOP: 780-462-1072 OFFICE: 780-462-9797 FAX: 780-462-6664
 EMAIL: shop@allcaninspection.com www.allcaninspection.com

PAGE 1 OF 1

Client:	Storage Tank Solutions	Client Job #	Welder Coupons	CODES 1. ASME B31.3 N/S 2. ASME B31.3 S/C 3. ASME Sec. VIII Div 1 UW51 4. ASME Sec. VIII Div. 1 UW52 5. CSA Z662 6. CSA Z662 (Sour) 7. API 650 8. Other: QW191.2
Address:	9 Well Head Street, Devon AB, T9G1Z6	P.O. #	Sebastien	
Contact:	Name: Sebastien Ouellet	Date:	June 18/19	
	Phone: 780-982-3980			
Work Location:	All Can Inspection Shop	Work Description:		

NDE No:	Size & thickness Plus Code Max. reinforcement	Material	Code	IQI	Technique Number	Source Side of Object to Film Distance	Source to Object Distance	Number of Exposures	Welder ID	Defects			Severity	Accept	Reject
										LF - Lack of Fusion IP - Incomplete Penetration IC - Internal Concavity BT - Burn Through TI - Tungsten Inclusion IU: Internal Undercut EU: External Undercut	EP - Excessive Penetration P - Porosity S - Slag HL - High-Low C - Crack AB - Arc Burn HB - Hollow Bead	Severity: 1 = Slight, 2 = Medium, 3 = Severe (Reject) Discontinuity			
										1-3	v	x			
2G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	AM						
3G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	AM		P @ 0", 2 1/2", & 4 1/2"	1	v		
4G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	AM					v	
Subarc	1/2" SPOT 0-12"	P1	8	2	RT-2	0.625	25.000	1	AM					v	
2G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	JO		P @ End	1	v		
3G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	JO		P @ 0" & End	1	v		
4G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	JO					v	
Subarc	1/2" SPOT 0-12"	P1	8	2	RT-2	0.625	25.000	1	JO					v	
2G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	DM		P @ End	1	v		
3G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	DM					v	
4G SMAW	5/8" SPOT 0-6"	P1	8	2	RT-2	0.750	25.000	1	DM		P @ 1"	1	v		

RT Technician: <u>Gordon Thomas</u>	CGSB Level: <u>2</u>	Reg. #: <u>6</u>	SNT-TC-1A Level: <u>III</u>	SNT-TC-1A No: <u>6</u>
RT Assistant # 1 <u>Shannon Berg</u>	CEDO #: <u>17583</u>		SNT-TC-1A Level: <u>I</u>	SNT-TC-1A No: <u>17583</u>
RT Assistant # 2 _____	CEDO #: _____		SNT-TC-1A Level: _____	SNT-TC-1A No: _____

IMPORTANT: See reverse side of this form for All Can Inspection Services (2011) Inc. LIMITED LIABILITY POLICY	
Technician Signature _____ Date <u>June 18/19</u> Client Representative Signature _____ Evaluation Date _____	Film Make / Brand <u>AGFA</u> Film Class / Type: <u>1-D5</u> Screens Lead <u>Front 0.010" Back 0.010"</u> One (no.) film per screen Film Density in H & D: Min. <u>2.0</u> Max. <u>4.0</u> Penetrometer (IQI hole type) designation: <u>N/A</u> Recommended Max. U.G.: <u>0.20"</u> Source Isotope: <u>IRIDIUM-192 (Gamma)</u> Wall Viewing: <u>Single</u> Effective Focal Spot Size: <u>0.146 inches</u> Processing: <u>Automatic</u>
The above interpretation is a technical opinion, not a guarantee. Client signature indicates acceptance of the report and results. Clock tape marker and start arrow marked on weldment. It is the customer's responsibility to map welds on drawings.	

RADIOGRAPHIC EXAMINATION REPORT

QUALITY CONTROL MANUAL

Storage Tank Solutions Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A
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WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	LIMITATIONS					REMARKS
				PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	
Matthew MacKenzie	MM	25/02/2019	STS-1	SMAW, UP	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1706
	MM	25/02/2019	STS-4	SMAW, DOWN	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1706
	MM	25/02/2019	STS-2	SAW	F7A6	2G	.116-1.75	ALL	X-RAY REPORT J1706
	MM	25/02/2019	STS-7	SAW	F7A6	2G	.116-1.75	ALL	X-RAY REPORT J1706

QC (PRINT) SIGN: QA (PRINT) SIGN:	DATE (yyyy-MM-dd): DATE (yyyy-MM-dd):
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QUALITY CONTROL MANUAL

Storage Tank Solutions Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A
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WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	LIMITATIONS					REMARKS
				PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	
Christopher Jaques	CJ	25/02/2019	STS-1	SMAW, UP	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1706
	CJ	25/02/2019	STS-4	SMAW, DOWN	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1706
	CJ	25/02/2019	STS-2	SAW	F7A6	2G	.116-1.75	ALL	X-RAY REPORT J1706
	CJ	25/02/2019	STS-7	SAW	F7A6	2G	.116-1.75	ALL	X-RAY REPORT J1706

QC (PRINT) SIGN: QA (PRINT) SIGN:	DATE (yyyy-MM-dd): DATE (yyyy-MM-dd):
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QUALITY CONTROL MANUAL

Storage Tank Solutions Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A
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WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	LIMITATIONS					REMARKS
				PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	
ALAN MARTIN	AM	18/06/2019	STS-1	SMAW, UP	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J3424
	AM	18/06/2019	STS-4	SMAW, DOWN	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J3424
	AM	18/06/2019	STS-2	SAW	F7A6	2G	.116-1.75	ALL	X-RAY REPORT J3424
	AM	18/06/2019	STS-7	SAW	F7A6	2G	.116-1.75	ALL	X-RAY REPORT J3424

QC (PRINT) SIGN: QA (PRINT) SIGN:	DATE (yyyy-MM-dd): DATE (yyyy-MM-dd):
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QUALITY CONTROL MANUAL

Storage Tank Solutions Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A
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WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	LIMITATIONS					REMARKS
				PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	
JOEL OVERGUARD	JO	18/06/2019	STS-1	SMAW, UP	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J3424
	JO	18/06/2019	STS-4	SMAW, DOWN	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J3424
	JO	18/06/2019	STS-2	SAW	F7A6	2G	.116-1.75	ALL	X-RAY REPORT J3424
	JO	18/06/2019	STS-7	SAW	F7A6	2G	.116-1.75	ALL	X-RAY REPORT J3424

QC (PRINT) SIGN: QA (PRINT) SIGN:	DATE (yyyy-MM-dd): DATE (yyyy-MM-dd):
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QUALITY CONTROL MANUAL

Storage Tank Solutions Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A
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WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	LIMITATIONS					REMARKS
				PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	
DAVID MORRICE	DM	18/06/2019	STS-1	SMAW, UP	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J3424
	DM	18/06/2019	STS-4	SMAW, DOWN	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J3424

QC (PRINT) SIGN: QA (PRINT) SIGN:	DATE (yyyy-MM-dd): DATE (yyyy-MM-dd):
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QUALITY CONTROL MANUAL

Storage Tank Solutions Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A
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WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	LIMITATIONS					REMARKS
				PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	
JOSEPH NEDERHOFF	JN	01/03/2019	STS-1	SMAW, UP	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1778
	JN	01/03/2019	STS-4	SMAW, DOWN	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1778

QC (PRINT) SIGN: QA (PRINT) SIGN:	DATE (yyyy-MM-dd): DATE (yyyy-MM-dd):
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QUALITY CONTROL MANUAL

Storage Tank Solutions Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A
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WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	LIMITATIONS					REMARKS
				PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	
DUSTIN ZUBACH	DZ	01/03/2019	STS-1	SMAW, UP	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1778
	DZ	01/03/2019	STS-4	SMAW, DOWN	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1778

QC (PRINT) SIGN: QA (PRINT) SIGN:	DATE (yyyy-MM-dd): DATE (yyyy-MM-dd):
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QUALITY CONTROL MANUAL

Storage Tank Solutions Inc.	WELDERS' QUALIFICATION RECORD API 650	Exhibit 8, Rev A
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WELDER NAME	WELDER SYMBOL	DATE QUALIF.	QUALIFICATION PROCEDURE	LIMITATIONS					REMARKS
				PROCESS	ELECTRODE	POSITION	THICKNESS RANGE	DIAMETER RANGE	
TYLER MONCRIEFF	TM	01/03/2019	STS-1	SMAW, UP	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1778
	TM	01/03/2019	STS-4	SMAW, DOWN	F3-F4	2G,3G,4G	.116-1.75	ALL	X-RAY REPORT J1778

QC (PRINT) SIGN: QA (PRINT) SIGN:	DATE (yyyy-MM-dd): DATE (yyyy-MM-dd):
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QUALITY CONTROL MANUAL

Exhibit 28, Rev 1

EXAMINER QUALIFICATIONS

Customer: AGNICO EAGLE TANK 7


Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.1)

Reason for Test: New Construction

Storage Tank Solutions Inc. certifies that each visual examiner meets the following requirements:

- a) Has a vision (with correction, if necessary) to be able to read a Jeager Type 2 standard chart at a distance of not less than 12in. and is capable of passing a color contrast test. Examiners will be checked annually to ensure that they meet the requirement; and
- b) Is competent in the technique of the visual examination, including performing the examination and interpreting and evaluating results; however, where the examination method consists of more than one operation, the examiner performing only a portion of the test need only be qualified for the portion that the examiner performs.

Qualified examiner:  _____

**QUALITY CONTROL MANUAL
FOUNDATION REPORT**

TANK TAG NUMBER: TANK 7 WORK ORDER NUMBER: 315
 CUSTOMER: AEM PROJECT: BAKER LAKE
 ITP LINE NUMBER: 7 DATE: Aug 8/19.

1.0 TANK PAD ACCEPTANCE GUIDELINES

- 1.1 In acceptance of the Tank Foundation, we acknowledges that the following requirements have been met:
- a) The foundation circumference meets the requirements of API 650 Para 7.5.
 - b) The foundation has been staked to clearly identify the major tank axis (North, South, East, West) and the tank center point
 - c) There is adequate access to the tank erection area to commence erection activities.
- 1.2 Our acceptance of the tank foundation is limited only to the above requirements. Acceptance does not constitute certification of the foundation design and/or construction including but not limited to the following:
- a) Certification of the foundation design including that of the leak detection and cathodic protection system.
 - b) Certification that the foundation has the load bearing capacities required.
 - c) Dimensional accuracy other than that explicitly stated above.
 - d) That the coordinate axis complies with the clients plot plan.
 - e) That soil embedded items have been properly placed according to approved drawings. This will be confirmed during the installation of components associated with the embedded items.
 - f) Certification that the foundation has been properly constructed or is structurally acceptable.
 - g) Certifications that the leak detection and/or cathodic protection systems have been properly installed.

OBSERVATIONS:

Tank Foundation meets the requirements of API 650.

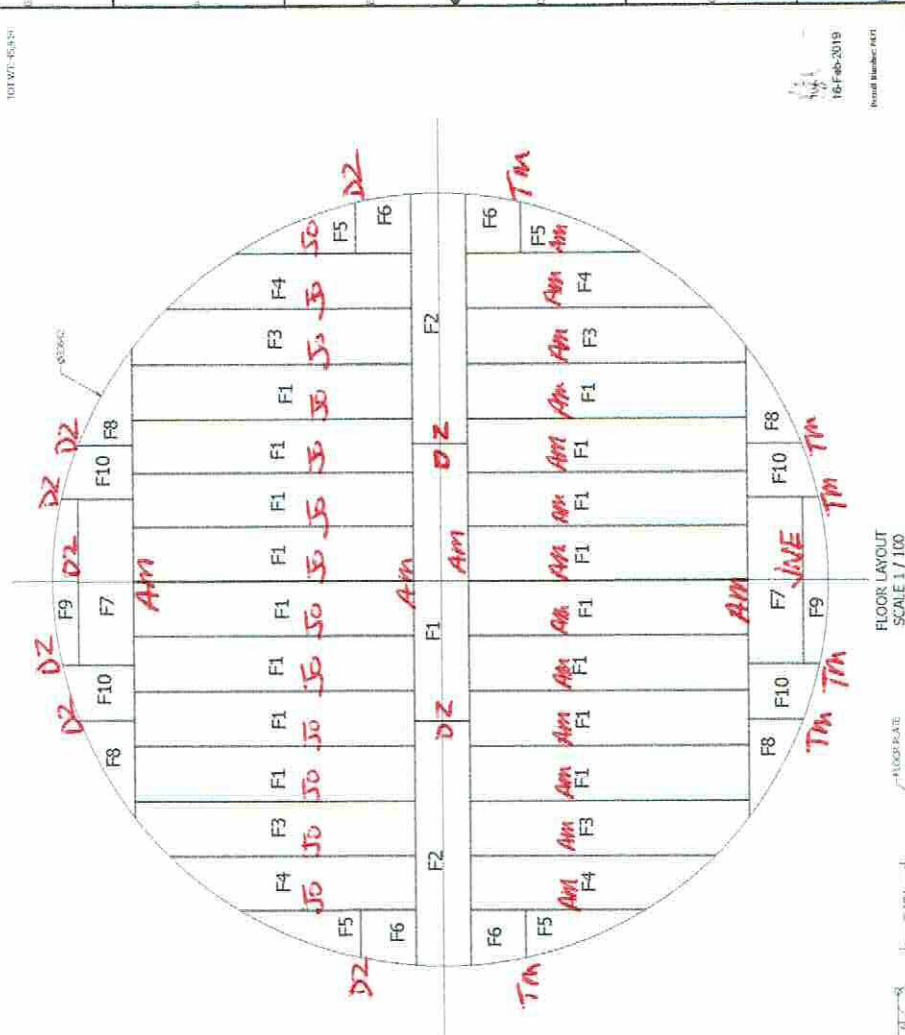
ACCEPTED BY: 
(NAME & SIGNATURE)
STS QC REPRESENTATIVE

DATE: Aug 8/19.

ACCEPTED BY: 
(NAME & SIGNATURE)
CLIENT INSPECTOR

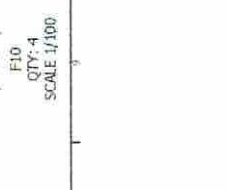
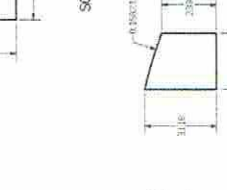
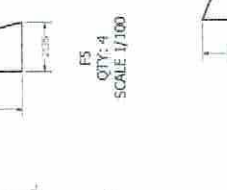
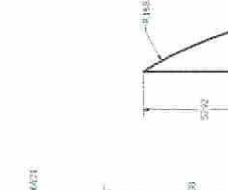
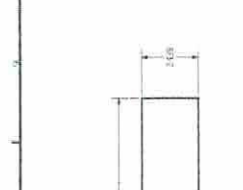
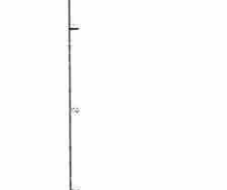
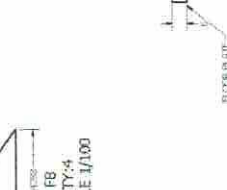
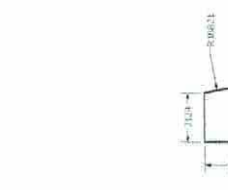
DATE: Aug 8/19

ITEM	QTY	DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL
F1	17	PLATE 1/4" X 8" X 10"	EA	17	1.00	17.00
F2	2	PLATE 1/4" X 8" X 10"	EA	2	1.00	2.00
F3	4	PLATE 1/4" X 8" X 10"	EA	4	1.00	4.00
F4	4	PLATE 1/4" X 8" X 10"	EA	4	1.00	4.00
F5	4	PLATE 1/4" X 8" X 10"	EA	4	1.00	4.00
F6	4	PLATE 1/4" X 8" X 10"	EA	4	1.00	4.00
F7	2	PLATE 1/4" X 8" X 10"	EA	2	1.00	2.00
F8	2	PLATE 1/4" X 8" X 10"	EA	2	1.00	2.00
F9	2	PLATE 1/4" X 8" X 10"	EA	2	1.00	2.00
F10	2	PLATE 1/4" X 8" X 10"	EA	2	1.00	2.00



REV	DATE	DESCRIPTION
1	16-FEB-2019	ISSUED FOR CONSTRUCTION

NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1	PLATE 1/4" X 8" X 10"	17	EA	1.00	17.00
2	PLATE 1/4" X 8" X 10"	2	EA	1.00	2.00
3	PLATE 1/4" X 8" X 10"	4	EA	1.00	4.00
4	PLATE 1/4" X 8" X 10"	4	EA	1.00	4.00
5	PLATE 1/4" X 8" X 10"	4	EA	1.00	4.00
6	PLATE 1/4" X 8" X 10"	4	EA	1.00	4.00
7	PLATE 1/4" X 8" X 10"	2	EA	1.00	2.00
8	PLATE 1/4" X 8" X 10"	2	EA	1.00	2.00
9	PLATE 1/4" X 8" X 10"	2	EA	1.00	2.00
10	PLATE 1/4" X 8" X 10"	2	EA	1.00	2.00



16-FEB-2019
Overall Number: 1001

FLOOR LAYOUT
SCALE 1/100

PLATE OVERLAP WELD DETAIL

SECTION 1

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): *August 17/19*

Tested by: *MAT MACKENZIE*

Ambient Conditions: *10°*

Items Tested:

Floor welds.

Results:

No defects were found. All welding acceptable

STS Representative Signature: *[Signature]*

Date: *Aug 17/19*

Client Representative Signature: *[Signature]*

Date: *Aug 20/19*

QUALITY CONTROL MANUAL

Exhibit 14, Rev 1

VACUUM BOX TEST REPORT – FLOOR PLATE WELDS

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TANK 7

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(A vacuum box/soap solution test for floor plate weld seams is required for new construction or major alterations, no visible leaks should be observed)

Test Solution: Water / Snoop

Ambient Conditions: 10°

Test Date(s): August 17/19

Surface Condition: Clean

Tested by: Matt MacKenzie

Surface Test Temperature:

Pressure Gauge:

Items Tested:

Floor plates _____

Results:

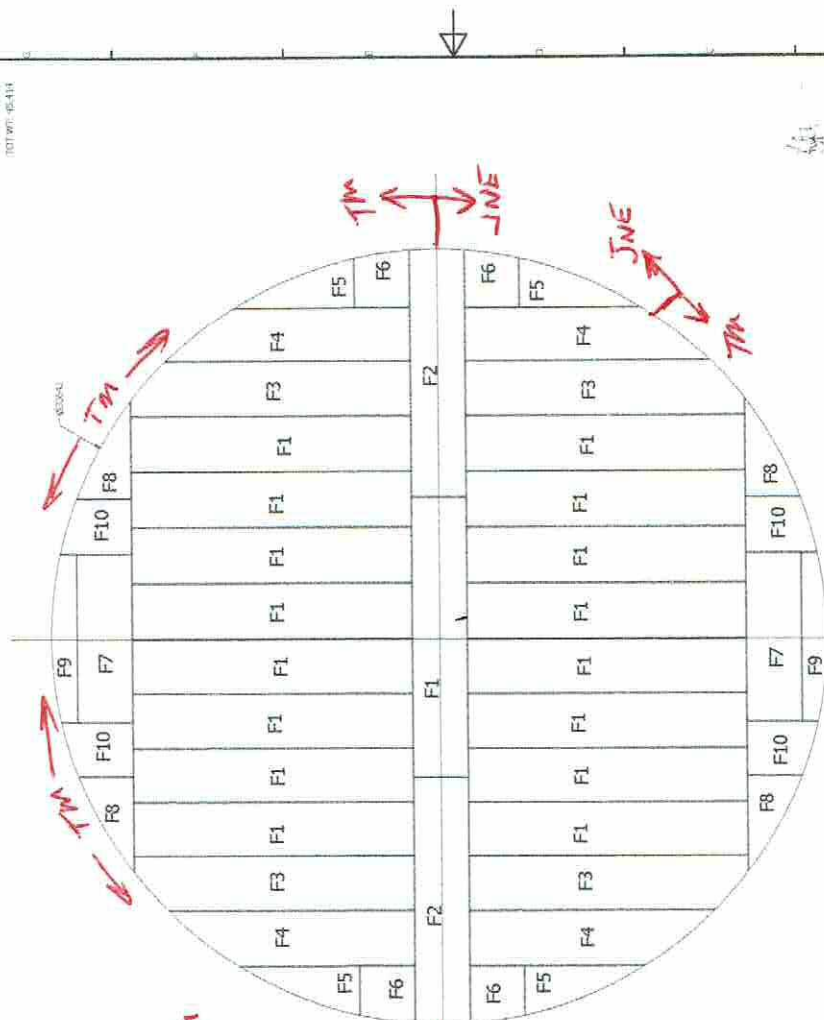
No leak detected _____

STS Representative Signature: *[Signature]* Date: Aug 17/19

Client Representative Signature: *[Signature]* Date: Aug 20/19

ITEM#	QTY	DESCRIPTION	AMBERON	UNIT WT (KG)	TOT WT (KGS)
F1	17	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	66.504
F2	2	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	7.824
F3	4	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	15.648
F4	4	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	15.648
F5	4	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	15.648
F6	4	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	15.648
F7	2	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	7.824
F8	4	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	15.648
F9	7	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	27.384
F10	4	R. 6.25 X 8.58 X 0.109	670.2194.263W	3.912	15.648

TOT WT: 654.11



16-Feb-2019
Project Number: M75

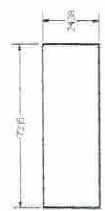
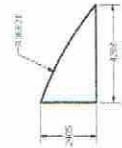
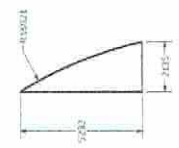
REV	DESCRIPTION	DATE
01	ISSUED FOR CONSTRUCTION	20190216

NO.	DESCRIPTION	UNIT	QTY
1	STEEL	KG	654.11

FLOOR LAYOUT
SCALE 1/100



INSIDE CORNER - AM



QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): August 16/19

Tested by: Matt Mackenzie

Ambient Conditions: 10°

Items Tested: Shell to floor weld

Initial weld pass

Results:

No defects were found. All welding acceptable

STS Representative Signature: *Math H. King* Date: August 16/19

Client Representative Signature: *Bruno J* Date: August 20/19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): Aug 29/19

Tested by: MATT MARKENZIE

Ambient Conditions: 10°

Items Tested: Shell to floor weld

Final weld pass

Results:

No defects were found. All welding acceptable

STS Representative Signature: [Signature] Date: Aug 29/19

Client Representative Signature: [Signature] Date: Sept 3, 2019

QUALITY CONTROL MANUAL

Exhibit 24, Rev 1

DIESEL TEST REPORT (SHELL TO BOTTOM WELD)

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: STORAGE TANK

Equipment Description:

Code Requiring Test: API 650 (section 7.2.4)

Reason for Test: New Construction

(The initial weld pass inside the shell shall have all slag and non-metals removed from the surface of the weld and then examined for its entire circumference both visually and applying a high Flash-point penetrating oil such as light diesel to the gap between the shell and the bottom, letting stand for at least four hours, and examining the weld for evidence of wicking.)

Surface Condition (As Welded)

Test Solution: Diesel

Test Date(s): August 17/19

Tested by: MAT MACKENZIE

Ambient Conditions: 10°

Items Tested:

Shell to bottom seam weld

Results:

No leaks detected at the time of the examination

STS Representative Signature: *[Signature]* Date: August 17/19

Client Representative Signature: *[Signature]* Date: August 20/19

QUALITY CONTROL MANUAL

Exhibit 18, Rev 1

DIMENSIONAL CHECK REPORT – ROUNDNESS

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(The tank shell will be checked for roundness at 12" above the tank floor. Roundness will be checked at 45 degree intervals or less, max. 20' spacing)

Test Date(s): August 8/19

Tested by: Matt MacKenzie

Seam Test Results:

Roundness checks were acceptable

STS Representative Signature:

[Signature]

Date:

August 8/19

Client Representative Signature:

[Signature]

Date:

August 8/19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): Sept 2/19

Tested by: Matt MacKenzie

Ambient Conditions: 7°

Items Tested:

SR1 VERTICALS

Results:

No defects were found. All welding acceptable

STS Representative Signature: *[Signature]*

Date: Sept 2/19

Client Representative Signature: *[Signature]*

Date: Sept 3/19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): August 10/19

Tested by: Matt MacKenzie

Ambient Conditions: 12°

Items Tested:

SR2 VERTICALS AND FIRST HORIZONTAL

Results:

No defects were found. All welding acceptable

STS Representative Signature: [Signature] Date: August 10/19

Client Representative Signature: [Signature] Date: August 20/19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (5/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): August 12/19

Tested by: MATT MACKENZIE

Ambient Conditions: 10°

Items Tested:

SR3 VERTICALS AND SECOND HORIZONTAL

Results:

No defects were found. All welding acceptable

STS Representative Signature: [Signature] Date: August 12/19

Client Representative Signature: [Signature] Date: August 20/19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	8 (1/2)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): August 14/19

Tested by: MATT MACKENZIE

Ambient Conditions: 10°

Items Tested:

SR4 VERTICALS AND THIRD HORIZONTAL

Results:

No defects were found. All welding acceptable

STS Representative Signature: *Shahab-Khan*

Date: August 14/19

Client Representative Signature: *Bruno D*

Date: August 20/19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): AUGUST 17/19

Tested by: MATT MACKENZIE

Ambient Conditions: 10°

Items Tested:

SR5 VERTICALS AND FOURTH HORIZONTAL

Results:

No defects were found. All welding acceptable

STS Representative Signature: [Signature] Date: August 17/19.

Client Representative Signature: Bruno Ry Date: August 20/19

QUALITY CONTROL MANUAL

Exhibit 16, Rev 1

DIMENSIONAL CHECK REPORT – PEAKING

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Each vertical seam will be checked for peaking and max. peak dimension recorded for that seam.)

Test Date(s):

Tested by:

Seam Test Results:

1V1-	<u>0</u>	1V2-	<u>1/16</u>	1V3-	<u>1/16</u>	1V4-	<u>1/4</u>	1V5-	<u>0</u>
1V6-	<u>0</u>	1V7-	<u>1/4</u>	1V8-	<u>1/16</u>	1V9-	<u>0</u>	1V10-	<u>1/16</u>
								1V11-	<u>1/16</u>

STS Representative Signature: [Signature] Date: Sept 2/19

Client Representative Signature: [Signature] Date: Sept 3/19

QUALITY CONTROL MANUAL

Exhibit 17, Rev 1

DIMENSIONAL CHECK REPORT – BANDING

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Each circumferential seam will be checked for banding and max. banding dimension recorded for that seam. Circumferential seams will be checked at 45 degree intervals or less, max. 20' spacing)

Test Date(s): August 10/19

Tested by: MATT MACKENZIE

Seam Test Results:

MAXIMUM BANDING RECORDED FOR THE FIRST HORIZONTAL - 3/8"

STS Representative Signature:  Date: Aug 10/19

Client Representative Signature:  Date: Aug 20/19

QUALITY CONTROL MANUAL

Exhibit 16, Rev 1

DIMENSIONAL CHECK REPORT – PEAKING

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Each vertical seam will be checked for peaking and max. peak dimension recorded for that seam.)

Test Date(s): AUGUST 12/19

Tested by: MATT MACKENZIE

Seam Test Results:

2V1-	<u>1/16</u>	2V2-	<u>1/16</u>	2V3-	<u>1/8</u>	2V4-	<u>0</u>	2V5-	<u>1/16</u>
2V6-	<u>0</u>	2V7-	<u>0</u>	2V8-	<u>1/16</u>	2V9-	<u>3/16</u>	2V10-	<u>1/4</u>

STS Representative Signature: [Signature] Date: Aug 12/19

Client Representative Signature: [Signature] Date: Aug 20/19

QUALITY CONTROL MANUAL

Exhibit 17, Rev 1

DIMENSIONAL CHECK REPORT – BANDING

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Each circumferential seam will be checked for banding and max. banding dimension recorded for that seam. Circumferential seams will be checked at 45 degree intervals or less, max. 20' spacing)

Test Date(s): AUGUST 12/19

Tested by: MATT MACKENZIE

Seam Test Results:

MAXIMUM BANDING RECORDED FOR THE SECOND HORIZONTAL - $\frac{1}{4}$ "

STS Representative Signature:  Date: AUG 12/19

Client Representative Signature:  Date: AUG 20/19

QUALITY CONTROL MANUAL

Exhibit 16, Rev 1

DIMENSIONAL CHECK REPORT – PEAKING

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Each vertical seam will be checked for peaking and max. peak dimension recorded for that seam.)

Test Date(s): AUGUST 13/19

Tested by: MATT MACKENZIE

Seam Test Results:

3V1- <u>1/8</u>	3V2- <u>1/16</u>	3V3- <u>1/8</u>	3V4- <u>3/16</u>	3V5- <u>1/16</u>
3V6- <u>1/8</u>	3V7- <u>0</u>	3V8- <u>3/16</u>	3V9- <u>0</u>	3V10- <u>0</u>

STS Representative Signature: *[Signature]* Date: AUG 13/19

Client Representative Signature: *[Signature]* Date: AUG 20/19

QUALITY CONTROL MANUAL

Exhibit 17, Rev 1

DIMENSIONAL CHECK REPORT – BANDING

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Each circumferential seam will be checked for banding and max. banding dimension recorded for that seam. Circumferential seams will be checked at 45 degree intervals or less, max. 20' spacing)

Test Date(s): August 13/19

Tested by: MATT MACKENZIE

Seam Test Results:

MAXIMUM BANDING RECORDED FOR THE THIRD HORIZONTAL - $\frac{1}{4}$ "

STS Representative Signature: *[Signature]* Date: August 13/19

Client Representative Signature: *Bruno Rj* Date: August 20/19

QUALITY CONTROL MANUAL

Exhibit 16, Rev 1

DIMENSIONAL CHECK REPORT – PEAKING

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Each vertical seam will be checked for peaking and max. peak dimension recorded for that seam.)

Test Date(s): AUGUST 14/19

Tested by: MATT MACKENZIE

Seam Test Results:

4V1-	<u>3/16</u>	4V2-	<u>1/8</u>	4V3-	<u>Ø</u>	4V4-	<u>1/16</u>	4V5-	<u>1/8</u>
4V6-	<u>1/8</u>	4V7-	<u>Ø</u>	4V8-	<u>3/16</u>	4V9-	<u>Ø</u>	4V10-	<u>1/4</u>

STS Representative Signature: [Signature] Date: AUGUST 14/19

Client Representative Signature: [Signature] Date: AUGUST 20/19

QUALITY CONTROL MANUAL

Exhibit 17, Rev 1

DIMENSIONAL CHECK REPORT – BANDING

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Each circumferential seam will be checked for banding and max. banding dimension recorded for that seam. Circumferential seams will be checked at 45 degree intervals or less, max. 20' spacing)

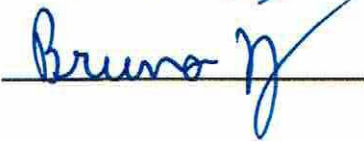
Test Date(s): AUGUST 14/19

Tested by: MATT MACKENZIE

Seam Test Results:

MAXIMUM BANDING RECORDED FOR THE FOURTH HORIZONTAL - $\frac{1}{4}$ "

STS Representative Signature:  Date: AUGUST 14/19

Client Representative Signature:  Date: AUGUST 20/19

QUALITY CONTROL MANUAL

Exhibit 16, Rev 1

DIMENSIONAL CHECK REPORT – PEAKING

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Each vertical seam will be checked for peaking and max. peak dimension recorded for that seam.)

Test Date(s): AUGUST 17/19

Tested by: MATT MACKENZIE

Seam Test Results:

5V1-	<u>1/16</u>	5V2-	<u>1/16</u>	5V3-	<u>1/8</u>	5V4-	<u>1/8</u>	5V5-	<u>1/8</u>
5V6-	<u>1/4</u>	5V7-	<u>1/8</u>	5V8-	<u>1/16</u>	5V9-	<u>1/16</u>	5V10-	<u>0</u>

STS Representative Signature: [Signature] Date: August 17/19

Client Representative Signature: [Signature] Date: August 20/19



QUALITY CONTROL MANUAL

Exhibit 25, Rev 1

DIESEL TEST REPORT (SHELL)

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: STORAGE TANK

Equipment Description

Code Requiring Test: API 650 (section 7.3.5)

Reason for Test: New Construction

(The shell shall be tested by painting all of the joints on the inside with a highly penetrating oil and carefully examining the outside of the joints for leakage.)

Surface Condition (As Welded)

Test Solution: Diesel

Test Date(s): Sept 2/19

Tested by: Matt MacKenzie

Ambient Conditions: 70

Items Tested:

SR1, SR2, SR3, SR4, SR5 VERTS AND FIRST SECOND THIRD AND FORTH

HORIZONTAL

Results:

NO LEAK DETECTED

STS Representative Signature: [Signature] Date: Sept 2/19

Client Representative Signature: [Signature] Date: Sept 3/19

QUALITY CONTROL MANUAL

Exhibit 19, Rev 1

DIMENSIONAL CHECK REPORT – PLUMBNESS

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(The tank shell will be checked for plumb at 12" below the tank roof. Plumb measurements will be checked at 45 degree intervals or less, max. 20' spacing)

Test Date(s): August 29/19

Tested by: Matt Mackenzie

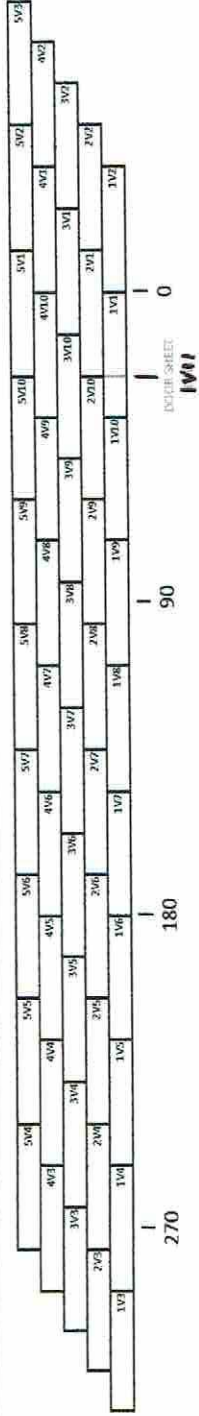
Seam Test Results:

$0^{\circ} - 90^{\circ} - \frac{7}{16}, -\frac{1}{2}, -1\frac{15}{16}, -\frac{3}{8}, -\frac{3}{8}$
 $90^{\circ} - 180^{\circ} - \frac{3}{8}, -\frac{1}{4}, -1\frac{7}{8}, +\frac{1}{2}, +\frac{3}{16}, +2$
 $180^{\circ} - 270^{\circ} +2\frac{1}{8}, -\frac{7}{8}, -1\frac{7}{8}, -1\frac{1}{16}, -1\frac{5}{8}$
 $270^{\circ} - 0^{\circ} -1\frac{5}{8}, -1\frac{7}{8}, -1\frac{1}{16}, -1\frac{5}{8}, -\frac{3}{4}$

STS Representative Signature: [Signature] Date: Aug 29/19

Client Representative Signature: [Signature] Date: Sept 3, 19

Tank #7 Baker Lake (AEM)



NDT TECHNICIAN WILL INITIAL EACH BOX WHEN WELD IS ACCEPTABLE

B ---> BOTTOM OF THE VERT (0-6") | M ---> MIDDLE OF THE VERT (45"-51") | T ---> TOP OF THE VERT (90"-96")

VERTICAL SEAMS MAPPING UT

1V1	B	M	T	FULL
1V1	UT FULL BECAUSE NOZZLE INTO VERT			
1V2				
1V3				
1V4				
1V5				
1V6	UT FULL BECAUSE NOZZLE INTO VERT			
1V7				
1V8				
1V9				
1V10				
1V11				

2V1	B	T
2V1		
2V2		
2V3		
2V4		
2V5		
2V6		
2V7		
2V8		
2V9		
2V10		

3V1	B	T
3V1		
3V2		
3V3		
3V4		
3V5		
3V6		
3V7		
3V8		
3V9		
3V10		

4V1	B	T
4V1		
4V2		
4V3		
4V4		
4V5		
4V6		
4V7		
4V8		
4V9		
4V10		

5V1	B	T
5V1		
5V2		
5V3		
5V4		
5V5		
5V6		
5V7		
5V8		
5V9		
5V10		

HORIZONTAL SEAMS MAPPING UT

H1V2	30"-36"	
H1V8	42"-48"	
Middle door sheet		
H2V3	24"-30"	
H2V9	36"-42"	
H3V1	60"-66"	
H3V7	42"-48"	
H4V5	24"-30"	
H4V9	36"-42"	

MAG PARTICLE

SHELL MANHOLE 0°	
SHELL MANHOLE 90°	
SHELL MANHOLE 180°	
SHELL MANHOLE 270°	
SHELL MANHOLE NECK (SEAM) 0°	
SHELL MANHOLE NECK (SEAM) 90°	
SHELL MANHOLE NECK (SEAM) 180°	
SHELL MANHOLE NECK (SEAM) 270°	
NOZZLE SN3 (x1)	
NOZZLE SN4 (x1)	
NOZZLE SN5 (x2)	
NOZZLE SN6 (x6)	

STS Representative Signature: *[Signature]* Date: Sept 2/19
 Client Representative Signature: *[Signature]* Date: Sept 2/19
 NDT Representative Signature: *[Signature]* Date: 2019-09-02

MICHAEL LARVENIERE
 CGSB 48942 HT-PT-UT
 LEVEL II INSPECTOR
 CERT# 12977

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/16)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	6 (3/16)
> 25 (1)	5 (5/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): August 19/19

Tested by: MATT MACKENZIE

Ambient Conditions: 10°

Items Tested:

COMPRESSION RING WELD

Results:

NO DEFECTS WERE FOUND. ALL WELDING ACCEPTABLE

STS Representative Signature: *Stacy Wolfe* Date: Aug 19/19

Client Representative Signature: *Bruno D* Date: August 20/19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	6 (3/16)
> 25 (1)	5 (5/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): *Aug 25/19*

Tested by: *MAT MACKENZIE*

Ambient Conditions: *12°*

Items Tested:

ROOF WELDS

Results:

NO DEFECTS WERE FOUND. ALL WELDING ACCEPTABLE

STS Representative Signature: *[Signature]* Date: *Aug 25/19*

Client Representative Signature: *[Signature]* Date: *Aug 28/19*

QUALITY CONTROL MANUAL

Exhibit 15, Rev 1

VACUUM BOX TEST REPORT – ROOF PLATE WELDS

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TANK 7

Equipment Type:

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(A vacuum box/soap solution test for roof plate weld seams is required for new construction or major alterations, no visible leaks should be observed)

Test Solution: Water / Snoop

Ambient Conditions: 10°

Test Date(s): AUGUST 28/19

Surface Condition: CLEAN

Tested by: MAT MACKENZIE

Surface Test Temperature:

Pressure Gauge:

Items Tested:

ROOF PLATES WELDS

Results:

NO LEAK DETECTED

STS Representative Signature: [Signature] Date: Aug 28/19

Client Representative Signature: [Signature] Date: Sept 3, 19

QUALITY CONTROL MANUAL

Exhibit 19, Rev 1

DIMENSIONAL CHECK REPORT – PLUMBNESS

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(The tank shell will be checked for plumb at 12" below the tank roof. Plumb measurements will be checked at 45 degree intervals or less, max. 20' spacing)


Test Date(s): Aug 26/19

Tested by: MAT MACKENZIE

Test Results:

The Maximum out of plumbness of the columns does not exceed 1/200 of the total
height

STS Representative Signature:  Date: Aug 26/19

Client Representative Signature:  Date: Aug 26/19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (5/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): Aug 26/19

Tested by: MATT MACKENZIE

Ambient Conditions: 12°

Items Tested:

ROOF STRUCTURE FIELD WELDS.

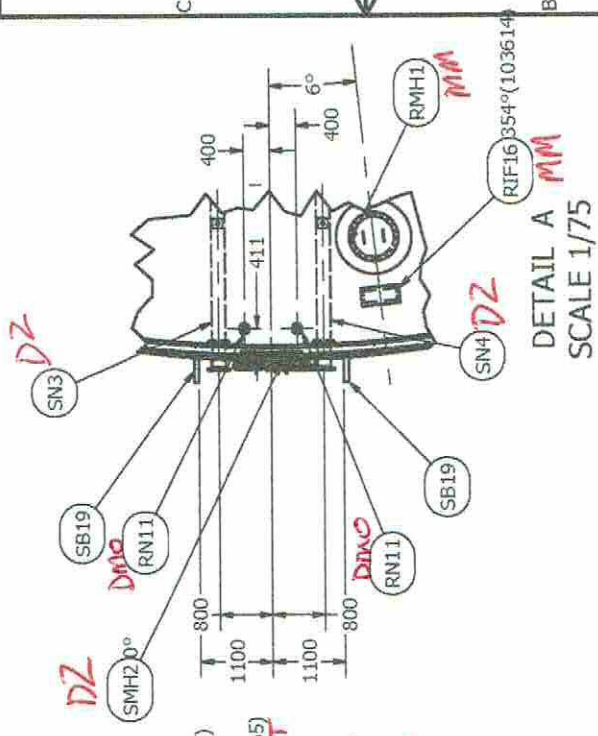
Results:

NO DEFECTS WERE FOUND. ALL WELDING ACCEPTABLE

STS Representative Signature: [Signature] Date: Aug 26/19

Client Representative Signature: [Signature] Date: August 28/19

DIMENSION IN () DENOTES
ARC LENGTH ON THE EXTERIOR OF
THE SHELL FROM 0° IN MILLIMETRES
MEASURED ON COURSE ONE (1) FOR SHELL NOZZLES
AND ON COURSE FIVE (5) FOR ROOF NOZZLES

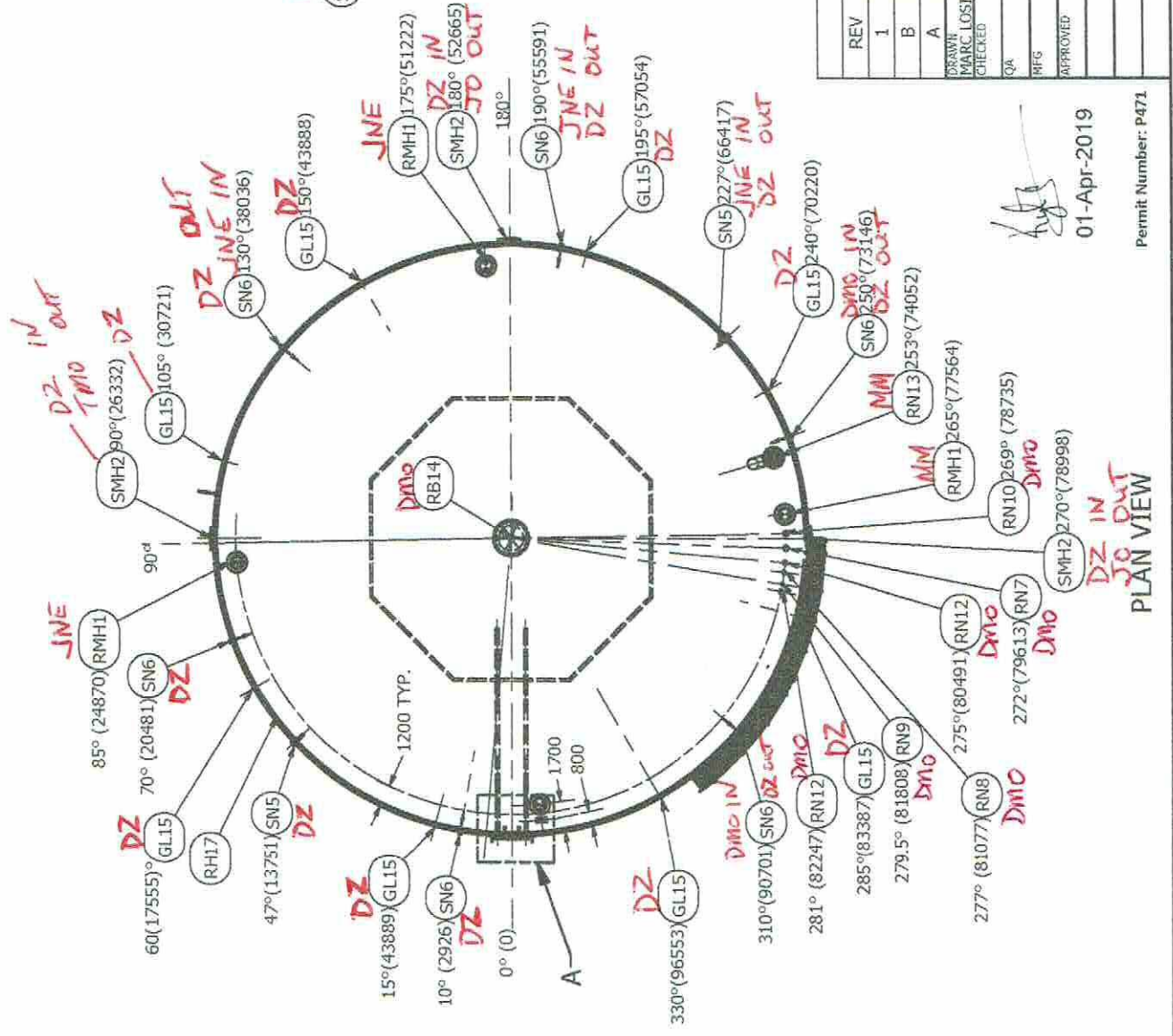


DETAIL A
SCALE 1/75

REVISION HISTORY

REV	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	3/27/2019
B	ISSUED FOR REVIEW	3/25/2019
A	ISSUED FOR REVIEW	2/26/2019

DRAWN		CHECKED		QA		RFG		APPROVED	
MARC LOSTER									
GENERAL ARRANGEMENT AND NOZZLE LAYOUT									
TITLE									
BAKER LAKE WHALE TAIL PROJECT - 10M LITERS -									
TANK # 7: 6170TNK42									
SIZE	DWG NO								
A3	315-M6								
SCALE	1/2.50								
REV	1								



01-Apr-2019
Permit Number: P471

PLAN VIEW

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	8 (1/2)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): Aug 28/19

Tested by: Matt Mackenzie

Ambient Conditions: 12°

Items Tested:

NOZZLES WELDS.

Results:

NO DEFECTS WERE FOUND. ALL WELDING ACCEPTABLE

STS Representative Signature: [Signature] Date: Aug 29/19

Client Representative Signature: [Signature] Date: August 28/19

QUALITY CONTROL MANUAL

Exhibit 31, Rev 1

DIMENSIONAL CHECK REPORT- NOZZLES

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Nozzles (excluding manholes) shall be installed within the following tolerances:


- a) specified projection from outside of tank shell to extreme face of flange: ± 5 mm (3/16 in.);
- b) elevation of shell nozzle or radial location of a roof nozzle: ± 6 mm (1/4 in.);
- c) flange tilt in any plane, measured on the flange face:
 - $\pm 1/2$ degree for nozzles greater than NPS 12 in. nominal diameter,
 - ± 3 mm (1/8 in.) at the outside flange diameter for nozzles NPS 12 and smaller;
- d) flange bolt hole orientation: ± 3 mm (1/8 in.).)

Test Date(s): Sept 2/19

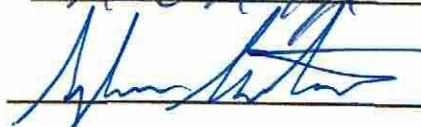
Tested by: Matt MacKenzie

Test Results:

ALL NOZZLES ARE WITHIN TOLERANCES

STS Representative Signature: 

Date: Sept 2/19

Client Representative Signature: 

Date: Sept 3, 19

QUALITY CONTROL MANUAL

Exhibit 12, Rev 1

AIR TEST REPORT – NOZZLE REINFORCEMENT PLATE WELDS

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TANK 7

Equipment Type:

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(An air pressure/soap solution test for nozzle reinforcement plate weld seams is required for new construction or major alterations, no visible leaks should be observed)

Test Pressure: 100 kPa (15 psi) Surface Condition (As Welded, Painted, Blasted)

Test Solution: Water / Snoop: Test Date(s): Sept 2/19

Tested by: Matt MacKenzie Pressure Gauge: Ambient Conditions: 7°

Items Tested:

SHELL NOZZLES _____

Results:

NO LEAKS WERE DETECTED AT THE TIME OF THE INSPECTION _____

STS Representative Signature: [Signature] Date: Sept 2/19

Client Representative Signature: [Signature] Date: Sept 3, 19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (5/16)
> 25 (1)	5 (5/16)	8 (5/8)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): Aug 28/19

Tested by: Matt Mackenzie

Ambient Conditions: 12°

Items Tested:

MANWAY WELDS.

Results:

NO DEFECTS WERE FOUND. ALL WELDING ACCEPTABLE

STS Representative Signature: [Signature] Date: Aug 28/19.

Client Representative Signature: [Signature] Date: August 28/19

QUALITY CONTROL MANUAL

Exhibit 32, Rev 1

DIMENSIONAL CHECK REPORT- MANWAYS

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TK 7

Equipment Type: DIESEL STORAGE TANK

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(Manholes shall be installed within the following tolerances:

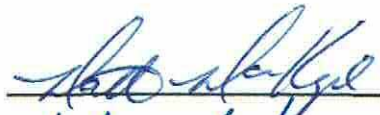
- a) specified projection from outside of shell to extreme face of flange, ± 13 mm (1/2 in.)
- b) elevation and angular location, ± 13 mm (1/2 in.)
- c) flange tilt in any plane, measured across the flange diameter, ± 13 mm (1/2 in.)

Test Date(s): Sept 2/19

Tested by: Matt MacKenzie

Test Results:

ALL MANWAYS ARE WITHIN TOLERANCES _____

STS Representative Signature:  Date: Sept 2/19

Client Representative Signature:  Date: Sept 3, 19

QUALITY CONTROL MANUAL

Exhibit 12, Rev 1

AIR TEST REPORT – NOZZLE REINFORCEMENT PLATE WELDS

Customer: AGNICO EAGLE

Location: BAKER LAKE

Equipment Tag No.: TANK 7

Equipment Type:

Equipment Description:

Code Requiring Test: API 650

Reason for Test: New Construction

(An air pressure/soap solution test for nozzle reinforcement plate weld seams is required for new construction or major alterations, no visible leaks should be observed)

Test Pressure: 100 kPa (15 psi)

Surface Condition (As Welded, Painted, Blasted)

Test Solution: Water / Snoop:

Test Date(s): Sept 2/19

Tested by: Matt MacKenzie

Pressure Gauge:

Ambient Conditions: 7°

Items Tested:

SHELL MANWAYS

Results:

NO LEAKS WERE DETECTED AT THE TIME OF THE INSPECTION

STS Representative Signature: [Signature] Date: Sept 2/19.

Client Representative Signature: [Signature] Date: Sept 3, 19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): *Aug 28/19*

Tested by: *Nat Mackenzie*

Ambient Conditions: *12°*

Items Tested:

INTERNALS WELDS.

Results:

NO DEFECTS WERE FOUND. ALL WELDING ACCEPTABLE

STS Representative Signature: *[Signature]* Date: *Aug 28/19*

Client Representative Signature: *[Signature]* Date: *Aug. 28/19*

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	6 (1/4)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): Sept 2/19

Tested by: Nat MacKenzie

Ambient Conditions: 7°

Items Tested:

EXTERNALS/ ATTACHEMENTS WELDS.

Results:

NO DEFECTS WERE FOUND. ALL WELDING ACCEPTABLE

STS Representative Signature: [Signature] Date: Sept 2/19.

Client Representative Signature: [Signature] Date: Sept 3, 19

QUALITY CONTROL MANUAL

Exhibit 26, Rev 1

VISUAL TEST REPORT

Customer: AGNICO EAGLE

Location: BAKER LAKE

Code Requiring Test: API 650 (section 8.5.2)

Reason for Test: New Construction

A weld shall be acceptable by visual examination if the inspection shows the following.

- a) There are no crater cracks, other surface cracks or arc strikes in or adjacent to the welded joints.
- b) Maximum permissible undercut is 0.4 mm (1/64 in.) in depth for vertical butt joints, vertically oriented permanent attachments, attachment welds for nozzles, manholes, flush-type openings, and the inside shell-to-bottom welds. For horizontal butt joints, horizontally oriented permanent attachments, and annular-ring butt joints, the maximum permissible undercut is 0.8 mm (1/32 in.) in depth.
- c) The frequency of surface porosity in the weld does not exceed one cluster (one or more pores) in any 100 mm (4 in.) of length, and the diameter of each cluster does not exceed 2.5 mm (3/32 in.).
- d) The reinforcement of the welds on all thicknesses:

Plate Thickness mm (in.)	Maximum Reinforcement Thickness mm (in.)	
	Vertical Joints	Horizontal Joints
≤ 13 (1/2)	2.5 (3/32)	3 (1/8)
> 13 (1/2) to 25 (1)	3 (1/8)	5 (3/16)
> 25 (1)	5 (3/16)	8 (1/2)

Surface Condition (As Welded)

Test Solution: N/A

Test Date(s): Aug 29/19

Tested by: NAT MACKENZIE

Ambient Conditions: 10°

Items Tested:

STAIRS AND PLATFORMS WELDS.

Results:


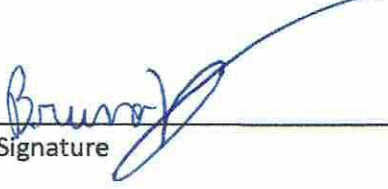
NO DEFECTS WERE FOUND. ALL WELDING ACCEPTABLE

STS Representative Signature: [Signature] Date: Aug 29/19

Client Representative Signature: [Signature] Date: Sept 3, 19

**QUALITY CONTROL MANUAL
DEFICIENCY PUNCH LIST RECORD**

Exhibit 29, Rev 1

Project: AEM, BAKER LAKE		Project No.: Inukshuk Construction -1	Tank Tag: Tk-7 Date: <u>Sept 4/19</u>	
Item No.	Drawing No.	Deficiency	Date Completed	Sign Off
1		Internal piping Torque.	Sept 4/19.	B. Roy
2		Clean up rocks inside tank.	Sept 4/19.	B. Roy
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Matthew MacKenzie STORAGE TANK SOLUTIONS		 Signature	<u>Sept 4/19.</u> Date:	
BRUNO ROY Agnico Eagle Representative		 Signature	<u>Sept 4/19</u> Date:	



Client : Inukshuk Construction Ltd.	Date d'intervention : 2019-08-30 to 2019-09-03
Adresse/Address : 1869 Upper Water St, Halifax, NS, B3J 1S9	Intervention date :
Contact : Marc Losier	Date du rapport : 2019-09-02
Entrepreneur : Storage Tank Solutions	Report date :
Contractor :	N° dossier : 00197
File no :	Commande :
Order :	
Endroit du travail : Baker Lake, Nunavut	
Job location :	

INSP. VISUELLE <input type="checkbox"/>	MAGNÉTOSCOPIE <input checked="" type="checkbox"/>	RESSUAGE <input type="checkbox"/>	ULTRASONS <input type="checkbox"/>
VISUAL INSP.	MAGNETIC PARTICLES	LIQUID PENETRANT	ULTRASONIC

DESCRIPTION :

BAKER LAKE WHALE TAIL PROJECT – 10M LITERS TANK #7 (6170TNK42)

Magnetic particles test on all shell openings (nozzles, manways and reinforcement pads) on the tank, in accordance of API 650.

Reference Drawing No: 315-M6 Rev 1 (6 sheets) & 315-M10 Rev

INSP. VISUELLE / VISUAL INSP.	NORME : SPECIFICATION :	N° équip. : Equip. no :
MAGNÉTOSCOPIE	NORME : SPECIFICATION : API 650 & ASME Section V article 7	N° équip. : Equip. no : MPTR38
MAGNETIC PARTICLES		
Ampérage : Culasse/Yoke <input type="checkbox"/>	Continue <input checked="" type="checkbox"/>	Résiduelle <input type="checkbox"/>
Amperage : Longitudinale <input checked="" type="checkbox"/>	Continuouse <input type="checkbox"/>	Humide <input type="checkbox"/>
Longitudinal <input checked="" type="checkbox"/>	Circulaire <input type="checkbox"/>	Wet <input type="checkbox"/>
	C.A. <input checked="" type="checkbox"/>	C.C. <input type="checkbox"/>
	A.C. <input type="checkbox"/>	D.C. <input type="checkbox"/>
		Sèche <input checked="" type="checkbox"/>
		Dry <input type="checkbox"/>
		Démagnétisée <input type="checkbox"/>
		Demagnetized <input type="checkbox"/>

RESSUAGE	NORME : SPECIFICATION :	N° équip. : Equip. no :
LIQUID PENETRANT		
Pénétrant/Penetrant :	Émulsifiant/Emulsifier :	Révéléateur/Developer :
Temps/Time :	Temps/Time :	Temps/Time :

ULTRASONS / ULTRASONIC	NORME : SPECIFICATION :	
ÉTALONNAGE/CALIBRATION :		
Bloc/Block :	Trou/Hole :	C.A.D. /D.A.C. : <input type="checkbox"/>
APPAREIL/EQUIPMENT :		
Instrument :	Couplant :	Échelle/Sweep length :
N° équip./Equip. no :	Palpeur/Transducer :	

RÉSULTATS/RESULTS :

After inspection, all the openings components welds were found acceptable as the standard.

See the result details as described in the table below and the photos attached

Note: Visual inspection was performed by client.

Techniciens : Michael Lafreniere	Assistants:	Approuvé par :
Technicians : CSA W178.2 Level II CGSB 48.9712 UT-MT-PT Level II		Approved by : CSA W178.2

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Adresse/Address :	1869 Upper Water St, Halifax, NS, B3J 1S9	Intervention date :	
Contact :	Marc Losier	Date du rapport :	2019-09-02
Entrepreneur :	Storage Tank Solutions	Report date :	
Contractor :		N° dossier :	00197
File no :		Commande :	
Order :			
Endroit du travail :	Baker Lake, Nunavut		
Job location :			

MAGNETIC PARTICULES INSPECTION TANK-- RESULT TABLE				
SHELL OPENING PART #	DEGREE LOCATION	INSPECTION WELDS	MT RESULTS	
			INSIDE	OUTSIDE
Manway SMH2	0	Circular / Reinforced pad / Seam	Accepted	Accepted
Nozzle SN3	3 (approx.)	Circular / Reinforced pad	Accepted	Accepted
Nozzle SN6	10	Circular / Reinforced pad	Accepted	Accepted
Nozzle SN5	47	Circular / Reinforced pad	Accepted	Accepted
Nozzle SN6	70	Circular / Reinforced pad	Accepted	Accepted
Manway SMH2	90	Circular / Reinforced pad / Seam	Accepted	Accepted
Nozzle SN6	130	Circular / Reinforced pad	Accepted	Accepted
Manway SMH2	180	Circular / Reinforced pad / Seam	Accepted	Accepted
Nozzle SN6	190	Circular / Reinforced pad	Accepted	Accepted
Nozzle SN5	227	Circular / Reinforced pad	Accepted	Accepted
Nozzle SN6	250	Circular / Reinforced pad	Accepted	Accepted
Manway SMH2	270	Circular / Reinforced pad / Seam	Accepted	Accepted
Nozzle SN6	310	Circular / Reinforced pad	Accepted	Accepted
Nozzle SN4	357(approx.)	Circular / Reinforced pad	Accepted	Accepted*

*Accepted after a grinding of surface indication.

Note: Location degree are taken as the reference drawing No: 315-M6 Rev 1 (sheet 1)

Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.9712 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by :	CSA W178.2
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Entrepreneur :	Storage Tank Solutions	Report date :	
Contractor :		N° dossier :	00197
File no :		Commande :	
Endroit du travail :	Baker Lake, Nunavut	Order :	
Job location :			



Photo #1:

Overview

Baker lake whale tail project – 10m liters tank #7

Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.9712 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by :	CSA W178.2
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Contact :	Marc Losier	Date du rapport :	2019-09-02
Entrepreneur :	Storage Tank Solutions	Report date :	
Contractor :		N° dossier :	00197
File no :		Commande :	
Order :			
Endroit du travail :	Baker Lake, Nunavut		
Job location :			



Photo #2: Manway (0 degree)
Nozzles SN3 (3degree) & SN4 (357 degree)



Photo #3: Nozzle SN6 (10 degree)



Photo #4: Nozzle SN5 (47 degree)



Photo #5: Nozzle SN6 (70 degree)



Photo #6: Manway (90 degree)



Photo #7: Nozzle SN6 (130 degree)

Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.9712 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by :	CSA W178.2
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Contact :	Marc Losier	Date du rapport :	2019-09-02
Entrepreneur :	Storage Tank Solutions	Report date :	
Contractor :		N° dossier :	00197
File no :		Commande :	
Order :			
Endroit du travail :	Baker Lake, Nunavut		
Job location :			



Photo #8: Manway (180 degree)



Photo #9: Nozzle SN6 (190 degree)



Photo #10: Nozzle SN5 (227 degree)



Photo #11: Nozzle SN6 (250 degree)



Photo #12: Manway (270 degree)



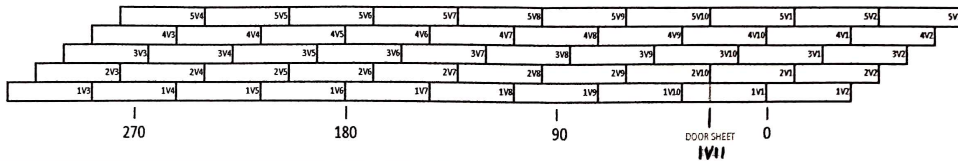
Photo #13: Nozzle SN6 (310 degree)

Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.9712 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by :	CSA W178.2
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Contact : Marc Losier	Date du rapport : 2019-09-02
Entrepreneur : Storage Tank Solutions	Report date :
Contractor :	N° dossier : 00197
File no :	
Endroit du travail : Baker Lake, Nunavut	Commande :
Job location :	Order :

Tank #7 Baker Lake (AEM)



NDT TECHNICIAN WILL INITIAL EACH BOX WHEN WELD IS ACCEPTABLE

B ----> BOTTOM OF THE VERT (0-6") M ----> MIDDLE OF THE VERT (45"-51") T ----> TOP OF THE VERT (90"-96")

VERTICAL SEAMS MAPPING UT

	B	M	T	FULL		B	T		B	T		B	T		B	T	
1V1					UT FULL BECAUSE NOZZLE INTO VERT	2V1			3V1			4V1			5V1		
1V2						2V2			3V2			4V2			5V2		
1V3						2V3			3V3			4V3			5V3		
1V4						2V4			3V4			4V4			5V4		
1V5						2V5			3V5			4V5			5V5		
1V6					UT FULL BECAUSE NOZZLE INTO VERT	2V6			3V6			4V6			5V6		
1V7						2V7			3V7			4V7			5V7		
1V8						2V8			3V8			4V8			5V8		
1V9						2V9			3V9			4V9			5V9		
1V10						2V10			3V10			4V10			5V10		
IVII																	

HORIZONTAL SEAMS MAPPING UT

H1V2 30"-36"	H2V3 24"-30"	H3V1 60"-66"	H4V5 24"-30"
H1V8 42"-48"	H2V9 36"-42"	H3V7 42"-48"	H4V9 36"-42"

Middle door sheet

MAG PARTICLE

SHELL MANHOLE 0°	SHELL MANHOLE NECK (SEAM) 0°	NOZZLE SN3 (x1)
SHELL MANHOLE 90°	SHELL MANHOLE NECK (SEAM) 90°	NOZZLE SN4 (x1)
SHELL MANHOLE 180°	SHELL MANHOLE NECK (SEAM) 180°	NOZZLE SN5 (x2)
SHELL MANHOLE 270°	SHELL MANHOLE NECK (SEAM) 270°	NOZZLE SN6 (x6)

STS Representative Signature: <i>[Signature]</i>	Date: Sept 2/19
Client Representative Signature: <i>[Signature]</i>	Date: Sept 2/19
NDT Representative Signature: <i>[Signature]</i>	Date: 2019-09-02

MICHAEL LAFRENIERE
CGSB 48.972 MT-PT-UT
LEVEL II INSPECTOR
CERT# : R977

CLIENT QUALITY INSPECTION PLAN

Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.972 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by :	CSA W178.2
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Contact : Marc Losier	Date du rapport : 2019-09-02
Entrepreneur : Storage Tank Solutions	Report date :
Contractor :	N° dossier : 00197
File no :	Commande :
Ordre :	
Endroit du travail : Baker Lake, Nunavut	
Job location :	

INSP. VISUELLE VISUAL INSP. <input type="checkbox"/>	MAGNÉTOSCOPIE MAGNETIC PARTICLES <input type="checkbox"/>	RESSUAGE LIQUID PENETRANT <input type="checkbox"/>	ULTRASONS ULTRASONIC <input checked="" type="checkbox"/>
DESCRIPTION :			
<u>BAKER LAKE WHALE TAIL PROJECT – 10M LITERS TANK #7 (6170TNK42)</u>			
Ultrasonic inspection on butt joints tank in accordance of API 650.			
Reference Drawing No: 315-M6 Rev 1 (6 sheets) & 315-M10 Rev			
INSP. VISUELLE / VISUAL INSP.	NORME : SPECIFICATION :	N° équip. : Equip. no :	
MAGNÉTOSCOPIE MAGNETIC PARTICLES	NORME : SPECIFICATION :	N° équip. : Equip. no :	
Ampérage : Culasse/Yoke <input type="checkbox"/>	Continue <input type="checkbox"/>	Résiduelle <input type="checkbox"/>	Humide <input type="checkbox"/>
Amperage : Longitudinale <input type="checkbox"/>	Continuouse <input type="checkbox"/>	Residual <input type="checkbox"/>	Wet <input type="checkbox"/>
Longitudinal <input type="checkbox"/>	Circulaire <input type="checkbox"/>	C.A. <input type="checkbox"/>	C.C. <input type="checkbox"/>
	Circular <input type="checkbox"/>	A.C. <input type="checkbox"/>	D.C. <input type="checkbox"/>
RESSUAGE LIQUID PENETRANT	NORME : SPECIFICATION :	N° équip. : Equip. no :	
Pénétrant/Penetrant :	Émulsifiant/Emulsifier :	Révéléateur/Developer :	
Temps/Time :	Temps/Time :	Temps/Time :	
ULTRASONS / ULTRASONIC	NORME : SPECIFICATION : API 650 & ASME Section V article 4		
ÉTALONNAGE/CALIBRATION :			
Bloc/Block : IIW & ASME 19mm	Trou/Hole : 3/32	C.A.D. /D.A.C. : <input checked="" type="checkbox"/>	
APPAREIL/EQUIPMENT :			
Instrument : GE USM Go	Couplant : Echogel	Échelle/Sweep length : 0-150mm	
N° équip./Equip. no : UT-42	Palpeur/Transducer : 0 degree, 1/2"Ø, 2.25Mhz & 70 Ø, 0.75 X0.625", 2.25Mhz		
RÉSULTATS/RESULTS :			
<u>TANK SPECIFICATIONS :</u>			
<ul style="list-style-type: none"> ➤ Circumferential length: 105.332 m ➤ Height for each ring level: 2438 mm ➤ Plate thickness ring level 1 (bottom): 12.5 mm ➤ Plate thickness ring level 2: 9.5 mm ➤ Plate thickness ring level 3: 7.9 mm ➤ Plate thickness ring level 4: 7.9 mm ➤ Plate thickness ring level 5 (top): 6.4 mm 			
After ultrasonic inspection, repairs of 3 spots and a re-inspection of these repairs, all the 112 spots were found acceptable as the standard. For more details, see the result as described in the table below and the photos attached			
Note: Visual inspection was performed by client. The client takes the responsibility to process the inspections with manual ultrasonic test in lieu of radiographic test as describe in API 650 annex U			
Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.9712 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by : CSA W178.2

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Contact :	Marc Losier	Date du rapport :	2019-09-02
Entrepreneur :	Storage Tank Solutions	Report date :	
Contractor :		N° dossier :	00197
File no :		Commande :	
Endroit du travail :	Baker Lake, Nunavut	Order :	
Job location :			

ULTRASONIC INSPECTION TANK-- RESULT TABLE		
LOCALISATION	QUANTITY OF SPOTS	ULTRASONIC RESULTS
Intersections (T) weld all rings level (150mm vertical & 100mm horizontal)	80 T spots (All intersections between the 5 rings)	Accepted After 3 repairs accepted R-1*
Vertical welds ring level 1 (150mm vertical)	10 spots from bottom (0-150mm) 10 spots in the middle (1143 to 1296mm) 2 full welds inspected The vertical welds 1V1 (position at 0) and 1V6 (position at 180) were 100% inspected due manways crossing	Accepted
Horizontal welds all rings level (150mm horizontal)	8 spots (2 random spots between each rings level)	Accepted
Door plate ring level 1 (1V11) (T intersection 150 x 100mm) Middle 150mm vertical Middle 150mm horizontal)	1 T spot 1 spot vertical from bottom (0-150mm) 1 spot vertical in the middle (1143 to 1296mm) 1 spot horizontal in the middle (1220 to 1370mm)	Accepted

*The repair spots requirements extensions were accomplished according to API 650 article 8.1.6.

Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.9712 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by :	CSA W178.2
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Entrepreneur :	Storage Tank Solutions	Report date :	
Contractor :		N° dossier :	00197
File no :		Commande :	
Endroit du travail :	Baker Lake, Nunavut	Order :	
Job location :			



Photo #1:

Overview

Baker lake whale tail project – 10m liters tank #7

Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.9712 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by :	CSA W178.2
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Entrepreneur :	Storage Tank Solutions	Report date :	
Contractor :		N° dossier :	00197
File no :		Commande :	
Order :			
Endroit du travail :	Baker Lake, Nunavut		
Job location :			

TYPICAL SPOT LOCATIONS AND DIMENSIONS



Photo #2:
Typical vertical spot from bottom
(0-150mm)



Photo #3:
Typical vertical spot in the middle
(1143 to 1296mm)

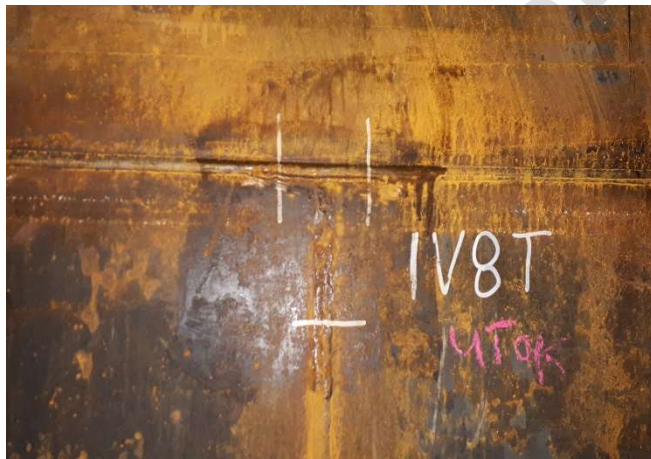


Photo #4:
Typical intersection T spot
(150mm vertical & 100mm horizontal)

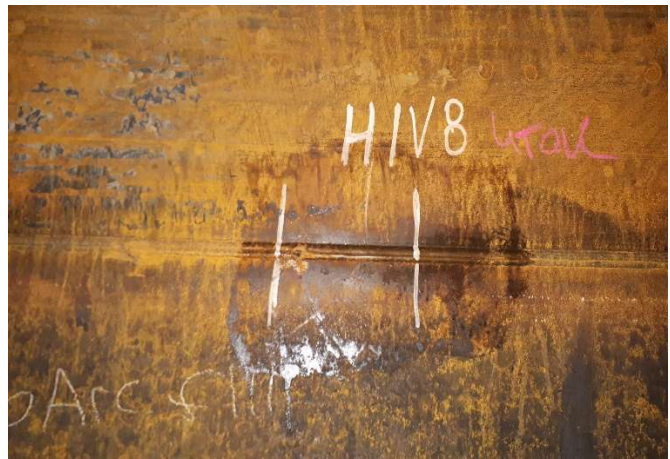


Photo #5:
Typical horizontal spot
(150mm length)

Techniciens :
Technicians : Michael Lafreniere

CSA W178.2 Level II
CGSB 48.9712 UT-MT-PT Level II

Assistants:

Approuvé par :
Approved by :

CSA W178.2

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Contact :	Marc Losier	Date du rapport :	2019-09-02
Entrepreneur :	Storage Tank Solutions	Report date :	
Contractor :		N° dossier :	00197
File no :		Commande :	
Order :			
Drroit du travail :	Baker Lake, Nunavut		
Job location :			

ULTRASONIC REJECTABLE DEFECTS LOCATION



Photo #6:
Lack of fusion found
T intersection ring level 4 - plate 1 - Top horizontal position



Photo #7:
Lack of fusion found
T intersection ring level 1 - plate 5 - Top vertical position

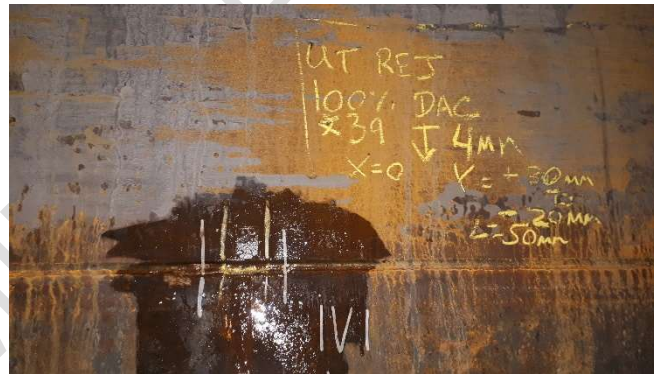


Photo 8:
Lack of fusion found
T intersection ring level 1 - plate 1 - Top horizontal position

Techniciens :
Technicians : Michael Lafreniere

CSA W178.2 Level II
CGSB 48.9712 UT-MT-PT Level II

Assistants:

Approuvé par :
Approved by :

CSA W178.2

Client :	Inukshuk Construction Ltd.	Date d'intervention :	2019-08-30 to 2019-09-03
Adresse/Address :	1869 Upper Water St, Halifax, NS, B3J 1S9	Intervention date :	
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Entrepreneur :	Storage Tank Solutions	Report date :	
Contractor :		N° dossier :	00197
File no :		Commande :	
Order :			
Endroit du travail :	Baker Lake, Nunavut		
Job location :			

ASME RESULT DETAILS														
Line #	Indication #	Plate thickness (mm)	Angle	Face	Half-Skip#	Amplitude level compared to the CAD (%)	Length (mm)	Angular distance (mm)	Depth	Distance		Type	Evaluation	Remark
										From X (mm)	From Y (mm)			
1	1	6.4 to 7.9	70	A (top)	2	100% CAD	100	41	2	-8	-50 to +50 from top T	LOF*	REJ	Locate at the T intersection Ring level 4 Plate 1 Top horizontal position ACCEPTED R-1
2	1	9.5 to 12.5	70	B (Right)	2	100% CAD	20	34	11	0	-40 from top T	LOF*	REJ	Locate at the T intersection Ring level 1 Plate 5 Top vertical position ACCEPTED R-1
3	1	9.5 to 12.5	70	A (top)	2	100% CAD	50	39	4	0	-20 to +30 from top T	IRF**	REJ	Locate at the T intersection Ring level 1 Plate 1 Top vertical position ACCEPTED R-1

*LOF: Lack of fusion

**IRF: Incomplete root fusion

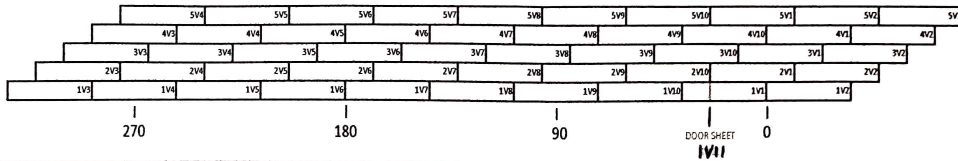
Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.9712 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by :	CSA W178.2
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Client : Inukshuk Construction Ltd.	Date d'intervention : 2019-08-30 to 2019-09-03
Adresse/Address : 1869 Upper Water St, Halifax, NS, B3J 1S9	Intervention date :
Contact : Marc Losier	Date du rapport : 2019-09-02
Entrepreneur : Storage Tank Solutions	Report date :
Contractor :	N° dossier : 00197
File no :	Commande :
Order :	
NDT Technician :	
Job location : Baker Lake, Nunavut	

Tank #7 Baker Lake (AEM)



NDT TECHNICIAN WILL INITIAL EACH BOX WHEN WELD IS ACCEPTABLE

B → BOTTOM OF THE VERT (0-6") M → MIDDLE OF THE VERT (45"-51") T → TOP OF THE VERT (90"-96")

VERTICAL SEAMS MAPPING UT

	B	M	T	FULL		B	T		B	T		B	T
1V1				UT FULL BECAUSE NOZZLE INTO VERT	///	2V1	///	///	3V1	///	///	4V1	///
1V2	///	///	///			2V2	///	///	3V2	///	///	4V2	///
1V3	///	///	///			2V3	///	///	3V3	///	///	4V3	///
1V4	///	///	///			2V4	///	///	3V4	///	///	4V4	///
1V5	///	///	///			2V5	///	///	3V5	///	///	4V5	///
1V6				UT FULL BECAUSE NOZZLE INTO VERT	///	2V6	///	///	3V6	///	///	4V6	///
1V7	///	///	///			2V7	///	///	3V7	///	///	4V7	///
1V8	///	///	///			2V8	///	///	3V8	///	///	4V8	///
1V9	///	///	///			2V9	///	///	3V9	///	///	4V9	///
1V10	///	///	///			2V10	///	///	3V10	///	///	4V10	///
IVII	///	///	///										

HORIZONTAL SEAMS MAPPING UT

H1V2 30"-36"	///	H2V3 24"-30"	///	H3V1 60"-66"	///	H4V5 24"-30"	///
H1V8 42"-48"	///	H2V9 36"-42"	///	H3V7 42"-48"	///	H4V9 36"-42"	///
Middle door sheet	///						

MAG PARTICLE

SHELL MANHOLE 0°	///	SHELL MANHOLE NECK (SEAM) 0°	///	NOZZLE SN3 (x1)	///
SHELL MANHOLE 90°	///	SHELL MANHOLE NECK (SEAM) 90°	///	NOZZLE SN4 (x1)	///
SHELL MANHOLE 180°	///	SHELL MANHOLE NECK (SEAM) 180°	///	NOZZLE SN5 (x2)	///
SHELL MANHOLE 270°	///	SHELL MANHOLE NECK (SEAM) 270°	///	NOZZLE SN6 (x6)	///

STS Representative Signature: <i>[Signature]</i>	Date: Sept 2/19
Client Representative Signature: <i>[Signature]</i>	Date: Sept 2/19
NDT Representative Signature: <i>[Signature]</i>	Date: 2019-09-02

MICHAEL LAFRENIERE
CGSB 48.972 MT-PT-UT
LEVEL II INSPECTOR
CERT# : 12977

CLIENT QUALITY INSPECTION PLAN

Techniciens : Technicians :	Michael Lafreniere CSA W178.2 Level II CGSB 48.972 UT-MT-PT Level II	Assistants:	Approuvé par : Approved by :	CSA W178.2
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AGNICO EAGLE BAKER LAKE

Tank No. 7

Baker Lake, Nunavut, Canada

INNAGE TABLE

Calibration@AmSpecGroup.com

CAPACITIES GIVEN IN CUBIC METERS

GAUGE HEIGHT - 12.555 M

cm	0 M	1 M	2 M	3 M	4 M	5 M	6 M	7 M	8 M	9 M
0.00	15.918	886.949	1,767.881	2,648.794	3,529.774	4,410.887	5,292.323	6,173.759	7,055.489	7,937.265
0.01	22.215	895.762	1,776.689	2,657.603	3,538.584	4,419.702	5,301.138	6,182.574	7,064.307	7,946.083
0.02	28.512	904.575	1,785.496	2,666.413	3,547.393	4,428.516	5,309.952	6,191.388	7,073.124	7,954.901
0.03	35.303	913.388	1,794.303	2,675.223	3,556.203	4,437.330	5,318.766	6,200.202	7,081.942	7,963.719
0.04	43.349	922.201	1,803.111	2,684.033	3,565.013	4,446.145	5,327.581	6,209.017	7,090.760	7,972.536
0.05	51.419	931.014	1,811.918	2,692.843	3,573.823	4,454.959	5,336.395	6,217.831	7,099.578	7,981.354
0.06	59.940	939.827	1,820.726	2,701.652	3,582.633	4,463.773	5,345.209	6,226.645	7,108.395	7,990.172
0.07	68.031	948.640	1,829.533	2,710.462	3,591.442	4,472.588	5,354.024	6,235.460	7,117.213	7,998.990
0.08	76.573	957.454	1,838.340	2,719.272	3,600.252	4,481.402	5,362.838	6,244.274	7,126.031	8,007.807
0.09	85.330	966.267	1,847.148	2,728.082	3,609.062	4,490.217	5,371.652	6,253.088	7,134.849	8,016.625
0.10	94.088	975.080	1,855.955	2,736.892	3,617.872	4,499.031	5,380.467	6,261.903	7,143.666	8,025.443
0.11	102.893	983.893	1,864.762	2,745.701	3,626.682	4,507.845	5,389.281	6,270.717	7,152.484	8,034.261
0.12	111.699	992.706	1,873.570	2,754.511	3,635.491	4,516.660	5,398.096	6,279.531	7,161.302	8,043.078
0.13	120.503	1,001.519	1,882.377	2,763.321	3,644.301	4,525.474	5,406.910	6,288.346	7,170.120	8,051.896
0.14	129.307	1,010.332	1,891.184	2,772.131	3,653.111	4,534.288	5,415.724	6,297.162	7,178.937	8,060.714
0.15	138.109	1,019.145	1,899.992	2,780.941	3,661.921	4,543.103	5,424.539	6,305.979	7,187.755	8,069.532
0.16	146.911	1,027.958	1,908.799	2,789.750	3,670.731	4,551.916	5,433.353	6,314.797	7,196.573	8,078.349
0.17	155.712	1,036.771	1,917.606	2,798.560	3,679.540	4,560.731	5,442.167	6,323.614	7,205.391	8,087.167
0.18	164.514	1,045.584	1,926.414	2,807.370	3,688.350	4,569.546	5,450.982	6,332.432	7,214.209	8,095.985
0.19	173.316	1,054.397	1,935.221	2,816.180	3,697.160	4,578.360	5,459.796	6,341.250	7,223.026	8,104.803
0.20	182.118	1,063.210	1,944.028	2,824.990	3,705.970	4,587.175	5,468.610	6,350.068	7,231.844	8,113.621
0.21	190.920	1,072.023	1,952.836	2,833.799	3,714.780	4,595.989	5,477.425	6,358.885	7,240.662	8,122.438
0.22	199.721	1,080.836	1,961.643	2,842.609	3,723.589	4,604.803	5,486.239	6,367.703	7,249.480	8,131.256
0.23	208.523	1,089.649	1,970.450	2,851.419	3,732.399	4,613.618	5,495.054	6,376.521	7,258.298	8,140.074
0.24	217.324	1,098.462	1,979.258	2,860.229	3,741.209	4,622.432	5,503.868	6,385.339	7,267.115	8,148.892
0.25	226.125	1,107.275	1,988.065	2,869.039	3,750.019	4,631.246	5,512.682	6,394.156	7,275.933	8,157.709
0.26	234.926	1,116.088	1,996.872	2,877.848	3,758.829	4,640.061	5,521.497	6,402.974	7,284.751	8,166.527
0.27	243.727	1,124.901	2,005.680	2,886.658	3,767.638	4,648.875	5,530.311	6,411.792	7,293.568	8,175.345
0.28	252.529	1,133.714	2,014.489	2,895.468	3,776.448	4,657.689	5,539.125	6,420.610	7,302.386	8,184.163
0.29	261.330	1,142.527	2,023.298	2,904.278	3,785.258	4,666.504	5,547.940	6,429.428	7,311.204	8,192.980
0.30	270.135	1,151.340	2,032.107	2,913.088	3,794.068	4,675.318	5,556.754	6,438.245	7,320.022	8,201.798
0.31	278.940	1,160.153	2,040.917	2,921.897	3,802.878	4,684.132	5,565.568	6,447.063	7,328.839	8,210.616
0.32	287.747	1,168.966	2,049.727	2,930.707	3,811.687	4,692.947	5,574.383	6,455.881	7,337.657	8,219.434
0.33	296.555	1,177.779	2,058.537	2,939.517	3,820.497	4,701.761	5,583.197	6,464.699	7,346.475	8,228.252
0.34	305.362	1,186.592	2,067.347	2,948.327	3,829.307	4,710.576	5,592.011	6,473.516	7,355.293	8,237.069
0.35	314.169	1,195.405	2,076.156	2,957.137	3,838.117	4,719.390	5,600.826	6,482.334	7,364.111	8,245.887
0.36	322.977	1,204.211	2,084.966	2,965.946	3,846.927	4,728.204	5,609.640	6,491.152	7,372.928	8,254.705
0.37	331.784	1,213.018	2,093.776	2,974.756	3,855.736	4,737.019	5,618.455	6,499.970	7,381.746	8,263.523
0.38	340.592	1,221.826	2,102.586	2,983.566	3,864.546	4,745.833	5,627.269	6,508.787	7,390.564	8,272.340
0.39	349.399	1,230.633	2,111.396	2,992.376	3,873.356	4,754.647	5,636.083	6,517.605	7,399.382	8,281.158
0.40	358.206	1,239.440	2,120.205	3,001.186	3,882.166	4,763.462	5,644.898	6,526.423	7,408.199	8,289.976
0.41	367.014	1,248.248	2,129.015	3,009.995	3,890.976	4,772.276	5,653.712	6,535.241	7,417.017	8,298.794
0.42	375.821	1,257.055	2,137.825	3,018.805	3,899.786	4,781.090	5,662.526	6,544.058	7,425.835	8,307.611
0.43	384.628	1,265.863	2,146.635	3,027.615	3,908.595	4,789.905	5,671.341	6,552.876	7,434.653	8,316.429
0.44	393.436	1,274.670	2,155.445	3,036.425	3,917.405	4,798.719	5,680.155	6,561.694	7,443.470	8,325.247
0.45	402.243	1,283.477	2,164.254	3,045.235	3,926.215	4,807.534	5,688.969	6,570.512	7,452.288	8,334.065
0.46	411.050	1,292.285	2,173.064	3,054.044	3,935.025	4,816.348	5,697.784	6,579.330	7,461.106	8,342.882
0.47	419.861	1,301.092	2,181.874	3,062.854	3,943.835	4,825.162	5,706.598	6,588.147	7,469.924	8,351.700
0.48	428.672	1,309.899	2,190.684	3,071.664	3,952.644	4,833.977	5,715.413	6,596.965	7,478.741	8,360.518
0.49	437.485	1,318.707	2,199.494	3,080.474	3,961.454	4,842.791	5,724.227	6,605.783	7,487.559	8,369.336
0.50	446.298	1,327.514	2,208.303	3,089.284	3,970.264	4,851.605	5,733.041	6,614.601	7,496.377	8,378.153
0.51	455.111	1,336.321	2,217.113	3,098.093	3,979.074	4,860.420	5,741.856	6,623.418	7,505.195	8,386.971
0.52	463.924	1,345.129	2,225.923	3,106.903	3,987.884	4,869.234	5,750.670	6,632.236	7,514.013	8,395.789
0.53	472.737	1,353.936	2,234.733	3,115.713	3,996.693	4,878.048	5,759.484	6,641.054	7,522.830	8,404.607
0.54	481.550	1,362.743	2,243.543	3,124.523	4,005.503	4,886.863	5,768.299	6,649.872	7,531.648	8,413.424
0.55	490.363	1,371.551	2,252.352	3,133.333	4,014.313	4,895.677	5,777.113	6,658.689	7,540.466	8,422.242
0.56	499.176	1,380.358	2,261.162	3,142.143	4,023.123	4,904.491	5,785.927	6,667.507	7,549.284	8,431.060
0.57	507.989	1,389.165	2,269.972	3,150.952	4,031.933	4,913.306	5,794.742	6,676.325	7,558.101	8,439.878
0.58	516.802	1,397.973	2,278.782	3,159.762	4,040.742	4,922.120	5,803.556	6,685.143	7,566.919	8,448.696
0.59	525.615	1,406.780	2,287.592	3,168.572	4,049.552	4,930.935	5,812.370	6,693.960	7,575.737	8,457.514
0.60	534.428	1,415.587	2,296.401	3,177.382	4,058.362	4,939.749	5,821.185	6,702.778	7,584.555	8,466.331
0.61	543.241	1,424.395	2,305.211	3,186.192	4,067.172	4,948.563	5,829.999	6,711.596	7,593.372	8,475.149
0.62	552.054	1,433.202	2,314.021	3,195.001	4,075.982	4,957.378	5,838.814	6,720.414	7,602.190	8,483.967
0.63	560.867	1,442.010	2,322.831	3,203.811	4,084.791	4,966.192	5,847.628	6,729.232	7,611.008	8,492.785
0.64	569.680	1,450.817	2,331.641	3,212.621	4,093.601	4,975.006	5,856.442	6,738.049	7,619.826	8,501.603
0.65	578.493	1,459.624	2,340.450	3,221.431	4,102.411	4,983.821	5,865.257	6,746.867	7,628.643	8,510.421
0.66	587.306	1,468.432	2,349.260	3,230.241	4,111.221	4,992.635	5,874.071	6,755.685	7,637.461	8,519.239
0.67	596.120	1,477.239	2,358.070	3,239.051	4,120.031	5,001.449	5,882.885	6,764.503	7,646.279	8,528.056
0.68	604.933	1,486.046	2,366.880	3,247.860	4,128.841	5,010.264	5,891.700	6,773.320	7,655.097	8,536.874
0.69	613.746	1,494.854	2,375.690	3,256.670	4,137.650	5,019.078	5,900.514	6,782.138	7,663.915	8,545.692
0.70	622.559	1,503.661	2,384.499	3,265.480	4,146.460	5,027.892	5,909.328	6,790.956	7,672.732	8,554.510
0.71	631.372	1,512.468	2,393.309	3,274.290	4,155.270	5,036.707	5,918.143	6,799.774	7,681.550	8,563.328
0.72	640.185	1,521.276	2,402.119	3,283.099	4,164.085	5,045.521	5,926.957	6,808.591	7,690.368	8,572.146
0.73	648.998	1,530.083	2,410.929	3,291.909	4,172.900	5,054.336	5,935.771	6,817.409	7,699.186	8,580.964
0.74	657.811	1,538.890	2,419.739	3,300.719	4,181.714	5,063.150	5,944.586	6,826.227	7,708.003	8,589.782
0.75	666.624	1,547.698	2,428.549	3,309.529	4,190.528	5,071.964	5,953.400	6,835.045	7,716.821	8,598.599
0.76	675.437	1,556.505	2,437.358	3,318.339	4,199.343	5,080.779	5,962.215	6,843.862	7,725.639	8,607.417
0.77	684.250	1,565.312	2,446.168	3,327.148	4,208.157	5,089.593	5,971.029	6,852.680	7,734.457	8,616.235
0.78	693.063	1,574.120	2,454.978	3,335.958	4,216.971	5,098.407	5,979.843			



AGNICO EAGLE BAKER LAKE

Baker Lake, Nunavut, Canada

Tank No. 7

INNAGE TABLE

Calibration@AmSpecGroup.com

CAPACITIES GIVEN IN CUBIC METERS


GAUGE HEIGHT - 12.555 M

cm	10 M	cm	11 M	cm	12 M	cm	13 M	cm	14 M	cm	15 M	cm	16 M	cm	17 M	cm	18 M	cm	19 M
0.00	8,819.046	0.00	9,700.832	0.00	10,580.472	0.00		0.00		0.00		0.00		0.00		0.00		0.00	
0.01	8,827.864	0.01	9,709.650	0.01	10,589.290	0.01		0.01		0.01		0.01		0.01		0.01		0.01	
0.02	8,836.682	0.02	9,718.468	0.02	10,598.108	0.02		0.02		0.02		0.02		0.02		0.02		0.02	
0.03	8,845.500	0.03	9,727.286	0.03	10,606.926	0.03		0.03		0.03		0.03		0.03		0.03		0.03	
0.04	8,854.317	0.04	9,736.104	0.04	10,615.744	0.04		0.04		0.04		0.04		0.04		0.04		0.04	
0.05	8,863.135	0.05	9,744.922	0.05	10,624.562	0.05		0.05		0.05		0.05		0.05		0.05		0.05	
0.06	8,871.953	0.06	9,753.740	0.06	10,633.380	0.06		0.06		0.06		0.06		0.06		0.06		0.06	
0.07	8,880.771	0.07	9,762.557	0.07	10,642.198	0.07		0.07		0.07		0.07		0.07		0.07		0.07	
0.08	8,889.589	0.08	9,771.375	0.08	10,651.016	0.08		0.08		0.08		0.08		0.08		0.08		0.08	
0.09	8,898.407	0.09	9,780.193	0.09	10,659.833	0.09		0.09		0.09		0.09		0.09		0.09		0.09	
0.10	8,907.225	0.10	9,789.011	0.10	10,668.651	0.10		0.10		0.10		0.10		0.10		0.10		0.10	
0.11	8,916.042	0.11	9,797.829	0.11	10,677.469	0.11		0.11		0.11		0.11		0.11		0.11		0.11	
0.12	8,924.860	0.12	9,806.647	0.12	10,681.932	0.12		0.12		0.12		0.12		0.12		0.12		0.12	
0.13	8,933.678	0.13	9,815.465	0.13		0.13		0.13		0.13		0.13		0.13		0.13		0.13	
0.14	8,942.496	0.14	9,824.283	0.14		0.14		0.14		0.14		0.14		0.14		0.14		0.14	
0.15	8,951.314	0.15	9,833.100	0.15		0.15		0.15		0.15		0.15		0.15		0.15		0.15	
0.16	8,960.132	0.16	9,841.918	0.16		0.16		0.16		0.16		0.16		0.16		0.16		0.16	
0.17	8,968.950	0.17	9,850.736	0.17		0.17		0.17		0.17		0.17		0.17		0.17		0.17	
0.18	8,977.768	0.18	9,859.554	0.18		0.18		0.18		0.18		0.18		0.18		0.18		0.18	
0.19	8,986.585	0.19	9,868.372	0.19		0.19		0.19		0.19		0.19		0.19		0.19		0.19	
0.20	8,995.403	0.20	9,877.190	0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20	
0.21	9,004.221	0.21	9,886.008	0.21		0.21		0.21		0.21		0.21		0.21		0.21		0.21	
0.22	9,013.039	0.22	9,894.825	0.22		0.22		0.22		0.22		0.22		0.22		0.22		0.22	
0.23	9,021.857	0.23	9,903.643	0.23		0.23		0.23		0.23		0.23		0.23		0.23		0.23	
0.24	9,030.675	0.24	9,912.461	0.24		0.24		0.24		0.24		0.24		0.24		0.24		0.24	
0.25	9,039.493	0.25	9,921.279	0.25		0.25		0.25		0.25		0.25		0.25		0.25		0.25	
0.26	9,048.310	0.26	9,930.097	0.26		0.26		0.26		0.26		0.26		0.26		0.26		0.26	
0.27	9,057.128	0.27	9,938.915	0.27		0.27		0.27		0.27		0.27		0.27		0.27		0.27	
0.28	9,065.946	0.28	9,947.733	0.28		0.28		0.28		0.28		0.28		0.28		0.28		0.28	
0.29	9,074.764	0.29	9,956.551	0.29		0.29		0.29		0.29		0.29		0.29		0.29		0.29	
0.30	9,083.582	0.30	9,965.368	0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
0.31	9,092.400	0.31	9,974.186	0.31		0.31		0.31		0.31		0.31		0.31		0.31		0.31	
0.32	9,101.218	0.32	9,983.004	0.32		0.32		0.32		0.32		0.32		0.32		0.32		0.32	
0.33	9,110.036	0.33	9,991.822	0.33		0.33		0.33		0.33		0.33		0.33		0.33		0.33	
0.34	9,118.853	0.34	10,000.640	0.34		0.34		0.34		0.34		0.34		0.34		0.34		0.34	
0.35	9,127.671	0.35	10,009.458	0.35		0.35		0.35		0.35		0.35		0.35		0.35		0.35	
0.36	9,136.489	0.36	10,018.276	0.36		0.36		0.36		0.36		0.36		0.36		0.36		0.36	
0.37	9,145.307	0.37	10,027.093	0.37		0.37		0.37		0.37		0.37		0.37		0.37		0.37	
0.38	9,154.125	0.38	10,035.911	0.38		0.38		0.38		0.38		0.38		0.38		0.38		0.38	
0.39	9,162.943	0.39	10,044.729	0.39		0.39		0.39		0.39		0.39		0.39		0.39		0.39	
0.40	9,171.761	0.40	10,053.547	0.40		0.40		0.40		0.40		0.40		0.40		0.40		0.40	
0.41	9,180.578	0.41	10,062.365	0.41		0.41		0.41		0.41		0.41		0.41		0.41		0.41	
0.42	9,189.396	0.42	10,071.183	0.42		0.42		0.42		0.42		0.42		0.42		0.42		0.42	
0.43	9,198.214	0.43	10,080.001	0.43		0.43		0.43		0.43		0.43		0.43		0.43		0.43	
0.44	9,207.032	0.44	10,088.818	0.44		0.44		0.44		0.44		0.44		0.44		0.44		0.44	
0.45	9,215.850	0.45	10,097.636	0.45		0.45		0.45		0.45		0.45		0.45		0.45		0.45	
0.46	9,224.668	0.46	10,106.454	0.46		0.46		0.46		0.46		0.46		0.46		0.46		0.46	
0.47	9,233.486	0.47	10,115.272	0.47		0.47		0.47		0.47		0.47		0.47		0.47		0.47	
0.48	9,242.303	0.48	10,124.090	0.48		0.48		0.48		0.48		0.48		0.48		0.48		0.48	
0.49	9,251.121	0.49	10,132.908	0.49		0.49		0.49		0.49		0.49		0.49		0.49		0.49	
0.50	9,259.939	0.50	10,141.726	0.50		0.50		0.50		0.50		0.50		0.50		0.50		0.50	
0.51	9,268.757	0.51	10,150.544	0.51		0.51		0.51		0.51		0.51		0.51		0.51		0.51	
0.52	9,277.575	0.52	10,159.361	0.52		0.52		0.52		0.52		0.52		0.52		0.52		0.52	
0.53	9,286.393	0.53	10,168.179	0.53		0.53		0.53		0.53		0.53		0.53		0.53		0.53	
0.54	9,295.211	0.54	10,176.997	0.54		0.54		0.54		0.54		0.54		0.54		0.54		0.54	
0.55	9,304.029	0.55	10,185.815	0.55		0.55		0.55		0.55		0.55		0.55		0.55		0.55	
0.56	9,312.846	0.56	10,194.633	0.56		0.56		0.56		0.56		0.56		0.56		0.56		0.56	
0.57	9,321.664	0.57	10,203.451	0.57		0.57		0.57		0.57		0.57		0.57		0.57		0.57	
0.58	9,330.482	0.58	10,212.269	0.58		0.58		0.58		0.58		0.58		0.58		0.58		0.58	
0.59	9,339.300	0.59	10,221.086	0.59		0.59		0.59		0.59		0.59		0.59		0.59		0.59	
0.60	9,348.118	0.60	10,229.904	0.60		0.60		0.60		0.60		0.60		0.60		0.60		0.60	
0.61	9,356.936	0.61	10,238.722	0.61		0.61		0.61		0.61		0.61		0.61		0.61		0.61	
0.62	9,365.754	0.62	10,247.540	0.62		0.62		0.62		0.62		0.62		0.62		0.62		0.62	
0.63	9,374.571	0.63	10,256.358	0.63		0.63		0.63		0.63		0.63		0.63		0.63		0.63	
0.64	9,383.389	0.64	10,265.176	0.64		0.64		0.64		0.64		0.64		0.64		0.64		0.64	
0.65	9,392.207	0.65	10,273.994	0.65		0.65		0.65		0.65		0.65		0.65		0.65		0.65	
0.66	9,401.025	0.66	10,282.811	0.66		0.66		0.66		0.66		0.66		0.66		0.66		0.66	
0.67	9,409.843	0.67	10,291.629	0.67		0.67		0.67		0.67		0.67		0.67		0.67		0.67	
0.68	9,418.661	0.68	10,300.447	0.68		0.68		0.68		0.68		0.68		0.68		0.68		0.68	
0.69	9,427.479	0.69	10,309.265	0.69		0.69		0.69		0.69		0.69		0.69		0.69		0.69	
0.70	9,436.297	0.70	10,318.083	0.70		0.70		0.70		0.70		0.70		0.70		0.70		0.70	
0.71	9,445.114	0.71	10,326.901	0.71		0.71		0.71		0.71		0.71		0.71		0.71		0.71	
0.72	9,453.932	0.72	10,335.719	0.72		0.72		0.72		0.72		0.72		0.72		0.72		0.72	
0.73	9,462.750	0.73	10,344.537	0.73		0.73		0.73		0.73		0.73		0.73		0.73		0.73	
0.74	9,471.568	0.74	10,353.354	0.74		0.74		0.74		0.74		0.74		0.74		0.74		0.74	
0.75	9,480.386	0.75	10																



6120-C-265-001 MPEI

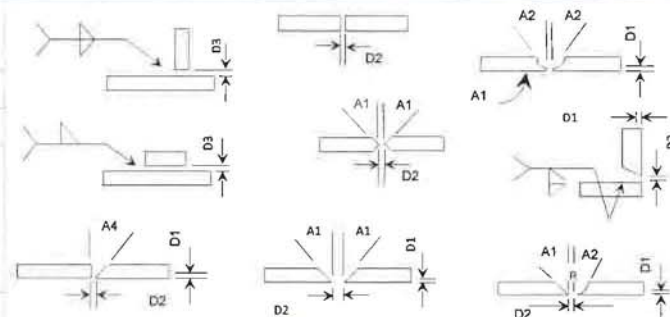
QUALITY CONTROL REPORT

 Vendor Document Status	
1	<input type="checkbox"/> Proceed to next submission and status.
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3	<input type="checkbox"/> Do not proceed. Revise as noted and resubmit next submission and status.
4	<input checked="" type="checkbox"/> Complete, no further submission required.
By: Bruno Roy Digitally signed by Bruno Roy Date: 2018.12.13 11:20:39 -05'00'	
<small>Review and authorization to fabricate are only for general conformance with the design concept of the Project as expressed in the Contract Documents. Sole responsibility for the accuracy and completeness of this document, including but not limited to dimensions and quantities, remains with the Supplier/Contractor. Agnico Eagle does not warrant the accuracy or completeness of any of the information contained herein, nor does Agnico Eagle authorize or approve any construction means, methods, techniques, sequences or any safety precautions or procedures.</small>	
<small>Agnico Eagle No.</small>	6120-C-265-001 <small>R: ABF.QC.REPORT</small>
DOCUMENT FOR INFORMATION	

- 1. WELDING PROCEDURE SPECIFICATION (WPS)**
- 2. WELDER QUALIFICATION TEST (WQT)**
 - 2.1 Camirand, Sébastien**
 - 2.2 Caouette, Francois**
 - 2.3 St-Hilaire, Joel**
- 3. PNEUMATIC PRESSURE TEST PROCEDURE.**
- 4. PNEUMATIC PRESSURE TEST RESULTS.**
- 5. MILLTEST & HEAT NUMBER DOCUMENTATION.**
- 6. VALVE & EQUIPMENT CERTIFICATION**

ABF CONSTRUCTION 138, Chemin des Boisés Val-d'Or, secteur Dubuisson, Qc, J9P 4N7	Canada	Désignation de la Méthode <i>Provincial registration</i>		Enregistrement provincial <i>Provincial registration</i>
		DMS / WPS	SMAW-P1-P1 Révision: 0	MTL 310.6
		RMS / PQR	SMAW-P1-P1-A	

Procédé(s) de soudage / <i>Welding process</i>				
SMAW	Manuel		X	Semi-automatique
	Machine-auto			Auto.machine

Joints / <i>Joints (QW-402)</i>				
Genre / <i>Design</i>	Carré, chanfreiné, angle <i>Square, groove, fillet</i>			
Soutien / <i>Backing</i>	Oui / Yes	X	$A1=30\frac{1}{2}^{\circ}\pm 2\frac{1}{2}^{\circ}$ (VAISSEAU / VESSEL) $A1=37\frac{1}{2}^{\circ}\pm 2\frac{1}{2}^{\circ}$ (TUYAUTERIE / PIPING) $A2=20\frac{1}{2}^{\circ}\pm 2\frac{1}{2}^{\circ}$ $A3=10\frac{1}{2}^{\circ}\pm 2\frac{1}{2}^{\circ}$ $A4=45^{\circ}\pm 5\frac{1}{2}^{\circ}$ $D1=1/16" \pm 1/16"$ $D2=1/16" \pm 1/16"$ (SANS BARRE DE SOUTIEN / WITHOUT BACKING) $D2=3/16" \pm 1/8"$ (AVEC BARRE DE SOUTIEN / WITH BACKING) $D3=0" + 5/32"$	
Matériau de soutien <i>Backing material</i>	Option	Soudure ou P1 <i>Weld or P1</i>		
Support de retenue <i>Retainer</i>	Aucun / <i>None</i>			
Autre / <i>Other</i>	Aucun / <i>None</i>			

Métaux de base / <i>Base metal (QW-403)</i>				
Métaux de base P. No. / <i>Base metal: P.No.</i>	P1 (Gr. 1 ou / or 2)		à/to	P1 (Gr. 1 ou / or 2)
Gamme d'épaisseurs qualifiées pour le métal de base <i>Base metal thickness range qualified</i>	Chanfrein / <i>Groove</i> : 0.1685" à/to 0.587" maximum (Voir / See note 4) Angle / <i>Fillet</i> : Aucune limite / <i>No limit</i>			
Épaisseur maximale de la plus épaisse des passes de soudage <i>Maximun thickness of any welding pass</i>	0.250" maximum			
Autre / <i>Others</i>	Aucun / <i>None</i>			

Métaux d'apport / <i>Filler metals (QW-404)</i>				
1 AWS N° / No	E-6010	SF A: 5.1	F-No. 3	A-No. 1
	E-7018-1	SF A: 5.1	F-No. 4	A-No. 1
Gamme des épaisseurs qualifiées pour le dépôt de soudage <i>Weld metal thickness range qualified</i>	Chanfrein / <i>Groove</i> (F3: 0.250" max.) (F4: 0.424" max.) Angle / <i>Fillet</i> : Aucune limite / <i>No limit</i>			
Pièce insérée consommable / <i>Consumable insert</i>	Aucun / <i>None</i>			
Poudre ou fil supplémentaire / <i>Supplementary powder or wire</i>	Aucun / <i>None</i>			

Position / <i>Positions (QW-405)</i>	
Position(s) du chanfrein / <i>Position of groove</i>	Toutes positions / <i>All positions</i>
Progression du soudage / <i>Welding progression</i>	Montant, descendant / <i>Up, down</i>
Position(s) de l'angle / <i>Position(s) of fillet</i>	Toutes positions / <i>All positions</i>

Préchauffage / <i>Preheat (QW-406)</i>		
Température de préchauffage, maintien du préchauffage (Optionel) <i>Preheat temperature, preheat temperature (Optional)</i>	T ≤ 1½ in.: 50° F Min. 1½ in. < T ≤ 2½ in.: 150° F Min.	2½ in. < T ≤ 4 in.: 250° F Min. T > 4 in.: 300° F Min.
Température de l'interpasse / <i>Enterpass temperature</i>	50° F Min.	
Autre / <i>Other</i>	Aucun / <i>None</i>	

Traitement thermique postchauffage / <i>Postweld heat treatment (QW-407)</i>	
Gamme de températures / <i>Temperature range</i>	Aucun / <i>None</i>
Gamme de durée / <i>Time range</i>	Aucun / <i>None</i>
Note / <i>Note</i>	Aucun / <i>None</i>

Gaz / <i>Gas (QW-408)</i>	
Composition du gaz de protection / <i>Shielding gas composition</i>	Aucun / <i>None</i>
Débit du gaz / <i>Gas flow rate</i>	Aucun / <i>None</i>
Composition du gaz de soutien / <i>Backing gas composition</i>	Aucun / <i>None</i>
Gaz de protection trainant / <i>Training sheilding gas composition</i>	Aucun / <i>None</i>

Caractéristiques électrique et technique / Electrical, technical characteristics (QW-409-QW-410)

Métal d'apport / Filler metal				Courant / Current			
Procédé / Process	Diamètre / Diameter	Classification / Classification	Position de soudage / Weld position	Type, polarité / Type, polarity	Gamme d'amperage / Amperage range	Gamme de voltage / Voltage range	Gamme de vitesse Travel / speede range
SMAW	3/32"	E-6010	Toutes / All	CC-DC / EP-RP	50-85	20-30	Variable / Variable
SMAW	1/8"	E-6010	Toutes / All	CC-DC / EP-RP	60-120	22-32	Variable / Variable
SMAW	5/32"	E-6010	Toutes / All	CC-DC / EP-RP	80-150	24-34	Variable / Variable
SMAW	3/32"	E-7018-1	Toutes / All	CC-DC / EP-RP	75-115	20-28	Variable / Variable
SMAW	1/8"	E-7018-1	Toutes / All	CC-DC / EP-RP	90-160	20-28	Variable / Variable
SMAW	5/32"	E-7018-1	Toutes / All	CC-DC / EP-RP	130-220	20-28	Variable / Variable
SMAW	3/16"	E-7018-1	Toutes / All	CC-DC / EP-RP	160-315	24-32	Variable / Variable
SMAW	1/4"	E-7018-1	Toutes / All	CC-DC / EP-RP	280-380	24-32	Variable / Variable
Courant pulsé / Pulse current						N/A	
Grosueur et type d'électrode de tungstène / Tungsten electrode size and type						N/A	
Mode de transfert du métal / Mode of metal transfer GMAW / FCAW / MCAW						N/A	
Cordon droit ou oscillant / String or weave bead				Droit ou oscillant / String or wave, Largeur / Whidth: 3 x dia. Electrode			
Procédé de gougeage arrière / Method of back gouging				Meulage, scie, outil d'allésage / Grinding, saw, bit tool			
Nettoyage initial et entre les passes / Initial and interpass cleaning				Les surfaces à souder doivent être libres de graisse, d'huile, de peinture ou de matière pouvant nuire à la qualité de la soudure; brossage, meulage, ciseau pneumatique / All surfaces within one (1) inch from the welding joint and all edges shall be free from all traces of lubricants, cutting oils and foreign matter; brushing, grinding, chipping.			
Diamètre de la tuyière à gaz / Orifice or gas cup size						N/A	
Oscillation / Oscillation						Fréquence / Frequency: N/A	
Distance entre tuyière et pièce / Contact tube to work distance						N/A	
Passe unique ou multiple (par côté) / Multiple or single pass (per side)				Unique ou multiple / Single or multiple pass			
Électrode unique ou multiple / Multiple or single electrode						Unique / Single	
Gamme de vitesse d'alimentation de l'électrode / Electrode wire feed speed range						N/A	
Autre / Other						Aucun martelage permis / Peening is not permitted	

Autres commentaires / Supplementary Comments

1) Essais de pliage guidés / Guided bend tests	Voir rapport / See report 18C-088 1/3
2) Essais de traction / Tensile tests	Voir rapport / See report 18C-088 2/3
3) Essais de dureté / Hardness test	Non requis / Not required
4) Essais de résilience / Impact test	Lorsque les essais d'impact ne sont pas requis, les matériaux de base de tout groupe peuvent être soudés et la gamme d'épaisseur qualifiée est de 0.1685" à 0.587" selon ASME B31.3, table 323.3.1. / When impact test is not required, base material of all group may be welded and thickness range qualified is 0.1685" to 0.587" according to ASME B31.3 table 323.3.1
5) Analyse chimique / Chemical analysis	Non requis / Not required
6) Ferriscomètre / Ferriscometer	Non requis / Not required
7) Macrographie / Macro-examination	Non requis / Not required
8) Métallographie / Metallography	Non requis / Not required
9) Traitement thermique / Heat treatment	Non requis / Not required
10) Énergie de chaleur (J/in) / Heat input (J/in)	E-6011 : 22390 (J/in) max. / E-7018-1 : 28641 (J/in) max.
11) Critères d'acceptation / Acceptance criteria	ASME sect. VIII Div. 1 UG-84 B31.3 Art.323.3

Signature du représentant de l'entreprise / Company representative signature



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Vérifié par :

I. CRIVAN 

Date:

03 AVR. 2018

18C-088



ABF CONSTRUCTION 138, Chemin des Boisés Val-d'Or, secteur Dubuisson, Qc, J9P 4N7	Canada	Désignation de la Méthode <i>Procedure identification</i>		Enregistrement provincial <i>Provincial registration</i>
		RMS PQR	SMAW-P1-P1-A	MTL-310.6
		DMS WPS	SMAW-P1-P1 Rev.0	

Procédés de soudage / Welding process				
SMAW	Manuel Manual	X	Semi-auto. Semi-auto.	Machine-auto Auto.machine

Métaux de base / Base metals (QW-403)		Joint / Joint (QW-402)	
SA-333 Gr. 6 à / to SA-350 LF2			
Épaisseur / Thickness	0.337"		
Épaisseur de la couche la plus épaisse Thickness of the thicker pass	0.125"		
Autre / Other	Aucun / None		

Métaux d'apport / Filler metals (QW-404)					Positions / Positions (QW-405)	
Classe / Class AWS	SFA. No.	F-No	A-No	Épaisseur du dépôt Weld thickness	Position du chanfrein Position of groove	6 G
E 6011	5.1	3	1	0.125"	Progression de soudage Welding progression	Verticale montante / Vertical up
E 7018	5.1	4	1	0.212"	Autre / Other	Aucun / None

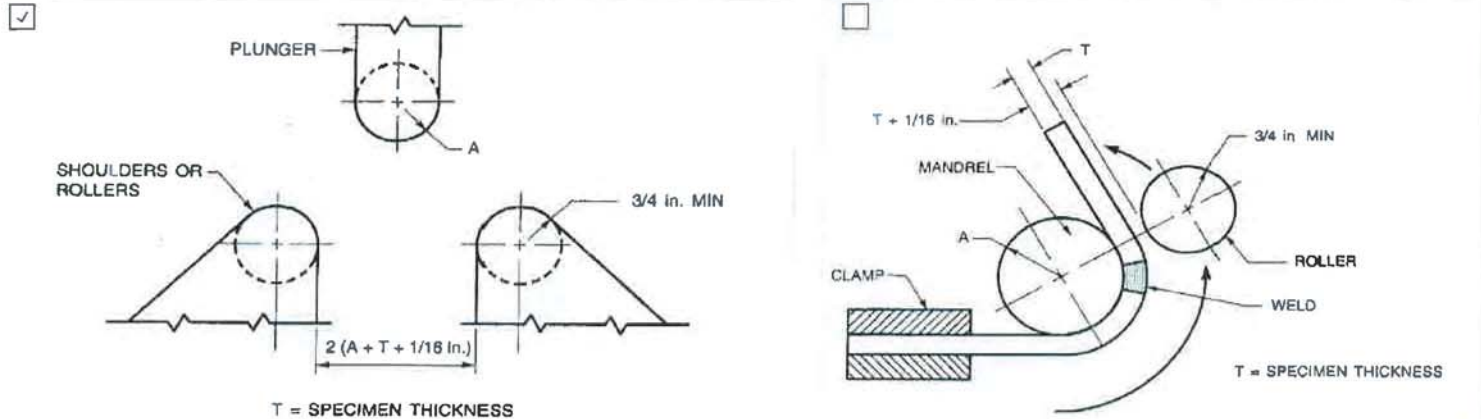
Préchauffage / Preheat (QW-406)		Traitement postchauffage / Postweld heat treatment (QW-407)	
Température de préchauffage Preheat temperature	50° F	Gamme de température Temperature range	Aucun / None
Température de l'interpasse Interpass temperature	50° F min.	Gamme de durée / Time range
Autre / Other	Aucun / None	Autre / Other	Aucun / None

Gaz / Gas (QW-408)		Technique / Technique (QW-410)	
Composition du gaz de protection Shielding gas composition	Aucun / None	Cordon droit ou oscillant String or weave bead	Droit / String
Débit de gaz / Gas flow rate	Oscillation / Oscillation	N/A
Composition gaz soutien Backing gas composition	Aucun / None	Passe unique ou multiple (par côté) Multiple or single pass (per side)	Côté A Multiple / Multiple
Débit de gaz / Gas flow rate	Électrode unique ou multiple Multiple or single electrode	Unique / Single
Autre / Other	Aucun / None	Autre / Other	Aucun / None

Caractéristiques électrique et techniques / Electrical and technical characteristics (QW-409-410)										
Couche Layer	Procédé Process	Classification Classification	Diamètre Diameter	Type	Type	Polarité Polarity	Ampérage Amperage	Voltage Volt range	Gamme de vitesse Travel speed range	Débit de chaleur Heat input
1A	SMAW	E-6011	1/8"	CC/DC	EP/IRP		85	27	6,15 in/min.	22390 (J/in.)
2A	SMAW	E-7018-1	1/8"	CC/DC	EP/IRP		110	23	5,3 in/min.	28641 (J/in.)
3A	SMAW	E-7018-1	1/8"	CC/DC	EP/IRP		110	23	5,3 in/min.	28641 (J/in.)
4A	SMAW	E-7018-2	1/8"	CC/DC	EP/IRP		110	22	5,4 in/min.	26888 (J/in.)
5A	SMAW	E-7018-1	1/8"	CC/DC	EP/IRP		110	22	5,4 in/min.	26888 (J/in.)

RAPPORT D'ESSAI DE PLIAGE
BEND TEST REPORT
CLIENT: ABF CONSTRUCTION
ADRESSE / ADDRESS: 138, Chemin des Boisés
Val-d'Or (secteur Dubuisson), Qc
J9P 4N7
CONTACT: Rocky Pelletier
BON DE COMMANDE / P.O. #: 16651-20155 **# TRAVAIL / JOB #: WPS# SMAW-P1-P1 Rev.0** **PROCEDURE MEQUALTECH: P4b-PLI-06** **Rev. 0**

IDENTIFICATION	ACC.	REJ.	DÉFAUT / DEFECT	SENS DU PLIAGE / BEND DIRECTION		
				RACINE / ROOT	FACE	CÔTÉ / SIDE
PQR# SMAW-P1-P1 A	<input type="checkbox"/>	<input type="checkbox"/>				
Specimen #2	<input checked="" type="checkbox"/>	<input type="checkbox"/>			X	
Specimen #3	<input checked="" type="checkbox"/>	<input type="checkbox"/>		X		
Specimen #5	<input checked="" type="checkbox"/>	<input type="checkbox"/>			X	
Specimen #6	<input checked="" type="checkbox"/>	<input type="checkbox"/>		X		
	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>				

MÉTHODE / METHOD
Rayon de Mandrin / Mandrel rad. (A) 0,67 inch **ANGLE DE PLIAGE / BEND ANGLE 180°**

CRITÈRES D'ACCEPTATION / ACCEPTANCE CRITERIA: ASME Section IX Edition 2017 - QW-163
RÉSULTATS / RESULTS : **CONFORME** **NON-CONFORME**
REMARQUE(S) / REMARK(S):
PQR# SMAW-P1-P1 A.
Pipe 4"X 0,337", SA-333 grade 6 to Flange SA-350 grade LF2.
Position 6G.

 The parts being tested are kept for a one month period after the results have been sent. Test results apply only to the parts being tested.
 This report can not be reproduced, except completely, without a written autorisation from the laboratory.

ESSAIS EFFECTUÉS PAR / TESTS PERFORMED BY:
Pascal Morin, ing. Chef de service 2018-03-16
 TECHNICIAN / TECHNICIAN QUALIFICATION DATE
 OPERATEUR / OPERATOR

RAPPORT D'ESSAI DE TRACTION TENSILE TEST REPORT		CLIENT: ABF CONSTRUCTION	
		ADRESSE / ADDRESS: 138, Chemin des Boisés Val-d'Or (secteur Dubuisson), Qc J9P 4N7	
		CONTACT: Rocky Pelletier	
BON DE COMMANDE / P.O. #: 16651-20155	# TRAVAIL / JOB #: WPS# SMAW-P1-P1 Rev.0	STANDARD D'ESSAI / STANDARD: Procédure Mequaltech procedure	ASME SECTION IX P4b-TRA-05
INSTRUMENT:	MARQUE / TRADE MARK : Tinius Olsen	MODÈLE / MODEL# : Standard 60,000 Lbs	SÉRIE / SERIAL# : 115,925
IDENTIFICATION ET RÉSULTATS / IDENTIFICATION AND RESULTS		ÉCHANTILLON / SAMPLE	
ÉPROUVETTE / SAMPLE :	#1	#4	
DIAMÈTRE INITIALE / INITIAL DIAMETER (IN):			
LARGEUR INITIALE / INITIAL WIDTH (IN) :	0,756	0,758	
ÉPAISSEUR INITIALE / INITIAL THICKNESS (IN) :	0,328	0,335	
SURFACE INITIALE / INITIAL SURFACE (square inches):	0,2480	0,2539	
CHARGE ULTIME / MAXIMUM LOAD (lbs):	19375	19475	
LIMITE D'ÉLASTICITÉ À 0,2% / 0,2% YIELD POINT (lbs) :			
LIMITE D'ÉLASTICITÉ À 0,5% / 0,5% YIELD POINT (lbs) :			
DIAMÈTRE FINALE / FINAL DIAMETER (IN):			
LARGEUR FINALE / FINAL WIDTH (IN) :			
ÉPAISSEUR FINALE / FINAL THICKNESS (IN) :			
SURFACE FINALE / FINAL SURFACE (square inches):			
CONTRAINTÉ ULTIME / ULTIMATE TENSILE STRENGTH (PSI) :	78135	76694	
CONTRAINTÉ ULTIME / ULTIMATE TENSILE STRENGTH (Mpa) :	539	529	
LIMITE D'ÉLASTICITÉ À 0,2% / 0,2% YIELD STRENGTH (PSI) :			
LIMITE D'ÉLASTICITÉ À 0,2% / 0,2% YIELD STRENGTH (Mpa) :			
LIMITE D'ÉLASTICITÉ À 0,5% / 0,5% YIELD STRENGTH (PSI) :			
LIMITE D'ÉLASTICITÉ À 0,5% / 0,5% YIELD STRENGTH (Mpa):			
:LONGUEUR INITIALE / INITIAL LENGTH (IN)			
LONGUEUR FINALE / FINAL LENGTH (IN):			
ALLONGEMENT / ELONGATION (%) :			
STRICTION / REDUCTION OF AREA (%) :			
RUPTURE / BREAK :	BASE MATERIAL	BASE MATERIAL	
FACIES DE RUPTURE / TYPE OF BREAK:	Ductile	Ductile	
CRITÈRES D'ACCEPTATION / ACCEPTANCE CRITERIA:	ASME Section IX Edition 2017 - QW-153		
RÉSULTATS / RESULTS :	<input checked="" type="checkbox"/> CONFORME	<input type="checkbox"/> NON-CONFORME	
REMARQUE(S) / REMARK(S): PQR# SMAW-P1-P1 A. Pipe 4"X 0,337", SA-333 grade 6 to Flange SA-350 grade LF2. Position 6G.			
The parts being tested are kept for a one month period after the results have been sent. Test results apply only to the parts being tested. This report can not be reproduced, except completely, without a written autorisation from the laboratory.			
ESSAIS EFFECTUÉS PAR / TESTS PERFORMED BY:			
Pascal Morin, ing.	Chef de service	2018-03-16	
TECHNICIEN / TECHNICIAN OPÉRATEUR / OPERATOR	QUALIFICATION	DATE	


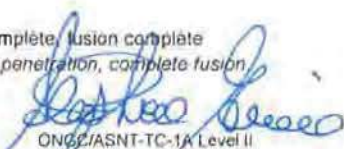


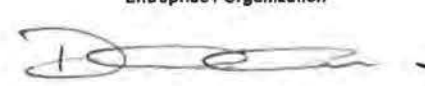


RAPPORT D'ESSAI DE RÉSILIENCE IMPACT TEST REPORT		CLIENT: ABF CONSTRUCTION			
		ADRESSE / ADDRESS: 138, Chemin des Boisés Val-d'Or (secteur Dubuisson), Qc J9P 4N7			
		CONTACT: Rocky Pelletier			
BON DE COMMANDE / P.O. #: 16651-20155	# DE CONTRAT / JOB #: WPS# SMAW-P1-P1 Rev.0	PROCEDURE MEQUALTECH:	P4b-RES-03	Rev.	0
INSTRUMENT:	MARQUE / TRADE MARK: Satec	MODÈLE / MODEL#: SI-1C3	# DE SÉRIE / SERIAL#: 1628		
DESCRIPTION DE LA PIÈCE OU PROCÉDÉS DE SOUDAGE / PART DESCRIPTION OR WELDING PROCESS DETAIL: PQR# SMAW-P1-P1 A - Pipe 4" X 0,337" (SA-333 grade 6) to Flange SA-350 grade LF2.					
TEMPÉRATURE: -45°C	RÉSULTATS/ RESULTS (FT.LBS OU/OR JOULES):	<input type="checkbox"/> FT./LBS	<input checked="" type="checkbox"/> JOULES	DIMENSIONS: 7 mm X 10 mm	
	ÉNERGIE ABSORBÉE / ABSORBED ENERGY	EXPANSION LATÉRALE / LATERAL EXPANSION(Mils)	% DE CISAILLEMENT / SHEAR %	CASSÉ / BREAK	
WELD					
	95	81	60	<input checked="" type="checkbox"/>	
	36	32	40	<input checked="" type="checkbox"/>	
	89	71	60	<input checked="" type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
HAZ - Pipe SA-333 grade 6 side					
	87	74	70	<input checked="" type="checkbox"/>	
	89	75	60	<input checked="" type="checkbox"/>	
	49	43	50	<input checked="" type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
HAZ - Flange SA-350 grade LF2 side					
	124	77	85	<input checked="" type="checkbox"/>	
	119	80	85	<input checked="" type="checkbox"/>	
	153	84	100	<input checked="" type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
CRITERES D'ACCEPTATION / ACCEPTANCE CRITERIA:		ASME B31.3-2016 Table 323.3.5 = 20 Joules minimum*			
RÉSULTATS / RESULTS:		<input checked="" type="checkbox"/> CONFORME		<input type="checkbox"/> NON-CONFORME	
REMARQUE(S) / REMARK(S): *70% subsized specimens used: Acceptance criteria becomes 14 Joules minimum average.					
The parts being tested are kept for a one month period after the results have been sent. Test results apply only to the parts being tested. This report can not be reproduced, except completely, without a written autorisation from the laboratory.					
ESSAIS EFFECTUÉS PAR / TESTS PERFORMED BY:					
 Pascal Morin, ing.		Chef de service	2018-03-16		
TECHNICIEN / TECHNICIAN OPERATEUR / OPERATOR		QUALIFICATION	DATE		

Note: Les titres désignent également les hommes et les femmes

A. B. F Construction 1310, Avenue Davy, Rouyn-Noranda, Québec Canada J9Y 0A8	Désignation de la DMS <i>Using WPS No.</i> SMAW-11-1	Enregistrement provincial <i>Provincial registration</i> RN-72.6
Nom du soudeur ou opérateur / <i>Welder or operator's name</i> CAMIRAND, SÉBASTIEN (SC)		

	Variables <i>Variables</i>	Inscrire valeurs <i>Record actual values</i>		Gamme qualifiée <i>Qualification range</i>	
		SMAW F3 <i>Manuel / Manual</i>	SMAW F4 <i>Manuel / Manual</i>	SMAW F3 <i>Manuel / Manual</i>	SMAW F4 <i>Manuel / Manual</i>
QW-353 <i>Procédé/ess</i>	Shielded metal arc welding				
QW-403 <i>Métaux de base Base metals</i>	Matériaux / <i>Material</i>	P1 à/to P1	P1 à/to P1	(P1 à/to P15F) (P34) (P41 à/to P49)	(P1 à/to P15F) (P34) (P41 à/to P49)
	Diamètre / <i>Diameter</i>	2.375" D E / O D	2.375" D E / O D	≥ 1" D.E / O.D	≥ 1" D.E / O.D
	Chanf épaisseur / <i>Groove thick</i>	0.343"	0.343"	Aucune limite / <i>No limit</i>	Aucune limite / <i>No limit</i>
	Angle épais. / <i>Fillet thickness</i>	Tous / <i>All</i>	Tous / <i>All</i>	Aucune limite / <i>No limit</i>	Aucune limite / <i>No limit</i>
QW-408 <i>Gas / Gaz</i>	Gaz de soutien / <i>Backing gas</i>	N/A	N/A	N/A	N/A
QW-409 <i>Électricité Electricity</i>	Courant / <i>Current</i>	CC / DC	CC / DC	Tous / <i>All</i>	Tous / <i>All</i>
	Polarité / <i>Polarity</i>	EP / RP	EP / RP	Tous / <i>All</i>	Tous / <i>All</i>
	Mode transfert / <i>Transfer mode</i>	N/A	N/A	N/A	N/A
QW-404 <i>Métaux d'apport Filler metals</i>	No spec. / <i>Spec No (SFA)</i>	5.1	5.1	5.1 5.4 5.5	5.1 6.4 5.5
	AWS Classe / <i>Class</i>	F3 E-6010	F4 E-7018	F3	F1, F2, F4
	Dépôt soudure / <i>Weld deposit</i>	0.125"	0.218"	0.250" Maximum	0.436" Maximum
	Pièce insérée / <i>Insert</i>	Aucune / <i>None</i>	Aucune / <i>None</i>	N/A	N/A
QW-402 <i>Joint</i>	Soutien / <i>Backing</i>	Sans soutien <i>Without backing</i>	Avec soutien <i>With backing</i>	Avec ou sans soutien <i>With or without backing</i>	Avec soutien <i>With backing</i>
QW-405 <i>Position</i>	Position / <i>Progression</i>	6G Montant / <i>Up</i>	6G Montant / <i>Up</i>	Toutes positions-montant <i>All positions-up</i>	Toutes positions-montant <i>All positions-up</i>
QW-360 <i>Machine</i>	Automatique / <i>Automatic</i>	N/A	N/A	N/A	N/A

Résultat de pliage ou de radiographie / <i>Guided bend or radiographic results</i>						
QW-191 <i>Specimens</i>	Pliage de côté <i>Side bend</i>	Pliage transversal <i>Transverse bend</i>	Pliage longitudinal <i>Longitudinal bend</i>	Radiographie <i>Radiographic</i>	ACCEPTÉ / <i>QUALIFIED</i>	REFUSÉ / <i>REFUSED</i>
				✓	ACCEPTÉ	
QW-194 <i>Visu / et / al</i>	Pénétration complète, fusion complète <i>Complete joint penetration, complete fusion</i>				 ACCEPTÉ	
	 CNCC/ASNT-TC-1A Level II					
Nous certifions que les renseignements ci-dessus sont exacts et que les essais de soudage ont été préparés et exécutés conformément aux exigences de la section IX du Code ASME. We certify that the statements in this record are correct and the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.						

Entreprise / <i>Organization</i>		
A. B. F Construction 		
Organisme autorisé / <i>Accredited organization</i>		
Soudé le: <i>Welded on</i>	OCT 17 2019	Inspecteur: <i>Inspector:</i>  
Vérifié le: <i>Inspected on</i>		Inspecteur <i>Inspector:</i>
		Accepté: <i>Accepted:</i>
		Refusé: <i>Refused:</i>


Note: Les titres désignent également les hommes et les femmes.

A. B. F Construction 127-A, Avenue Marcel-Baril, Rouyn-Noranda Québec Canada J9X-7B9	Désignation de la DMS <i>Using WPS No.</i> SMAW-11-1	Enregistrement provincial <i>Provincial registration</i> RN-72.6
Nom du soudeur ou opérateur / <i>Welder or operator's name</i> CAOUCETTE FRANÇOIS (F)		

Variables <i>Variables</i>	Inscrire valeurs <i>Record actual values</i>		Gamme qualifiée <i>Qualification range</i>	
	SMAW F3 <i>Manuel / Manual</i>	SMAW F4 <i>Manuel / Manual</i>	SMAW F3 <i>Manuel / Manual</i>	SMAW F4 <i>Manuel / Manual</i>
QW-353 <i>Proc/édéd/ess</i>	Shielded metal arc welding		Shielded metal arc welding	
QW-403 <i>Métaux de base</i> <i>Base metals</i>	Matériaux / <i>Material</i>	P1 à/to P1	P1 à/to P1	(P1 à/to P15F) (P34) (P41 à/to P49)
	Diamètre / <i>Diameter</i>	2.375" D.E / O.D	2.375" D.E / O.D	≥ 1" D.E / O.D
	Chanf. épaisseur / <i>Groove thick.</i>	0.343"	0.343"	Aucune limite / <i>No limit</i>
	Angle épais. / <i>Fillet thickness</i>	Tous / <i>All</i>	Tous / <i>All</i>	Aucune limite / <i>No limit</i>
QW-408 <i>Gas / Gaz</i>	Gaz de soutien / <i>Backing gas</i>	N/A	N/A	N/A
QW-409 <i>Électricité</i> <i>Electricity</i>	Courant / <i>Current</i>	CC / DC	CC / DC	Tous / <i>All</i>
	Polarité / <i>Polarity</i>	EP / RP	EP / RP	Tous / <i>All</i>
	Mode transfert / <i>Transfer mode</i>	N/A	N/A	N/A
QW-404 <i>Métaux d'apport</i> <i>Filler metals</i>	No spec. / <i>Spec No (SFA)</i>	5.1	5.1	5.1 5.4 5.5
	AWS Classe / <i>Class</i>	F3	F4	F3
	Dépôt soudure / <i>Weld deposit</i>	E-6010	E-7018	F1, F2, F4
	Pièce insérée / <i>Insert</i>	0.125"	0.218"	0.250" Maximum
		Aucune / <i>None</i>	Aucune / <i>None</i>	N/A
QW-402 <i>Joint</i>	Soutien / <i>Backing</i>	Sans soutien <i>Without backing</i>	Avec soutien <i>With backing</i>	Avec ou sans soutien <i>With or without backing</i>
QW-405 <i>Position</i>	Position / <i>Progression</i>	6G Montant / <i>Up</i>	6G Montant / <i>Up</i>	Toutes positions-montant <i>All positions-up</i>
QW-360 <i>Machine</i>	Automatique / <i>Automatic</i>	N/A	N/A	N/A

Résultat de pliage ou de radiographie / <i>Guided bend or radiographic results</i>						
QW-191 <i>Specimens</i>	Pliage de coté <i>Side bend</i>	Pliage transversal <i>Transverse bend</i>	Pliage longitudinal <i>Longitudinal bend</i>	Radiographie <i>Radiographic</i>	ACCEPTÉ / <i>QUALIFIED</i>	REFUSÉ / <i>REFUSED</i>
				√	✓	

QW-194 Pénétration complète, fusion complète
 Visu / el / al Complete joint penetration, complete fusion


 **LABORATOIRE D'ESSAI**
MEQUALTECH
 ONG/ASNT-TC-1A Level II

Nous certifions que les renseignements ci-dessus sont exacts et que les essais de soudage ont été préparés et exécutés conformément aux exigences de la section IX du Code ASME.
 We certify that the statements in this record are correct and the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

18M 4079-1 2018-09-21

Entreprise / *Organization*

A. B. F Construction




Organisme autorisé / *Accredited organization*

Soudé le: **14 SEPT 2018**
 Welded on:

Vérfié le:
 Inspected on:

Inspecteur:
 Inspector:




Accepté:
 Accepted:



Refusé:
 Refused:

Note: Les titres désignent également les hommes et les femmes.

A. B. F Construction 1310, Avenue Davy, Rouyn-Noranda Québec Canada J9Y 0A8	Désignation de la DMS <i>Using WPS No.</i> SAW-11-1	Enregistrement provincial <i>Provincial registration</i> RN-72.6
Nom du soudeur ou opérateur / <i>Welder or operator's name</i> ST-HILAIRE JOEL (J)		

	Variables <i>Variables</i>	Inscrire valeurs <i>Record actual values</i>		Gamme qualifiée <i>Qualification range</i>	
		SMAW F3 <i>Manuel / Manual</i>	SMAW F4 <i>Manuel / Manual</i>	SMAW F3 <i>Manuel / Manual</i>	SMAW F4 <i>Manuel / Manual</i>
QW-353 <i>Proc/éd/éss</i>	Shielded metal arc welding				
QW-403 <i>Métaux de base Base metals</i>	Matériaux / <i>Material</i>	P1 à/to P1	P1 à/to P1	(P1 à/to P15F) (P34) (P41 à/to P49)	(P1 à/to P15F) (P34) (P41 à/to P49)
	Diamètre / <i>Diameter</i>	2.375" D.E / O.D	2.375" D.E / O.D	≥ 1" D.E / O.D	≥ 1" D.E / O.D
	Chanf. épaisseur / <i>Groove thick.</i>	0.343"	0.343"	Aucune limite / <i>No limit</i>	Aucune limite / <i>No limit</i>
	Angle épais. / <i>Fillet thickness</i>	Tous / <i>All</i>	Tous / <i>All</i>	Aucune limite / <i>No limit</i>	Aucune limite / <i>No limit</i>
QW-408 <i>Gas / Gaz</i>	Gaz de soutien / <i>Backing gas</i>	N/A	N/A	N/A	N/A
QW-409 <i>Électricité Electricity</i>	Courant / <i>Current</i>	CC / DC	CC / DC	Tous / <i>All</i>	Tous / <i>All</i>
	Polarité / <i>Polarity</i>	EP / RP	EP / RP	Tous / <i>All</i>	Tous / <i>All</i>
	Mode transfert / <i>Transfer mode</i>	N/A	N/A	N/A	N/A
QW-404 <i>Métaux d'apport Filler metals</i>	No spec. / <i>Spec No (SFA)</i>	5.1	5.1	5.1 5.4 5.5	5.1 5.4 5.5
	AWS Classe / <i>Class</i>	F3	F4	F3	F1, F2, F4
	Dépôt soudure / <i>Weld deposit</i>	E-6010	E-7018	F3	F1, F2, F4
	Pièce insérée / <i>Insert</i>	0.125"	0.218"	0.250" Maximum	0.436" Maximum
		Aucune / <i>None</i>	Aucune / <i>None</i>	N/A	N/A
QW-402 <i>Joint</i>	Soutien / <i>Backing</i>	Sans soutien <i>Without backing</i>	Avec soutien <i>With backing</i>	Avec ou sans soutien <i>With or without backing</i>	Avec soutien <i>With backing</i>
QW-405 <i>Position</i>	Position / <i>Progression</i>	6G Montant / <i>Up</i>	6G Montant / <i>Up</i>	Toutes positions-montant <i>All positions-up</i>	Toutes positions-montant <i>All positions-up</i>
QW-360 <i>Machine</i>	Automatique / <i>Automatic</i>	N/A	N/A	N/A	N/A

Résultat de pliage ou de radiographie / <i>Guided bend or radiographic results</i>							
QW-191 <i>Specimens</i>	Pliage de coté <i>Side bend</i>	Pliage transversal <i>Transverse bend</i>	Pliage longitudinal <i>Longitudinal bend</i>	Radiographie <i>Radiographic</i>	ACCEPTÉ / <i>QUALIFIED</i>	REFUSÉ / <i>REFUSED</i>	
QW-194 <i>Visu / el / al</i>	Pénétration complète, fusion complète <i>Complete joint penetration, complete fusion.</i>						
 ONQ/ASNT C-1A Level II 2018-09-21 18M4079-11							
Nous certifions que les renseignements ci-dessus sont exacts et que les essais de soudage ont été préparés et exécutés conformément aux exigences de la section IX du Code ASME. <i>We certify that the statements in this record are correct and the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.</i>							

Entreprise / <i>Organization</i> A. B. F Construction 		
Organisme autorisé / <i>Accredited organization</i>		
Soudé le: <i>Welded on</i> 14 SEPT - 2018	Inspecteur: <i>Inspetor:</i> 	Accepté: <i>Accepted:</i>
Vérifié le : <i>Inspected on</i>	Inspecteur <i>Inspector:</i>	Refusé: <i>Refused:</i>

**PROCEDURE FOR PNEUMATIC TESTING
OF PIPING ASSEMBLY**
*(PROCÉDURE D'ESSAIS SUR TUYAUTERIE
PAR ÉPREUVE PNEUMATIQUE)*

1.0 GOAL (But) :

Defining the procedure for testing of piping assembly. *(Définir la procédure d'essais des assemblages de tuyauterie.)*

2.0 APPLICATION (Domaine d'application) :

This Procedure is intended to describe the pneumatic testing methodology for piping assemblies at Agnico-Eagle Div. Meadowbank Project, NU. *(Cette procédure s'applique à définir la méthodologie d'essai d'étanchéité des assemblages de tuyauterie à Agnico-Eagle Div. Meadowbank Project, NU.)*

3.0 RESPONSABILITIES (Responsabilités) :

Work is performed by ABF Mines inc., pipefitters performing the test are responsible for the quality and safety of their work. The foreman supervises and witnesses the quality and safety of the testing. AEM representative verifies and approves each test. *(Les travaux sont réalisés par ABF Mines Inc., les tuyauteurs qui réalisent les essais sont responsables de la qualité et de la sécurité de leurs travaux, le CTM supervise les travaux et témoigne de tous les essais. Le représentant d'AEM inc. vérifie et approuve les essais réalisés.)*

4.0 METHODOLOGY (Méthodologie) :

The work consists of testing on piping assemblies according to the present procedures by ABF Mines Inc. *(Les travaux consistent à la réalisation d'essais sur les assemblages de tuyauterie selon la présente procédure par ABF Mines inc.)*

5.0 STEPS (Étapes):

Advise 24hr prior to testing, the AEM supervisor in charge of the piping installation, of the time of test. *(Aviser par courriel 24 heures à l'avance le représentant d'AEM de l'exécution des essais pneumatiques.)*

Every piping assembly, subject to testing is inspected for any restriction. Piping is then coupled with appropriate instrument and pressure gage. *(Chaque ensemble de tuyauterie fabriqué et à inspecter, est inspecté pour toute obstruction de manière appropriée. Il est ensuite couplé adéquatement des raccords, nourrice, purge et d'instruments indicateurs de pression.)*

The area is cleared and barricaded with red (danger) tape at reasonable and secure distance. *(Le secteur est évacué, des rubans de délimitation rouge (Danger) sont installés à une distance raisonnable et sécuritaire.)*

The pressure for testing is determined on 1.2X the service pressure as per system specifications, every instrument below that set pressure is remove for testing. Maximum testing pressure allowed is 690kPa/100Psi. *(Les pressions d'essais sont déterminées à 1.2X la pression de service selon la spécification du système. Si une unité performe en deçà de cette pression d'utilisation, elle est isolé pour la duré du test. La pression maximale autorisée est de 690kPa/100Ps.)*

The pressure is raised in three (3) equal stages. With a 10 min. waiting period between each increase until maximum pressure is obtained. *(La pression maximale est obtenue en trois étapes, d'égale pression, avec 15 min. d'attente entre chaque augmentation de pression.)*

The testing pressure is maintained without pressure drop, nor leak, for a minimum of one hour. *(La pression d'essais est maintenue, sans baisse de pression, ni fuite, pendant une durée minimale d'une heure.)*

In case of pressure drop, potential leaks are spotted using soapy water (Snoop). Any leak is then isolated, purged and repaired. Pressure is then raised back to testing pressure for a full one (1) hour phase. *(En cas de baisse de pression, l'application d'un détecteur de fuite à base d'eau savonneuse (Snoop) est appliqué sur toute la surface des joints suspects. Toute fuite est isolée, la ligne purgée et réparée. La pression est rétablie dans tout le réseau pour une heure complète.)*

The testing is concluded by purging the air, this process is also used to remove all loose fine particles inside the system. Instruments of calibration are reinstalled. *(Après la conclusion de l'épreuve, l'air est purgé et les équipements de calibration réinstallés.)*

All parts of system then tested is identified as so on the quality control's P'nID. *(Les ensembles testés seront identifiés sur le diagramme de procédé réservé à cet effet)*

The inspection report is signed by participants and preserved for future reference. *(La fiche d'inspection signée sera classée et conservée dans le cartable à cet effet pour futures références.)*

6.0 ÉQUIPEMENTS :

- Appropriate Gauge *(Manomètres)*
- Temporary Piping *(Tuyauterie temporaire)*
- Fittings, Flanges, Blind-Flanges, Spectacle-blind, hoses and valves. *(Raccords, brides, brides pleines ou plaques d'obturation, boyau et robinet)*
- Vents *(Évents)*
- Compressor *(Compresseur)*
- Soapy water *(Eau Savonneuse)*

RÉFÉRENCES

© Typical procedure Xenit Industries inc.

2019-09-14,
17h56.



pen 71
51-60-1A02



2019-09-15
pen71



2019-09-15
13:02



2019-09-15

14:30





2019-02-17

11150

verblende

BRG
1 1/2"



25111



MLTS_6056-18731
Heat# SEE BELOW

CCTF CORPORATION
4151 North Service Road, Burlington, ON L7L 4X6 (905) 335-5320

Date: 6/5/2019

Mill Test Reports

Invoice: 1596625-00
PO: 4072649

Customer: 49300-001
A.B.F MINES INC (ROUYN NORANDA
LIVRER A EQUIPEMENT KN
8254 RANG DU VIEUX PONT
ROUYN-NORANDA, QC J9Y 0H4

Zinc	Heat#	Product	Description
2	176433	2530031	1 A333-6 STD BLK SMLS SRL
3	141352	2530074	2 A333-6 STD BLK SMLS SRL
4	610879	2530090	4 A333-6 STD BLK SMLS SRL
5	175147	2530104	6 A333-6 STD BLK SMLS SRL
5	178322	2530104	6 A333-6 STD BLK SMLS SRL
6	175142	2530112	8 A333-6 STD BLK SMLS SRL
6	175146	2530112	8 A333-6 STD BLK SMLS SRL
6	176433	2530112	8 A333-6 STD BLK SMLS SRL
6	177833	2530112	8 A333-6 STD BLK SMLS SRL

Heat codes followed by ** have been corrected, change may not show on the packing slip



Vallourec Soluções Tubulares do Brasil S.A.
 Barricão Plant - Av. Olimio Meireles, 65
 ZIP 30640-010 - Belo Horizonte, MG



Inspection Certificate
 (According to DIN EN 10204.3.1)

Nº.: 0030030837 / 00

Sheet: 1 / 4

Customer: VALLOUREC CANADA INC

Country: Canada

Material Number: 276243

Work Order: 531796 / 10

Customer Order: VM-4682 - P.O 4038589-00

Inspection: Vallourec Soluções Tubulares do Brasil S.A.

PRODUCT: SEAMLESS STEEL PIPE, HOT FINISHED, PLAIN ENDS, NORMALIZED

DIMENSIONS: 33,40 mm X 3,38 mm SCHEDULE: 040 GRADE: GRADE 290 # GR 1 # 6 # B

STANDARD: CSA-Z245.1-14 - CATEGORY II

IN ACCORDANCE ALSO TO THE STANDARDS: ASTM A 333M - 16 ASTM A 999M - 18 # ASTM A 106M - 18 ASTM A 530M - 12 # ASTM A 53M - 12 # ASME SA-333M - 17 ASME SA-999M - 17 # ASME SA-106M - 17 ASME SA-530M - 17

CUSTOMER SPECIFICATION: CCTF GrB,1,6,290 Cat II SS, 20.11.2017

SURFACE PROTECTION: EXTERNAL: LACQUER PIPE ENDS PROTECTOR: PLASTIC CAP

TOLERANCES: OUTSIDE DIAMETER (PIPE BODY): -0,40 mm / +0,40 mm WALL THICKNESS: -0,42 mm / +0,68 mm

TOLERANCES(PIPE ENDS): OUTSIDE DIAMETER: -0,40 mm / +0,40 mm

LENGTH: RANDOM 5486,00 mm - 6706,00 mm

STANDARD MARKING: PAINT STENCILED IN THE PIPE BODY: 531796/10 MANUFACTURER CSA-Z245.1-14 33,40 X 3,38 290 CAT II SS S HN HEAT NUMBER ASTM A/ASME SA 333, 1/6 HF SCH 040 LT-46C ASTM A/ASME SA 106 B 20700 KPA ASTM A 53 B NPS 1" X SCH 40 VSB LOGO

SHIPPING MARKING: NACE MR 0175/NACE MR 0103 - MADE IN BRAZIL * VM4682 / P.O # 4038589-00/ITEM-1 * TORONTO * CCTF

Heat	Pieces
176433	337
Total	337

THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS: DIMENSIONAL # VISUAL # FLATTENING TEST # BENDING TEST # ENDS INSPECTION : UNTESTED ENDS CROPPED # HYDROSTATIC TEST: 20700,0 KPA 5 S # RESIDUAL MAGNETISM: MAX 30 GAUSS # ELECTROMAGNETIC TEST : CSAZ245.1-N10,LON/TRAN,OUT/INS # ULTRASONIC TEST FOR LAMINAR DEFECTS: ACC. CSA Z245.1-SOUR SERVICE #



Inspection Certificate
(According to DIN EN 10204.3.1)

N°: 0030030837 / 00

Sheet 2 / 4

Chemical Composition (%)

Ceq: CSA-Z245.1-CE11

Process: Basic Oxygen Furnace, heats fully killed

Ceq: C+Mn/6+(Cr+Mo+V)/5 +(Ni+Cu)/15 CE1: Cr + Cu + Mo + Ni + V

	C	Mn	P	S	Si	Ni	Cr	Mo	Al	Cu	V	Nb	B	Ti	N	Ca	Ceq	Ceq	CEI
Heat Analysis	0,240	1,350	0,025	0,025	0,500	0,400	0,300	0,120		0,400	0,080	0,020	0,0010	0,110			0,400	0,430	1,000
Product Analysis	0,240	1,350	0,025	0,025	0,500	0,400	0,300	0,120		0,400	0,080	0,020	0,0010	0,110			0,400	0,430	1,000
Heat Control Lot	0,10	1,27	0,012	0,004	0,28	0,03	0,06	0,01	0,029	0,070	0,004	0,015	0,0004	0,002	0,0099	0,0012	0,265	0,333	0,174
176433 030003101210	0,11	1,29	0,011	0,004	0,29	0,03	0,06	0,01	0,029	0,074	0,003	0,017	0,0003	0,002	0,0098	0,0013	0,277	0,347	0,179
Check 1	0,10	1,29	0,011	0,004	0,29	0,03	0,06	0,01	0,029	0,074	0,003	0,017	0,0003	0,002	0,0088	0,0013	0,267	0,337	0,179
Check 2																			

Ceq: Carbon Equivalent; Ceq: Combined Elements;

Tensile Test

Specimen Direction: Longitudinal

Method: Elong.Total Under Load 0,50 %

Temperature: Room Temperature

Wall Thickness: 3,38 mm

Gage Length: L0=2"

Heat	Control Lot	Type of Specimen	Area (MM2)	YS (MPA)	TS (MPA)	E (%)	Required:	
							Min	Max
176433	030003101210	FULL SECTION	321,3	290	415	25		
		FULL SECTION	330,4	349	477	44		
				355	490	45		

YS-Yield Strength; TS-Tensile Strength; E-Elongation;

Hardness Test Through Wall

Scale: HV

Individual

Heat	Control Lot	Required: Min	Max	MW1	MW2	MW3	Avg
176433	030003101210		246,0	Q1 160,0	159,0	162,0	160,3

MW - Middle Wall;



Inspection Certificate
 (According to DIN EN 10204.3.1)
N°: 0030030837 / 00

Sheet: 3 / 4

Impact Test

Test Specimen: CHARPY 10X55X2.5 V NOTCH

Direction: Longitudinal	Temperature: -55°C				Striker radius: 8 mm										
	AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)	LE Avg (Mils)
7	7	7	7	7	7	50	50	50	50	50	60	55	55	55	55
Min	7	7	7	7	7	50	50	50	50	50	60	55	55	55	55
Max															

Heat Control Lot 176433 030003101210
 AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;

Remarks:

- MATERIAL IN ACCORDANCE WITH NACE MR 0175 PAR. 3.2/ISO 15156-2, ANNEX A.2.1.2/NACE MR0103 PAR.2.1, ALL LATEST EDITIONS
- SKU 2530031
- THE WORKS OPERATE A QUALITY MANAGEMENT SYSTEM ACCORDING TO EUROPEAN DIRECTIVE 2014/68/UE ANNEX I PAR. 4.3 (CERTIFICATE 2016 BH MP 02-03 VALID UNTIL 12.05.2019).
- MATERIAL ACCORDING TO PED 2014/68/UE ANNEX I PAR. 7.5

"STEEL MADE BY BOF PROCESS"

- NO WELD REPAIR
 - FREE OF MERCURY CONTAMINATION
 - NO RADIOACTIVE CONTAMINATION
 - FINE GRAIN PRACTICE
 - FULLY KILLED STEEL.
 - MATERIAL FROM BRAZIL



Inspection Certificate
(According to DIN EN 10204.3.1)
N°.: 0030030837 / 00
Sheet: 4 / 4

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Alteration or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT
FAX: (55-31) 3328-2773
e-mail: ins.silva@vallourec.com

ENG. LUIZ FERNANDO DA SILVA - CREA/MG 58834-D
TECHNICAL RESPONSIBLE

DATE
11.20.2018



Vallourec Soluções Tubulares do Brasil S.A.
 Barreiro Plant - Av. Olimpio Meireles, 65
 ZIU 306-89-010 - Belo Horizonte, MG



Inspection Certificate
 (According to DIN EN 10204.3.1)
Nº: 0030023868 / 00

Sheet: 1 / 3

Customer: VALLOUREC CANADA INC

Country: Canada

Material Number: 273193
 Work Order: 509784 / 10
 Customer Order: VM4238/P.O # 4037215-01

Inspection: Vallourec Soluções Tubulares do Brasil S.A

PRODUCT: SEAMLESS STEEL PIPE, HOT FINISHED, BEVELED ENDS 30 DEG., NORMALIZED
 DIMENSIONS: 60,30 mm X 3,90 mm SCHEDULE: 040 GRADE: GRADE 290 # 6 # GR 1
 STANDARD: CSA-Z245.1-14 - CATEGORY II 2 570 2530074

IN ACCORDANCE ALSO TO THE STANDARDS: ASTM A 333M - 16 ASTM A 995M - 16 # ASME SA-333M - 15

SURFACE PROTECTION: EXTERNAL: LACQUER PIPE ENDS PROTECTOR: PLASTIC CAP

TOLERANCES: OUTSIDE DIAMETER (PIPE BODY): -0,60 mm / +0,60 mm WALL THICKNESS: -0,49 mm / +0,78 mm

LENGTH: RANDOM 5486,00 mm - 6706,00 mm

STANDARD MARKING: Paint applied in the pipe body: 509784/10 MANUFACTURER CSA-Z245.1-14 60,30 X 3,90 290 CAT II SS 3 IN LENGTH HEAT NUMBER ASTM A333-16 11P SCH 040 LT .46C NACE MR

0175/NACE MR 0103 VSB LOGO

SHIPPING MARKING: MADE IN BRAZIL * VM4238 / P.O # 4037205-00 * VANCOUVER

TOLERANCES (PIPE ENDS): OUTSIDE DIAMETER: -0,40 mm / +0,80 mm

Heat	Pieces
141352	122
Total	122

THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS: DIMENSIONAL # VISUAL # FLATTENING TEST # ENDS INSPECTION : UNTESTED ENDS CROPPED # HYDROSTATIC TEST: 20700,0 KPA

5.5 # RESIDUAL MAGNETISM: MAX 30 GAUSS # TESTE ELETROMAGNETICO : ACCORDING TO CSA Z245.1 # ULTRASONIC TEST FOR LAMINAR DEFECTS: ACC. CSA Z245.1-SOUR SERVICE #

Chemical Composition (%)

Process: Basic Oxygen Furnace, heats fully killed

Req: CSA-Z245.1-CE11	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	V	Nb	B	Ti	Ceq	CE1
Heat Analysis	Min	0,240	0,100	0,025	0,100	0,01	0,07	0,03	0,010	0,006	0,015	0,0002	0,002	0,342	3,000
	Max	0,240	1,350	0,025	0,500	0,300	0,120	0,400	0,120	0,080	0,020	0,010	0,110	0,400	
Product Analysis	Min	0,240	0,100	0,025	0,100	0,01	0,07	0,03	0,010	0,006	0,015	0,0002	0,002	0,343	3,000
	Max	0,240	1,350	0,025	0,500	0,300	0,120	0,400	0,120	0,080	0,020	0,010	0,110	0,400	
Heat	Control Lot														
141352	030002389902	0,10	1,32	0,020	0,001	0,31	0,07	0,03	0,010	0,006	0,015	0,0002	0,002	0,342	3,200
	Check 1	0,10	1,32	0,020	0,001	0,31	0,07	0,03	0,012	0,006	0,016	0,0002	0,002	0,343	3,204
	Check 2	0,10	1,32	0,020	0,001	0,31	0,07	0,03	0,012	0,006	0,016	0,0002	0,002	0,343	3,216

Req: Carbon Equivalent; CE: Combined Elements:



Inspection Certificate
(According to DIN EN 10204, 3.1)

N°.: 0030023868 / 00

Sheet: 2 / 3

Tensile Test

Specimen Direction: Longitudinal

Temperature: Room Temperature

Gage Length: L₀=2"

Method: Elong. Total Under Load 0.50%

Type of Specimen

Area

YS

TS

E

Required: Min
Max

Heat Control Lot
141352 030002389902

STRIP WIDTH 19.05 MM

290

415

26

YS-Yield Strength; TS-Tensile Strength; E-Elongation;

Hardness Test Through Wall

Scale: HV

Individual

AE2

AE3

Required: Min
Max

Heat Control Lot
141352 030002389902
MW - Middle Wall;

246.0

MW1

MW2

MW3

AVR

Q1

163.0

166.0

160.0

163.0

Impact Test

Test Specimen: CHARPY 10X55X2.5 V

Direction: Longitudinal

Temperature: -57°C

Striking tip: 8 mm

NOTCH

AE1 AE2 AE3 AE4 AE5 AE Avg
(J) (J) (J) (J) (J) (J)

Required: Min
Max

Heat Control Lot
141352 030002389902

4

4

4

4

4

5

Remarks:

1. MATERIAL IN ACCORDANCE WITH NACE MR 0175
PAR. 3.2/ISO 15156-2, ANNEX A.2.1.2/NACE MR0103 PAR.2.1. ALL LATEST EDITIONS.

2. SKU 2530074



Inspection Certificate

(According to DIN EN 10204.3.1)

Nº.: 0030023868 / 00

Sheet 3 / 3

3. - MATERIAL SOUR SERVICE AS DEFINED IN PARAGRAPH 16 OF CSA Z245.1.1, BUT WITHOUT HIC TEST

- 4. MATERIAL:
- NO WELD REPAIR
- FREE OF MERCURY
- FINE GRAIN PRACTICE
- FULLY KILLED STEEL
- MATERIAL FROM BRAZIL

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Alteration or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT
FAX: (55-31) 328-2617
e-mail: gustavo.alvares@vallourec.com

DATE:
08.14.2017

DR. GUSTAVO ALVARES
TECHNICAL RESPONSIBLE

ECO TUBES: The tubes from Vallourec do Brasil S.A. are manufactured with steel which uses charcoal as a source of energy in its production. This coal comes from more than 100,000 ha of forest planted by Vallourec Florestal Ltda. With the acquisition of 4,6 tons) of steel tubes from Vallourec do Brasil S.A., your company contributed to the reduction of the greenhouse effect, avoiding the accumulation of 8,3 ton(s) of Carbon Dioxide CO2 in the atmosphere.

Benteler Steel/Tube GmbH

Postfach 13 40
33043 Paderborn
Deutschland
Tel.: + 49 5254.81-0 Fax: + 49 5254.13666



Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1
EN 10204:2005-01

Benteler Steel/Tube GmbH · Postfach 1340 · 33043 Paderborn · Deutschland

CCTF Corporation
Unit 2 4151 North Service Road
BURLINGTON, ON ON L7L 4X6
CANADA

Dokument-Nr.: 65-1069887/001/E

Document No.:
No. du document:

Kunden-Bestell-Nr.:
Purchase Order No.:
No. de commande du client:

Benteler Auftrags-Nr.:
Benteler Order No.:
No. de commande Benteler:

Versandanzeigen-Nr.:
Dispatch Note No.:
No. d'avis d'expédition:

Produkt: NAHTLOSE STAHLROHRE
Product: SEAMLESS STEEL TUBES
Produit: TUBES D'ACIER SANS SOUDURE

Prüf-Nr.:
Inspection No.:
No. du certificat:

Hersteller:
Manufacturer:
Producteur:
Wärmehwerk Dimslaken
(DIN EN ISO 9001, ISO/TS-16949 CERTIFIED BY TÜV NORD CERT
(PED 2014/68/EU CERTIFIED BY TÜV NORD SYSTEMS))

Herstellerzeichen:
Manufacturer's brand:
Marque du producteur:

Stempel des Abnahmebeauftragten:
Stamp of the inspection representative:
Poignon du contrôleur:

Stahlschmelzungsverfahren:
Steelmaking process:
Procédé d'élaboration de l'acier:

Lieferbedingungen: ASTM-A 106-2015, ASTM-A 333-2016-HF, ASME SA-106, ASME BPVC.II.A-2017, ASME SA-333-HF, ASME
Terms of delivery: BPVC.II.A-2017, CSA Standard Z245.1-14 Category II, Sour Service, ANSI/NACE MR0175/ISO 15156-1:
Conditions de livraison: 2015, ANSI/NACE MR0175/ISO 15156-2: 2015
Maße - Toleranzen: ASME SA-106, ASME BPVC.II.A-2017, ASTM-A 106-2015, ASME SA-999 ASME BPVC.II.A-2017, ASTM-A 999-2016
Dimensions-tolerances:

Stahlsorte: GRADE 1, GRADE 290, GRADE 6, GRADE B

Steel grade:

Nuance d'acier:

Lieferzustand: Normalized

Delivery condition:

Etat de livraison:

Produktkennzeichnung: FS: BENTELER Z.245.1 - 14 - A / SA-106 / A / SA-333 B/1/6/290 CATEGORIE 2 SS HEAT-NO. LT

Product marking: 50 SMLS HN DIMENSION TEST PRESSURE S6 WA GERMANY PO 4038177-00 / 2530090 DIMENSIONS

Marquage du produit: SCHEDULE

PS: HEAT-NO. DIMENSIONS SCHEDULE B/1/6/290 SS

AZ = Arzinkenbeschriftung, Eching ink marking, Geyure à l'encre: PK = Farbmarkierung, pain, stenciling, marquage par peinture, FSD = Farbstoffdrucker Color jet printer, imprimante à jet d'encre de couleur, UK = Laserkennzeichnung, Laser marking, Marquage laser, PKE = Etikettenszeichnung, tag marking, marquage sur étiquette, PS = Prägestempel, die stamp, marquage par poinçonnage, TS = Tintenstrahlkennzeichnung, ink jet spray marking, imprimante à jet d'encre

Benteler Steel/Tube GmbH
 Postfach 13 40
 33043 Paderborn
 Deutschland
 Tel.: + 49-5254-81-0 Fax: + 49-5254-13666



Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1 Dokument-Nr.: 65-1069887/001/E Blatt: 2 / 6
 INSPECTION CERTIFICATE EN 10204-3.1 Document No.: No. du certificat: 2650 5
 CERTIFICAT DE RECEPTION EN 10204-3.1 No. du document:

Pos.	Stück	Maße	Gesamtlänge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length total	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur totale	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
			feet	lbs		PSI		
0002	72	4" NPS + Sched. 40 20 FT - 22 FT	1570,90	17284	610879	2650	5	

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	No. de coulée													
0002	610879	0,130	0,320	1,25	0,008	0,001	0,14	0,06	0,25	0,11	0,062	0,014	0,003	0,0003

- 1. Formel: $CE_{IIV} = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) < = 0,42 \%$
- 2. Formel: $CE_V = C + F + ((Mn/6) + (Si/24) + (Cu/15) + ((Cr + Mo + V + Nb)/5) + (5 * B)) < = 0,40 \%$
- 3. Formel: $Mn / C > = 3 / 1$
- 4. Formel: $Cr + Cu + Mo + Ni + V < = 1,00 \%$

Formelergebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr.	1. Formel	2. Formel	3. Formel	4. Formel
Item	Heat No.				
Poste	No. de coulée				
0002	610879	0,415	0,369	9,615	0,622

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	No. de coulée													
0002	610879	0,130	0,320	1,21	0,004	0,003	0,15	0,06	0,26	0,09	0,067	0,017	0,005	0,0004

- 1. Formel: $CE_{IIV} = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) < = 0,42 \%$
- 2. Formel: $CE_V = C + F + ((Mn/6) + (Si/24) + (Cu/15) + ((Cr + Mo + V + Nb)/5) + (5 * B)) < = 0,40 \%$
- 3. Formel: $Mn / C > = 3 / 1$
- 4. Formel: $Cr + Cu + Mo + Ni + V < = 1,00 \%$

Benteler Steel/Tube GmbH
 Postfach 13 40
 33043 Paderborn
 Deutschland
 Tel.: + 49.5254.81-0 Fax: + 49.5254.13666



ABNAHMEPRÜFZEUGNIS EN 10204-3.1
 INSPECTION CERTIFICATE EN 10204-3.1
 CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 65-1069887/001/E
 Document No.:
 No. du document:

Prüf-Nr.:
 Inspection No.:
 No. du certificat: Blatt: 3 / 6
 Page:

Formelerggebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel
Item	Heat No.	1.	2.	3.	4.
Poste	No. de coulée	1.	2.	3.	4.
0002	610879	0,410	0,366	9,308	0,627

Prüfergebnisse / Test results / Résultats des essais

Die Röhre sind auf Dichtigkeit geprüft durch: Hydrostatic test: acc. to CSA Z245.1, holding time min 5 seconds, Test PASSED
 The tubes have been submitted to a leak tightness test by: pressure/Time-record

Les tubes ont passé un contrôle d'étanchéité par: ET-test: acc. to CSA Z245.1; for imperfections; drilled hole: 3,20 mm PASSED
 The tubes are non destructive tested:
 Les tubes ont passé un essai non destructif:

Augensichtkontrolle: PASSED Maßkontrolle: PASSED Ringaltersuchung: PASSED
 Visual inspection: Dimensions examination: Flattening test:
 Examen visuel: Vérification des dimensions; Essai d'aplatissement:

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.
 The sampling was carried out on multiple lengths.
 L'échantillonnage était réalisé aux longueurs multiples.

Zugversuch längs bei RT, Streifenprobe / Tensile test longitudinal at RT, Strip test specimen / Essai de traction longitudinale à TA, Bande découpée sur tube

Pos.	Proben-Nr. Specimen No.	Schmelzen-Nr. Heat No.	Probenabmessung Specimen dimensions	Streckgrenze Yield strength	Zugfestigkeit Tensile strength	Dehnung Elongation	1. Formel			
							Rm	AZ*		
Item	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	PSI	%		
							RT 0,5 %			
							mm			
							PSI			
							42206-71794			
0002	000001	610879	25,40 X	5,80	77740	32,00	60046-90504	MIN 32,00		
0002	000002	610879	25,40 X	6,10	78320	32,00				
0002	000003	610879	25,40 X	6,20	77305	32,00				
0002	000004	610879	25,40 X	6,20	79336	34,00				

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Deutschland
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BENTELER
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1

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Kerbschlagbiegeversuch Notched bar impact test / Essai de flexion par choc (résilience) [2 CHARPY_V]

Probenlage: quer (Q); Prüftemperatur: -51 °F

Specimen position: transversal (Q); Test temperature: -51 °F

Position de l'éprouvette: transversal (Q); Température d'essai: -51 °F

Pos. / Item / Poste	Proben-Nr. / Specimen No. / No. de l'éprouv.	Schmelz-Nr. / Heat No. / No. de coulée	Probenabmessung / Specimen dimensions / Dimensions de l'éprouvette	Kerbschlagarbeit / Absorbed energy / Energie absorbée	Kerbschlagzähigkeit / Impact strength / Résistance au choc	Verf.-Bruchanteil / Shear fracture / Rupture ductile	Laterale Breitung / Lateral expansion / Expansion latérale	Sprödbbruchanteil / Brittle Fracture / Rupture Fragile
Anforderungen / Requirements / Exigences	Länge / Length / Longueur	Breite / Width / Largeur	Höhe / Height / Hauteur	J	einzel / single / individuelle	mittel / average / moyenne	einzel / single / individuelle	mittel / average / moyenne
	mm	mm	mm	J	%	%	mm	mm
	55	5,00	10,00	MIN 014	MIN 50	MIN 60		
0002 000001	610879	5,00	10,00	35	60	60	1,20	1,20
		5,00	10,00	32	60	60	1,10	1,10
		5,00	10,00	33	60	60	1,00	1,10

Wärmebehandlung / Heat treatment / Traitement thermique	Normalizing temperature: 920 °C, Holding time: 5 min., Cooling: Air
Restmagnetismus / Demagnetize / Démagnétiser	demagnetized tubes; 1 measurement per 4 hours on both tube ends Two readings 180° apart around the circumference. Average value max 3.0 Millitesla (24 A/cm), individual value max 3.5 Millitesla (28 A/cm)

Vermerk / Remark / Remarque
NACE Standard: Hardness acc. to NACE Standard MR0175 HRC max. 22., The material meets the requirements of NACE MR0103, Region 3, in accordance to Figure 1 and Appendix A.2, ANSI/NACE MR0175/ISO 15156-2:2015; Certificate remarks: fully killed fine grained steel, This is to confirm that the seamless linepipe supplied by BENTELER and verified to CSA Standard Z245.1-14 meets the requirement for micro hardness of max. 248 HV 500 gf., No weld repair has been carried out, Sour Service, The Material is Aluminium deoxidized and inclusion shape controlled with Calcium-Silicon treatment, It is the end user's responsibility to ensure that all environmental requirements as well as the requirements regarding engineering, construction and operation of facilities are fulfilled in the country of use. Fit for purpose of the parts as well as homologation is not the scope of this contract., Steelmaking: BENTELER Steel Mill Lingen
Grain size: acc. to ASTM-E 112; Grain size and finer: 6

Verkäufer(in) / Sales Personnel / Personne chargée : Mr Dyka, Tel.: 05254/81-4265-204265, Fax: 204229

Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland
Tel.: + 49.5254.81-0 Fax: + 49.5254.13666

BENTELER
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1

65-1069887/001/E

Dokument-Nr.:
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Page:

6

Dinslaken, 13.04.2018, TEL.: 02064.623-5360 FAX: 02064.623-5390

Abnahmebeauftragter
Inspection representative

Contrôleur

i. A. Patrick Hanraths / LABACH

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.
We certify that the supplied products comply with the order specifications. This document was prepared by means of electronic data processing and is valid without signature.
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.



Vallourec Soluções Tubulares do Brasil S.A.
 Barricão Plant - Av. Olimio Mercês, 65
 ZIP 30640-010 - Belo Horizonte, MG



Inspection Certificate
 (According to DIN EN 10204 J 1)

Nº.: 0030032296 / 00

Sheet: 1 / 4

Customer: VALLOUREC CANADA INC

Country: Canada

Material Number: 276430
 Work Order: 536721 / 20
 Customer Order: VM-4811/P.O.4038915-00

Inspection: Vallourec Soluções Tubulares do Brasil S.A.

PRODUCT: SEAMLESS STEEL PIPE, HOT FINISHED, BEVELED ENDS 30 DEG., NORMALIZED

DIMENSIONS: 168.30 mm X 7,11 mm GRADE: GRADE 290 ± GR 1 # 6 # B

STANDARD: CSA-Z245.1-18 - CATEGORY II

IN ACCORDANCE ALSO TO THE STANDARDS: ASTM A 333M - 18 ASTM A 999M - 18 # ASTM A 106M - 18 ASTM A 53M - 18 # ASTM A 53M - 18 # ASME SA-333M - 17 # ASME SA-106M - 17 ASME SA-530M - 17

CUSTOMER SPECIFICATION: CCTF GrB.1.6.290 Cat II SS, 20.11.2017

SURFACE PROTECTION: EXTERNAL: LACQUER PIPE ENDS PROTECTOR: PLASTIC CAP

TOLERANCES: OUTSIDE DIAMETER (PIPE BODY): -0,80 mm / +1,26 mm WALL THICKNESS: -0,89 mm / +1,07 mm

TOLERANCES(PIPE ENDS): OUTSIDE DIAMETER: -0,40 mm / +1,00 mm

LENGTH: RANDOM 5486,00 mm - 6706,00 mm

STANDARD MARKING: PAINT STENCILED IN THE PIPE BODY: 536721/20 MANUFACTURER CSA-Z245.1-18 168.30 X 7.11 290 CAT II M46C SS HN LENGTH HEAT NUMBER ASTM A/ASME SA 333. 1/6 HF SCH 040 LT -46C

ASTM A/ASME SA 106 B 18400 KPA WEIGHT ASTM A 53 B VSB LOGO

SHIPPING MARKING: NPS 6" X SCH 40 NACE MR 0175/NACE MR 0103 - MADE IN BRAZIL - VM4811 / P.O # 4038915-00/ITEM-2 * TORONTO * CCTF

Heat	Pieces
175147	11
175724	24
178322	89
Total	124

THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS: DIMENSIONAL # VISUAL # FLATTENING TEST # ENDS INSPECTION : UNTESTED ENDS CROPPED # HYDROSTATIC TEST: 18400,0 KPA
 S S # RESIDUAL MAGNETISM: MAX 30 GAUSS # ELECTROMAGNETIC TEST : CSAZ245.1-N10.LON/TRAN.OUT/INS # ULTRASONIC TEST FOR LAMINAR DEFECTS: ACC. CSA Z245.1-SOUR SERVICE #



Inspection Certificate
(According to DIN EN 10204.3.1)

Sheet 2 / 4

N°.: 0030032296 / 00

Chemical Composition (%)

Ceq: CSA-Z245.1-CE11

Process: Basic Oxygen Furnace, heats fully killed

Ceq: C Mn/6 + Cr + Mo + V/5 + Ni(Cu)/5 CE1: Cr + Cu + Mo + Ni + V

	C	Min	P	S	Si	N	Cr	Mo	Al	Cu	V	Nb	B	Ti	N	Cu	Ceq	CE1	
Heat Analysis	0,240	1,350	0,025	0,025	0,500	0,400	0,300	0,120	0,400	0,080	0,020	0,0010	0,110			0,400	0,430	1,000	
Product Analysis	0,240	1,350	0,025	0,025	0,500	0,400	0,300	0,120	0,400	0,080	0,020	0,0010	0,110			0,400	0,430	1,000	
Heat Control Lot																			
175147 030003127653	0,12	1,31	0,010	0,007	0,30	0,01	0,04	0,01	0,027	0,025	0,004	0,016	0,0004	0,003	0,0055	0,0013	0,309	0,351	0,084
Check 1	0,12	1,29	0,010	0,005	0,29	0,01	0,04	0,01	0,028	0,024	0,004	0,017	0,0002	0,003	0,0050	0,0011	0,309	0,348	0,088
Check 2	0,12	1,29	0,010	0,006	0,28	0,01	0,04	0,01	0,027	0,023	0,004	0,016	0,0002	0,002	0,0050	0,0012	0,308	0,347	0,086
175724 030003127905	0,11	1,30	0,009	0,003	0,30	0,02	0,05	0,01	0,029	0,030	0,004	0,015	0,0004	0,002	0,0045	0,0015	0,284	0,347	0,115
Check 1	0,11	1,31	0,009	0,002	0,29	0,02	0,05	0,01	0,031	0,029	0,004	0,016	0,0002	0,002	0,0050	0,0013	0,285	0,346	0,116
Check 2	0,11	1,32	0,009	0,002	0,28	0,02	0,05	0,01	0,030	0,029	0,003	0,016	0,0002	0,002	0,0050	0,0013	0,287	0,346	0,115
178322 030003155671	0,10	1,28	0,012	0,003	0,29	0,04	0,06	0,02	0,028	0,080	0,004	0,016	0,0004	0,002	0,0071	0,0015	0,267	0,348	0,201
Check 1	0,10	1,29	0,013	0,003	0,29	0,04	0,06	0,02	0,030	0,083	0,002	0,017	0,0002	0,002	0,0071	0,0014	0,269	0,350	0,197
Check 2	0,10	1,27	0,011	0,004	0,30	0,04	0,06	0,02	0,029	0,082	0,004	0,015	0,0002	0,003	0,0075	0,0013	0,267	0,347	0,203

Ceq: Carbon Equivalent; Ceq: Carbon Equivalent; CE: Combined Elements;

Tensile Test

Specimen Direction: Longitudinal

Method: Elong. Total Under Load 0,50 %

Temperature: Room Temperature

Heat	Control Lot	Type of Specimen	Wall Thickness: 7,11 mm		Gauge Length: L ₀ =2"	
			Area (MM ²)	YS (MPA)	TS (MPA)	E (%)
175147	030003140032	STRIP WIDTH 25,4 MM	188,5	376	500	40
175724	030003127905	STRIP WIDTH 25,4 MM	190,0	382	505	40
	030003140031	STRIP WIDTH 25,4 MM	188,8	371	486	39
178322	030003155671	STRIP WIDTH 25,4 MM	186,2	369	500	39
		STRIP WIDTH 25,4 MM	188,8	370	489	39
		STRIP WIDTH 25,4 MM	189,2	373	492	40
		STRIP WIDTH 25,4 MM	186,5	355	488	39
		STRIP WIDTH 25,4 MM	185,9	360	492	40

YS-Yield Strength; TS-Tensile Strength; E-Elongation;



RINA
 ISO 9001:2015
 ISO 14001:2015
 ISO 45001:2018

Inspection Certificate
 (According to DIN EN 10204.3.1)

N°: 0030032296 / 00

Sheet: 3 / 4

Hardness Test

Scale: HV

Max

Required: Min

Max 246,0

Heat	Control Lot	156,0	156,0
175147	030003140032	163,0	167,0
175724	030003127905	163,0	167,0
	030003140031	143,0	143,0
178322	030003155671		

Impact Test

Test Specimen: CHARPY 10X55X5 V-NOTCH

Temperature: -53°C

Striker radius: 8 mm

Direction: Longitudinal		Temperature: -53°C					Striker radius: 8 mm								
AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE5 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)	LE Avg (Mils)
144	14	14	14	14	14	50	50	50	50	50	60	64	64	65	67
122	123	122	122	122	122	100	100	100	100	100	100	64	64	67	67
144	142	151			146	100	100	100	100	100	100	79	79	66	75
Required: Min		Max													

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;

Impact Test

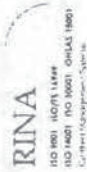
Test Specimen: CHARPY V 10X55X5 FLATTENED

Temperature: -46°C

Striker radius: 8 mm

Direction: Transverse		Temperature: -46°C					Striker radius: 8 mm								
AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE5 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)	LE Avg (Mils)
106	11	104	122	121	106	50	50	50	50	50	60	76	80	72	76
121	121	122	122	121	121	100	100	100	100	100	100	53	58	59	64
121	122	121	121	122	122	100	100	100	100	100	100	55	60	55	68
106	11	104			106	100	100	100	100	100	100	76	80	72	76
Required: Min		Max													

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;



Inspection Certificate
(According to DIN EN 10204 3.1)

N°.: 0030032296 / 00

Sheet 4 / 4

Remarks:

- 1. MATERIAL IN ACCORDANCE WITH NACE MR 0175 PAR. 3.2/ISO 15186-2, ANNEX A.2.1.2/NACE MR0103 PAR.2.1. ALL LATEST EDITIONS
- 2. SKU 2530104
- 3. THE WORKS OPERATE A QUALITY MANAGEMENT SYSTEM ACCORDING TO EUROPEAN DIRECTIVE 2014/68/EU ANNEX I PAR. 4.3 (CERTIFICATE 2016 BH-MP 02-03 VALID UNTIL 12.05.2019).

- MATERIAL ACCORDING TO PED 2014/68/EU ANNEX I PAR. 7.5

- 4. - NO WELD REPAIR
 - FREE OF MERCURY CONTAMINATION
 - NO RADIOACTIVE CONTAMINATION
 - FINE GRAIN PRACTICE
 - FULLY KILLED STEEL
 - MATERIAL FROM BRAZIL

NORMALIZED
 TEMPERATURE 892°C
 SOAKING TIME 40 MINUTES
 METHOD OF COOLING : AIR

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Alteration or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT
 FAX: (55-31) 3328-7773
 e-mail:luiz.silva@vallourec.com

ENG. LUIZ FERNANDO DA SILVA - CREA/MG 58834-D
 TECHNICAL RESPONSIBLE



DATE
 02.27.2019



Vallourec Soluções Tubulares do Brasil S.A
 Berrito Plant - Av. Olimpo Mercúles, 65
 ZIP 30640-010 - Belo Horizonte, MG



Inspection Certificate
 (According to DIN EN 10204 3.1)
 N.º: 0030032296 / 00

Sheet: 1 / 4

Customer: VALLOUREC CANADA INC

Country: Canada

Material Number: 276430
 Work Order: 536721 / 20
 Customer Order: VM-4811/P.O.4038915-00

Inspection: Vallourec Soluções Tubulares do Brasil S.A.

PRODUCT: SEAMLESS STEEL PIPE, HOT FINISHED, BEVELED ENDS 30 DEG., NORMALIZED
 DIMENSIONS: 168,30 mm X 7,11 mm GRADE: 290 # GR 1 # 6 # B
 STANDARD: CSA-Z245.1-18 - CATEGORY II

IN ACCORDANCE ALSO TO THE STANDARDS: ASTM A 333M - 18 ASTM A 999M - 18 # ASTM A 106M - 18 ASTM A 53M - 18 # ASTM A 53M - 18 # ASME SA 999M - 17 # ASME SA-106M - 17 ASME SA 530M - 17

CUSTOMER SPECIFICATION: CCTF-GrB.1.6.290 Cat II SS .20:11.2017

SURFACE PROTECTION: EXTERNAL: LACQUER PIPE ENDS PROTECTOR: PLASTIC CAP

TOLERANCES: OUTSIDE DIAMETER (PIPE BODY): -0,80 mm / +1,26 mm WALL THICKNESS: -0,89 mm / +1,07 mm

TOLERANCES(PIPE ENDS): OUTSIDE DIAMETER: -0,40 mm / +1,60 mm

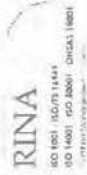
LENGTH: RANDOM 5486,00 mm - 6706,00 mm

STANDARD MARKING: PAINT STENCILED IN THE PIPE BODY: 536721/20 MANUFACTURER CSA-Z245.1-18 168,30 X 7,11 290 CAT II M46C SS S HN LENGTH HEAT NUMBER ASTM A/ASME SA 333, 1/6 HF SCH 040 LT -46C
 ASTM A/ASME SA 106 B 18400 KPA WEIGHT ASTM A 53 B VSB LOGO

SHIPPING MARKING: NPS 6" X SCH 40 NACE MR 0175/NACE MR 0103 - MADE IN BRAZIL * VM4811 / P.O # 4038915-00/ITEM-2 * TORONTO * CCTF

Heat	Pieces
175147	11
175724	24
178322	89
Total	124

THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS: DIMENSIONAL # VISUAL # FLATTENING TEST # ENDS INSPECTION : UNTESTED ENDS CROPPED # HYDROSTATIC TEST: 18400,0 KPA
 5 S # RESIDUAL MAGNETISM: MAX 30 GAUSS # ELECTROMAGNETIC TEST : CSAZ245.1-N10.LON/TRAN.OUT/INS # ULTRASONIC TEST FOR LAMINAR DEFECTS: ACC. CSA Z245.1-SOUR SERVICE #



Inspection Certificate
(According to DIN EN 10204.3.1)

N°: 0030032296 / 00

Sheet 3 / 4

Hardness Test

Scale: HV

		Min	Max
Required:		Min	246,0
Heat	Control Lot		
175147	030003140032	156,0	156,0
175724	030003127905	163,0	167,0
	030003140031	163,0	167,0
178322	030003155671	143,0	143,0

Impact Test

Test Specimen: CHARPY 10X55X5 V NOTCH

Heat	Control Lot	Direction: Longitudinal				Temperature: -53°C				Striker radius: 8 mm						
		AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE5 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)
175147	030003140032	122	123	123	123	123	100	100	100	100	100	100	64	64	65	67
175724	030003140031	122	122	122	122	122	100	100	100	100	100	100	64	64	67	67
178322	030003155671	144	142	151	151	146	100	100	100	100	100	100	79	79	66	75

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;

Impact Test

Test Specimen: CHARPY V 10X55X5 FLATTENED

Heat	Control Lot	Direction: Transverse				Temperature: -46°C				Striker radius: 8 mm						
		AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE5 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)
175147	030003140032	121	121	122	122	121	100	100	100	100	100	100	53	58	59	64
175724	030003140031	121	122	121	121	122	100	100	100	100	100	100	55	60	55	68
178322	030003155671	106	111	104	104	106	100	100	100	100	100	100	76	80	72	76

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;



Inspection Certificate
(According to DIN EN 10204.3.1)

N°: 0030032296 / 00

Sheet 4 / 4

Remarks:

- 1. MATERIAL IN ACCORDANCE WITH NACE MR 0175 PAR. 3.2/ISO 15156-2, ANNEX A.2.1.2/NACE MR0103 PAR.2.1 ALL LATEST EDITIONS
- 2. SKU 2530104
- 3. THE WORKS OPERATE A QUALITY MANAGEMENT SYSTEM ACCORDING TO EUROPEAN DIRECTIVE 2014/68/EU ANNEX I PAR. 4.3 (CERTIFICATE 2016 BH MP 02-03) VALID UNTIL 12.05.2019).
- MATERIAL ACCORDING TO PED 2014/68/EU ANNEX I PAR. 7.5
- 4. - NO WELD REPAIR
 - FREE OF MERCURY CONTAMINATION
 - NO RADIOACTIVE CONTAMINATION
 - FINE GRAIN PRACTICE
 - FULLY KILLED STEEL
 - MATERIAL FROM BRAZIL
- NORMALIZED
- TEMPERATURE 892°C
- SOAKING TIME 40 MINUTES
- METHOD OF COOLING - AIR

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Alteration or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT
FAX: (55-31) 3328-2773
e-mail:luiz.silva@vallourec.com

DATE
02.27.2019

ENG. LUIZ FERNANDO DA SILVA - CREA (MG) 58874-D
TECHNICAL RESPONSIBLE



Vallourec Soluções Tubulares do Brasil S.A.
 Bairro Plant - Av. Olimo Meireles, 65
 ZIP 30640-010 - Belo Horizonte, MG



RINA
 ISO 9001:2008 / ISO 14001:2004 / ISO 18001:2007 / OHSAS 18001
 Certificada em conformidade com a norma

Inspection Certificate

(According to DIN EN 10204 3.1)

Nº.: 0030030841 / 00

Sheet 1 / 4

Customer: VALLOUREC CANADA INC

Country: Canada

Material Number: 274465
 Work Order: 531796 / 50
 Customer Order: VM-4682 - P.O.4038589-00

Inspection: Vallourec Soluções Tubulares do Brasil S.A.

PRODUCT: SEAMLESS STEEL PIPE, HOT FINISHED, BEVELED ENDS 30 DEG., NORMALIZED

DIMENSIONS: 219,10 mm X 8,18 mm SCHEDULE: 040 GRADE: GRADE 290 # GR 1 # 6 # B

STANDARD: CSA-Z245.1-14 - CATEGORY II

IN ACCORDANCE ALSO TO THE STANDARDS: ASTM A 333M - 16 ASTM A 999M - 18 # ASTM A 106M - 18 ASTM A 510M - 12 # ASTM A 53M - 12 # ASME SA-333M - 17 ASME SA-999M - 17 # ASME SA-106M - 17 ASME SA 530M - 17

CUSTOMER SPECIFICATION: CCTF Gr.B.1.6.290 Cat II SS., 20.11.2017

SURFACE PROTECTION: EXTERNAL: LACQUER PIPE ENDS PROTECTOR: PLASTIC CAP

TOLERANCES: OUTSIDE DIAMETER (PIPE BODY): -0,80 mm / +1,60 mm WALL THICKNESS: -1,02 mm / +1,23 mm

TOLERANCES(PIPE ENDS): OUTSIDE DIAMETER: -0,40 mm / +1,60 mm

LENGTH: RANDOM 5486,00 mm - 6706,00 mm

STANDARD MARKING: PAINT STENCILED IN THE PIPE BODY: 531796/50 MANUFACTURER CSA-Z245.1-14 219,10 X 8,18 290 CAT II SS S IN LENGTH HEAT NUMBER ASTM A/ASME SA 333, 1/6 HF SCH 040 LT -46C ASTM

A/ASME SA 106 B 16300 KPA WEIGHT ASTM A 53 B NPS 8" X SCH 40 VSB LOGO

SHIPPING MARKING: NACE MR 0175NACE MR 0103 - MADE IN BRAZIL * VM4682 / P.O # 4038589-00/ITEM-5 * TORONTO * CCTF

Heat	Pieces
175141	6
175142	8
176433	28
Total	42

THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS: DIMENSIONAL # VISUAL # FLATTENING TEST # ENDS INSPECTION: UNTESTED ENDS CROPPED # HYDROSTATIC TEST: 16300,0 KPA

5 S # RESIDUAL MAGNETISM: MAX 30 GAUSS # ELECTROMAGNETIC TEST: CSAZ245.1-N101.ON/TRAN.OUT/INS # ULTRASONIC TEST FOR LAMINAR DEFECTS: ACC. CSA Z245.1-SOUR SERVICE #



Inspection Certificate
(According to DIN EN 10204 3.1)

N°: 0030030841 / 00

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Chemical Composition (%)

Ceq: CSA-Z245.1-CE11

Process: Basic Oxygen Furnace, heats fully killed

Ceq: C+Mn/6+(Cr+Mo+V)/5 (N+Cu)/15

CEI: Cr + Cu + Mo + Ni + V

	Chemical Composition (%)														Ceq	Ca	Ce		
	C	Min	P	S	Si	Ni	Cr	Mo	Al	Cu	V	Nb	B	Ti				N	
Heat Analysis	Min	0,400			0,100														
	Max	0,240	1,350	0,025	0,025	0,500	0,400	0,300	0,120	0,400	0,080	0,020	0,0010	0,110			0,400	0,430	
Product Analysis	Min	0,400			0,100														
	Max	0,240	1,350	0,025	0,025	0,500	0,400	0,300	0,120	0,400	0,080	0,020	0,0010	0,110			0,400	0,430	
Heat Control Lot	175141 030003103023	0,10	1,28	0,009	0,003	0,27	0,02	0,05	0,01	0,026	0,028	0,001	0,016	0,0005	0,001	0,0070	0,0019	0,262	0,329
	Check 1	0,10	1,26	0,008	0,003	0,28	0,02	0,04	0,01	0,026	0,030	0,004	0,015	0,0003	0,001	0,0065	0,0016	0,258	0,324
175142 030003103024	Check 2	0,11	1,28	0,008	0,002	0,28	0,02	0,04	0,01	0,026	0,031	0,004	0,016	0,0002	0,001	0,0065	0,0016	0,270	0,338
	175142 030003103024	0,11	1,29	0,010	0,004	0,28	0,02	0,05	0,01	0,030	0,025	0,001	0,015	0,0004	0,002	0,0077	0,0016	0,283	0,340
176433 030003103452	Check 1	0,11	1,28	0,011	0,003	0,28	0,03	0,06	0,01	0,031	0,021	0,005	0,016	0,0003	0,002	0,0072	0,0013	0,283	0,342
	Check 2	0,11	1,29	0,009	0,003	0,28	0,02	0,04	0,01	0,029	0,025	0,004	0,015	0,0003	0,002	0,0075	0,0014	0,281	0,339
176433 030003103452	Check 1	0,10	1,27	0,012	0,004	0,28	0,03	0,06	0,01	0,029	0,070	0,004	0,015	0,0004	0,002	0,0099	0,0012	0,265	0,333
	Check 2	0,11	1,29	0,013	0,004	0,29	0,03	0,06	0,01	0,028	0,066	0,005	0,016	0,0003	0,002	0,0096	0,0013	0,277	0,346
176433 030003103452	Check 2	0,11	1,26	0,013	0,004	0,28	0,03	0,06	0,01	0,028	0,066	0,005	0,016	0,0002	0,002	0,0096	0,0013	0,273	0,341

Ceq: Carbon Equivalent; Ceq: Carbon Equivalent; CE: Combined Elements;

Tensile Test

Specimen Direction: Longitudinal

Method: Elong. Total Under Load 0,50 %

Temperature: Room Temperature

Wall Thickness: 8,18 mm

Gage Length: L0=Z"

Heat	Control Lot	Type of Specimen	Area (MM2)	YS (MPA)	TS (MPA)	E (%)			
							Required: Min	Max	
175141 030003103023	STRIP WIDTH 38,1 MM		336,8	290	415	35			
							360	472	41
							389	455	40
175142 030003103024	STRIP WIDTH 38,1 MM		318,9	395	502	42			
							401	490	40
							396	508	43
176433 030003103452	STRIP WIDTH 38,1 MM		328,0	410	495	40			
							341,8	495	40
							341,8	495	40

YS-Yield Strength; TS-Tensile Strength; E-Elongation;



Inspection Certificate
(According to DIN EN 10204 3.1)

N°.: 0030030841 / 00

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Hardness Test

Scale: HV

Required: Min
Max 246,0

Heat	Control Lot	AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE5 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)	LE Avg (Mils)	
175141	030003103023	158,0	160,0				21	50	50	50								
175142	030003103024	162,0	164,0				21	50	50	50								
176433	030003103452	169,0	170,0				21	50	50	50								

Impact Test

Test Specimen: CHARPY 10X55X7,5 V NOTCH

Temperature: -46°C

Striker radius: 8 mm

Heat	Control Lot	Direction: Longitudinal			Temperature: -46°C			Striker radius: 8 mm								
		AE1 (J)	AE2 (J)	AE3 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)	LE Avg (Mils)	
175141	030003103023	267	264	261	264	100	100	100	100	100	100	75	75	75	75	75
175142	030003103024	270	267	255	264	100	100	100	100	100	100	80	80	80	80	80
176433	030003103452	245	235	245	242	100	100	100	100	100	100	80	80	80	80	80

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;

Impact Test

Test Specimen: CHARPY 10X55X6,67 V NOTCH

Temperature: -46°C

Striker radius: 8 mm

Heat	Control Lot	Direction: Transverse			Temperature: -46°C			Striker radius: 8 mm							
		AE1 (J)	AE2 (J)	AE3 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)	LE Avg (Mils)
175141	030003103023	196	208	213	206	100	100	100	100	100	100	75	78	81	78
175142	030003103024	203	179	187	190	100	100	100	100	100	100	82	82	82	82
176433	030003103452	160	187	156	168	100	100	100	100	100	100	80	82	78	80

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;

Remarks:

1. MATERIAL IN ACCORDANCE WITH NACE MR 0175
PAR. 3.2/ISO 15156-2, ANNEX A 2.1.2/NACE MR0103 PAR.2.1. ALL LATEST



Inspection Certificate
(According to DTN EN 10204 3.1)

N°: 0030030841 / 00

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HEAT: 175142 CCTF Sku: 2530112 8 A333-6 STD BLK SMLS SRL Invoice: 1596625-00 PO: 4072649 6/5/2019 12:50:24 PM

EDITIONS

2. SKU 2530112

3. THE WORKS OPERATE A QUALITY MANAGEMENT SYSTEM ACCORDING TO EUROPEAN DIRECTIVE 2014/68/UE ANNEX I PAR. 4.3 (CERTIFICATE 2016 BH MP 02-03 VALID UNTIL 12.05.2019).
- MATERIAL ACCORDING TO PED 2014/68/UE ANNEX I PAR. 7.5

"STEEL MADE BY BOF PROCESS"

- 4. - NO WELD REPAIR
- FREE OF MERCURY CONTAMINATION
- NO RADIOACTIVE CONTAMINATION
- FINE GRAIN PRACTICE
- FULLY KILLED STEEL.
- MATERIAL FROM BRAZIL

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Alteration or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT

FAX: (55-31) 3328-2773

e-mail: luis.silva@vallourec.com

DATE
11.20.2018



ENG. LUIZ FERNANDO DA SILVA - CREA: AMG 58834-D
TECHNICAL RESPONSIBLE



Vallourec Soluções Tubulares do Brasil S.A.
 Direção Plant - Av. Oflino Meireles, 65
 ZIP: 11604-010 - Belo Horizonte, MG



Inspection Certificate
 (According to DIN EN 10204.3.1)

Nº.: 0030031810 / 00

Sheet: 1 / 4

Customer: VALLOURREC CANADA INC

Country: Canada

Material Number: 276624
 Work Order: 534782 / 80
 Customer Order: VM-1748 - P.O 4038825-00

Inspection: Vallourec Soluções Tubulares do Brasil S.A.

PRODUCT: SEAMLESS STEEL PIPE, HOT FINISHED, BEVELED ENDS, 30 DEG., NORMALIZED

DIAMENSIONS: 219,10 mm X 8,18 mm SCHEDULE: 400 GRADE: 290 # GR 1 # 6 # B

STANDARD: CSA-Z245.1-18 - CATEGORY II

IN ACCORDANCE ALSO TO THE STANDARDS: ASTM A 333M - 16, ASTM A 999M - 18 # ASTM A 106M - 18, ASTM A 530M - 12 # ASTM A 53M - 12 # ASME SA-333M - 17, ASME SA-106M - 17, ASME SA-530M - 17

CUSTOMER SPECIFICATION: CCTF GRB.1.6.290 Cat II SS, 20.11.2017

SURFACE PROTECTION: EXTERNAL: LACQUER PIPE ENDS PROTECTOR; PLASTIC CAP

TOLERANCES: OUTSIDE DIAMETER (PIPE BODY): -0,80 mm / -1,60 mm WALL THICKNESS: -1,02 mm / -1,23 mm

TOLERANCES PIPE ENDS: OUTSIDE DIAMETER: -0,40 mm / -1,60 mm

LENGTH: RANDOM 5,486,00 mm - 6706,00 mm

STANDARD MARKING: PAINT STENCILED IN THE PIPE BODY: 534782 80 MANUFACTURER CSA-Z245.1-18 219,10 X 8,18 290 CAT II M46C 55.5 HS LSG III HEAT NUMBER ASTM A ASME SA 333, 1 6 HF SCH 40 LT -46C

ASTM A/ASME SA 106 B 16300 KPA WEIGHT ASTM A 53 B NPS 8" X SCH 40 VSB LOGO

SHIPPING MARKING: NACE MR 0175/NACE MR 0103 - MADE IN BRAZIL - * VM1748 / P.O # 4038825-00/HEM-8 * TORONTO * CCTF

Heat	Pieces
175146	12
177833	26
Total	38

THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS: DIMENSIONAL # VISUAL # FLATTENING TEST # ENDS INSPECTION; UNTESTED ENDS CROPPED # HYDROSTATIC TEST 16,000.0 KPA 5.8 # RESIDUAL MAGNETIC MAX 30 GAUSS # ELECTROMAGNETIC TEST; CSA Z245.1-N ILLONTRAN. OUT INS # ULTRASONIC TEST FOR LAMINAR DEFECTS; ACC. CSA Z245.1 SOLU SERVICE #



Inspection Certificate
(According to DIN EN 10204.3.1)
N°: 0030031810 / 00

Chemical Composition (%)

Ceq: CSA-Z245.1-CE1

Process: Basic Oxygen Furnace, heats fully killed

Ceq: C-Mn/6+(Cr-Mo+V)5-(Ni-Cu)15

	C	Mn	P	S	Si	Ni	Cr	Mo	Al	Cu	V	Nb	B	Ti	N	Ca	Ceq	Ceq	CE1	
Heat Analysis	Min	0.400			0.100															
	Max	1.350	0.025	0.025	0.500	0.400	0.300	0.120		0.400	0.080	0.020	0.0010	0.110			0.400	0.430	1.000	
Product Analysis	Min	0.400			0.100															
	Max	1.350	0.025	0.025	0.500	0.400	0.300	0.120		0.400	0.080	0.020	0.0010	0.110			0.400	0.430	1.000	
Heat Control Lot																				
175146	0.30003113164	0.11	1.29	0.010	0.004	0.29	0.01	0.04	0.01	0.027	0.022	0.004	0.015	0.0004	0.002	0.0074	0.0012	0.281	0.338	0.086
Check 1		0.11	1.29	0.010	0.005	0.30	0.01	0.05	0.01	0.028	0.022	0.005	0.015	0.0005	0.002	0.0077	0.0012	0.284	0.340	0.097
Check 2		0.11	1.30	0.009	0.005	0.31	0.01	0.04	0.01	0.029	0.020	0.004	0.016	0.0002	0.002	0.0079	0.0014	0.283	0.339	0.084
177833	0.30003140903	0.11	1.29	0.010	0.004	0.28	0.03	0.07	0.01	0.029	0.090	0.004	0.014	0.0003	0.002	0.0067	0.0018	0.289	0.350	0.204
Check 1		0.11	1.28	0.011	0.003	0.27	0.03	0.07	0.01	0.030	0.090	0.003	0.015	0.0002	0.002	0.0064	0.0018	0.287	0.348	0.203
Check 2		0.10	1.28	0.011	0.003	0.27	0.03	0.07	0.01	0.030	0.090	0.003	0.015	0.0002	0.002	0.0067	0.0016	0.277	0.338	0.203

Ceq: Carbon Equivalent; Ceq: Carbon Equivalent; CE: Combined Elements;

Tensile Test

Specimen Direction: Longitudinal

Method: Elong. Total Under Load 0.50 %

Temperature: Room Temperature

Wall Thickness: 8.18 mm

Gauge Length: 10-2"

Heat	Control Lot	Type of Specimen	Area		YS (MPa)	TS (MPa)	E (%)
			(MM ²)	(MPa)			
175146	0.30003113164	STRIP WIDTH 38 MM	324.3	383	290	415	35
		STRIP WIDTH 38 MM	329.7	399	495	625	
177833	0.30003140903	STRIP WIDTH 38.1 MM	305.2	420			
		STRIP WIDTH 38.1 MM	300.7	425			

YS-Yield Strength; TS-Tensile Strength; E-Elongation;



Inspection Certificate
(According to DIN EN 10204 3.1)

Nº.: 0030031810 / 00

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DIRETTIVE 2008/68/CE ANNEX I PAR. 4.3 (CERTIFICATE 2016.011 MP 02-03)
VALID UNTIL: 12.05.2019).

- MATERIAL ACCORDING TO HB 2014 68 (F. ANNEX I PAR. 7.5

- 4 - NO WELD REPAIR
- FREE OF MERCURY CONTAMINATION
- NO RADIOACTIVE CONTAMINATION
- FINE GRAIN PRACTICE
- FULLY KILLED STEEL
- MATERIAL FROM BRAZIL

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Attention or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT

FAX: (55-31) 3328-2773

e-mail:rlis-silica@vallourec.com

DATE
01.22.2019


ENG. LUTZ FERсандог DA SILVA - CREA: 00158844/0
TECHNICAL RESPONSIBLE



Vallourec Soluções Tubulares do Brasil S.A.
 Bairro Plant - Av. Olimio Meireles, 65
 ZIP 30640-010 - Belo Horizonte, MG



Inspection Certificate
 (According to DIN EN 10204.3.1)

Nº.: 0030030841 / 00

Sheet: 1 / 4

Customer: VALLOUREC CANADA INC

Country: Canada

Material Number: 274465
 Work Order: 531796 / 50
 Customer Order: VM-4682 - P O 4038589-00

Inspection: Vallourec Soluções Tubulares do Brasil S.A.

PRODUCT: SEAMLESS STEEL PIPE, HOT FINISHED, BEVELLED ENDS 30 DEG., NORMALIZED

DIMENSIONS: 219.10 mm X 8.18 mm SCHEDULE: 040 GRADE: GRADE 290 # GR 1 # 6 # B

STANDARD: CSA-Z245.1-14 - CATEGORY II

IN ACCORDANCE ALSO TO THE STANDARDS: ASTM A 333M - 16 ASTM A 999M - 18 # ASTM A 106M - 18 ASTM A 530M - 12 # ASTM A 53M - 12 # ASME SA-333M - 17 ASME SA-106M - 17 ASME SA-530M - 17

CUSTOMER SPECIFICATION: CCTF Gr.B, 1.6290 Cat II SS., 20.11.2017

SURFACE PROTECTION: EXTERNAL: LACQUER PIPE ENDS PROTECTOR: PLASTIC CAP

TOLERANCES: OUTSIDE DIAMETER (PIPE BODY): -0,80 mm / +1,60 mm WALL THICKNESS: -1,02 mm / +1,23 mm

TOLERANCES (PIPE ENDS): OUTSIDE DIAMETER: -0,40 mm / +1,60 mm

LENGTH: RANDOM 5486,00 mm - 6706,00 mm

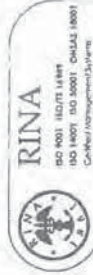
STANDARD MARKING: PAINT STENCILED IN THE PIPE BODY: 531796/50 MANUFACTURER CSA-Z245.1-14 219.10 X 8.18 290 CAT II SS S HN LENGTH HEAT NUMBER ASTM A/ASME SA 333. 1/6 HF SCH 040 LT -46C ASTM A/ASME SA 106 B 16300 KPA WEIGHT ASTM A 53 B NPS 8" X SCH 40 VSB LOGO

SHIPPING MARKING: NACE MR 0175/NACE MR 0103 - MADE IN BRAZIL * VM4682 / P.O # 4038589-00/ITEM-5 * TORONTO * CCTF

Heat	Pieces
175141	6
175142	8
176433	28
Total	42

THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS: DIMENSIONAL # VISUAL # FLATTENING TEST # ENDS INSPECTION : UNTESTED ENDS CROPPED # HYDROSTATIC TEST: 16300,0 KPA 5 S # RESIDUAL MAGNETISM: MAX 30 GAUSS # ELECTROMAGNETIC TEST : CSAZ245.1-N10.LON/TRAN,OUT/INS # ULTRASONIC TEST FOR LAMINAR DEFECTS: ACC. CSA Z245.1-SOUR SERVICE #

8 STD 2530112



Inspection Certificate
(According to DIN EN 10204.3.1)

N°: 0030030841 / 00

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Chemical Composition (%)

Ceq: CSA-Z245.1-CE11

Process: Basic Oxygen Furnace, heats fully killed

Ceq: C+Mn/6+(Cr+Mo+V)/5 -(Ni+Cu)/15

CE1: Cr + Cu + Mo + Ni + V

	C	Mn	P	S	Si	Ni	Cr	Mo	Al	Cu	V	Nb	B	Ti	N	Ca	Ceq	CE1		
Heat Analysis		0,400			0,100															
Min	0,240	1,350	0,025	0,025	0,500	0,400	0,300	0,120		0,400	0,080	0,020	0,0010	0,110			0,400	0,430	1,000	
Max																				
Product Analysis		0,400			0,100															
Min	0,240	1,350	0,025	0,025	0,500	0,400	0,300	0,120		0,400	0,080	0,020	0,0010	0,110			0,400	0,430	1,000	
Max																				
Heat Control Lot																				
175141 030003103023	0,10	1,28	0,009	0,003	0,27	0,02	0,05	0,01	0,026	0,028	0,001	0,016	0,0005	0,001	0,0070	0,0019	0,262	0,329	0,109	
Check 1	0,10	1,26	0,008	0,003	0,28	0,02	0,04	0,01	0,026	0,030	0,004	0,015	0,0003	0,001	0,0065	0,0016	0,258	0,324	0,104	
Check 2	0,11	1,28	0,008	0,002	0,28	0,02	0,04	0,01	0,026	0,031	0,004	0,016	0,0002	0,001	0,0065	0,0016	0,270	0,338	0,105	
175142 030003103024	0,11	1,29	0,010	0,004	0,28	0,02	0,05	0,01	0,030	0,025	0,001	0,015	0,0004	0,002	0,0077	0,0016	0,283	0,340	0,106	
Check 1	0,11	1,28	0,011	0,003	0,28	0,03	0,06	0,01	0,031	0,021	0,005	0,016	0,0003	0,002	0,0072	0,0013	0,283	0,342	0,126	
Check 2	0,11	1,29	0,009	0,003	0,28	0,02	0,04	0,01	0,029	0,025	0,004	0,015	0,0003	0,002	0,0075	0,0014	0,281	0,339	0,099	
176433 030003103452	0,10	1,27	0,012	0,004	0,28	0,03	0,06	0,01	0,029	0,070	0,004	0,015	0,0004	0,002	0,0099	0,0012	0,265	0,333	0,174	
Check 1	0,11	1,29	0,013	0,004	0,29	0,03	0,06	0,01	0,028	0,066	0,005	0,016	0,0003	0,002	0,0096	0,0013	0,277	0,346	0,171	
Check 2	0,11	1,26	0,013	0,004	0,28	0,03	0,06	0,01	0,028	0,066	0,005	0,016	0,0002	0,002	0,0096	0,0013	0,273	0,341	0,171	

Ceq: Carbon Equivalent; Ceq: Carbon Equivalent; CE: Combined Elements;

Tensile Test

Specimen Direction: Longitudinal

Temperature: Room Temperature

Wall Thickness: 8,18 mm

Gage Length: L0=2"

Method: Elong.Total Under Load 0,50 %

	Type of Specimen	Area (MM2)	YS (MPA)	TS (MPA)	E (%)	Required:	
						Min	Max
STRIP WIDTH 38,1 MM		336,8	360	472	41		
STRIP WIDTH 38,1 MM		348,7	389	455	40		
STRIP WIDTH 38,1 MM		318,9	395	502	42		
STRIP WIDTH 38,1 MM		330,1	401	490	40		
STRIP WIDTH 38,1 MM		328,0	396	508	43		
STRIP WIDTH 38,1 MM		341,8	410	495	40		

YS-Yield Strength; TS-Tensile Strength; E-Elongation;



Inspection Certificate
(According to DIN EN 10204.3.1)

N°.: 0030030841 / 00

Sheet: 3 / 4

Hardness Test

Scale: HV

Max

Required: Min

Max 246,0

Heat	Control Lot	175141	030003103023	158,0	160,0
		175142	030003103024	162,0	164,0
		176433	030003103452	169,0	170,0

Impact Test

Test Specimen: CHARPY 10X55X7,5 V NOTCH

Direction: Longitudinal

Temperature: -46°C

Striker radius: 8 mm

AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE5 (J)	AE.Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA.Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)	LE.Avg (Mils)
21	21	21	21	21	21	50	50	50	50	50	60	60	60	60	60
267	264	261	261	264	264	100	100	100	100	100	100	75	75	75	75
270	267	255	255	264	264	100	100	100	100	100	100	80	80	80	80
245	235	245	245	242	242	100	100	100	100	100	100	80	80	80	80

Max

Heat Control Lot

175141	030003103023	267	264	261	264	100	100	100	100	100	100	75	75	75	75
175142	030003103024	270	267	255	264	100	100	100	100	100	100	80	80	80	80
176433	030003103452	245	235	245	242	100	100	100	100	100	100	80	80	80	80

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;

Impact Test

Test Specimen: CHARPY 10X55X6,67 V NOTCH

Direction: Transverse

Temperature: -46°C

Striker radius: 8 mm

AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE5 (J)	AE.Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA.Avg (%)	LE1 (Mils)	LE2 (Mils)	LE3 (Mils)	LE.Avg (Mils)
18	18	18	18	18	18	50	50	50	50	50	60	60	60	60	60
196	208	213	213	206	206	100	100	100	100	100	100	75	78	81	78
203	179	187	187	190	190	100	100	100	100	100	100	82	82	82	82
160	187	156	156	168	168	100	100	100	100	100	100	80	82	78	80

Max

Heat Control Lot

175141	030003103023	196	208	213	206	100	100	100	100	100	100	75	78	81	78
175142	030003103024	203	179	187	190	100	100	100	100	100	100	82	82	82	82
176433	030003103452	160	187	156	168	100	100	100	100	100	100	80	82	78	80

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;

Remarks:

- 1. MATERIAL IN ACCORDANCE WITH NACE MR 0175
- PAR. 3.2/ISO 15156-2, ANNEX A.2.1.2/NACE MR0103 PAR.2.1. ALL LATEST



Inspection Certificate
(According to DIN EN 10204 3.1)

N°.: 0030030841 / 00

Sheet 4 / 4

EDITIONS

2. SKU12530112

3. THE WORKS OPERATE A QUALITY MANAGEMENT SYSTEM ACCORDING TO EUROPEAN DIRECTIVE 2014/68/UE ANNEX I PAR. 4.3 (CERTIFICATE 2016 BH MP 02-03 VALID UNTIL 12.05.2019).
- MATERIAL ACCORDING TO PED 2014/68/UE ANNEX I PAR. 7.5

"STEEL MADE BY BOF PROCESS"

- 4. - NO WELD REPAIR
- FREE OF MERCURY CONTAMINATION
- NO RADIOACTIVE CONTAMINATION
- FINE GRAIN PRACTICE
- FULLY KILLED STEEL
- MATERIAL FROM BRAZIL

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Alteration or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT

FAX: (55-31) 3328-2773

e-mail: luis.silva@vallourec.com

DATE
11.20.2018



ENG. LUIZ FERNANDO DA SILVA - CREA: ANG-SR34-D
TECHNICAL RESPONSIBLE



Inspection Certificate
(According to DIN EN 10204.3.1)

N°.: 0030031810 / 00

Sheet 2 - 4

Chemical Composition (%)

Ceq: CSA/245/1-CE1

Process: Basic Oxygen Furnace, heats fully killed

Ceq: C-Mn/6-(Cr-Mo-V)-S-(Si-Cu)15

CE1: Cr-Cu-Mo-Ni-V

	C	Mn	P	S	Si	Ni	Cr	Mn	Al	Cu	V	Nb	B	Ti	N	Ca	Ceq	CE1	
Heat Analysis	0.240	1.350	0.025	0.025	0.500	0.041	0.300	0.120	0.400	0.080	0.020	0.010	0.110				0.400	0.430	1.000
Product Analysis	0.240	1.350	0.025	0.025	0.500	0.040	0.300	0.120	0.400	0.080	0.020	0.010	0.110				0.400	0.430	1.000
Heat Control Lot	0.11	1.29	0.010	0.004	0.29	0.01	0.04	0.01	0.027	0.022	0.004	0.015	0.0004	0.002	0.0074	0.0012	0.281	0.338	0.086
175146 030003113164	0.11	1.29	0.010	0.005	0.30	0.01	0.05	0.01	0.028	0.022	0.005	0.015	0.0005	0.002	0.0077	0.0012	0.284	0.340	0.097
Check 1	0.11	1.30	0.009	0.005	0.31	0.01	0.04	0.01	0.029	0.020	0.004	0.016	0.0002	0.002	0.0079	0.0014	0.283	0.339	0.084
Check 2	0.11	1.29	0.010	0.004	0.28	0.01	0.07	0.01	0.029	0.000	0.004	0.014	0.0003	0.002	0.0067	0.0018	0.289	0.350	0.204
177833 030003140903	0.11	1.28	0.011	0.003	0.27	0.01	0.07	0.01	0.030	0.000	0.003	0.015	0.0002	0.002	0.0064	0.0018	0.287	0.348	0.203
Check 1	0.10	1.28	0.011	0.003	0.27	0.01	0.07	0.01	0.030	0.000	0.003	0.015	0.0002	0.002	0.0067	0.0016	0.277	0.338	0.203
Check 2																			

Ceq: Carbon Equivalent; Ceq: Carbon Equivalent; CE: Combined Elements;

Tensile Test

Specimen Direction: Longitudinal

Method: Elong: Total Under Load (0.50%)

Temperature: Room Temperature

Wall Thickness: 8.18 mm

Gauge Length: 110.27

Heat Control Lot	Type of Specimen	Area (MM ²)	YS (MPa)	TS (MPa)	E (%)	Required:	
						Min	Max
175146 030003113164	STRIP WIDTH 38 MM	324.3	383	502	41		
	STRIP WIDTH 38 MM	329.7	399	515	40		
177833 030003140903	STRIP WIDTH 38.1 MM	305.2	420	510	42		
	STRIP WIDTH 38.1 MM	300.7	425	525	40		

YS: Yield Strength; TS: Tensile Strength; E: Elongation;



Inspection Certificate
(According to DIN EN 10204.3.1)

N°.: 0030031810 / 00

Sheet: 3 / 4

Hardness Test

Scale: HV

Required: Min
Max 246,0

Heat Control Lot

175146 030003113164 148,0 150,0

177833 030003140903 152,0 155,0

Impact Test

Test Specimen: CHARPY 10X55X7.5 V NOTCH

Direction: Longitudinal

Temperature: -16°C

Striker radius: 8 mm

AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE5 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (MHs)	LE2 (MHs)	LE3 (MHs)	LE Avg (MHs)
21	21	21	21	21	21	50	50	50	50	50	60	60	60	60	60
270	275	262	270	269	269	100	100	100	100	100	100	78	81	80	80
275	263	270	269	269	269	100	100	100	100	100	100	71	79	69	73

Required: Min
Max

Heat Control Lot

175146 030003113164

177833 030003140903

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;

Impact Test

Test Specimen: CHARPY 10X55X6.67 V NOTCH

Direction: Transverse

Temperature: -16°C

Striker radius: 8 mm

AE1 (J)	AE2 (J)	AE3 (J)	AE4 (J)	AE5 (J)	AE Avg (J)	SA1 (%)	SA2 (%)	SA3 (%)	SA4 (%)	SA5 (%)	SA Avg (%)	LE1 (MHs)	LE2 (MHs)	LE3 (MHs)	LE Avg (MHs)
18	18	18	18	18	18	50	50	50	50	50	60	60	60	60	60
210	186	174	190	190	190	100	100	100	100	100	100	88	87	88	88

Required: Min
Max

Heat Control Lot

177833 030003140903

AE - Absorbed Energy; SA - Shear Area; LE - Lateral Expansion;

Remarks:

1. MATERIAL IN ACCORDANCE WITH NACE MR 0175 PAR. 3.2/ISO 15156-2, ANNEX A.2.1.2/NACE MR0103 PAR.2.1. ALL LATEST EDITIONS

2. SKU 2530112

3. THE WORKS OPERATE A QUALITY MANAGEMENT SYSTEM ACCORDING TO EUROPEAN



Inspection Certificate
(According to DIN EN 10204 3.1)
N°.: 0030031810 / 00
Sheet: 4

DIRECTIVE 2004/68/CE, ANNEX I PAR. 4.3 (CERTIFICATE 2010 B1) MP 02-03
VALID UNTIL 12-05-2019)
- MATERIAL ACCORDING TO PED 2014-068/E/ ANNEX I PAR. 7.5

- 4. - NO WELD REPAIR
- FREE OF MERCURY CONTAMINATION
- NO RADIOACTIVE CONTAMINATION
- FINE GRAIN PRACTICE
- FULLY KILLED STEEL
- MATERIAL FROM BRAZIL

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Alteration or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT
FAX: (55-31) 3328-2773
e-mail: links@vallourec.com

DATE: 01.22.2019
ENG. LUIZ FERNANDO DA S (U.S.A.) - C.R.E. AMZ-58834-D
TECHNICAL RESPONSIBLE



4151 North Service Road, Burlington, ON L7L 4X6 (905) 335-5320

Date: 6/11/2019

Mill Test Reports

Invoice: 1596643-01
PO: 2610087

Customer: 27403-261
EQUIPEMENT KN
POUR ABF MINES
8254 RANG DU VIEUX PONT
ROUYN-NORANDA, QC J9Y 0H4

Line	Heat#	Product	Description
3	61b01013 **	7561296	8 STD LR 45 WELD ELL A420WPL6
10	18/38332	7583949	8 300 RF WN FLG STD A350LF2



Thai Benkan Co., Ltd.
58 Soi Wadnani, Bangkok, Prapachon,
Samutprakarn, 10130 Thailand.

INSPECTION CERTIFICATE

TO EN10204 3.1

D M Y Certificate No.
06/06/2018 T = 2018020878

Purchase Order No. Job No.

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection												
ME-567	A234-18/SA334-17 Gr.WPB/M420-16/SA420-17 Gr.WPL6 CSA Z46.11-1T GR241 CAT B MKC 55	ASME B16.9-2012, B16.25-2017	Good	Good												
MFG. No.	Product & Size	Quantity	Hardness Actual Data													
81B01013	756 / 296 45 EL WPB/MPL6 8 STD	50	HBW 123, 128, 128													
Material Heat No.		Chemical Composition % (Note 1)	Boron (%)													
J6K1169		Ti= 1	0.0001													
Specification	Chemical Composition %											*2 Tension Test		transverse		Impact Test (J) longitudinal AT -46 °C
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y S	T S	
X	100	100	100	1000	1000	100	100	100	100	1000	1000	100	100	MPa		%
Min.	15	40	135	35	40	40	40	30	12	80	20	40	240	415	30	116
Max.	23	40	135	35	40	40	40	30	12	80	20	40	295	585	48	127
	12	27	127	13	1	1	3	11	1	0	0	36	295	452	48	90

NORMALIZING 810 C X 40 MINUTES. COOLED IN STILL AIR

(Note 1) : Specification of Ti Composition (%) : Max 11 (Ti x 100) Material according to ANSI/AACE MR0175/ISO 15156-2-2015 Annex A & MR0103-2015 (SSC Region 3)

Fully killed and fine grain practice *Steel making process : Basic Oxygen* Tensile test with longitudinal specimen and 50 mm. gauge length.

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR IEE ONLY : We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : 'T' symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength P = Elongation

Rungnupa Kampradon
Quality Assurance Manager
Thai Benkan Co., Ltd.

COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV GL = ISO 9001 = = ISO 14001 =		METALFAR PRODOTTI INDUSTRIALI SPA 23861 CESANA BRIANZA (LC) - ITALY VIA G. PARINI, 28 PHONE + 39 031 855441 - FAX +39 031 855149 certificate@metalfaritaly.com	A01	COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV GL = ISO 9001 = = ISO 14001 =
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INSPECTION CERTIFICATE EN 10204:2004 / 3.1		A02	Nr ^{A03} 2018-C_MFF-04299	Data / Dated 31.10.2018	Z02
SILBO INDUSTRIES 50 CHESTNUT RIDGE ROAD SUITE 204 07645 MONTVALE N.J.	A06	US	Ordine / PO 69051/BG Item 015 DDT / Delivery note 2018-3E301-0004398 Packing List 2018-3E401-0004238 Fattura / Invoice 2018-3E401-0004238 Nr. rif. / Our ref. 2017-3E201-0003478-0015	A07	A08

Dest.	A05	CA
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Cod. colata Heat Code	Nr. colata Heat Nr	Quantità Quantity	7583949	Descrizione Description	B01 - (B06 - B11)
	18/38332	50,00	W/N 300 RF 8" STD	LF2CL1	

Mat. in acc. a / Mat. in acc. to ^{B02} ASTM A 350M -18, ASME SA 350 M -17, ASME CODE SECT. II, PART A, ED. 2017
 ASTM A350 LF2 CL1
 ASTM A105M -18, ASME SA105M-17, ASME CODE SECT. II, PART A, ED. 2017
 NACE MR-0175/2015 ISO 15156 Part 2, Annex A - SOUR SERVICE
 NACE MR-0103/2015 ISO 17495- SOUR SERVICE
 CSA Z245.12-17 GRADE 248 CAT. II SOUR SERVICE
 CSA Z245.12-17 GRADE 248 CAT. I SOUR SERVICE
 Q.A.S. IN ACCORD. WITH PRESS. EQUIPM. DIRECT. 2014/68/EU (PED) ANNEX I, PARAGRAPH 4.3
 CERT 4687-2014-CE-ITA-DNV GL

Ann. mat. / Mat. remarks ^{B02} FULLY KILLED STEEL AND FINE GRAIN PRACTICED
 GRAIN SIZE - 7 OR FINER
 NO WELD REPAIR

Elementi / Elements ^(C71 - C82)	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	V	Nb	N
LADLE ANALYSIS	0,185	0,220	1,090	0,008	0,009	0,110	0,050	0,010	0,016	0,160	0,002	0,001	0,008
PRODUCT ANALYSIS	0,184	0,228	1,096	0,007	0,012	0,116	0,055	0,013	0,019	0,164	0,004	0,002	0,007
	Al		B		Ca		CE		F1		F2		PREN
LADLE ANALYSIS	0,025		0,0004		0,002		0,407		0,332		0,120		-
PRODUCT ANALYSIS	0,027		0,0000		0,002		0,408		0,352		0,129		-

CE=C+(Mn/6+Si/24+Cu/15+Ni/20+(Cr+Mo+V+Nb)/5+5B) F1=Cu+Ni+Cr+Mo+V F2=Cr+Mo

Provetta Test specimen	Forma Shape	C ^{C10}	*C ^{C23}	Snervamento > 0,2% Yield Strength > 0,2%	C ^{C11}	Snervamento > 1,0% Yield Strength > 1,0%	C ^{C11}	Rottura Tensile	C ^{C12}	Allungamento Elongation	C ^{C13}	Contrazione Reduction of area	C ^{C15}
Sez/Sect mm2	Gauge L mm	1=O - 2=□		MPa		MPa		MPa		%		%	
126,60	50,80	1	20	335,0		-	530,0			37,0		69,0	

DUREZZA / HARDNESS ^{C23}		RESILIENZA / IMPACT TEST					
HBW	Tipo/Type ^{C40}	Provetta / Test Specimen	*C ^{C21}	1-Joule ^{C42}	2-Joule ^{C42}	3-Joule ^{C42}	Media/Average ^{C43}
162,0 ; 166,0 ; 160,0	KV	10x10 mm	-46	57	60	50	55,7

Tratt. Term. / Heat treatment ^{C70} NORMALIZED AT 930 °C - COOLED IN STILL AIR GAS FURNACE

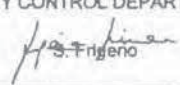

Dim in acc. a / Dim. acc. to ^{B14} ASME/ANSI B16.5 -2017 ; ASME/ANSI B36.10M -2015 ; ASME/ANSI B16.25 -2017

Finitura / Roughness ASME/ANSI B46.1 -2009
 125-250 µin AARH

Marcatura in acc. Marking in acc. to	ANSI/MSS SP-25-2018	Vis. & Dim.	SATISFACTORY	Origine Origin of Steel	ITALY
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Note / Notes 100% MANUFACTURED IN ITALY

Introduction of flanges on the furnace at temperature below 200°C.
 Heating of piece of 150°C. every hour till 930°C
 Holding time: 1 hour/ Inch. - min 2 hours - Cooled in still air
 Test specimen orientation: Longitudinal

UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT 	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL 
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MLTS_6056-18732
Heat# SEE BELOW

ECTF CORPORATION

4151 North Service Road, Burlington, ON L7L 4X6 (905) 335-5320

Date: 6/14/2019

Mill Test Reports

Invoice: 1597082-00

PO: 2610096

Customer: 27403-261

A.B.F MINES/2985080

1310 AVE DAVY

REF 18777-6056

ROUYN NORANDA, QC J9Y 0A8



Line	Heat#	Product	Description
1	956v	7561733	8 STD WELD TEE A420WPL6
2	508105d	7586891	8 150 RF WN FLG STD A350LF2
3	508101C	7585666	8 300 RF BLIND FLG A350LF2
4	886v	7561288	6 STD LR 45 WELD ELL A420WPL6
5	18c1054	7561725	6 STD WELD TEE A420WPL6
6	508105g	7586832	6 150 RF WN FLG STD A350LF2
7	b03459	7585585	6 150 RF BLIND FLG A350LF2

Heat codes followed by ** have been corrected, change may not show on the packing slip

CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)



ST&H CORPORATION

OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel: +82.51.744-4680(5 line) Fax: +82.51.744-4670
 E-mail: qm@stnhcorp.com



Certificate No. MJH0165-02/07
 Customer CCTF CORPORATION
 Contract No. 4038829-00

Date: DEC. 20. 2018

Spec. For Material ASTM A105N-18, ASME SA105N-17, ASTM A350 LF2 CL1-18, ASME SA350 LF2 CL1-17, NACE MR0175/ISO 15156-2:2015, NACE MR0103/ISO 17495-1:2016
 Heat Treatment 930°C NORMALIZED & A.C
 Certified to ISO9001/ISO14001:2015, PED2014/68/EC by LRQA
 Dimensional inspection ASME B16.5 - 2017

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)	Charpy Impact Test (10X10mm Specimen Size)				
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %		Indiv.	Ave.	Notch	Temp. -46°C	
														Max
7586502 150LBS TH RF 6"	5	508105C	12.5	50.0	330	522	33	73	150	155	136	154	142	144
7581210 300LBS WN RF XH 6"	20	508105C	12.5	50.0	330	522	33	73	150	155	136	154	142	144
7586891 150LBS WN RF STD 8"	20	508105D	12.5	50.0	330	522	33	73	150	155	136	154	142	144
7586867 300LBS WN RF STD 4"	25	508105D	12.5	50.0	330	522	33	73	150	155	136	154	142	144
7585496 300LBS WN RF STD 6"	35	508105D	12.5	50.0	330	522	33	73	150	155	136	154	142	144
BLANK														

Heat No./ Batch No.	Max Min	Chemical Composition (%)											NDE				
		C	Si	Mn	P	S	Al	Ni	Cr	Mo	Cu	V	Nb	CE	UT	MT	PT
508105C	H 0.159 P 0.160	0.300 0.150	0.234 0.244	1.260 1.250	0.011 0.014	0.003 0.003	0.017 0.017	0.400 0.400	0.300 0.300	0.120 0.120	0.400 0.400	0.080 0.080	0.020 0.020	0.388 0.387			
508105D	H 0.159 P 0.160	0.234 0.244	1.260 1.250	0.011 0.014	0.003 0.003	0.017 0.017	0.400 0.400	0.300 0.300	0.120 0.120	0.400 0.400	0.080 0.080	0.020 0.020	0.004 0.004	0.388 0.387			
BLANK																	

REMARK * H: Heat Analysis P: Product Analysis



We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE
 Manager of Q.A Dept. / JAY KIM
 ST&H CORPORATION

CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)



OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670
 E-mail : qm@stnhcorp.com



Certificate No. MJH0137-07/11
 Customer CCTF CORPORATION
 Contract No. 4038743-00
 Spec. For Material ASTM A105N-18, ASME SA105N-17, ASTM A350 LF2 CL1-17, NACE MR0175/ISO 15156-2:2015, NACE MR0103/ISO 17495-1:2016
 Heat Treatment 930°C NORMALIZED & A.C

Date : DEC. 19, 2018

Certified to ISO9001 / ISO14001:2015, PED2014/68/EC by LRQA
 Dimensional inspection ASME B16.5 - 2017

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test			Hardness Test (HB)	Charpy Impact Test (10X10mm Specimen Size)					
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %		R.A %	Indiv. 16J	Ave. 20J	Notch V	Temp. -46°C	
														Max
150LBS BL RF 6"	40	508101C	12.5	50.0	339	525	34	78	159	162	188	165	195	183
300LBS BL RF 8"	25	508101C	12.5	50.0	339	525	34	78	159	162	188	165	195	183
900/1500LBS SW RF S160 2"	20	508101C	12.5	50.0	339	525	34	78	159	162	188	165	195	183
150LBS SO RF 10"	20	508101F	12.5	50.0	339	525	34	78	159	162	188	165	195	183
150LBS SO RF 3"	50	508101F	12.5	50.0	339	525	34	78	159	162	188	165	195	183
150LBS SO RF 4"	25	508101F	12.5	50.0	339	525	34	78	159	162	188	165	195	183
150LBS SO RF 6"	70	508101F	12.5	50.0	339	525	34	78	159	162	188	165	195	183
150LBS SO RF 8"	25	508101F	12.5	50.0	339	525	34	78	159	162	188	165	195	183

Heat No./ Batch No.	Max Min	Chemical Composition (%)											NDE			
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	CE	UT	MT	PT
508101C	H 0.160 P 0.164	0.300 0.150	0.300 0.150	1.350 0.600	0.035 0.035	0.040 0.040	0.400 0.400	0.300 0.300	0.120 0.120	0.400 0.400	0.080 0.080	0.020 0.020	0.390 0.394			
508101F	H 0.160 P 0.164	0.207 0.220	0.220 0.207	1.250 1.250	0.009 0.009	0.007 0.007	0.020 0.013	0.091 0.092	0.002 0.002	0.024 0.022	0.001 0.003	0.004 0.004	0.390 0.394			

REMARK * H : Heat Analysis P : Product Analysis

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

ST-801-14-02

Witnessed by / H. J. LEE

Manager of QA Dept. / JAY KIM

ST&H CORPORATION





INSPECTION CERTIFICATE

Customer : CCTF CORPORATION
 Product : SEAMLESS LOW TEMPERATURE CARBON STEEL BUTT WELD FITTINGS
 Spec : ASTM A420-16/ASME SA420-15 WPL6, CSA Z245.11-17 Gr 241 Cat II -45C SS
 NACE MR0175/ISO 15156-2 Region 3-15 & NACE MR0103-16, ASTM A234-18/ASME SA234-15 WPB

ACCORDANCE WITH EN 10204-3.1
CHUP HSIN ENTERPRISE CO., LTD.
 17, TUNG LI ROAD, HSIAO KANG DISTRICT, KAOHSIUNG CITY, TAIWAN, R.O.C.
 TEL:(07)831-9157 FAX:(07)821-7500, 831-2942

Certificate No : 00700220-0110
 Order No : 4039057-00
 Date : 2019/03/19

Raw Material		Specification for Inspection				Visual Inspection				Dimensional Inspection						
ASTM A106 GR.B/GREEN PIPE FOR A333-6		ASME B16.9-2012				PASS				PASS						
Item	Description	Quantity	Heat ID	Heat No	Raw Material Certificate No.	NDE MT	Test Temp °C	Size of specimen mm	Charpy V-Notch Impact Value J	Ave. J	Impact Test			REMARK		
											Heat Treatment	Hardness Test				
123	45 E L/R WPL6 STD 756 1288	35	886V	1834886V	HENGYANG C201841289-1	PASS	-45	10 X 5.0 X 55	56	62	60					
131	RED TEE WPL6 STD 2624	10	885V	1834885V	HENGYANG C201841281-1	PASS	-45	10 X 5.0 X 55	54	48	51.33					
132	RED TEE WPL6 STD 2608	15	885V	1834885V	HENGYANG C201841281-1	PASS	-45	10 X 5.0 X 55	54	48	51.33					
135	TEE WPL6 XS 1938	8	A248	18322248	BAOSTEEL BGSAG1803080005100	PASS	-45	10 X 10 X 55	128	142	140					
136	TEE WPL6 XS 1946	2	E274	34274H	BAOSTEEL BGSQGL804040002900	PASS	-45	10 X 10 X 55	162	184	174.67					
Specification	Chemical Composition%											REMARK				
	C	Si	Mn	P	S	CU	Ni	Cr	Mo	V	Nb		C.E	Y.S	T.S	E
Min.	15	50											35000	60000	30	
Max.	30	40	135	35	40	40	30	12	80	20	50		95000			
123	13	31	98	11	1	5	2	6	1	<1	31	49044	68100	42.5	135-138	NORM. 910 Cx0.5HR AC
131	13	31	100	11	2	5	2	6	2	<1	31	47738	67600	37.0	138-139	
132	13	31	100	11	2	5	2	6	2	<1	31	47738	67600	37.0	138-139	
135	13	15	74	6	4	4	2	4	1	<1	27	39322	63600	40.0	138-139	
136	15	18	89	9	4	1	3	4	<1	1	31	38306	68100	35.5	134-135	

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

K. Y. Tsai
 Chief of Quality Assurance Section



ST&H CORPORATION

OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670
 E-mail : qm@stnhcorp.com

CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)

Certificate No. MJH0165-03/07 Date : DEC. 20. 2018
 Customer CCTF CORPORATION
 Contract No. 4038829-00
 Spec. For Material ASTM A105N-18, ASME SA105N-17, ASTM A350 LF2 CL1-17, NACE MR0175/ISO 15156-2:2015, NACE MR0103/ISO 17495-1:2016
 Heat Treatment 930°C NORMALIZED & A.C
 Certified to ISO9001/ ISO14001:2015, PED2014/68/EC by LRQA
 Dimensional inspection ASME B16.5 - 2017

Heat No./ Batch No.	ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen				Tension Test				Hardness Test		Charpy Impact Test (10X10mm Specimen Size)			
				D mm		GL mm		Y.S MPa	T.S MPa	E.L %	R.A %	Test (HB)		Indiv.	Ave.		Temp. -46°C
				12.5	50.0	Max	Min	250	485	22.0	30.0	187			16J	20J	
7585860	150LBS BL RF 8"	5	508105E	12.5	50.0	330	522	33	73	150	155	136	154	142	144		
7585640	300LBS BL RF 4"	10	508105E	12.5	50.0	330	522	33	73	150	155	136	154	142	144		
7585658	300LBS BL RF 6"	10	508105E	12.5	50.0	330	522	33	73	150	155	136	154	142	144		
7585666	300LBS BL RF 8"	5	508105E	12.5	50.0	330	522	33	73	150	155	136	154	142	144		
7586832	150LBS WN RF STD 6"	50	508105G	12.5	50.0	330	522	33	73	150	155	136	154	142	144		
	BLANK		BLANK														

Heat No./ Batch No.	Max Min	Chemical Composition (%)											NDE			
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Nb	V	Ce	UT	MT	PT
508105E	H 0.159 P 0.160	0.300 0.150	0.234 0.244	1.260 1.250	0.011 0.014	0.003 0.003	0.040 0.017	0.300 0.079	0.120 0.006	0.400 0.018	0.020 0.004		0.388 0.387			
508105G	H 0.159 P 0.160	0.300 0.150	0.234 0.244	1.260 1.250	0.011 0.014	0.003 0.003	0.040 0.017	0.300 0.079	0.120 0.006	0.400 0.018	0.020 0.004		0.388 0.387			

REMARK * H : Heat Analysis P : Product Analysis



[Signature]

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE
 Manager of Q.A Dept. / JAY KIM
 ST&H CORPORATION

CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)



ST&H CORPORATION
 OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670
 E-mail : gm@stnhcorp.com



Certificate No. MJH0290-01/05
 Customer CCTF CORPORATION
 Contract No. 4039095-00

Date : FEB. 14. 2019

Spec. For Material ASTM A105N-18, ASME SA105N-17, ASTM A350 LF2 CL1-18, ASME SA350 LF2 CL1-17, NACE MR0175/ISO 15156-2:2015, NACE MR0103/ISO 17495-1:2016
 Heat Treatment 930°C NORMALIZED & A.C

Certified to ISO9001/ ISO14001:2015, PED2014/68/EC by LRQA

Dimensional inspection ASME B16.5 - 2017

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)	Charpy Impact Test (10X10mm Specimen Size)				
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %		Indiv.	Ave.	Notch	Temp. -46°C	
														Max
7585585 150LBS BL RF 6"	20	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7585860 150LBS BL RF 8"	10	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7580218 150LBS SO RF 8"	20	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7580202 150LBS SO RF 14"	2	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7586502 150LBS TH RF 6"	5	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7586824 150LBS WN RF STD 4"	50	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7586832 150LBS WN RF STD 6"	30	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7586891 150LBS WN RF STD 8"	20	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7583949 300LBS WN RF STD 8"	10	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7585321 150LBS WN RF STD 10"	20	803459	12.5	50.0	330	520	34	76	150	156	80	75	86	80

Heat No./ Batch No.	Max Min	Chemical Composition (%)											NDE			
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	CE	UT	MT	PT
B03459	H 0.163 P 0.162	0.300 0.150	0.226 0.224	1.230 1.240	0.012 0.011	0.002 0.002	0.057 0.054	0.138 0.136	0.017 0.014	0.147 0.138	0.001 0.001	0.006 0.001	0.412 0.411			

BLANK

REMARK * H : Heat Analysis P : Product Analysis



[Signature]

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE
 Manager of Q.A Dept. / JAY KIM
 ST&H CORPORATION

ST-801-14-02

MLTS_6056-18777
Heat# SEE BELOW

CCTF CORPORATION
5407 53rd Avenue, Edmonton, AB T6B 3G2 (780) 463-8700

Date: 6/14/2019

Mill Test Reports

Invoice: 5736215-00
PO: WT

Customer: 498
A.B.F. MINES/2985080 CANADA
1310 AVE DAVY
REF 18777-6056
ROUYN-NORANDA, QC J9Y 0A8

Line	Heat#	Product	Description
1	61k01m028	7561296	8 STD LR 45 WELD ELL A420WPL6
1	61m01m049	7561296	8 STD LR 45 WELD ELL A420WPL6
1	61n01m031-1	7561296	8 STD LR 45 WELD ELL A420WPL6
2	b21a8	7583949	8 300 RF WN FLG STD A350LF2

Heat codes followed by ** have been corrected, change may not show on the packing slip



Thai Benkan Co., Ltd.
58 Sol Watkrusi, Bangru, Prapadaeng,
Samutprakan, 10130 Thailand.

INSPECTION CERTIFICATE

Purchaser: CCTF CORPORATION

TO EN10204 3.1

D M Y Certificate No.
09/11/2018 T - 2018031531

Purchase Order No. 4901160-00 Job No.

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection													
TA-162	ASTM A420-16 / ASME SA420-17 Gr.WPL6 CSA Z45.11-17 Gr. 241 CAT B MEC Four Service	ASME B16.9-2012, B16.25-2017	Good	Good													
MFG. No.	Product & Size	(T*)	Quantity	Hardness Actual Data													
61K01M028	45 EL WPL6 8 STD		10	HBW:115-145													
Material Heat No.		Item No.															
184740		7561296															
Specifi- cation	Chemical Composition %											*2 Tension Test transverse			HARDNESS MAX 197 HB : 0000		
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y S		T S	E
X	100	100	X	1000	X	100	X	100	X	1000	X	1000	100	MPa.			10 X 6.7 X 2V
Min.		15	50											241	415	30	120
Max.	30	35	135	35	40	40	40	30	12	80	20				585		129 AVE. 127
	15	21	105	9	5	6	4	5	2	1	1	35	305	481	41	131	

NORMALIZING 910 C X 40 MINUTES. COOLED IN STILL AIR

The product was manufactured, sampled, tested, and inspected as specified in this Standard and the purchase order, and was found to have met such requirements.

The material meet ANSI/NACE MR0175/ISO15156-2 (Region 3) :2015 & MR0103-2015

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15 MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that this product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

Form T7-6/1

Rungnapa Kempheeratt

Quality Assurance Manager

Thai Benkan Co., Ltd.



Thai Benkan Co., Ltd.
58 Soi Watkrumji, Bangkru, Prapadaeng,
Samutprakan, 10130 Thailand.

INSPECTION CERTIFICATE

Purchaser : CCTF CORPORATION

TO EN10204 3.1

D M Y Certificate No.
09/11/2018 T - 2018031547

Purchase Order No. 4901220-00 Job No.

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection													
TA-169	ASTM A420-18 / ASME SA420-17 Gr. WPL6 CSA Z45.11-17 Gr.241 CAT B MFSO Sour Service	ASME B16.9-2012, B16.25-2017	Good	Good													
MFG. No.	Product & Size	(T:*)	Quantity	Hardness Actual Data													
61M01M049	45 EL WPL6 8 STD		10	HBW:115-145													
	Material Heat No.	Item No.															
	J8K4597	7561296															
Specification	Chemical Composition %										*2 Tension Test		transverse		HARDNESS MAX 197 HB : GOOD		
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	YS	TS	E	Impact Test (J) longitudinal
X	100	100	100	X	1000	X	100	X	X	X	X	X	100	MPa.		%	10 X 6.7 X 2V
Min.		15	50											241	415	30	AT -46 °C
Max.	30	35	135	40	40	40	30	12	80	20	0	36		585	458	48	AVE. 173
	12	27	128	11	1	2	11	1	0	0	0		286				183

NORMALIZING 810 C X 40 MINUTES. COOLED IN STILL AIR

The product was manufactured, sampled, tested, and inspected as specified in this Standard and the purchase order, and was found to have met such requirements.
The material meet ANSINACE MR0175/ISO15158-2 (Region 3) :2015 & MR0103-2015

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

Form T7-6/11

Bangsupa Kapiatracorn
Quality Assurance Manager
Thai Benkan Co., Ltd.



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangaru, Prapadaeng,
Samutprakarn, 10130 Thailand.

INSPECTION CERTIFICATE

TO EN10204 3.1

Purchaser : CCTF CORPORATION

D M Y Certificate No.
11/12/2018 T - 2018031649

Purchase Order No. 4801278-00 Job No.

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection													
TA-194	ASTM A420-16 / ASME SA420-17 Gr. WPL6 CSA Z46.11-17 Or 241 CAT B UNSC Sour Service	ASME B16.9-2012, B16.25-2017	Good	Good													
MFG. No.	Product & Size	Quantity	Hardness Actual Data														
61N01M031-1	45 EL WPL6 8 STD	9/10	HBW:115-145														
	Material Heat No.	Item No.															
	185081	7561296															
Specifi- cation	Chemical Composition %											*2 Tension Test			HARDNESS MAX 197 HB : GOOD		
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	YS	TS	E	Impact Test (1) Joules/ft ² 10 X 7.5 X 2V AT -46 °C
X	100	100	X	1000	1000	X	100	X	100	X	X	X	100	MPa.			
Min.		15	50											241	415	30	115
Max.	30	35	135	35	40	40	40	30	12	80	20				585		118
	16	25	108	10	4	6	4	5	2	1	1	36	309	480	40	120	AVE. 118

NORMALIZING 910 C X 40 MINUTES. COOLED IN STILL AIR

The material meet ANS/NACE MR0175/ISO15156-2 (Region 3) :2015 & MR0103-2015

The product was manufactured, sampled, tested, and inspected as specified in this Standard and the purchase order, and was found to have met such requirements.

C.E. = C+Mn/6-(Cr+Mo+V)/5+(Ni+Cu)/15 MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : T - symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
Form TZ-6/1



Rungnata Kaminraton

Quality Assurance Manager

Thai Benkan Co., Ltd.

HEAT: b21a8 CCTF Sku: 7583949 8 300 RF WN FLG STD A350LF2 Invoice: 5736215-00 PO: WT 6/14/2019 9:51:10 AM

CLIENTE / Customer / Client
 CCTF CORPORATION (ONTARIO)
 4151 NORTH SERVICE RD.
 UNIT 2
 BURLINGTON, ONTARIO
 L7L4X6 - CANADA
 CAN

CERTIFICADO DE INSPECCION
 Inspection Certificate - Certificat de Réception

UNE EN 10204.06 / 3.1
 ISO 10474:15 / 3.1

FECHA: 27/06/2018
 Date: 27/06/2018

N.º 195066
 No. 195066

HOJA: 2
 Page: 2

PRODUCTO
 Article - Produit

FLANGES

SU PEDIDO N.º
 Your Order No.
 Votre Cde. N.º

DE 28/05/2018
 of. - de 28/05/2018

NORMAS APLICABLES
 Requirements - Normes Applicables

ASME B16.5-17

MATERIAL CORRESPONDIENTE ASME SA350LF2CL1-2-17, ASTM A350LF2CL1-2-17



MARCA DEL FABRICANTE
 Mark of factory
 Marque du fabricant

Management Systems certified by LRQA
 SGI 6002236

Management Systems certified by LRQA
 SGI 6002236

Management Systems certified by LRQA
 SGI 6002236

BY Zubillaga, 3 - Apdo. 14
 20560 OMATI (Gipuzkoa) SPAIN
 Tel: 34 - 943 780552
 Fax: 34 - 943 781808
 E-mail: ulmas@ulmapiping.com

ULMA FORJA, S.COOP.
 SGI 6009987

ULMA FORJA, S.COOP.
 SGI 6009987

ULMA FORJA, S.COOP.
 SGI 6009987

NACE MR0175/ISO15156-02/03-15 & NACE MR0103/ISO17495-15
 Clause 7.2.1.4, Annex A.2 and SSC Region 3.
 CSA-Z245.12-17 GR248 CAT II-SS (WN & BLIND FLANGES ONLY)

DEPARTAMENTO QUALITY ASSURANCE
 Section Département

DEPARTAMENTO QUALITY ASSURANCE
 Section Département

DEPARTAMENTO QUALITY ASSURANCE
 Section Département

PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	LOTE	OBSERVACIONES Remarks Observations	COLADA N.º Heat No N.º Coudée	RESISTENCIA T Strength Reaksi Rupt N/mm2	LEWIS LAST V Strength 0.2 % N/mm2	ALARGAM Elongation Allongement Lo-30mm/4g %	ESTRICCION Red. Area Striction %	RESILIENCIA Impact test Resilience Joules	PENET. SUPERF. CHARNY V 10x10mm		DUREZA Hardness Dureté
											MBWA	HBW	
39 7580201	30	WN 1.1/2 150LB XS/80 RF A350LF2	24Y16	NE	A45A6	517	320	26.00	45.00	58	62	-50	152 156
45 7581005	1	BLIND 14 150LB RF A350LF2	02M18G	NE	25AV8	522	308	30.20	62.80	59	64	-50	150 154
46 7581006	1	BLIND 16 150LB RF A350LF2	06J803	NE	69AV8	507	304	30.40	58.20	60	60	-50	147 148
48 7581006	1	BLIND 16 150LB RF A350LF2	19D17	NE	B6A47	499	296	33.30	66.70	45	42	-50	144 148
48 7583949	1	WN 8 300LB STD/40 RF A350LF2	16Y816	NE	97AV8	517	307	29.80	60.70	75	71	-50	150 151
48 7583948	7	WN 8 300LB STD/40 RF A350LF2	04J802	NE	B21A8	515	298	32.60	67.30	69	67	-50	148 150
52 7582780	3	BLIND 8 600LB RF A350LF2	22Y827	NE	73AV8	511	287	36.30	69.80	58	50	-50	147 148
52 7582780	3	BLIND 8 600LB RF A350LF2	23Y809	NE	73AV8	502	319	38.10	70.10	90	69	-50	146 149

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

COLADA N.º Heat No N.º Coudée	C %	SI %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	B %	CEq %
25AV8	0.190	0.230	1.050	0.005	0.007	0.068	0.090	0.014	0.002	0.004	0.180	0.025	0.002	0.0003	0.40
69AV8	0.184	0.200	1.115	0.012	0.003	0.055	0.147	0.017	0.001	0.001	0.138	0.033	0.001	0.0001	0.40
73AV8	0.190	0.193	1.073	0.011	0.003	0.062	0.075	0.015	0.001	0.001	0.112	0.037	0.002	0.0001	0.40
97AV8	0.190	0.220	1.110	0.005	0.007	0.045	0.072	0.012	0.003	0.005	0.150	0.027	0.002	0.0003	0.40
A45A6	0.195	0.222	0.994	0.007	0.008	0.053	0.103	0.024	0.000	0.001	0.212	0.028	0.001	0.0005	0.40
B21A8	0.170	0.190	1.060	0.011	0.004	0.110	0.090	0.009	0.004	0.000	0.180	0.029	0.001	0.0004	0.39
B6A47	0.190	0.170	1.030	0.011	0.004	0.100	0.060	0.008	0.007	0.006	0.150	0.041	0.001	0.0002	0.40

(*) OBSERVACIONES.
 Remarks

N_ NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR.

Observations

Las dimensiones y la condición superficial se hallaron satisfactorias.
 Dimension and surface condition were found acceptable
 Les dimensions et états de surface sont satisfaisants.

Los materiales citados cumplen las normas aplicables.
 Manufacturing requirements are satisfied
 Les normes applicables sont respectées.

EL INSPECTOR
 Works Inspector - L'inspecteur



ULMA FORJA S.COOP.
 Dept. de Garantía de Calidad
 Quality Assurance Dept.



4151 North Service Road, Burlington, ON L7L 4X6 (905) 335-5320

Date: 8/8/2019

Mill Test Reports

Invoice: 1599344-00
PO: 2610155

Customer: 27403-261
A.B.F. MINES/2985080
1310 AVE DAVY
ROUYN-NORANDA, QC J9Y 0A8

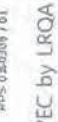
Line	Heat#	Product	Description
1	b03238	7586832	6 150 RF WN FLG STD A350LF2
2	a07a9	7586824	4 150 RF WN FLG STD A350LF2
3	b01568b	7586509	6 150 RF SO FLG A350LF2
4	b05432b	7586508	4 150 RF SO FLG A350LF2



CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)



ST&H CORPORATION
 OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670
 E-mail : qm@stnhcorp.com



Certificate No. MJH0103-10/16
 Customer CCTF CORPORATION
 Contract No. 4038603-00
 Date : AUG. 27. 2018

Spec. For Material ASTM A105N-14, ASME SA105N-17, ASTM/ASME A/SA350 LF2 CL1-17, NACE MR0175/ISO 15156-2:2015, NACE MR0103/ISO 17495-1:2016
 Heat Treatment 930°C NORMALIZED & A.C
 Dimensional inspection ASME B16.5 - 2017

ITEM / SIZE	Heat No./ Batch No.	Qty	Size of Test Specimen		Tension Test				Hardness Test (HB)	Charpy Impact Test (10X10mm Specimen Size)				
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %		Indiv. 16J	Ave. 20J	Natch V	Temp. -46°C	
			12.5	50.0	Max	Min	655	485	22.0	30.0	Test Result (J)			
7586502 150LBS TH RF 6"	2 803238	2	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
7586824 150LBS WN RF STD 4"	50 803238	50	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
7586832 150LBS WN RF STD 6"	50 803238	50	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
7585267 150LBS WN RF XH 4"	10 803238	10	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
7580014 300LBS SO RF 4"	5 803238	5	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
7587735 300LBS SO RF 6"	2 803238	2	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
7585259 600LBS WN RF STD 3"	10 803238	10	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
7581040 600LBS WN RF XH 3"	25 803238	25	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
7581007 150LBS BL RF 18"	2 803776	2	12.5	50.0	375	540	38	74.5	152	154	135	80	118	111
7580205 150LBS SO RF 20"	2 803776	2	12.5	50.0	375	540	38	74.5	152	154	135	80	118	111

Heat No./ Batch No.	Chemical Composition (%)														
	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	CE	UT	MT	PT
803238	Max 0.300	0.300	1.350	0.035	0.040	0.400	0.300	0.120	0.400	0.080	0.020				
	Min 0.150	0.150	0.600												
803776	H 0.176	0.201	1.060	0.015	0.004	0.032	0.077	0.004	0.050	0.001	0.001	0.374			
	P 0.178	0.216	1.060	0.016	0.002	0.036	0.073	0.007	0.050	0.002	0.001	0.376			
	H 0.172	0.220	1.290	0.013	0.007	0.012	0.045	0.006	0.008	0.004	0.019	0.399			
	P 0.174	0.220	1.290	0.011	0.003	0.012	0.044	0.006	0.008	0.001	0.015	0.400			

REMARK * H: Heat Analysis P: Product Analysis

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.
 ST-801-14-02
 Witnessed by / H. J. LEE
 Manager of QA Dept. / JAY KIM
 ST&H CORPORATION

CLIENTE / Customer / Client
 CCTF CORPORATION (ONTARIO)
 4151 NORTH SERVICE RD.
 UNIT 2
 BURLINGTON, ONTARIO
 L7L4X6 - CANADA
 CAN

CERTIFICADO DE INSPECCION

UNE EN 10204.06 / 3.1
 Inspection Certificate - Certificat de Réception ISO 10474.15 / 3.1

FECHA: 21/05/2019 No. 203034 HOJA: 2
 Date: Page: 2



Management Systems certified by LRQA
 SGI 1922164
 Certified acc. PED 97/23/EC-AD2000-W0
 PED 14/88/UE
 by TÜV Rheinland
 N.º 01 202 E/O 02 7443
 Bº Zubillaga, 3 - Apdo. 14
 20560 OÑATI (Gipuzkoa) SPAIN
 Tel.: 34 - 943 780552
 Fax: 34 - 943 781808
 E-mail: ulma@ulmaproing.com
 Packing 148506

PRODUCTO
 Article - Produit
 SU PEDIDO N.º
 Your Order No.
 4039198-00
 VOTRE COTE N.º

DE al. - de 18/02/2019

NORMAS APLICABLES
 Requirements - Normes Applicables
 ASME B16.5-17

MATERIAL CORRESPONDIENTE
 Material Correspondant - Outil
 ASME SA350LF2CL1-2-17, ASTM A350LF2CL1-2-18

MODO DE FUSION (*)
 Steel Making - Elaboration de l'acier
 E = Elec. Y = Oxígeno básico
 NACE MR0175/ISO15156-02/03-15 & NACE MRO103/ISO17495-15
 Clause 7.2.1.4, Annex A.2 and SSC Region 3.
 CSA-Z245.12-17 GR248 CAT II-SS (WN & BLIND FLANGES ONLY)



DEPARTAMENTO QUALITY ASSURANCE
 Section Département

PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	LOTE	OBSERVACIONES Remarks Observations	COLADA N.º Heat No. N.º Couleé	T. Strength N/mm2	Y. Strength N/mm2	ALARGAM. Elongation Lo-50mm/Aq. %	ESTRICCION Red Area Striction %	RESILIENCIA Impact test Resilience Joules	CHARPY V 10x10mm MEDIA Average Moyenne °C	DUREZA Hardness Dureté HBW
15 7586824	56	WN 4 150LB STD/40 RF A350LF2	18M912	NE	A07A9	502	300	36,44	71,53	102	99	146 148
22 7585496	24	WN 6 300LB STD/40 RF A350LF2	01F901	NE	B88A8	494	301	36,14	74,27	125	55	136 138
30 7586646	10	BLIND 2 500LB RF A350LF2	09A901	NE	A63A9	512	314	30,40	72,40	112	100	140 146

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

COLADA N.º Heat No. Ladle - L Product - P	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	B %	CEq %	Origin of Steel
A07A9 L	0,192	0,206	1,138	0,008	0,004	0,037	0,050	0,017	0,000	0,002	0,053	0,034	0,001	0,0002	0,40	Germany
B88A8 L	0,182	0,206	1,153	0,010	0,005	0,050	0,057	0,014	0,001	0,002	0,061	0,028	0,001	0,0004	0,40	Germany
A63A9 L	0,189	0,223	1,151	0,011	0,005	0,049	0,055	0,012	0,001	0,002	0,094	0,028	0,002	0,0002	0,40	Germany

- Las dimensiones y la condición superficial se hallaron satisfactorias.
- Dimension and surface condition were found acceptable.
- Les dimensions et états de surface sont satisfaisants.
- Los materiales citados cumplen las normas aplicables.
- Manufacturing requirements are satisfied.
- Les normes applicables sont respectées.



(*) OBSERVACIONES:
 Remarks
 Observations
 N_ NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR.

CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)



ST&H CORPORATION

OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670
 E-mail : qm@stnhcorp.com



CE
 KOREA QUALITY FOR

Date : JUN. 17. 2019

Certificate No. MJH0427-06/08

Customer CCTF CORPORATION

Contract No. 4039342-00

Spec. For Material ASTM A105N-18, ASME SA105N-17, ASTM A350 LF2 CL1-18, ASME SA350 LF2 CL1-17, NACE MR0175/ISO15156-2:2015, NACE MR0103/ISO17945:2015

Heat Treatment 930°C NORMALIZED & A.C

Certified to ISO9001 / ISO14001:2015, PED2014/68/EC by LRQA

Dimensional inspection ASME B16.5 - 2017

Heat No./ Batch No.	ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen			Tension Test				Hardness Test (HB)	Charpy Impact Test (10X10mm Specimen Size)			
				D mm	GL mm	V	Y.S MPa	T.S MPa	E.L %	R.A %		Indiv.	Ave.	Notch V	Temp. -46°C
7580219	150LBS SO RF 10"	15	801568B	12.5	50.0		250	485	22.0	30.0	187	83	78	81	80
7580220	150LBS SO RF 12"	25	801568B	12.5	50.0		356	515	39	76	147	83	78	81	80
7586509	150LBS SO RF 6"	70	801568B	12.5	50.0		356	515	39	76	147	83	78	81	80
7580218	150LBS SO RF 8"	12	801568B	12.5	50.0		356	515	39	76	147	83	78	81	80
7580200	150LBS WN RF STD 1"	15	801568B	12.5	50.0		356	515	39	76	147	83	78	81	80
7586832	150LBS WN RF STD 6"	45	801568B	12.5	50.0		356	515	39	76	147	83	78	81	80
7583949	300LBS WN RF STD 8"	40	801568B	12.5	50.0		356	515	39	76	147	83	78	81	80
7580203	150LBS SO RF 16"	4	801979E	12.5	50.0		344	541	35	75.5	150	60	65	59	61
7580204	150LBS SO RF 18"	5	801979E	12.5	50.0		344	541	35	75.5	150	60	65	59	61
7580205	150LBS SO RF 20"	2	801979E	12.5	50.0		344	541	35	75.5	150	60	65	59	61

Heat No./ Batch No.	Chemical Composition (%)											NDE			
	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	CE	UT	MT	PT
	Max	0.300	0.300	1.350	0.035	0.040	0.400	0.300	0.120	0.400	0.080				
	Min	0.150	0.600	0.040	0.004	0.026	0.094	0.017	0.020	0.001	0.020	0.412			
801568B	H	0.172	0.243	1.290	0.011	0.004	0.026	0.094	0.017	0.020	0.001	0.412			
	P	0.177	0.250	1.300	0.012	0.005	0.029	0.101	0.015	0.020	0.002	0.420			
	H	0.177	0.212	1.270	0.009	0.003	0.010	0.061	0.004	0.009	0.001	0.403			
801979E	P	0.180	0.229	1.280	0.009	0.002	0.012	0.038	0.006	0.012	0.001	0.403			

REMARK * H : Heat Analysis P : Product Analysis * C:Mn = 1≤5

[Handwritten Signature]

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE

Manager of Q.A Dept. / JAY KIM



CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)



ST&H CORPORATION
 OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670
 E-mail : qim@stnhcorp.com



Certified to ISO9001 / ISO14001:2015, PED2014/68/EC by LRQA

Date : JUN. 17. 2019

Certificate No. MJH0427-07/08

Customer CCTF CORPORATION

Contract No. 4039342-00

Spec. For Material ASTM A105N-18, ASME SA105N-17, ASTM A350 LF2 CL1-18, ASME SA350 LF2 CL1-17, NACE MR0175/ISO15156-2:2015, NACE MR0103/ISO17945:2015

Heat Treatment 930°C NORMALIZED & A.C

Dimensional inspection ASME B16.5 - 2017

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)	Charpy Impact Test (10X10mm Specimen Size)				
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %		Indiv.	Ave.	Notch	Temp. -46°C	
			12.5	50.0	Max	Min	250	485	22.0	30.0	187	16J	20J	V
7589925	2	801979E	12.5	50.0	344	541	35	75.5	150	152	60	65	59	61
7580216	15	805432B	12.5	50.0	357	515	41	76	150	154	89	86	99	91
7586504	25	805432B	12.5	50.0	357	515	41	76	150	154	89	86	99	91
7586507	50	805432B	12.5	50.0	357	515	41	76	150	154	89	86	99	91
7586508	80	805432B	12.5	50.0	357	515	41	76	150	154	89	86	99	91
7587602	25	805432B	12.5	50.0	357	515	41	76	150	154	89	86	99	91
7587603	25	805432B	12.5	50.0	357	515	41	76	150	154	89	86	99	91
7587600	250	805432B	12.5	50.0	357	515	41	76	150	154	89	86	99	91
7587604	50	805432B	12.5	50.0	357	515	41	76	150	154	89	86	99	91
7587601	25	805432B	12.5	50.0	357	515	41	76	150	154	89	86	99	91

Heat No./ Batch No.	Chemical Composition (%)											NDE			
	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	CE	UT	MT	PT
801979E	0.300	0.300	1.350	0.035	0.040	0.400	0.300	0.120	0.400	0.080	0.020				
805432B	0.177	0.212	1.270	0.009	0.003	0.010	0.061	0.004	0.009	0.001	0.012	0.403			
	P	0.180	0.229	1.280	0.009	0.012	0.038	0.006	0.012	0.001	0.015	0.403			
	H	0.175	0.251	1.250	0.014	0.003	0.010	0.003	0.016	0.001	0.001	0.387			
	P	0.178	0.249	1.250	0.014	0.003	0.011	0.004	0.015	0.001	0.001	0.391			

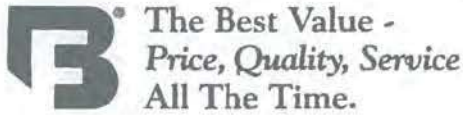
REMARK * H : Heat Analysis P : Product Analysis * C:Mn = 1±5



We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE
 Manager of Q.A Dept. / JAY KIM
 ST&H CORPORATION

CERTIFIED MILL TEST REPORT



LOG NO. F00000000100245 Page 1 of 2

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 10/04/2017

CUSTOMER ORDER NO.: 4037926-00

BONNEY ORDER NO. B000229128

SHIP TO: CCTF CORPORATION (BURLINGTON)
4151 NORTH SERVICE ROAD
UNIT 2
BURLINGTON ON L7L 4X6
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO	CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
3 7690075	50	50196	36-3X1 3M LF2 FLEX T SA/A350 LF2 CLI	Al 0.032 C 0.200 Co 0.002 Cr 0.040 Cu 0.030 Mn 1.050 Mo 0.003 Nb 0.014 Ni 0.020 P 0.005 S 0.019 Si 0.270 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 71,610 Y/S(PSI) 47,449 EL(%) 36.85 RA(%) 57.04 Brinell 135 BHN 135 BHN Charpy -50 F 77/66/56 (Ft-Lbs) Average 66.30
5 7690149	50	50076	36-11/2X3/4 3M LF2 FLEX S SA/A350 LF2 CLI	Al 0.027 C 0.200 Co 0.004 Cr 0.050 Cu 0.100 Mn 0.970 Mo 0.016 Nb 0.013 Ni 0.060 P 0.011 S 0.019 Si 0.220 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 76,500 Y/S(PSI) 53,000 EL(%) 31.00 RA(%) 64.00 Brinell 159 BHN 146 BHN Charpy -50 F 42/58/45 (Ft-Lbs) Average 48.30
6 7690199	50	50196	36-3X1 3M LF2 FLEX S SA/A350 LF2 CLI	Al 0.032 C 0.200 Co 0.002 Cr 0.040 Cu 0.030 Mn 1.050 Mo 0.003 Nb 0.014 Ni 0.020 P 0.005 S 0.019 Si 0.270 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 71,610 Y/S(PSI) 47,449 EL(%) 36.85 RA(%) 57.04 Brinell 135 BHN 135 BHN Charpy -50 F 77/66/56 (Ft-Lbs) Average 66.30

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

CERTIFIED MILL TEST REPORT



The Best Value -
Price, Quality, Service
All The Time.

LOG NO. F00000000100245

Page 2 of 2

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 10/04/2017

CUSTOMER

BONNEY ORDER NO. B000229128

ORDER NO.: 4037926-00

SHIP TO: CCTF CORPORATION (BURLINGTON)
4151 NORTH SERVICE ROAD
UNIT 2
BURLINGTON ON L7L 4X6
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS
------	----------	---------	--

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. CERTIFYING TO ASTM A350 LF2 07 REVISION.
3. THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
4. THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
5. THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
6. THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
7. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
8. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
9. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz

QUALITY PROCESS MANAGER

CMTR: REV2



4151 North Service Road, Burlington, ON L7L 4X6 (905) 335-5320

Date: 8/13/2019

Mill Test Reports

Invoice: 1599535-00
PO: 2610160-00

Customer: 27403-261
A.B.F. MINES
1310 AVE DAVY
ROUYN-NORANDA, QC J9Y 0A8

Line	Heat#	Product	Description
1	b01568b	7583949	8 300 RF WN FLG STD A350LF2
2	b03238	7586832	6 150 RF WN FLG STD A350LF2
3	50313 **	7690199	1 X 3-36 3000 SOL A350LF2

CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)



ST&H CORPORATION
 OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670
 E-mail : qm@stnhcorp.com

Certificate No. MJH0427-06/08
 Customer CCTF CORPORATION
 Contract No. 4039342-00
 Spec. For Material ASTM A105N-18, ASME SA105N-17, ASTM A350 LF2 CL1-18, ASME SA350 LF2 CL1-17, NACE MR0175/ISO15156-2:2015, NACE MR0103/ISO17945:2015
 Heat Treatment 930°C NORMALIZED & A.C

Date : JUN. 17. 2019
 Certified to ISO9001/ ISO14001:2015, PED2014/68/EC by LRQA
 Dimensional Inspection ASME B16.5 - 2017

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test (HB)	Charpy Impact Test (10X10mm Specimen Size)				
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %		Indiv. 16J	Ave. 20J	Notch V	Temp. -46°C	
			12.5	50.0	Max	Min	250	485	22.0	30.0	187	137	Test Result (J)	
7580219	15	8015688	12.5	50.0	356	515	39	76	147	154	83	78	81	80
7580220	25	8015688	12.5	50.0	356	515	39	76	147	154	83	78	81	80
7586509	70	8015688	12.5	50.0	356	515	39	76	147	154	83	78	81	80
7580218	12	8015688	12.5	50.0	356	515	39	76	147	154	83	78	81	80
7580200	15	8015688	12.5	50.0	356	515	39	76	147	154	83	78	81	80
7586832	45	8015688	12.5	50.0	356	515	39	76	147	154	83	78	81	80
7583949	40	8015688	12.5	50.0	356	515	39	76	147	154	83	78	81	80
7580203	4	801979E	12.5	50.0	344	541	35	75.5	150	152	60	65	59	61
7580204	5	801979E	12.5	50.0	344	541	35	75.5	150	152	60	65	59	61
7580205	2	801979E	12.5	50.0	344	541	35	75.5	150	152	60	65	59	61

Heat No./ Batch No.	Chemical Composition (%)											NDE			
	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	CE	UT	MT	PT
8015688	Max 0.300	0.300	1.350	0.035	0.040	0.400	0.300	0.120	0.400	0.080	0.020				
	Min 0.150	0.600													
801979E	H 0.172	0.243	1.290	0.011	0.004	0.026	0.094	0.017	0.020	0.001	0.001	0.412			
	P 0.177	0.250	1.300	0.012	0.005	0.029	0.101	0.015	0.020	0.002	0.001	0.420			
	H 0.177	0.212	1.270	0.009	0.003	0.010	0.061	0.004	0.009	0.001	0.012	0.403			
	P 0.180	0.229	1.280	0.009	0.002	0.012	0.038	0.006	0.012	0.001	0.015	0.403			

REMARK * H : Heat Analysis P : Product Analysis * C.Mn = 1 ≤ 5



[Handwritten Signature]

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE
 Manager of Q.A Dept. / JAY KIM
 ST&H CORPORATION

CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)



ST&H CORPORATION
 OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670
 E-mail : qm@stnhcorp.com



Certificate No. MJH0103-10/16
 Customer CCTF CORPORATION
 Contract No. 4038603-00
 Date : AUG. 27. 2018

Spec. For Material ASTM A105N-14, ASME SA105N-17, ASTM/ASME A/SA350 LF2 CL1-1, NACE MR0175/ISO 15156-2:2015, NACE MR0103/ISO 17495-1:2016
 Heat Treatment 930°C NORMALIZED & A.C
 Dimensional inspection ASME B16.5 - 2017

Certified to ISO9001/ ISO14001:2015, PED2014/68/EC by LRQA

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen			Tension Test			Hardness Test (HB)	Charpy Impact Test (10X10mm Specimen Size)				
			D mm	GL mm	Max	Y.S MPa	T.S MPa	E.L %		R.A %	Indiv.	Ave.	Temp. -46°C	
														Min
150LBS TH RF 6"	2	803238	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
150LBS WN RF STD 4"	50	803238	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
150LBS WN RF STD 6"	50	803238	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
150LBS WN RF XH 4"	10	803238	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
300LBS SO RF 4"	5	803238	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
300LBS SO RF 6"	2	803238	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
600LBS WN RF STD 3"	10	803238	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
600LBS WN RF XH 3"	25	803238	12.5	50.0	375	545	35	67.5	151	153	118	145	68	110
150LBS BL RF 18"	2	803776	12.5	50.0	375	540	38	74.5	152	154	135	80	118	111
150LBS SO RF 20"	2	803776	12.5	50.0	375	540	38	74.5	152	154	135	80	118	111

Heat No./ Batch No.	Chemical Composition (%)													NDE		
	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	CE	UT	MT	PT	
Max	0.300	0.300	1.350	0.035	0.040	0.400	0.300	0.120	0.400	0.080	0.020					
Min	0.150	0.600														
803238	H 0.176	0.201	1.060	0.015	0.004	0.032	0.077	0.004	0.050	0.001	0.001	0.374				
	P 0.178	0.216	1.060	0.016	0.002	0.036	0.073	0.007	0.050	0.002	0.001	0.376				
	H 0.172	0.220	1.290	0.013	0.007	0.012	0.045	0.006	0.008	0.004	0.019	0.399				
803776	P 0.174	0.220	1.290	0.011	0.003	0.012	0.044	0.006	0.008	0.001	0.015	0.400				

REMARK * H : Heat Analysis P : Product Analysis

[Handwritten Signature]



We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Witnessed by / H. J. LEE

Manager of Q.A Dept. / JAY KIM

CERTIFIED MILL TEST REPORT



The Best Value -
Price, Quality, Service
All The Time.

LOG NO. F00000000110349 Page 1 of 2

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 07/13/2018

CUSTOMER
ORDER NO.: 4038733-00

BONNEY ORDER NO. B000243044

SHIP TO: CCTF CORPORATION (BURLINGTON)
4151 NORTH SERVICE ROAD
UNIT 2
BURLINGTON ON L7L 4X6
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
3 7690072	50	50200	36-3/4 X 1/2 3M LF2 FLEX T SA/A350 LF2 CL1 Al 0.024 C 0.200 Co 0.002 Cr 0.030 Cu 0.050 Mn 1.040 Mo 0.005 Nb 0.012 Ni 0.020 P 0.006 S 0.022 Si 0.230 V 0.003 CE(Long Formula) = 0.39 T/S(Psi) 71,500 Y/S(Psi) 48,100 EL(%) 35.00 RA(%) 69.00 Brinell Hardness 137 BHN 135 BHN Charpy -50 F 78/55/52 (Ft-Lbs) Average 61.70
4 7690199	50	50313	36-3X1 3M LF2 FLEX S SA/A350 LF2 CL1 Al 0.036 C 0.200 Co 0.002 Cr 0.060 Cu 0.080 Mn 1.000 Mo 0.006 Nb 0.014 Ni 0.030 P 0.006 S 0.023 Si 0.240 V 0.003 CE(Long Formula) = 0.39 T/S(Psi) 73,427 Y/S(Psi) 48,233 EL(%) 35.25 RA(%) 61.22 Brinell Hardness 135 BHN 135 BHN Charpy -50 F 27/28/33 (Ft-Lbs) Average 29.30
5 7690149	100	50295	36-11/2X3/4 3M LF2 FLEX S SA/A350 LF2 CL1 Al 0.021 C 0.200 Co 0.002 Cr 0.030 Cu 0.080 Mn 1.020 Mo 0.007 Nb 0.011 Ni 0.030 P 0.005 S 0.023 Si 0.260 V 0.003 CE(Long Formula) = 0.39 T/S(Psi) 73,778 Y/S(Psi) 50,401 EL(%) 36.55 RA(%) 65.23 Brinell Hardness 135 BHN 135 BHN Charpy -50 F 43/68/39 (Ft-Lbs) Average 50.00

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

CERTIFIED MILL TEST REPORT



**The Best Value -
Price, Quality, Service
All The Time.**

LOG NO. F00000000110349 Page 2 of 2

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 07/13/2018

CUSTOMER
ORDER NO.: 4038733-00

BONNEY ORDER NO. B000243044

SHIP TO: CCTF CORPORATION (BURLINGTON)
4151 NORTH SERVICE ROAD
UNIT 2
BURLINGTON ON L7L 4X6
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
------	----------	---------	--

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. CERTIFYING TO ASTM A350 LF2 17 REVISION.
3. THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
4. THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
5. THE MATERIAL SUPPLIED AS A350 LF2 CLI MEETS THE REQUIREMENTS OF BOTH NACE MRO103/ISO 17945 - 2015 & NACE MRO175/ISO 15156-2 - 2015 EDITION.
6. THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
7. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
8. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
9. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Kylee Ruiz

Kylee Ruiz
QUALITY PROCESS MANAGER

CMTR: REV2



BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN, R.O.C.(81460)
 TEL : (886)7-3711536, 3710497, 3720260 FAX : (886)7-371-3864, 3713882
 WEB SITE : <http://www.bothwell.com.tw> E-Mail : box@bothwell.com.tw

An ISO 9001 : 2015 Registered Manufacturer

MLTS_6056-18953
Heat# 35596, X1651

M L L TEST & I N S P E C T I O N C E R T I F I C A T E

ACCORDING TO EN 10204 3.1

CUSTOMER : SEYBOLD INTERNATIONAL CORP.

PAGE : 19

CERT NO : 180410

INVOICE NO : 5200011852

DATE : 02/12/2018

ORDER NO : 7013926

L/C NO :

ORIGIN : TAIWAN

ITEM	RAW HEAT NO. HEAT NO.	QTY	DESC/ GRADE OR SPECIFICATION NO. CHEMICAL COMPOSITION % MECHANICAL PROPERTIES.
108	355196 YB0001	100 PCS	UNION NUT (OCT) - BODY (ROD) LF2 CL1 (N) 1-1/2" 3000# S/W SQ3UI.5-BW C:0.18 Si:0.25 Mn:1.05 P:0.014 S:0.005 Cu:0.04 Cr:0.07 Ni:0.03 Mo:0.01 V:0.003 Nb:0.003 N:0.0099 Ti:0.002 CE:0.38 TS(KSI):73.8 YS 0.2%(KSI):55.5 EL(%):32.5 RA(%):69.1 HARDNESS 1(HBW):141 HARDNESS 2(HBW):143 IMPACT TEST -46°C (-50.8°F) 1:48 J 2:87 J 3:67 J AVG:67 J

*1/2" # 3000 FS SW
union A350LF2*

REMARK :

THE MATERIAL SUPPLIED IDENTIFIED AS ASTM A350 - 15, ASME SA350 - 2015ED LF2 CL 1
 THE FITTING SUPPLIED IDENTIFIED AS MSS SP-83 - 2014
 THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH SPECIFICATION SURFACE & DIM. : GOOD
 STANDARD : CHEMICAL COMPOSITION % & MECHANICAL PROPERTIES.

	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)
MIN	-	0.15	0.60	-	-	-	-	-	-	-	-
MAX	0.30	0.30	1.35	0.035	0.040	0.40	0.30	0.40	0.12	0.08	0.02
	N	Al	Ti	Zr	CE	TS(KSI)	YS(KSI)	YS 0.2%(KSI)	EL(%)	R of A(%)	HARDNESS HBW
MIN	-	-	-	-	-	70	-	36	22	30	-
MAX	-	-	-	-	0.47	95	-	-	-	-	197

HEAT TREATMENT : NORMALIZED 900°C (1652°F) A C
 CONFORM TO NACE MR0175-15/ISO 15156-15/MR0103-15
 FULLY KILLED AND FINE GRAIN PRACTICE
 FREE FROM RADIATION CONTAMINATION
 REF#90817ABW

WE CERTIFY THE ABOVE MENTIONED FITTINGS HAVE BEEN MANUFACTURED,
 SAMPLED, TESTED, AND INSPECTED IN ACCORDANCE WITH THE
 SPECIFICATIONS SHOWN

C.C. Huang
 Q C. MANAGER

C.L. Ko
 I NSPECTOR



柏緯鐵工股份有限公司

高雄縣仁武鄉烏林村仁心路 303 號

BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, JEN-HSIN ROAD JEN-WU HSIANG

KAOHSIUNG HSIEN, TAIWAN R.O.C.(81460)

TEL: 886-7-371-0497, 371-1536, 372-0260

FAX: 886-7-371-3864, 371-3882

web site: <http://www.bothwell.com.tw> e-mail: bothwell@www.bothwell.com.tw or box@mail.bothwell.com.tw

An ISO 9001:2000 Registered Manufacturer

ISO 9001

BUREAU VERITAS
Certification

N° TW06091Q



MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN10204/DIN50049/3.1.B

ORIGIN: TAIWAN

CUSTOMER: WEIFANG STEEL CANADA LTD.

INVOICE NO: BW089706095

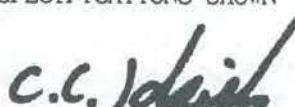

DATE: 12/10/08

CERT NO: 83363-2

ORDER NO: AG0031-LF2

L/C NO:

PAGE: 4

ITEM	BOTH WELL HT. CD.	RAW MATERIAL HEAT NO.	DESCRIPTION							QUANTITY	SPECIFICATION:			
											ASTM A350 -04a ASME SA350 -E04 LF2-Class1	DIMENSION: ASME B16.11-2005		
014	Y050	X1651	TEE 3/4" 3000# NPT							300 PC				
023	Y050	X1651	FULL CPLG 1-1/2" 3000# NPT							1000 PC				
029	Y050	X1651	HALF CPLG 1-1/2" 3000# NPT							300 PC				
035	Y050	X1651	CAP 1-1/2" 3000# NPT							400 PC				
036	Y050	X1651	CAP 2" 3000# NPT							600 PC				
070	Y047	X1653	90D ELBOW 2" 3000# S/W							110 PC				
070	Y047	X1653	90D ELBOW 2" 3000# S/W							50 PC				
ITEM	BOTH WELL HT. CD.	CHEMICAL COMPOSITION (%)												
		C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)	N	
		Min	-	0.150	0.600	-	-	-	-	-	-	-	-	-
Max	0.300	0.300	1.350	0.035	0.040	0.400	0.300	0.400	0.120	0.080	0.020	-		
014	Y050	0.200	0.190	1.040	0.007	0.001	0.030	0.060	0.030	0.010	0.001	0.000	-	
023	Y050	0.200	0.190	1.040	0.007	0.001	0.030	0.060	0.030	0.010	0.001	0.000	-	
029	Y050	0.200	0.190	1.040	0.007	0.001	0.030	0.060	0.030	0.010	0.001	0.000	-	
035	Y050	0.200	0.190	1.040	0.007	0.001	0.030	0.060	0.030	0.010	0.001	0.000	-	
036	Y050	0.200	0.190	1.040	0.007	0.001	0.030	0.060	0.030	0.010	0.001	0.000	-	
070	Y047	0.200	0.220	1.050	0.012	0.001	0.040	0.190	0.040	0.020	0.010	0.000	-	
070	Y047	0.200	0.220	1.050	0.012	0.001	0.040	0.190	0.040	0.020	0.010	0.000	-	
ITEM	BOTH WELL HT. CD.	MECHANICAL TEST					Remark:							
		Tensile Strength (KSI)	Yield Strength (KSI)	Elon-Gation (%)	R of A (%)	Hardness (AVG.) (HB)	CONFORM TO NACE MR0175-2003/MR0103							
		Min	70.0	36.0	22.0	30.0	-	STEEL MAKING PROCESS : ELECTRIC FURNACE						
Max	95.0	-	-	-	197	-	HEAT TREATED(°C) NORMALIZED:900°C TEMPERED:620°C							
							IMPACT VALUE(CHARPY) -50°F(-46.0°C)							
							HEAT NO. HT. CD. JOULE(J) AVG.(J)							
							X1653 Y047 285 272 257 271.333							
							X1651 Y050 242 188 175 201.667							
014	Y050	79.7	60.7	34.6	76.2	151	WE CERTIFY THE ABOVE MENTIONED FITTINGS HAVE BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH THE SPECIFICATIONS SHOWN  Q.C. MANAGER CHIN CHENG HSIEH							
023	Y050	79.7	60.7	34.6	76.2	151								
029	Y050	79.7	60.7	34.6	76.2	151								
035	Y050	79.7	60.7	34.6	76.2	151								
036	Y050	79.7	60.7	34.6	76.2	151								
070	Y047	78.1	58.1	36.2	80.3	144								
070	Y047	78.1	58.1	36.2	80.3	144								
														 INSPECTOR CHUN CHIEH HUANG



CapProducts, Ltd.
25 Winnipeg St
Vanastra, ON N0M 1L0

Phoenix * Capitol * Camco
CapProducts

Certified Material Test Report

Commanding a Higher Standardsm

Printed: 8/20/2019

Certified: 12/18/2018

Customer

EMCO DISTRIBUTION GROUP
PO BOX 5300 STATION A
LONDON, ON N6A 4N7

P.O. 2610174-00

Tag 3050060

Heat No 174321

Heat Code 87AH

Phoenix Order # 1481945

Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Part Number

15111512CSA

Description

1-1/2X6 XHSML BK STL NIPL A333 GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr	C Eq. Long	
0.1300	1.3200	0.0090	0.0050	0.3100	0.0390	0.0200	0.0600	0.3687	

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0100	0.0040			0.0180					0.0020

Additional Chemical Properties

B					Cr + Cu + Ni
0.00030					0.1190

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
72,374	55,985	37.0%		150	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
48	41	49	46.00	-54

* Bend test passed.

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements.

We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Comments:

Flattening test passed. Ultrasonic test passed.

Charpy V Impact Tested at -54° C. Specimen size - 10 x 3.33 mm

Hot finished, Normalized



Certified Material Test Report

Commanding a Higher Standardsm

Printed: 8/20/2019
Customer
EMCO DISTRIBUTION GROUP
PO BOX 5300 STATION A
LONDON, ON N6A 4N7

Certified: 06/07/2019
P.O. 2610174-00
Tag 3050060

Heat No 608622
Heat Code 87HU
Phoenix Order # 1481945

Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Part Number
15111512CSA

Description
1-1/2X6 XHSML BK STL NIPL A333 GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr	C Eq. Long	
0.1300	0.7200	0.0140	0.0030	0.2000	0.0900	0.0700	0.0900	0.2833	

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0200	0.0030			0.0140					0.0020

Additional Chemical Properties

Boron					Cr + Cu + Ni
0.00010					0.2500

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
64,107	44,672	34.0%		134	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
44	44	46	44.67	-55

* Hydro test passed. at 3000 psi.

* Bend test passed.

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements.

We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Comments:

Flattening test passed.
Charpy V Impact Tested at -55° C. Specimen size - 10 x 4 mm.
Normalized

18953-6056



CapProducts, Ltd.
25 Winnipeg St
Vanastra, ON N0M 1L0

Phoenix * Capitol * Camco
CapProducts

Certified Material Test Report

Commanding a Higher Standardsm

Printed: 8/20/2019

Customer
EMCO DISTRIBUTION GROUP
PO BOX 5300 STATION A
LONDON, ON N6A 4N7

Certified: 06/07/2019

P.O. 2610174-00

Tag 3050060

Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Heat No 608622

Heat Code 87HU

Phoenix Order # 1481945

Part Number

15111512CSA

Description

1-1/2X6 XHSML BK STL NIPL A333 GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr	C Eq. Long	
0.1300	0.7200	0.0140	0.0030	0.2000	0.0900	0.0700	0.0900	0.2833	

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0200	0.0030			0.0140					0.0020

Additional Chemical Properties

Boron				
0.00010				

Cr + Cu + Ni
0.2500

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
64,107	44,672	34.0%		134	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
44	44	46	44.67	-55

* Hydro test passed. at 3000 psi.

* Bend test passed.

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements.

We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession

Comments:

Flattening test passed.

Charpy V Impact Tested at -55° C. Specimen size - 10 x 4 mm.

Normalized

MLTS_6056-18953-1
Heat# 608622, 174321



CapProducts, Ltd.
25 Winnipeg St
Vanastra, ON N0M 1L0

Phoenix * Capitol * Camco
CapProducts

Certified Material Test Report

Commanding a Higher Standard_{sm}

Printed: 8/20/2019

Certified: 12/18/2018

Customer

EMCO DISTRIBUTION GROUP
PO BOX 5300 STATION A
LONDON, ON N6A 4N7

P.O. 2610174-00

Tag 3050060

Heat No 174321

Heat Code 87AH

Phoenix Order # 1481945

Material ASTM A333 GR6 2015/ASME SA333 GR6 2015 Edition

Part Number

15111512CSA

Description

1-1/2X6 XHSML BK STL NIPL A333 GR6 CSA

Chemical Properties

C	Mn	P	S	Si	Cu	Ni	Cr
0.1300	1.3200	0.0090	0.0050	0.3100	0.0390	0.0200	0.0600

C Eq. Long
0.3687

Mo	V	Co	Al	Cb	N	Pb	Sn	Ta	Ti
0.0100	0.0040			0.0180					0.0020

Additional Chemical Properties

B
0.00030

Cr + Cu + Ni
0.1190

Mechanical Properties

Tensile (PSI)	Yield (PSI)	Elong. % in 2 in. or 4D	R of A	HBW	HBW2
72,374	55,985	37.0%		150	0

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Average	Test Temp.
48	41	49	46.00	-54

* Bend test passed.

We hereby certify that these parts were manufactured, sampled, tested, and inspected in accordance with the product specifications stated and were found to meet the requirements.

We further certify that this material was inspected using independent inspectors conforming to the requirements of EN 10204 3.1. These products meet the requirements of the latest editions of NACE MR0175, NACE MR0103, and ISO 15156. No weld repair has been performed on these products. This material was not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Comments:

Flattening test passed. Ultrasonic test passed.
Charpy V Impact Tested at -54° C. Specimen size - 10 x 3.33 mm
Hot finished, Normalized



4151 North Service Road, Burlington, ON L7L 4X6 (905) 335-5320

Date: 9/9/2019

Mill Test Reports

Invoice: 1600715-00
PO: 2610192

Customer: 27403-261
A.B.F. MINES/2985080 CANA 261
1310 AVE DAVY
ROUYN NORANDA, QC J9Y 0A8

Line	Heat#	Product	Description
1	b03459	7585585	6 150 RF BLIND FLG A350LF2



CERTIFICATE OF INSPECTION & TEST (EN 10204 3.1)



ST&H CORPORATION
 OFFICE - 74, Jwadongsunhwan-ro, Haeundae-gu, Busan, Korea
 PLANT - 11, Eogokgongdan 2-gil, Yangsan-si, Kyungnam, Korea
 Tel : +82.51.744-4680(5 line) Fax : +82.51.744-4670
 E-mail : qm@stnhcorp.com

Certificate No. MJH0290-01/05 Date : FEB. 14, 2019 Certified to ISO9001 / ISO14001:2015, PED2014/68/EC by LROA
 Customer CCTF CORPORATION
 Contract No. 4039095-00
 Spec. For Material ASTM A105N-18, ASME SA105N-17, ASTM A350 LF2 CL1-18, ASME SA350 LF2 CL1-17, NACE MR0175/ISO 15156-2:2015, NACE MR0103/ISO 17495-1:2016
 Heat Treatment 930°C NORMALIZED & A.C Dimensional inspection ASME B16.5 - 2017

ITEM / SIZE	Q'ty	Heat No./ Batch No.	Size of Test Specimen		Tension Test				Hardness Test		Charpy Impact Test (10X10mm Specimen Size)			
			D mm	GL mm	Y.S MPa	T.S MPa	E.L %	R.A %	Test (HB)	Indiv. 16J	Ave. 20J	Notch V	Temp. -46°C	
														Max
7585585	20	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7585860	10	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7580218	20	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7580202	2	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7586502	5	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7586824	50	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7586832	30	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7586891	20	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7583949	10	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80
7585321	20	B03459	12.5	50.0	330	520	34	76	150	156	80	75	86	80

Heat No./ Batch No.	Chemical Composition (%)											NDE					
	Max	Min	C	Si	Mn	P	S	Mi	Gr	Mo	Cu	V	Nb	CE	UT	MT	PT
H	0.163	0.226	1.230	0.012	0.002	0.057	0.138	0.017	0.147	0.001	0.006						0.412
P	0.162	0.224	1.240	0.011	0.002	0.054	0.136	0.014	0.138	0.001	0.001						0.411

REMARK * H : Heat Analysis P : Product Analysis

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

ST-801-14-02

Witnessed by / H. J. LEE

Manager of Q.A Dept. / JAY KIM

ST&H CORPORATION



NEWCO® | OIC® | DOUGLAS CHERO™

13127 Trinity Dr., Stafford, TX 77477
Tel: 281-302-4900 Fax: 281-302-4801

Item No: B3080030F*LCCW27B*****GA
Size/Type: 8" / Swing Check
Quantity: 1
Country of Origin: China
FigNo: 33F--LCC4/2-NC

Material Test Report

Cameron Newco is a 9001 certified registered company
CRN: OC7998.5C - EN 10204-3.1

06/17/19

Cert No: 1087586

Customer: EMCO
Customer Number: 32043
Customer PO: 2610091-00
Cameron SO: QRC SO# 1007020
Project Name:
Valve Serial No:
Description: 300# RF A352-LCC (TRIM 12) BC SWING CHECK
NACE
Customer Tag No:

MLTS_6056-18734
Cert# 1087586

Pressure Test Result

Item	Test Pressure (Psi)	Duration (sec)	Test Result
Shell	7.757	120	Passed
Backseat	-	-	-
Seat Hydro	5.688	825	Passed
Seat Air	-	-	-

Inspection

Dimension: Passed
Visual: Passed
Valve Materials meet the requirements for NACE MR0103 and NACE MR0175
Standard: API 598 / ASME B16.34

Part: Body Type 3.1

Heat Treatment: QUENCHING+TEMPERING

Material Code: A352 LCC

Notes:

Chem Comp (%)	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
Min:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03
Val:	0.180	0.040	0.018	1.040	0.002	0.014	0.021	0.010	0.520	0.004

Part: Bonnet/Cap Type 3.1

Heat Treatment: QUENCHING+TEMPERING

Material Code: A350 LF2

Notes:

Chem Comp (%)	C	Cr	Cu	Mn	Mo	Nb	Ni	P	S	Si	V
Min:	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.001	0.00	0.15	0.00
Max:	0.30	0.30	0.40	1.35	0.12	0.02	0.40	0.035	0.04	0.30	0.08
Val:	0.220	0.200	0.210	0.900	0.070	0.000	0.220	0.010	0.013	0.210	0.010

Heat No: N9183W

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard(HB)	Impact Tests @-50 deg F	Ib/fcc
	70.0	39.9	22.0	35.0	100.0		# 1: 140
	95.0	999.9	100.0	100.0	225.0		# 2: 18
	79.0	54.4	32.0	66.0	169.0		# 3: 20
							Avg: 59

Heat No: LF2-B025

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard(HB)	Impact Tests @-50 deg F	Ib/fcc
	70.0	36.0	22.0	30.0	1.0		# 1: 36
	95.0	999.9	100.0	100.0	197.0		# 2: 47
	81.2	38.4	35.0	50.0	170.0		Avg: 36

Comments: Cameron declares that the parts above are in accordance with applicable material specification and purchase order requirements. No Asbestos is contained in this product. Packing: | Gasket: Graphite Spiral Wound (316) Valves covered in this certificate are in full compliance with purchase order requirements and specifications.

MTR created by: DR

Signature
06/17/19



NEWCO® | OIC® | DOUGLAS CHERO™

13127 Trinity Dr., Stafford, TX 77477
Tel: 281-302-4900 Fax: 281-302-4801

Item No: B3080030F*LCCW27B*****GA
Size/Type: 8" / Swing Check
Quantity: 1
Country of Origin: China
FigNo: 33F--LCC4/2-NC

Material Test Report

Cameron Newco is a 9001 certified registered company
CRN: OC7998.5C - EN 10204-3.1

06/17/19

Cert No: 1087587

Customer: EMCO
Customer Number: 32043
Customer PO: 2610091-00
Cameron SO: QRC SO# 1007020

Project Name:
Valve Serial No:
Description: 300# RF A352-LCC (TRIM 12) BC SWING CHECK
NACE
Customer Tag No:

MLTS_6056-18734
Cert# 1087587

Inspection
Dimension: Passed
Visual: Passed
Valve Materials meet the requirements for NACE MR0103 and NACE MR0175
Standard: API 598 / ASME B16.34

Item	Test Pressure (psig)	Duration (sec)	Test Result
Shell	7.757	120	Passed
Backseat	-	-	-
Seat Hydro	5.688	120	Passed
Seat Air	-	-	-

Heat No: N9158W

Material Code: A352 LCC

Chem Comp (%)	Spec:	C	Cr	Cu	Mn	Mo	Ni	P	S	SI	V	Notes:
	Min:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Max:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03	
	Val:	0.190	0.025	0.015	1.090	0.004	0.014	0.023	0.009	0.550	0.005	

Heat No: LF2-B025

Material Code: A350 LF2

Chem Comp (%)	Spec:	C	Cr	Cu	Mn	Mo	Nb	Ni	P	S	SI	V	Notes:
	Min:	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.001	0.00	0.15	0.00	
	Max:	0.30	0.30	0.40	1.35	0.12	0.02	0.40	0.035	0.04	0.30	0.08	
	Val:	0.220	0.200	0.210	0.900	0.070	0.000	0.220	0.010	0.013	0.210	0.010	

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-50 deg F	lb/ftc
	70.0	39.9	22.0	35.0	100.0		# 1: 30
	95.0	999.9	100.0	100.0	225.0		# 2: 20
	85.6	59.5	33.0	66.0	180.0		# 3: 23
							Avg: 25

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-50 deg F	lb/ftc
	70.0	36.0	22.0	30.0	1.0		# 1: 36
	95.0	999.9	100.0	100.0	197.0		# 2: 25
	81.2	38.4	35.0	50.0	170.0		# 3: 42
							Avg: 36

Comments: Cameron declares that the parts above are in accordance with applicable material specification and purchase order requirements. No Asbestos is contained in this product. Packing: | Gasket: Graphite Spiral Wound (316) Valves covered in this certificate are in full compliance with purchase order requirements and specifications.

MTR created by: DR

Signature

06/17/19



HEAT / SERIAL NUMBER RECORD

M. A. Stewart & Sons Ltd.
VALVES AND FITTINGS

(FORM 4.15.4A)

COMPANY; EMCO / Equipment - KN (for ABE mines)

PAGE; 1 OF 1

BRANCH; Rouyn - Noranda, Q.C.

MAS SALES REGISTER; 1436324

ATTN; Richard Knight

DATE June 10 / 19

PO# 2610090 - 00

ITEM	QTY	SIZE	VALVE NO.	BODY	BONNET#/CAP#	ACTUATOR#	SOLENOID#	INDICATOR#
1	3	8"	Beric	HCNNC	HCNNC	DF-01-105-180206-12		
2			103-RF-AH12-H-N	LDRAC	LDRAC	DF-01-306-180901-12		
3				LDRAC	LDRAC	DF-01-305-180901-12.		
7								
8	1	8"	Beric	LDRAC	LDRAC	DF-01-250-180901-12		
9			101-RF-AH12-H-N					
10								
11								
12	2	6"	Beric	GDN71	GDN71	DF-01-216-190116-12		
13			101-RF-AH12-H-N	LDRAC	LDRAC	DF-01-247-180901-12		
14								
15								
16	1	6"	Beric	GDN71	GDN71	DF-01-228-190116-12		
17			301-RF-FH12-X-N					
18								
19								
20								
21								
22								
23								
24								
25								

FAX STAMP



MATERIAL TEST REPORT

Beric-Davis Companies International, Ltd.
6059 South Loop East
Houston, TX 77087
Phone: 713 673-2073
Fax: 713 673-4641

(CHEMICAL, PHYSICAL & HYDROSTATIC)

DATE : SEP.1.2018
ARTICLE : 8 GATE VALVE RF 300 TRIM 12
FIGURE NO. : 103-08-RF-AH12-H-N
SERIAL NO. : DF-01-305-180901-12

TAG NO.: 103-08-RF-AH12-H-N
Class Rating: 300 Qty: 1 Pcs

PARTS NAME	Body (BD)	Bonnet (BN)	Wedge/Disc (WD/DS)	Body Seat Ring	Stem
MATERIAL	ASTM A352 LCC	A352 LCC	A352 LCC+316	A350 LF2+HF	A182 F316

INSPECTION STANDARD	DIMENSION INSPECTION (mm)						PRESSURE TEST (ASME B16.34 & API 598)				VISUAL TEST
	Face to Face (End to End)	Flange Diameter	Bolt Circle	Dia. Of Raised Face	Flange Thickness	No. of Bolt Hole	Bolt Hole Diameter	Shell (PSIG)	SEAT(Air) (PSIG)	BACK SEAT (PSIG)	
419±1.6	381	330	270	42	12	25	1125	80	815	MSS-SP-55	GOOD
RESULT	W.T	W.T	W.T	W.T	W.T	W.T	GOOD	GOOD	GOOD	GOOD	GOOD

※ W.T : Within Tolerance

SERIAL NO. BATCH	PARTS	HEAT NUMBER	CHEMICAL COMPOSITION (%)(ASTM STD.)											TENSION TEST(MIN.)(ASTM)				HARDNESS (HB)	CHARPY				
			C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	T.S (MPa)	Y.P (MPa)	EL (%)	R.A (%)							
STANDARD	A352 LCC	Min. Max.	0.250	0.600	1.200	0.040	0.045	0.500	0.500	0.200	0.300	0.030				485	275	22.0	35.0		Min≥16J	Avg≥20J	
DF-01-305-180901-12	BODY	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001				563	352	29.0	53.0		160	46-38-32	
	BONNET	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001				563	352	29.0	53.0		160	46-38-32	
	WEDGE/DISC	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001				563	352	29.0	53.0		160	46-38-32	

BLANK

REMARKS : IN ACCORDANCE WITH EN 10204: 3.1
HEAT TREATMENT: LCC QUENCHED; 930°C X 3HR(W.C.)+TEMPERED 700°C X 3HR(A.C)
TO NACE MR0103

Manager, Q.A Department
Witness Inspector

Jane
A-S-C-X

Valve design and construction is in accordance with API 600, ASME B16.34
Products supplied are in compliance with the requirements of the purchase order



Beric-Davis Companies International, Ltd.
6059 South Loop East
Houston, TX 77087
Phone: 713 673-2073
Fax: 713 673-4641

MATERIAL TEST REPORT

(CHEMICAL, PHYSICAL & HYDROSTATIC)



BERIC

DATE : SEP. 1, 2018
ARTICLE : 8 GATE VALVE RF 300 TRIM 12
FIGURE NO. : 103-08-RF-AH12-H-N
SERIAL NO. : DF-01-306-180901-12

TAG NO.: 103-08-RF-AH12-H-N
Class Rating: 300
Qty: 1 Pcs

SIZE: NPS 8
Bonnnet (BN)
A352 LCC

PARTS NAME	Body (BD)	Bonnnet (BN)	Wedge/Disc (WD/DS)	Body Seat Ring	Stem
MATERIAL	A352 LCC	A352 LCC	A352 LCC+316	A350 LF2+HF	A182 F316

INSPECTION	Face to Face (End to End)	Flange Diameter	Bolt Circle	Dia. Of Raised Face	Flange Thickness	No. of Bolt Hole	Bolt Hole Diameter	PRESSURE TEST (ASME B16.34 & API 598)				VISUAL TEST
								SHELL (PSIG)	SEAT(Air) (PSIG)	BACK SEAT (PSIG)	VISUAL	
STANDARD	419±1.6	381	330	270	42	12	25	1125	80	815	GOOD	MSS-SP-55
RESULT	W.T	W.T	W.T	W.T	W.T	W.T	W.T	GOOD	GOOD	GOOD	GOOD	GOOD

* W.T : Within Tolerance

SERIAL NO. BATCH	PARTS	HEAT NUMBER	CHEMICAL COMPOSITION (%) (ASTM STD.)										TENSION TEST (MIN.) (ASTM)				HARDNESS (HB)	CHARPY
			C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	T.S (MPa)	Y.P (MPa)	EL. %	R.A %		
STANDARD	A352 LCC	Min. Max.	0.250	0.600	1.200	0.040	0.045	0.500	0.500	0.200	0.300	0.030	485	275	22.0	35.0	Min±16J	
												555					Avg±20J	
DF-01-306-180901-12	BODY	LDRAC	0.210	0.420	0.960	0.008	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160	46-38-32
	BONNET	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160	46-38-32
	WEDGE/DISC	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160	46-38-32



REMARKS : IN ACCORDANCE WITH EN 10204.3.1
HEAT TREATMENT: LCC QUENCHED; 930°C X 3HR(W.C)+TEMPERED 700°C X 3HR(A.C)
TO NACE MR0103

Manager, Q.A Department
Witness Inspector
Jane
ALEX

Valve design and construction is in accordance with API 600, ASME B16.34
Products supplied are in compliance with the requirements of the purchase order



MATERIAL TEST REPORT

(CHEMICAL, PHYSICAL & HYDROSTATIC)

Beric-Davis Companies International, Ltd.
 6059 South Loop East
 Houston, TX 77087
 Phone: 713 673-2073
 Fax: 713 673-4641

DATE : FEB.6.2018
 ARTICLE : 8 GATE VALVE RF 300 TRIM 12
 FIGURE NO. : 103-08-RF-AH12-H-N

TAG NO.: 103-08-RF-AH12-H-N
 Q'ty: 1 Pcs

SIZE: NPS 8 Class Rating: 300

PARTS NAME	Body (BD)	Bonnet (BN)	Wedge/Disc (WD/DS)	Body Seat Ring	Stem
MATERIAL	A352 LCC	A352 LCC	A352 LCC+316	LF2+HF	F316

INSPECTION	DIMENSION INSPECTION						PRESSURE TEST (ASME B16.34 & API 598)			VISUAL TEST
	Face to Face (End to End)	Flange Diameter	Bolt Circle	Dia. Of Raised Face	Flange Thickness	No. of Bolt Hole	Bolt Hole Diameter	SHELL (PSIG)	SEAT(AIR) (PSIG)	
STANDARD	419±1.6	381	330	270	42	12	25	1125	80	825
RESULT	※ W.T	W.T	W.T	W.T	W.T	W.T	W.T	GOOD	GOOD	GOOD

※ W.T : Within Tolerance

SERIAL NO. BATCH	PARTS	HEAT NUMBER	CHEMICAL COMPOSITION (%) (ASTM STD.)										TENSION TEST(MIN.) (ASTM)				HARDNESS (HB)	CHARPY					
			C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	T.S (MPa)	Y.P (MPa)	EL %	R.A %							
	A352 LCC	Min. Max.	0.250	0.600	1.200	0.040	0.045	0.500	0.500	0.200						485	275	22.0	35.0		237	Min≥16J Avg≥20J	
DF-01-105-180206-12	BODY	HCNNC 0.181	0.399	0.999	0.021	0.011	0.005	0.047	0.014	0.021	0.007					612	435	31.0	61.0		172	36-40-39	
	BONNET	HCNNC 0.181	0.399	0.999	0.021	0.011	0.005	0.047	0.014	0.021	0.007					612	435	31.0	61.0		172	36-40-39	
	WEDGE/DISC	HCNNC 0.181	0.399	0.999	0.021	0.011	0.005	0.047	0.014	0.021	0.007					612	435	31.0	61.0		172	36-40-39	

BLANK

REMARKS : IN ACCORDANCE WITH EN 10204.3.1
 HEAT TREATMENT: LCC QUENCHED; 930°C X 3HR(W.C)+TEMPERED 700°C X 3HR(A.C)
 TO NACE MR0103

Manager, Q.A Department
 Witness Inspector
Jane
A-S-EX

Valve design and construction is in accordance with API 600, ASME B16.34
 Products supplied are in compliance with the requirements of the purchase order

MATERIAL TEST REPORT

(CHEMICAL, PHYSICAL & HYDROSTATIC)

Beric-Davis Companies International, Ltd.
 6059 South Loop East
 Houston, TX 77087
 Phone: 713 673-2073
 Fax: 713 673-4641



BERIC

DATE : SEP.1.2018
 ARTICLE : 6 GATE VALVE RF-150 TRIM 12
 FIGURE NO. : 101-06-RF-AH12-H-N
 SERIAL NO. : DF-01-247-180901-12

TAG NO.: 101-06-RF-AH12-H-N
 Class Rating: 150
 Q'ty: 1 Pcs

PARTS NAME		Body (BD)	Bonnet (BN)	Wedge/Disc (WD/DS)	Body Seat Ring	Stem													
MATERIAL		A352 LCC	A352 LCC	A352 LCC+316	A350 LF2+HF	A182 F316													
DIMENSION INSPECTION (mm)																			
INSPECTION	Face to Face (End to End)	Flange Diameter	Bolt Circle	Dia. Of Raised Face	Flange Thickness	No. of Bolt Hole													
	STANDARD	267±1.6	241.5	216	26	8													
RESULT	※ W.T	W.T	W.T	W.T	W.T	W.T													
PRESSURE TEST (ASME B16.34 & API 598)																			
		SHELL (PSIG)	SEAT(AIR) (PSIG)	BACK SEAT (PSIG)	VISUAL TEST														
		450	80	315	MSS-SP-55														
		GOOD	GOOD	GOOD	GOOD														
TENSION TEST(MIN.) (ASTM)																			
SERIAL NO. BATCH	PARTS	HEAT NUMBER	CHEMICAL COMPOSITION (%) (ASTM STD.)																
			T.S (MPa)	Y.P (MPa)	EL. %	R.A %	HARDNESS (HB)												
STANDARD	A352 LCC	Min. Max.	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	T.S (MPa)	Y.P (MPa)	EL. %	R.A %	HARDNESS (HB)		
			0.250	0.600	1.200	0.040	0.045	0.500	0.500	0.200	0.300	0.030	485	275	22.0	35.0	237		Min±16J
DF-01-247-180901-12	BODY	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160		46-38-32
	BONNET	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160		46-38-32
	WEDGE/DISC	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160		46-38-32
BLANK																			

※ W.T. : Within Tolerance

REMARKS : IN ACCORDANCE WITH EN 10204.3.1
 HEAT TREATMENT; LCC QUENCHED; 930°C X 3HR(W.C.)+TEMPERED 700°C X 3HR(A.C)
 TO NACE MR0103

Manager, Q.A. Department *Jane*
 Witness Inspector *ALEX*

Valve design and construction is in accordance with API 600, ASME B16.34
 Products supplied are in compliance with the requirements of the purchase order



MATERIAL TEST REPORT

(CHEMICAL, PHYSICAL & HYDROSTATIC)

Beric-Davis Companies International, Ltd.
6059 South Loop East
Houston, TX 77087
Phone: 713 673-2073
Fax: 713 673-4641



DATE : SEP.1.2018
ARTICLE : 8 GATE VALVE RF 150 TRIM 12
FIGURE NO. : 101-08-RF-AH12-H-N
SERIAL NO. : DF-01-250-180901-12

TAG NO. : 101-08-RF-AH12-H-N
Class Rating: 150 Q'ty: 1 Pcs

PARTS NAME	Body (BD)	Bonnet (BN)	Wedge/Disc (WD/DS)	Body Seat Ring	Stem
MATERIAL	A352 LCC	A352 LCC	A352 LCC+316	A350 LF2+HF	A182 F316

INSPECTION	DIMENSION INSPECTION										PRESSURE TEST (ASME B16.34 & API 598)	VISUAL TEST
	Face to Face (End to End)	Flange Diameter	Bolt Circle	Dia. Of Raised Face	Flange Thickness	No. of Bolt Hole	Bolt Hole Diameter	Shell (PSIG)	SEAT(Air) (PSIG)	BACK SEAT (PSIG)		
STANDARD	292±1.6	343	298.5	270	29	8	22	450	80	315	315	MSS-SP-55
RESULT	※ W.T	W.T	W.T	W.T	W.T	W.T	W.T	GOOD	GOOD	GOOD	GOOD	GOOD

※ W.T : Within Tolerance

SERIAL NO. BATCH	PARTS	HEAT NUMBER	CHEMICAL COMPOSITION (%) (ASTM STD.)										TENSION TEST (MIN.) (ASTM)				HARDNESS (HB)	CHARPY
			C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	T.S (MPa)	Y.P (MPa)	EL. (%)	R.A (%)		
STANDARD	A352 LCC	Min. Max.	0.250	0.600	1.200	0.040	0.045	0.500	0.500	0.200	0.300	0.030	485	275	22.0	35.0	Min±16J	Avg±20J
DF-01-250-180901-12	BODY	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160	46-38-32
	BONNET	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160	46-38-32
	WEDGE/DISC	LDRAC	0.210	0.420	0.960	0.006	0.013	0.015	0.060	0.010	0.010	0.001	563	352	29.0	53.0	160	46-38-32

BLANK

REMARKS : IN ACCORDANCE WITH EN 10204.3.1
HEAT TREATMENT: LCC QUENCHED; 930°C X 3HR(W.C)+TEMPERED 700°C X 3HR(A.C)
TO NACE MR0103

Manager, Q.A. Department
Witness Inspector
Jane
A-L-EX

Valve design and construction is in accordance with API 600, ASME B16.34
Products supplied are in compliance with the requirements of the purchase order



HEAT / SERIAL NUMBER RECORD

M. A. Stewart & Sons Ltd.
VALVES AND FITTINGS

(FORM 4.15.4A)

COMPANY; Emco / Equipment - Kn (for ABE mines)

PAGE; 1 OF 1

BRANCH; Rouyn - Noranda, Q.C.

MAS SALES REGISTER; 1436324

ATTN; Richard Knight

DATE June 10 / 19

PO# 26/0090 - 00

4						
5	1	8" Powell 3003FK	C5CL54	C5CL54	7F19226	
6		86XXX				
7						
19						
20						
21						
22						
23						
24						
25						

FAX STAMP

Willard E. Kinter Jr.

Quality Manager

THE WM. POWELL COMPANY

Form F. 10.6 2/23/11

WE CERTIFY THAT THE ABOVE PRODUCT(S) CONFORM TO THE APPLICABLE REQUIREMENTS OF THE PURCHASE ORDER.
THESE RESULTS ARE IN ACCORDANCE WITH EN 10204 TYPE 3.1. <http://www.powellvalves.com>

CERTIFIED TO ISO 9001 QUALITY STANDARDS



Apollo Valves

Division of Conbraco Industries
 Conway, SC 29526
 FAX: 843/347-1773
 PHONE: 843/347-4666



MLTS_6056-18735
 Cert# BV APOLLO

MATERIAL TEST REPORT

We certify that the below listed components were manufactured, tested, and inspected in accordance with the requirements of the procurement documents as stated.

Model Number: 831
 Size: 2"
 Quantity: 8
 Material Specification: ASTM A352-18 LCC(LCC)

Customer Name: Masdom LTD
 Customer Order Number: 19503
 Valve Part Number: 83L-248-24
 User Tag Number: B36652

Heat Code	C	Mn	P	S	Si	Cr	Ni	Mo	Cu	V	Cb	TENSILE		%ELO 2"	%RA	HARDNES S (RB unless noted)
												PSI	YIELD PSI			
AX	0.1965	1.3639	0.0109	0.0128	0.2577	0.1313	0.0341	0.0134	0.0443	0.0027		81002	54270	25	74	80
BW	0.1901	1.3903	0.0123	0.0138	0.3772	0.064	0.0364	0.0047	0.0433	0.0025		79634	53506	30	65	77
HU	0.197	1.34	0.014	0.008	0.334	0.061	0.038	0.012	0.115	0.003		83872	54730	31	67	81
KW	0.2085	1.314	0.0139	0.0115	0.2952	0.0273	0.0216	0.0052	0.0327	0.0023	0	77629	52937	27	70	79

Charpy Impact Test: Conducted in accordance with ASTM A370 Sections 19 Through 20. Standard full size test specimen.

Test Temperature: -50F	Heat Code	Average of 3 Test	Test 1	Test 2	Test 3
	AX	36.52	32.95	29.95	46.67
	BW	20.5333	20	20.4	21.2
	HU	21.4667	23.2	20.8	20.4
	KW	22.8667	22.8	23.6	22.2

TESTING PROCEDURE: All Apollo Valves are 100% tested in accordance with their standard of construction. Valves designed to the requirements of ASME B16.34 are tested to meet or exceed the requirements of

We certify that the above listed components meet the requirements of the procurement documents as stated.
This material certificate complies with EN 10204-2004 Type 3.1 (formerly Type F3.1.B).

The above listed information is certified to be true and accurate to the best of my knowledge and belief.

Date: 08/01/19

Signed:



Steve Causey
Quality Assurance Manager



Apollo Valves
 Division of Conbraco Industries
 Conway, SC 29526
 FAX: 843/347-1773
 PHONE: 843/347-4666



MATERIAL TEST REPORT

We certify that the below listed components were manufactured, tested, and inspected in accordance with the requirements of the procurement documents as stated.

Model Number: 831
 Size: 1"
 Quantity: 8
 Material Specification: ASTM A352-18 LCC(LCC)

Customer Name: Masdom LTD
 Customer Order Number: 19503
 Valve Part Number: 83L-245-24
 User Tag Number: B36652

Heat Code	C	Mn	P	S	Si	Cr	Ni	Mo	Cu	V	Cb	TENSILE		%ELO 2"	%RA	HARDNES S (RB unless noted)
												PSI	YIELD PSI			
AX	0.1965	1.3639	0.0109	0.0128	0.2577	0.1313	0.0341	0.0134	0.0443	0.0027		81002	54270	25	74	80
KW	0.2085	1.314	0.0139	0.0115	0.2952	0.0273	0.0216	0.0052	0.0327	0.0023	0	77629	52937	27	70	79
LW	0.1848	1.3624	0.0111	0.002	0.2961	0.1055	0.0326	0.0114	0.0266	0.0021		77277	50671	27.2	71.7	79

Charpy Impact Test: Conducted in accordance with ASTM A370 Sections 19 Through 20. Standard full size test specimen.

Test Temperature: -50F	Heat Code	Average of 3 Test	Test 1	Test 2	Test 3
	AX	36.52	32.95	29.95	46.67
	KW	22.8667	22.8	23.6	22.2
	LW	25.6	20	21.1	35.7

TESTING PROCEDURE: All Apollo Valves are 100% tested in accordance with their standard of construction. Valves designed to the requirements of ASME B16.34 are tested to meet or exceed the requirements of API 598, ASME B16.34, MSS SP-61 and MSS SP-72. Valves designed to the requirements of MSS SP-110, are tested to meet or exceed the requirements of MSS SP-110. Specification sheets are available at www.apollovalves.com.

We certify that the above listed components meet the requirements of the procurement documents as stated.
 This material certificate complies with EN 10204-2004 Type 3.1 (formerly Type F3.1.B).

Date: 08/01/19
 Signed:

The above listed information is certified to be true and accurate to the best of my knowledge and belief.



Steve Causey
Quality Assurance Manager

Certificate of Compliance (QC-02)

FARRIS ENGINEERING
DIV. OF CURTISS-WRIGHT FCC
10195 BRECKSVILLE RD
BRECKSVILLE OH 44141
UNITED STATES

Date: 07/10/2019

**MLTS_6056-18735
Cert# PRV FARRIS**

Sales Order No.: 1SL047059

Customer:

Customer Order No.: 00026111

CRN No.: CSA-0G11969.5CL

Line	Tag Number	Model Number	Serial Number
1		27EA34-M20	942333-1-KE
1		27EA34-M20	942333-2-KE
1		27EA34-M20	942333-3-KE
1		27EA34-M20	942333-4-KE

We hereby certify that the valve(s) indicated above have been designed, manufactured and tested in accordance with ASME Section VIII, Division 1 by Curtiss-Wright Flow Control Corp.- Farris Engineering in accordance with the company's Quality Control Program. The Brecksville Facility's Quality Control Program is registered to ISO 9001:2015, Certificate Identity No. 10076249. We hereby certify that they were produced in conformance with the contract and Farris Worldwide Quality Manual Revision N, dated 13-Sep-18.

The representative signing the document states that the above information is correct and true.

Anthony Korinek



Certified Individual

Date:07/10/2019

Material Test Reports (QC-04)

FARRIS ENGINEERING
DIV. OF CURTISS-WRIGHT FCC
10195 BRECKSVILLE RD
BRECKSVILLE OH 44141
UNITED STATES

Sales Order No.: 1SL047059 Line No.: 1 Qty: 4
Customer:
Customer Order No.: 00026111
Model No.: 27EA34-M20
Serial No.: 942333-1-KE, 942333-2-KE, 942333-3-KE, 942333-4-KE
Tag No.:

Serial No.	Component	Item Number	Lot Number	Material Description
942333-1-KE	BODY 1 X 1/2 MNPT 2700	325737X1-010	872-0118	ASME SA-479 316SS
942333-1-KE	DISC 2700	325742-010	900758	ASME SA-479 316SS
942333-1-KE	BONNET 2700	326076X2-023	640G	ASME SA-216 WCB
942333-2-KE	BODY 1 X 1/2 MNPT 2700	325737X1-010	872-0118	ASME SA-479 316SS
942333-2-KE	DISC 2700	325742-010	900758	ASME SA-479 316SS
942333-2-KE	BONNET 2700	326076X2-023	640G	ASME SA-216 WCB
942333-3-KE	BODY 1 X 1/2 MNPT 2700	325737X1-010	872-0118	ASME SA-479 316SS
942333-3-KE	DISC 2700	325742-010	900758	ASME SA-479 316SS
942333-3-KE	BONNET 2700	326076X2-023	640G	ASME SA-216 WCB
942333-4-KE	BODY 1 X 1/2 MNPT 2700	325737X1-010	872-0118	ASME SA-479 316SS
942333-4-KE	DISC 2700	325742-010	900758	ASME SA-479 316SS
942333-4-KE	BONNET 2700	326076X2-023	640G	ASME SA-216 WCB

Note: Traceability of individual parts to their NDE and special process reports is maintained through Lot Codes created by serializing the lot number shown on the material manufacturer's Material Test Report.

产品质量证明书 INSPECTION CERTIFICATE

---EN10204 3.1

TJ8868

江阴市不锈钢材料厂JIANGYINSHI STAINLESS STEEL MATERIAL FACTORY
 地址：中国江苏省江阴市周庄镇路口桥
 Add: Lukouqiao Zhouzhuang Town JiangYin JiangSu China
 TEL:(0510)86236681 FAX:(0510)86905200

收货单位：成飞机械
 执行标准：ASME SA479 2015
 合同号：7969
 编号：20180901

SOLD TO: Curtisswirth (Tianjin) Flow Control CO.,LTD
 CONTRACT NO: Serial number:

序号 No	钢号 Grade	规格 Size	冶炼炉号 Heat No.	支数 Bundles	重量 Weight (kg)	化学成分 Chemical Composition (%)							
						C	Si	Mn	P	S	Cr	Mo	Ni
1	316/316L	φ78	872-0118	9	1120	≤0.030	≤1.00	≤2.00	≤0.045	≤0.030	16.00-18.00	2.00-3.00	10.00-14.00
2	316/316L	φ72	872-0117	18	2176	0.03	0.4	1.76	0.034	0.025	16.52	2.07	10.2
3	316/316L	φ72	872-0117	9	1075	0.026	0.4	1.74	0.034	0.02	16.64	2.05	10.14
4	316/316L	φ50.8	872-0118	15	1093	0.026	0.4	1.74	0.034	0.02	16.64	2.05	10.14
5	316/316L	φ50.8	872-0118	9	984	0.03	0.4	1.76	0.034	0.025	16.52	2.07	10.2
5	316/316L	φ50.8	872-0118	9	984	0.03	0.4	1.76	0.034	0.025	16.52	2.07	10.2

机械性能: Mechanical Properties

序号 No	热处理炉号 Heat treatment furnace no.	热处理状态Heat treatment condition	抗拉强度 Tensile Strength Rm (Mpa) ≥ 515	屈服强度 Yield Strength Rp0.2(Mpa) ≥ 205	伸长率 Elongation A (%) ≥ 30	断面收缩率 Reduction of Area Z (%) ≥ 40	冲击试验Impact charty		硬度 HardnessHB ≤ 189	交货状态 The delivery status
							Individual Kv2(J) ≥ 41	Average 均功		
1	180326-1		587	310	58	80	APPROVED 2018-11-30 FARRIS ENGINEERING QUALITY CONTROL BY QC 04		161	光亮Bright
2	180326-1	固溶处理 Solution treatme	592	311	56	78			163	
3	180315-1		595	314	55	76			164	
4	180407-1		590	312	57	79			162	
5	180407-1		590	312	57	79			162	

说明: 1.有异议时, 来函请标明钢号、炉号、规格、发货日期、原因, 并将实物保管好。

Notes: (1) When there is any complain, you are kindly requested to mark the Steel Grade, Heat No., Size, Delivery Date, Causes and reserve the materials in the condition

备注: Heat treatment: Solution treatment :1900°F, 1hours minimum, rapidly cooled to below 90°F.
 The material supplied meets the requirements of the current versions of NACE MR0103 and MR0175/ISO 15156, 提供的材料符合NACE MR0103 and MR0175/ISO15156标准要求

热处理: 固溶处理: 1040℃最少1小时保温, 出炉急冷到32℃以下。

签发日期: 2018/9/10

制单: 卞玉霞
Principal

审核: [Signature]

examine and verify

质量部盖章有效

Stamp of Department of Quality Assurance

质量检验章



福建省明溪县长虹精密铸钢有限公司
Fujian Mingxi Changhong Precision
Steel Casting Co., Ltd.
Address: Pingpu industrial Park Mingxi
county, Fujian, China. Tel: 0598-2866208, Fax: 0598-
2867736

材料质量证明书
Material Inspection

EN 10204 3.1



CHHJZ

TJ9105
Customer: Curtiss-wright Flow Control
Farris Engineering

Address: No. 3 Quanhui Road, Wuqing Development
Area, Tianjin China. Tel: 86-22-82166100, Fax: 86-22-
82166160

证书编号 Cert. No.: 201901085

No.	产品名称 Product	零件号 Part No.	执行标准 Product Std.	材质 Material	数量 Quantity	炉号 Heat No.	订单号 Order No.
1	Bonnet	326076X2-023	ASME SA216-2015	WCB	12	637G	6PR002478
2	Bonnet	326076X2-023	ASME SA216-2015	WCB	10	638G	6PR002478
3	Bonnet	326076X2-023	ASME SA216-2015	WCB	10	639G	6PR002478
4	Bonnet	326076X2-023	ASME SA216-2015	WCB	25	640G	6PR002478
5	Bonnet	326076X2-023	ASME SA216-2015	WCB	22	641G	6PR002478
6	Bonnet	326076X2-023	ASME SA216-2015	WCB	17	642G	6PR002478/2480
7	Bonnet	326076X2-023	ASME SA216-2015	WCB	20	752G	6PR002480

化学成分 Chemical Compositions

Spec.	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V	N
标准值	≤0.3	≤0.6	≤1.0	≤0.04	≤0.045	≤0.5	≤0.5	≤0.2	≤0.3	≤0.03	
637G	0.222	0.197	0.772	0.017	0.007	0.071	0.024	0.004	0.011	0.001	
638G	0.213	0.210	0.703	0.020	0.008	0.071	0.017	0.002	0.010	0.002	
639G	0.215	0.212	0.703	0.020	0.008	0.071	0.017	0.002	0.010	0.001	
640G	0.261	0.204	0.672	0.022	0.008	0.099	0.026	0.003	0.011	0.002	
641G	0.212	0.230	0.675	0.018	0.006	0.096	0.030	0.003	0.011	0.002	
642G	0.212	0.229	0.677	0.019	0.006	0.096	0.029	0.003	0.011	0.002	
752G	0.220	0.218	0.689	0.021	0.006	0.057	0.030	0.004	0.011	0.002	

	抗拉强度 Tensile	屈服强度 Yield	延伸率 Elongation	断面收缩率 Reduction	冲击功 Charpy Impact Test (J)			硬度 Hardness
Spec.	Strength	Strength	%	%	Temp. °C	Average	Individual	HB
标准值	485-655	≥250	≥22	≥35	-29	≥27J	≥19J	≥19
637G	550	360	37	60				159
638G	553	350	36	62				158
639G	555	363	36	60				157
640G	546	357	38	59				156
641G	549	352	37	61				156
642G	549	348	36	60				153
752G	537	361	35	63				158

热处理 Heat Treatment

序号 No.	热处理炉号 Heat Lot.	浇注炉号 Heat No.	入炉时间 Charging time	入炉温度 Charging Temp.	到温时间 Start Time	到温温度 Hold Temp.	出炉时间 Finished Time	出炉温度 Finish Temp.	保温时间 H Soak time (H)	冷却方式 Cooling
1	181030-1	637G	7:25	413	9:20	905	11:20	907	2:00	Air空气
2	181030-1	638G	7:25	413	9:20	905	11:20	907	2:00	Air空气
3	181030-1	639G	7:25	413	9:20	905	11:20	907	2:00	Air空气
4	181108-1	640G	7:16	520	9:00	902	11:00	906	2:00	Air空气
5	181106-1	641G	8:00	368	10:00	901	12:00	905	2:00	Air空气
6	181106-1	642G	8:00	368	10:00	901	12:00	905	2:00	Air空气
7	180830-1	752G	7:25	425	9:20	908	11:20	910	2:00	Air空气

其他信息 Other Informations

序号 No.	外观尺寸检查 Visual & Dimension	无损探伤 NDT MT/PT UT RT			交货状态 Delivery Condition
1	OK	OK			正火状态 Normalized

1. We hereby certify that the materials described herein have been manufactured, inspected and tested in accordance with the customer's specification(s), and that they satisfy the requirements. APPROVE!
2. All of casting visual inspection according to MSS-SP-55.
3. The material supplied meets the requirements of the current version of NACE MR0103 and MR0175/ISO 15156.

编制 Prepared By:
谢海荣 2019-1-25

审批 Approved By: 2019-01-30
易娟 2019-1-25 FARRIS ENGINEERING
QUALITY CONTROL
BY QC 03

MILL TEST CERTIFICATE

Basauri Plant

ISO 9001; ISO-TS 16949; ISO 14001 Y OHSAS 18001



7722

Product Made in Spain

CUSTOMER: MAGELLAN CORPORATION	WORKS REFERENCE: 1910594
REFERENCE: 211222	SALES ORDER: 299090-2
PRODUCT NR:	HEAT NUMBER: 900758
	ROLLED: 04.01.2017
	MASTER REFERENCE: 215719

REQUIRED PRODUCT			
AISI316/316L ROUND BARS TURNED SOLUTION ANNEALED 0.8750" SPECIFICATION'S TOLERANCE 12'-12'2" NORMAL			
EXPEDITION	DELIVERY: 0080571873	WEIGHT (KG): 4.614	BUNDLES: 6
			UNITS: 400

MADE ACCORDING TO
AISI STAINLESS STEELS - 01.03.1999; ASME SA182-SA182M SECTION II, PART A -2015
ASME SA193-SA193M/SECTION II, PART A -2015; ASME SA320-SA320M/SECTION II, PART A 20132013
ASME SA479-SA479M SECTION II, PART A -2015; ASTM A182-A182M 2015 01.06.2015
ASTM A193-A193M 2015 01.06.2015; ASTM A276/A276M 15 01.01.2015; ASTM A314 2015 15.07.2015
ASTM A320-A320M 2015 01.05.2015; ASTM A370 2014 15.05.2014; ASTM A473 13 01.11.2013
ASTM A479-A479M 2015 15.07.2015; ASTM A484-A484M 15 01.03.2015; ASTM A751 2014 01.03.2014
EN 10204 :2004 OCT. 2004 3.1; MAGELLAN MIC 1751 AMD12.3 21.12.2016
MAGELLAN MIC 1751 SUPP AISI316/AISI316L - 24.06.2015; NACE MR0103-2005 - 2005
NACE MR0175/ISO 15156-1 3* EDICION 23.11.2015; NACE MR0175/ISO 15156-3 3* EDICION 23.11.2015
SAE AMS 5648 L . .09.2012; SAE AMS 5653 H . . 11.2012; SAE AMS-QQ-S-763 D 03.2015

CHEMICAL ANALYSIS OF HEAT										U:% HEAT NUMBER: 900758		
	C	Mn	Si	P	S	Cr	Ni	Mo	V	W	Co	
Min.		1,250			0,020	16,500	10,000	2,000				
Max.	0,030	2,000	0,750	0,040	0,030	18,000	13,000	2,500	0,100	0,100	0,3000	
cer.	0,015	1,490	0,488	0,026	0,025	16,700	10,120	2,030	0,060	0,082	0,2280	
	Cu	Al	Ti	Nb	N							
Min.												
Max.	0,750	0,100	0,1000	0,1000	0,1000							
cer.	0,337	0,006	0,0050	0,0160	0,0730							

INCLUSIONS (MICROINCLUSIONS)
Standard (ASTM E45 20132013); Type/method(A); A(t):2,5; A(h):1; B(t):0,5; B(h):0,5; C(t):1,5
C(h):1; D(t):0,5; D(h):0,5

MECHANICAL PROPERTIES AS SUPPLIED (TEST)
Sample: Supply section (bar prolongation); Specimen Test location: Nucleus
Standard(1) (ASTM A370 2014 15.05.2014); Standard(2) (ASTM E8/E8M 2015A 15.05.2015)
Tensile direction: Longitudinal; Tensile test Temp. (Room temperature): Room temperature
Ts(83.000/120.000PSI): 98.605PSI; Ys(0,2% >=30.000PSI): 0,2% 44.089PSI; El.(2" >=40%): 2" 57,2%
Z(>=50%): 74,9%; Standard (ASTM E23 07-AE1 2007)
Notch impact direction: Longitudinal; Notch Impact sample type (CHARPY-V): CHARPY-V
Notch Impact Temp. (68°F): 68°F; K(1): 203Ft.Lb; K(2): 206Ft.Lb; K(3): 205Ft.Lb; K (average): 204,67
K (single) (>=75Ft.Lb): 203Ft.Lb; Hardness Standard(1) (ASTM A370 2014 15.05.2014)
Hardness Standard(2) (ASTM E10 2015 01.05.2015)
Surface hardness (of the bar 140/223HB): of the bar 208HB
Hardness at (at 1/2 radius of the bar 140/223HB): at 1/2 radius of the bar 162HB

ADDITIONAL TESTS
Standard (ASTM A262 - 01.07.2014); Type / Method (Practice E): Practice E
Standard (ASTM E112 2013 01.10.2013); Grain size: Austenitic 6; Standard (ASTM E381 2001 R2006)
macroetching(1): S 1; macroetching(2): R 1; macroetching(3): C 1; Intercrystalline Corrosion: O.K.

APPROVED
PARRIS ENGINEERING - QUALITY CONTROL

NOV. 14 2018

BY: N° 1005557

JH 7722



MILL TEST CERTIFICATE

Basauri Plant

ISO 9001; ISO-TS 16949; ISO 14001 Y OHSAS 18001



Product Made in Spain

CUSTOMER: MAGELLAN CORPORATION	WORKS REFERENCE: 1910594
REFERENCE: 211222	SALES ORDER: 299090-2
PRODUCT NR:	HEAT NUMBER: 900758
MASTER REFERENCE: 215719	ROLLED: 04.01.2017

NON DESTRUCTIVE TESTS	
U.T. standard(1) (ASTM A388-A388M 2015 15.07.2015); U.T. type/method(1) (FBH)	
U.T. standard(2) (API SPEC 6A 20*ED.+ER1&2+AD12.3 . .03.2013); U.T. type/method(2) (PSL3)	
U.T. standard(3) (ISO 10423 4*ED.2009 15.12.2009); U.T. type/method(3) (PSL3)	
ULTRASONIC INSPECTION 100% : O.K. (1) =<1,5 mm.(according to Suplem.1 ASTM A388)	
ULTRASONIC INSPECTION 100% : O.K. (2) according to: API 6A/ISO-10423 "PSL3"	
ULTRASONIC INSPECTION 100% : O.K. (3); CRACKS CONTROL 100% : O.K.	

ADDITIONAL INFORMATION	
Reduction ratio:49,7; "Macrostructure: Satisfactory"	
Ultrasonic Inspection Results ("ASTM A388: Satisfactory"); DFARS Compliant	
HEAT MELTED AT OUTOKUMPU (UK) AND PROCESSED AT SIDENOR (SPAIN); RoHS Compliant	
Material Cold Finished, Peeled and Reeled; CONTINUOUS CASTING 150 X 150 mm.	
SOLUTION ANNEALED at 1922*F - IN AIR; . ; .	

Material manufactured through the Electric Arc Furnace and AOD.
 Steel not exposed to Mercury, or to any other metal alloy that is liquid, at ambient temperatures during processing or while in Sideror's possession.
 Steel is free from Uranium or any other harmful radioactive contamination.
 Steel products were not repaired by welding.
 100% anti mix test: performed by spectrometry.

APPROVED
 FARRIS ENGINEERING - QUALITY CONTROL

NOV 14 2018

BY 1005557

JH7722

TECHNOLOGY & QUALITY CERTIFIES THAT THE PRODUCT FULL FILLS THE ORDER'S SPECIFICATIONS	
APPROVED BY: ALBERTO CUBERO ZABALA	SIGN:
DATE: 21.02.2017	Analyst of Quality Certificates
REF.: 100249420000	





M.A. Stewart & Sons Ltd.

PICK TICKET

**MAS Edmonton Branch
1315473**

PICK DATE	PICK TICKET	ORDER NUMBER
8/20/2019	1315473	1452662

SHIP TO NO	CUSTOMER NO	PAGE
103449	103449	1 of 1

PICKED BY: <i>[Signature]</i>	CHECKED BY:
-------------------------------	-------------

MTR'S WHEN APPLICABLE

SOLD TO
EMCO LTD WESTLUND (261) ROUYN-NORANDA
PO BOX 5300 STN A
WESTLUND
LONDON, ON N6A 4N7
CANADA

*EX EDM
MTC*

SHIP TO
ABF MINES CANADA INC. (2985080)
1310 AVE DAVY
ROUYN-NORANDA, QC J9Y 0A8
CANADA

Ordered By: Chantal Gregoire

ORDER DATE	CUSTOMER PO / ORDER NUMBER	CARRIER		TAKER
8/20/2019	DO2610173-00	Purolator		ANDREN
Delivery / Quick Notes		QTY	Item	Box ID Skid ID

Delivery Instructions: EX: EDMONTON / PUROLATOR # 7334590

<i>18 FF</i>	<i>4</i> EA	014-53208 MAS LSSF3-HDFS-N 1 3000WOG FP LCC IP 3PC FS NACE BALL
<i>18 FF 185K</i>	<i>1</i> EA	014-53214 MAS LSSF3-HDFS-N 2 2000WOG FP LCC IP 3PC FS NACE BALL

Total Lines: 2
Total Pieces: 5
Total Weight: 32.891

Total Skids / Boxes:	Shipment Weight:
----------------------	------------------

MLTS_6056-18953
Cert# BV MAS

260

JY VALVE & MFG. CO., LTD.

(Qianguo Village,Huangtang Town)Chengxi Taiwanese Business Base
Huian County,Quanzhou,Fujian,China 362101
TEL : (0595) 2730-1335 FAX : (0595) 2730-1336

MESSRS.: M. A. STEWART & SONS LTD.

DELIVER TO: VANCOUVER

SHEET NO.: LSSF3HDFSN-F181206-1

P.O. NO. #1011686

DATE : DEC. 26, 2018

CERTIFICATE OF COMPLIANCE

WE, JY VALVE & MFG. CO., LTD. HEREBY CERTIFY THAT OUR PRODUCTS AS SHOWN ON DRAWINGS OF OUR MODEL LSSF3-HDFS-N ARE MANUFACTURED, INSPECTED AND TESTED FULLY IN ACCORDANCE WITH THE FOLLOWING STANDARDS:

PRESSURE-TEMPERATURE RATING	1/4" TO 1"	3000 PSIG @100°F
	1-1/4" TO 2"	2000 PSIG @100°F
	2-1/2" TO 3"	1000 PSIG @100°F
BODY & CAP	ASTM A352-LCC	
SEAT MATERIAL	R-PTFE	
VALVE TESTING	API 598 ※	
FIRE TEST STANDARD	API 607 5TH EDITION	
END CONNECTION	NPT THREADS TO ANSI B1.20.1	

※ HIGH PRESSURE SHELL TEST AND LOW PRESSURE SEAT TEST ARE PERFORMED 100%.

- NACE MR-0175-2002 AND MR-0103 COMPLIANCE

JY VALVE & MFG. CO., LTD.



CHARLES CHAN, PRESIDENT

MATERIAL TEST RESULTS

MESSRS. : M. A. STEWART & SONS LTD.
 TO : VANCOUVER
 P.O. NO. : #1011686

SHEET NO. : LSSF3HDFSN-F181206-3
 EXPORT NO : F181206
 DATE : DEC. 26, 2018

VALVE MODEL : LSSF3-HDFS-N
 3000/2000/1000 WOG BALL VALVE
 REVIEWED BY : QUAN ZHOU JING YING VALVE CO., LTD.

SIZE : 1"
 MATERIAL: ASTM-A352 GRADE LCC



JASON HUANG, QC MANAGER
 JY VALVE & MFG. CO., LTD.

CHEMICAL REQUIREMENT (%)												
ELEMENT	C	Si	Mn	P	S	Ni	Cr	Mo	V			
SPEC (MAX.)	0.250	0.600	1.200	0.040	0.045	0.500	0.500	0.200	0.030			
Production No	B For each reduction of 0.01%, below the specified maximum carbon content, an increase of 0.04% Mn above the specified maximum will be permitted up to a maximum of 1.28%											
18FF	0.2010	0.4400	0.6900	0.0150	0.0048	0.3230	0.4000	0.0740	0.0120			
TENSILE REQUIREMENTS		Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)	Reduction of area (%)	Hardness (HB)	Charpy V-Notch Energy value					
Production No	Parts Name	485 - 655	Min. 275	Min. 22	Min. 35	Max. 187	Min. 20					
18FF	BODY & CAP	524	288	36	45	160	52					
Heat treatment	NORMALIZED @890 DEGREE C - 1H AIR COOLING AND TEMPERED											

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.

JY VALVE & MFG. CO., LTD.

(Qianguo Village,Huangtang Town)Chengxi Taiwanese Business Base
Huian County,Quanzhou,Fujian,China 362101
TEL : (0595) 2730-1335 FAX : (0595) 2730-1336

MESSRS.: M. A. STEWART & SONS LTD.

DELIVER TO: VANCOUVER

SHEET NO.: LSSF3HDFSN-F190403-1

P.O. NO. #1011686

DATE : APR. 24, 2019

CERTIFICATE OF COMPLIANCE

WE, JY VALVE & MFG. CO., LTD. HEREBY CERTIFY THAT OUR PRODUCTS AS SHOWN ON DRAWINGS OF OUR MODEL LSSF3-HDFS-N ARE MANUFACTURED, INSPECTED AND TESTED FULLY IN ACCORDANCE WITH THE FOLLOWING STANDARDS:

PRESSURE-TEMPERATURE RATING	1/4" TO 1"	3000 PSIG @100°F
	1-1/4" TO 2"	2000 PSIG @100°F
	2-1/2" TO 3"	1000 PSIG @100°F
BODY & CAP	ASTM A352-LCC	
SEAT MATERIAL	R-PTFE	
VALVE TESTING	API 598 ※	
FIRE TEST STANDARD	API 607 5TH EDITION	
END CONNECTION	NPT THREADS TO ANSI B1.20.1	

※ HIGH PRESSURE SHELL TEST AND LOW PRESSURE SEAT TEST ARE PERFORMED 100%.

- NACE MR-0175-2002 AND MR-0103 COMPLIANCE

JY VALVE & MFG. CO., LTD.



CHARLES CHAN, PRESIDENT

MATERIAL TEST RESULTS

MESSRS. : M. A. STEWART & SONS LTD.
 TO : VANCOUVER
 P.O. NO. : #1011686

SHEET NO. : LSSF3HDFSN-F190403-3
 EXPORT NO : F190403
 DATE : APR. 24, 2019

VALVE MODEL : LSSF3-HDFS-N
3000/2000/1000 WOG BALL VALVE
 REVIEWED BY : QUAN ZHOU JING YING VALVE CO., LTD.

SIZE : 2"
 MATERIAL: ASTM-A352 GRADE LCC

Jason Huang

JASON HUANG, QC MANAGER
 JY VALVE & MFG. CO., LTD.

CHEMICAL REQUIREMENT (%)												
ELEMENT		C	Si	Mn	P	S	Ni	Cr	Mo	V		
SPEC (MAX.)		0.250	0.600	1.200	0.040	0.045	0.500	0.500	0.200	0.030		
Production No	Parts Name	<small>B For each reduction of 0.01% below the specified maximum carbon content, an increase of 0.04% Mn above the specified maximum will be permitted up to a maximum of 1.25%</small>										
18FF	BODY	0.2010	0.4400	0.6900	0.0150	0.0048	0.3230	0.4000	0.0740	0.0120		
18JF	CAP	0.2010	0.4400	0.6900	0.0150	0.0048	0.3230	0.4000	0.0740	0.0120		
TENSILE REQUIREMENTS		Tensile Strength (MPa)		Yield Strength (MPa)		Elongation (%)		Reduction of area (%)		Hardness (HB)		Charpy V-Notch Energy value
Production No	Parts Name	485 - 655		Min. 275		Min. 22		Min. 35		Max. 187		Min. 20
18FF	BODY	524		288		36		45		160		52
18JF	CAP	524		288		36		45		160		52
Heat treatment	NORMALIZED @890 DEGREE C - 1H AIR COOLING AND TEMPERED											

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.

MATERIAL TEST RESULTS

MESSRS. : M. A. STEWART & SONS LTD.
 TO : VANCOUVER
 P.O. NO. : #1011686

SHEET NO. : LSSF3HDFSN-F190403-4
 EXPORT NO : F190403
 DATE : APR. 24, 2019

Jason Huang

VALVE MODEL : LSSF3-HDFS-N SIZE : 2"
 3000/2000/1000 WOG BALL VALVE MATERIAL: ASTM-A351 GRADE CF8M
 REVIEWED BY : FUZHOU SHI GANG VALVE MANUFACTURE CO.,LTD

JASON HUANG, QC MANAGER
 JY VALVE & MFG. CO., LTD.

CHEMICAL REQUIREMENT (%)												
ELEMENT		C	Mn	Si	S	P	Cr	Ni	Mo			
SPEC (MAX.)												
Production No	Parts Name	0.080	1.500	1.500	0.040	0.040	18.0-21.0	9.0-12.0	2.0-3.0			
B-0319	BALL	0.0503	0.6880	0.4740	0.0065	0.0378	18.3200	9.1600	2.0500			
TENSILE REQUIREMENTS		Tensile Strength (MPa)			Yield Strength (MPa)			Elongation (%)			Hardness (HB)	
Production No	Parts Name	Min.485			Min. 205			Min. 30			Max. 187	
B-0319	BALL	545			245			47			140	
Heat treatment		SOLUTION TREATMENT: @1080 DEGREE C - 1H WATER QUENCHING										

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.

MATERIAL TEST RESULTS

MESSRS. : M. A. STEWART & SONS LTD.
 TO : VANCOUVER
 P.O. NO. : #1011686

SHEET NO. : LSSF3HDFSN-F190403-5
 EXPORT NO : F190403
 DATE : APR. 24, 2019

VALVE MODEL : LSSF3-HDFSN
3000/2000/1000 WOG BALL VALVE
 REVIEWED BY : GAOYOU WEI DA STAINLESS STEEL CO., LTD.

SIZE : 2"
 MATERIAL : ASTM-A276 TYPE 316

Jason Huang

JASON HUANG, QC MANAGER
 JY VALVE & MFG. CO., LTD.

CHEMICAL REQUIREMENT (%)												
ELEMENT		C	Mn	P	S	Si	Cr	Ni	Mo			
SPEC (MAX.)		0.080	2.000	0.045	0.030	1.000	16.0-18.0	10.0-14.0	2.00-3.00			
Production No	Parts Name											
S-0319	STEM	0.0700	0.9600	0.0020	0.0230	0.7500	16.8200	10.6000	2.2500			
TENSILE REQUIREMENTS		Tensile Strength (MPa)		Yield Strength (MPa)		Elongation (%)		Reduction of area (%)		Hardness (HB)		
Production No	Parts Name	Min. 515	518	Min. 205	218	Min. 40	48	Min. 50	53	Min. 187	Max. 187	
S-0319	STEM										166	
Heat treatment		HOT-FINISHED										

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN DESCRIBED ARE SATISFACTORY IN ACCORDANCE WITH THE SPECIFICATION.



13127 Trinity Dr., Stafford, TX 77477
Tel: 281-302-4900 Fax: 281-302-4801

Material Test Report

Cameron Newco is a 9001 certified registered company
CRN: OC7998.5C - EN 10204-3.1

Cert No: 1101809

09/09/19

Customer: EMCO
Customer Number: 32043
Customer PO: 2610191-00
Cameron SO: QRC SO# 1010576
Project Name:
Valve Serial No:
Description: 150# RF A352-LCC (TRIM 12) OS&Y BB GATE
NACE
Customer Tag No:

Inspection Dimension: Passed
Visual: Passed

Valve Materials meet the requirements for NACE MR0103 and NACE MR0175

Standard: API 598 / ASME B16.34

Item	Test Pressure (Mpa)	Test Pressure (PSI)	Duration (sec)	Test Result
Shell	3.103	450	60	Passed
Backseat	2.241	325	60	Passed
Seat Hydro	-	-	-	Passed
Seat Air	0.552	80	60	Passed

Heat No: N86718

Material Code: A352 LCC

Notes:

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-58 deg F	1b/ft
	70.0	39.9	22.0	35.0	100.0		# 1: 45
	95.0	999.9	100.0	100.0	225.0		# 2: 58
	80.5	53.7	30.0	65.0	174.0		# 3: 33
							AVG: 45

Heat No: N86718

Material Code: A352 LCC

Notes:

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-58 deg F	1b/ft
	70.0	39.9	22.0	35.0	100.0		# 1: 45
	95.0	999.9	100.0	100.0	225.0		# 2: 58
	80.5	53.7	30.0	65.0	174.0		# 3: 33
							AVG: 45

Part: Body Type 3.1

Heat Treatment: QUENCHING+TEMPERING

Spec:	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
Min:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03
Val:	0.180	0.063	0.018	1.070	0.007	0.016	0.027	0.008	0.440	0.004

Part: Bonnet/Cap Type 3.1

Heat Treatment: QUENCHING+TEMPERING

Spec:	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
Min:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03
Val:	0.180	0.063	0.018	1.070	0.007	0.016	0.027	0.008	0.440	0.004

Comments: Cameron declares that the parts above are in accordance with applicable material specification and purchase order requirements. No Asbestos is contained in this product. Packing: Flexible Graphite | Gasket: Corrugated (316) W/ Grafoil
Valves covered in this certificate are in full compliance with purchase order requirements and specifications.

MTR created by: DR

Signature
Signature
09/09/19



NEWCO® | OIC® | DOUGLAS CHERO™

13127 Trinity Dr., Stafford, TX 77477
Tel: 281-302-4900 Fax: 281-302-4801

Item No: B1060015FHLCW27RF**GZA
Size/Type: 6" / Gate
Quantity: 1
Country of Origin: China
FigNo: 11F-LCC4/2-NC

Material Test Report

09/09/19

Cert No: 1101813

Cameron Newco is a 9001 certified registered company
CRN: OC7998.5C - EN 10204-3.1

Customer: EMCO
Customer Number: 32043
Customer PO: 2610191-00
Cameron SO: QRC SO# 1010576
Project Name:
Valve Serial No:
Description: 150# RF A352-LCC (TRIM 12) OS&Y BB GATE
NACE
Customer Tag No:

MLTS_6056-18971
Cert# 1101813

Pressure Test Result

Item	Test Pressure (Mpa)	Test Pressure (PSI)	Duration (sec)	Test Result
Shell	3.103	450	60	Passed
Backseat	2.241	325	60	Passed
Seat Hydro	-	-	-	Passed
Seat Air	0.552	80	60	Passed

Inspection

Dimensions: Passed
Visual: Passed
Valve Materials meet the requirements for NACE MR0103 and NACE MR0175
Standard: API 598 / ASME B16.34

Part: Body Type 3.1

Heat Treatment: QUENCHING+TEMPERING

Material Code: A352 LCC

Heat No: N86708

Spec:	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
Chem Comp (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Min:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03
Max:	0.190	0.034	0.017	1.030	0.002	0.017	0.033	0.012	0.520	0.004

Notes:

Part: Bonnet/Cap Type 3.1

Heat Treatment: QUENCHING+TEMPERING

Material Code: A352 LCC

Heat No: N86707

Spec:	C	Cr	Cu	Mn	Mo	Ni	P	S	Si	V
Chem Comp (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Min:	0.25	0.50	0.30	1.20	0.20	0.50	0.040	0.05	0.60	0.03
Max:	0.190	0.052	0.018	1.120	0.006	0.016	0.029	0.007	0.490	0.004

Notes:

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-58 deg F	lb/ft
	70.0	39.9	22.0	35.0	100.0		# 1: 22
	95.0	999.9	100.0	100.0	225.0		# 2: 30
	80.5	52.9	28.0	55.0	181.0		# 3: 19
							AVG: 24

Physical Props	Tensile KSI	Yield KSI	Elong %	Reduct %	Hard (HB)	Impact Tests @-58 deg F	lb/ft
	70.0	39.9	22.0	35.0	100.0		# 1: 31
	95.0	999.9	100.0	100.0	225.0		# 2: 46
	80.5	56.6	29.0	60.0	172.0		# 3: 31
							AVG: 36

Comments: Cameron declares that the parts above are in accordance with applicable material specification and purchase order requirements. No Asbestos is contained in this product. Packing: Flexible Graphite | Gasket: Corrugated (316) W/ Grafol | Valves covered in this certificate are in full compliance with purchase order requirements and specifications.

MTR created by: DR

Signature
Signature
09/09/19

Appendix A6

Construction Summary Report: Baker Lake Fuel Storage Tank 8 (2021)

Construction Summary Report

Baker Lake Fuel Storage Tank #8

Agnico Eagle Mines Ltd



Engineering, Design and Project Management

07 | 12 | 2021

report
Internal ref. 681783-0000-40ER-0001_R0



SNC • LAVALIN

Building what matters

CONSTRUCTION SUMMARY REPORT

Baker Lake Fuel Storage Tank #8

Agnico Eagle Mines Ltd

Report

6129-740-132-REP-001

December 7, 2021

Authorized Signatory:



L3940

Israel Gagnon, P.Eng., MBA
Mechanical engineer

EXECUTIVE SUMMARY

SNC Lavalin Inc. was retained by Agnico Eagle Mines Limited to prepare a construction summary (as built) report for the fuel storage tank #8 facilities of the Meadowbank Gold Project, Nunavut. SNC Lavalin Inc. previously prepared the construction drawings and specifications for the fuel storage tank facilities.

SNC Lavalin Inc. wasn't involved in the construction of the fuel storage tank, the information presented in this report was provided in part by Agnico Eagle.

The construction of the fuel storage tank facilities was completed in October 2021. The construction monitoring and quality assurance was managed by Agnico Eagle.

This report summarizes the construction as-built information for the fuel storage tank #8 facilities.

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2.3 Tank Foundations Design	5
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2.5 Secondary Containment Capacity	6
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2.7 Timeline	6
3. Field decisions	7
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Appendices

Appendix A	Final Construction drawings
Appendix B	As built drawings
Appendix C	Photographs
Appendix D	Fuel tank handover package

1. Introduction

This document presents the fuel storage tank 8 facilities construction summary report required by the Water Licence 2AM-MEA1530 Part D Item 14 and Part G Item 4. As required by Water Licence Schedule D, this report contains the final design and construction drawings, a summary of construction activities including pictures recorded before, during and after construction. The as-built drawings, detailed explanation of field decision to reflect any deviations from the original construction drawings/plans and how such deviations may affect performance of engineered structures, a discussion of the mitigation measures implemented during construction and its effectiveness are also presented.

2. Construction Summary

2.1 Site location plan

Agnico Eagle is developing the Whale Tail Project in the Kivalliq Region of Nunavut (65°24'25" N, 96°41'50" W). The 99,878-hectare Amaruq property is located on Inuit-owned and federal crown land, approximately 55 km north of the Meadowbank mine. The Meadowbank mine is accessible from Baker Lake, located 70 kilometers to the south. The Baker Lake Bulk Fuel Storage Tank Facility is located east of the hamlet of Baker Lake, on the north shore of Baker Lake.



Figure 1 – Baker Lake Fuel Farm Site Overview (tank #7 and #8)

2.2 Fuel tank size

Baker Lake fuel farm now includes eight (8) 10M liter fuel storage tank. This report is based on tank #8 construction, built in summer/fall 2021.

The Table 1 below presents the tank main dimensions.

Table 1 – Description of the fuel farm

Fuel farm Description	Baker Lake fuel tank 8
Product	Diesel
Volume (liter)	10 M
Diameter (m)	33.5
Height (m)	12.2

The detailed design drawings of the tank 8 are presented in Appendix A.

2.3 Tank Foundations Design

The tank foundation pad is built 2 meters lower than the surrounding ground with a minimum total thickness of 800 mm of compacted material which includes the liner system. A 3 m shoulder surround the tank with a slope of 1V:2H away from the tank. The embankments of the foundation pad are no steeper than 1V:2H.

The Table 2 below presents the design parameters for the tank foundations.

Table 2 – Design parameters for the tank foundations

Tank Foundation Pad	
Tank Diameter (m)	33.5
Tank foundation pad top (m)	2x 18.0 x 18.0
Tank foundation pad average thickness, above surrounding ground (m)	1.2
Slope on shoulder	1V:2H
Embankment slope	1V:2H

2.4 Berms Design

The storage tank is enclosed inside berms to contain accidental spillage of fuel product. The berms are made of granular material and are made impervious with a geomembrane. For more detail regarding containment, consult document 653281-0004-40ER-0005_0 Baker Lake Fuel Storage Tank #7 and Containment Facilities construction summary report.

2.5 Secondary Containment Capacity

The required capacity of the fuel farms section was calculated based on the following codes and regulations:

- › National Fire Code of Canada (NFCC);
- › National Fire Protection Association (NFPA); and
- › Design Rationale for Fuel Storage and Distribution Facility (DRFS).

As per the latest edition of NFCC, art. 4.3.7.3, the required secondary containment capacity for a fuel farm must have a volumetric capacity of not less than the sum of:

- › A) The capacity of the largest storage tank located in the contained space, and;
- › B) 10% of the greater of:
 - i. The capacity specified in Clause (A), or;
 - ii. The aggregate capacity of all other storage Tanks located in the contained space.

The volume occupied by the Tank foundation is considered in the total secondary containment capacity. The height of the secondary containment capacity is 300 mm lower than the berms' maximum elevation. Based on the above-mentioned, the secondary containment capacity requirements and the available capacity for fuel farms are summarized in the Table 3.

Table 3 – Fuel farm containment capacity

New section	
Volume (liter)	20 M (2X 10M)
Required Containment Capacity (liter)	12 M
Available Containment Capacity (liter)	20M

2.6 Drawings and photographs

Fuel farm tank final design and construction drawings are available in the Appendix A, construction pictures are available in Appendix C.

2.7 Timeline

The baker lake fuel storage tank # 8 was built in 2021. Earth work started on July 2021, followed by tank and piping fabrication in August and September 2021. Tank #8 construction ended September 8th, 2021, Piping installation work were finalised on October 12th, 2021.

3. Field decisions

3.1 Equipment and controls

Fuel tank #8 was built as in Document 6120-C-260-001-REP-001 Fuel Tank Storage and Containment Facilities Design Report and Drawings. This document presents the rational and decisions that led to its construction. No modifications were performed, and the Fuel storage tank is operational as it was designed.

3.2 Piping

Piping between filling line and the fuel tank respect the point-to-point design. The piping can be seen on photos in Appendix C and respect the P&ID. Red mark drawings can be consulted in Appendix B. Modifications made to the piping won't affect the construction performance in any ways.

4. Mitigation measure

No Quarrying activities where required to build tank #8. No blast were done on the construction site. During the fuel storage tank construction, no sediments were released in water from construction areas and no water was used to manage dust emissions from construction activity.

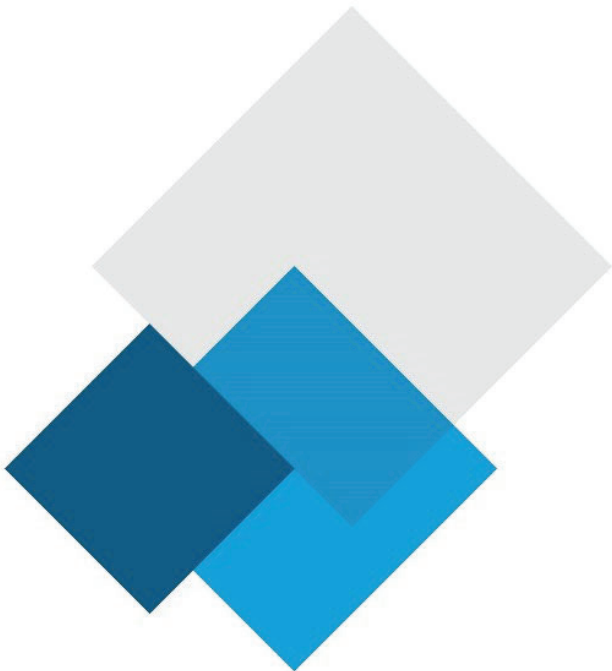
5. Construction monitoring and inspection test plan

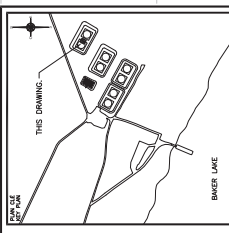
5.1 Tank weld

During the tank construction, a testing protocol was followed by the construction team. To meet API Standard 650, companies building tank are required to monitor their work trough an inspection program. In this program, the contractor registers welder's qualifications, confirm construction material quality and outlines its testing protocol. The results from weld tests are also registered there. All that information is required by API 650 standard. Testing on welds took place during the whole construction process. To attest welds quality, inspector relied on visual inspection, magnetic particulate tests and high penetration oil tests. To review those tests results, the materials quality and weld inspection results can be consulted in Appendix D.

Appendix A

Final construction drawing





NOTES / GENERAL NOTES

NOTE 1: SUPPLY OF MOTORIZED VALVE BY OEM AND INSTALLATION BY CONTRACTOR.

NOTE 2: ALL WELL SUPPLY VALVES, PIPING AND FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE SUPPLIER.

NOTE 3: REFER TO DOCUMENT NUMBER 61-740-270-200-SPT-001 FOR INSTALLATION SPECIFICATIONS.

POUR CONSTRUCTION FOR CONSTRUCTION

DATE: 2021-02-23

REV: 0

Project # : 617180-0000

REV: 1

REV: 2

REV: 3

REV: 4

REV: 5

REV: 6

REV: 7

REV: 8

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REV: 99

REV: 100



AGNICO EAGLE - MEADOWBANK DIVISION
740 BAKER LAKE AREA
2700000000
DETAILS

10M LITERS DIESEL TANK #8 (61707N43)

DATE: 2021/02/24
DRAWN BY: R. LANGE, P. Eng.
CHECKED BY: A. OUELLET, P. Eng.
APPROVED BY: [Signature]
SCALE: AS SHOWN
DATE: 2021/02/24

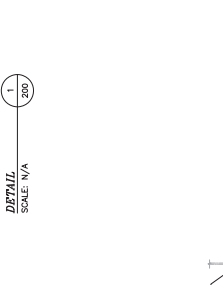
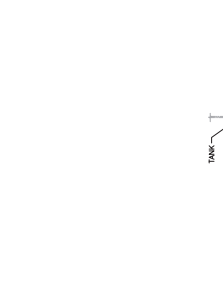
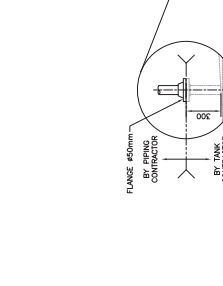
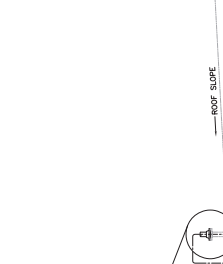
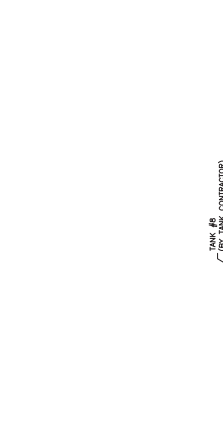
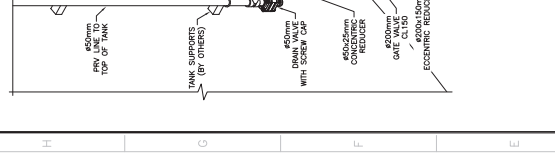
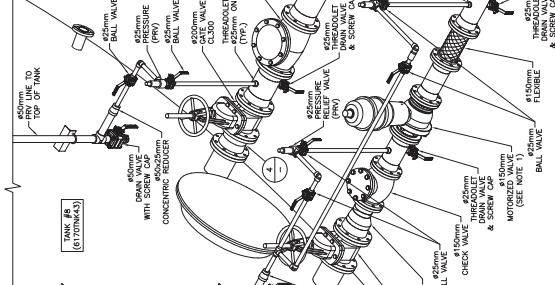
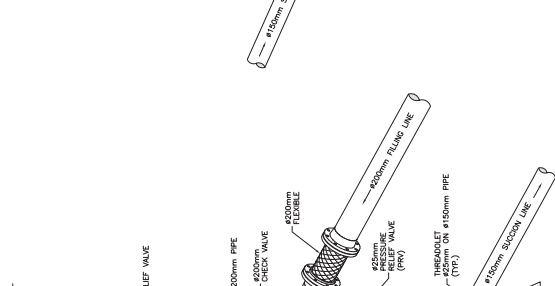
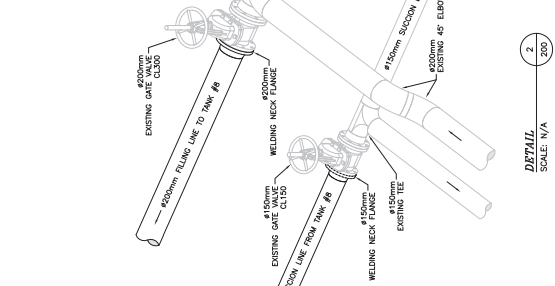
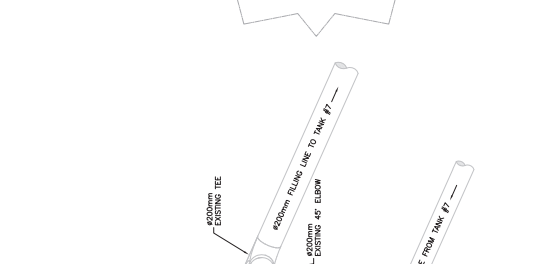
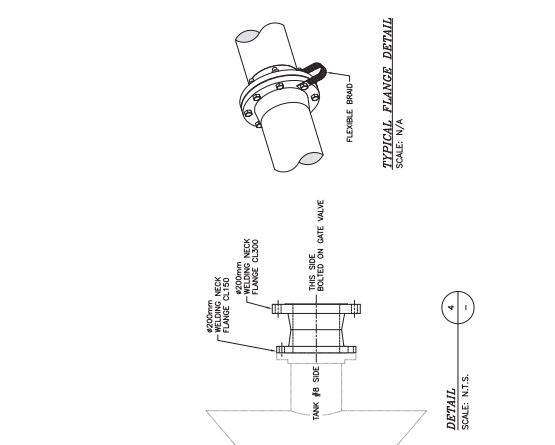
PROJECT NO.: 61-740-270-001

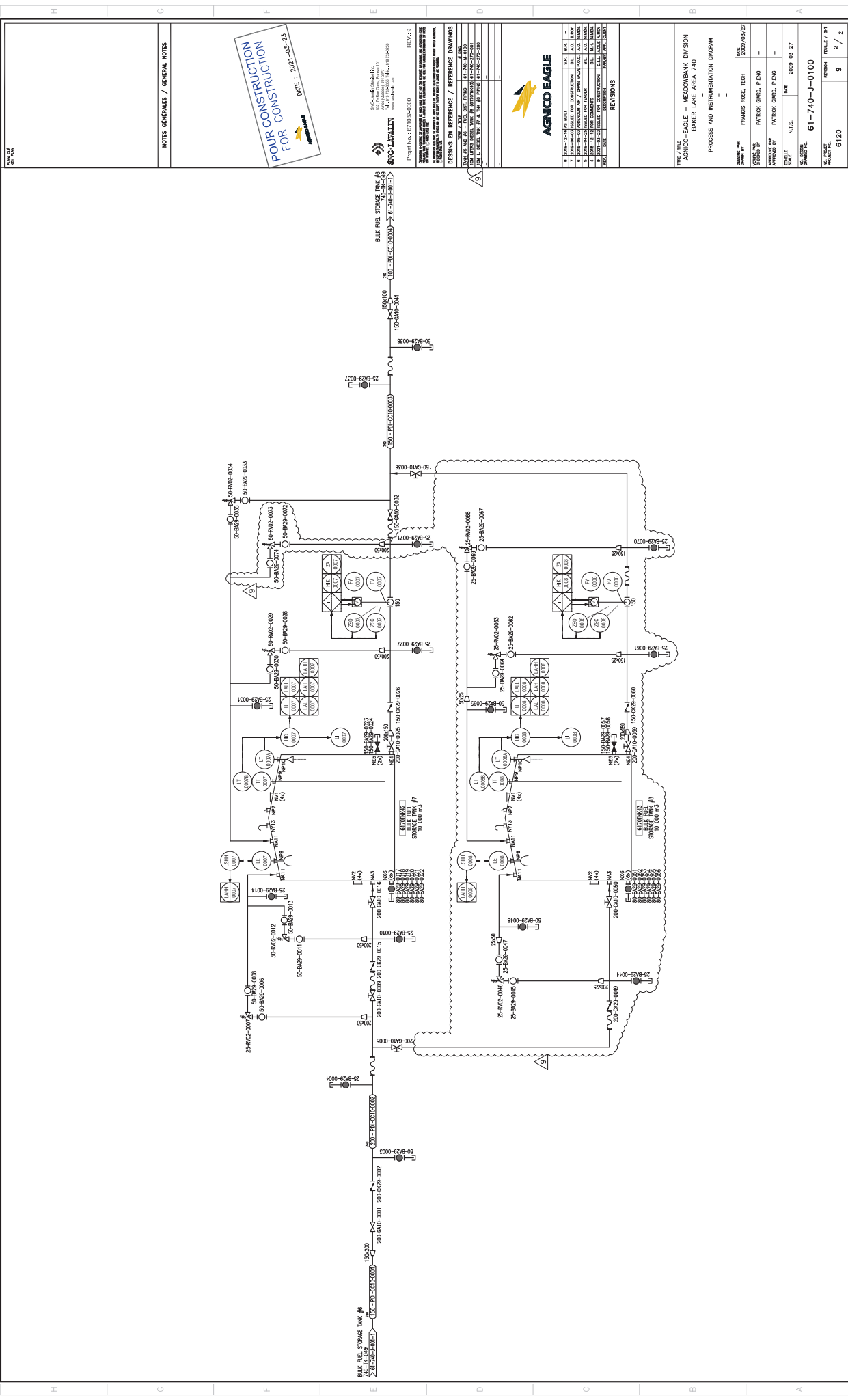
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DATE: 2021/02/24

BY: [Signature]

SCALE: 1/1





NOTES GÉNÉRALES / GENERAL NOTES

REV: 2021-03-23
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 FOR CONSTRUCTION

Project No.: 61-740-0100
 REV: 2021-03-23
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 61-740-0100-0006
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 61-740-0100-0008
 61-740-0100-0009
 61-740-0100-0010

DESIGNS IN REFERENCE / REFERENCE DRAWINGS
 61-740-0100-0001
 61-740-0100-0002
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 61-740-0100-0007
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 61-740-0100-0009
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AGNICO EAGLE

AGNICO-EAGLE - MEADOWBANK DIVISION
 BAKER LAKE AREA 740
 PROCESS AND INSTRUMENTATION DIAGRAM

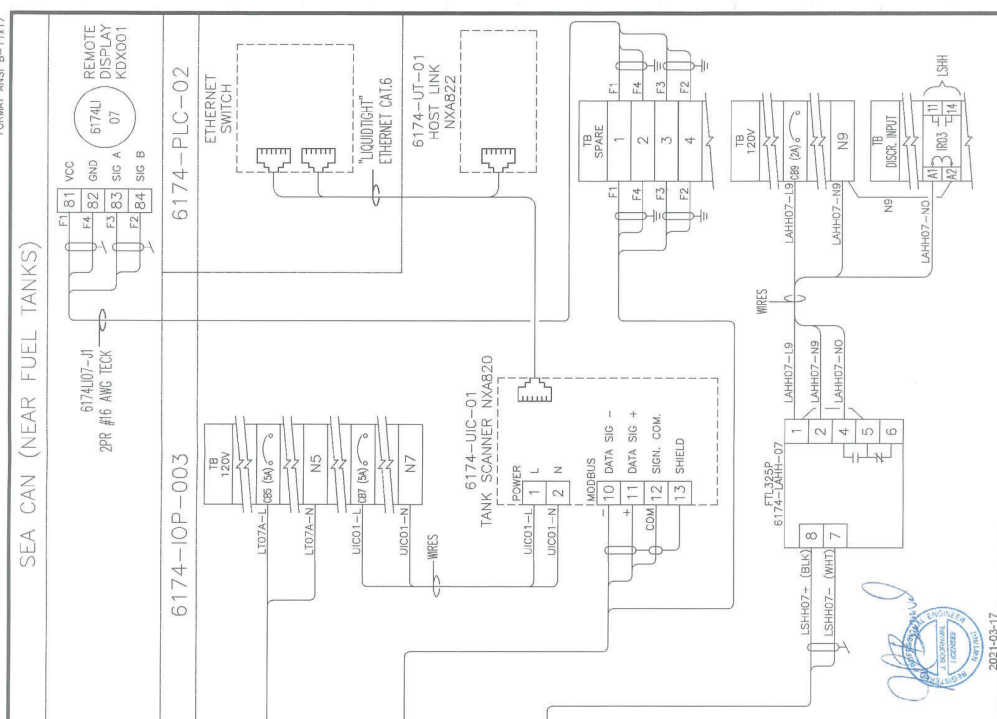
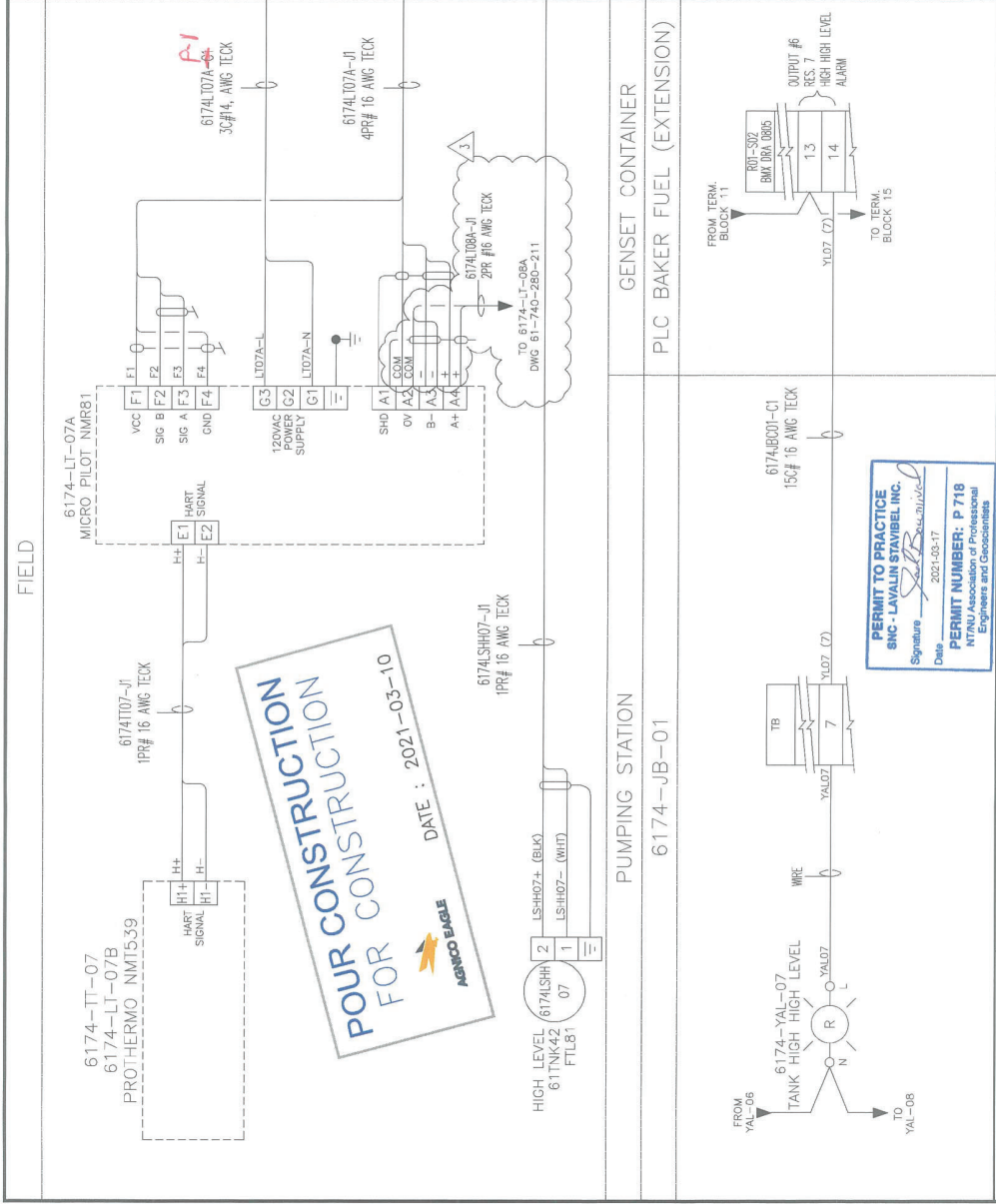
REVISIONS

NO.	DATE	BY	DESCRIPTION
1	2021-03-23	FRANCIS ROSE, TECH	ISSUE FOR CONSTRUCTION
2	2021-03-23	PATRICK GARD, P.ENG	ISSUE FOR CONSTRUCTION
3	2021-03-23	PATRICK GARD, P.ENG	ISSUE FOR CONSTRUCTION
4	2021-03-23	PATRICK GARD, P.ENG	ISSUE FOR CONSTRUCTION
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10	2021-03-23	PATRICK GARD, P.ENG	ISSUE FOR CONSTRUCTION

61-740-J-0100
 6120
 9
 2 / 2

Appendix B

As built drawing



FIELD

SEA CAN (NEAR FUEL TANKS)

PUMPING STATION

GENSET CONTAINER

PLC BAKER FUEL (EXTENSION)

NO.	DESCRIPTION / REFERENCE DRAWINGS	DATE	BY
3	ISSUED FOR CONSTRUCTION	2021-03-10	JBDU
2	AS BUILT	2020-01-24	S.MAR
1	ISSUED FOR CONSTRUCTION	2019-08-03	P.LEM
0	ISSUED FOR TENDER	2019-05-03	P.LEM

AGNICO EAGLE

SNC-LAVALIN

150 rue Gamble Ouest
Royalmont (Québec) J8X 2R7
Tel : 819 754-5181 Fax : 819 797-0168
www.snc-lavalin.com

NO.	DESCRIPTION / REFERENCE DRAWINGS	DATE	BY
3	ISSUED FOR CONSTRUCTION	2021-03-10	JBDU
2	AS BUILT	2020-01-24	S.MAR
1	ISSUED FOR CONSTRUCTION	2019-08-03	P.LEM
0	ISSUED FOR TENDER	2019-05-03	P.LEM

PERMIT TO PRACTICE
SNC - LAVALIN STAVIBEL INC.
Signature: *[Signature]*
Date: 2021-03-17
PERMIT NUMBER: P 718
NTNU Association of Professional Engineers and Geoscientists

NO.	DESCRIPTION / REFERENCE DRAWINGS	DATE	BY
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2	AS BUILT	2020-01-24	S.MAR
1	ISSUED FOR CONSTRUCTION	2019-08-03	P.LEM
0	ISSUED FOR TENDER	2019-05-03	P.LEM

Project # : 660534-0000
SNC-LAVALIN
150 rue Gamble Ouest
Royalmont (Québec) J8X 2R7
Tel : 819 754-5181 Fax : 819 797-0168
www.snc-lavalin.com

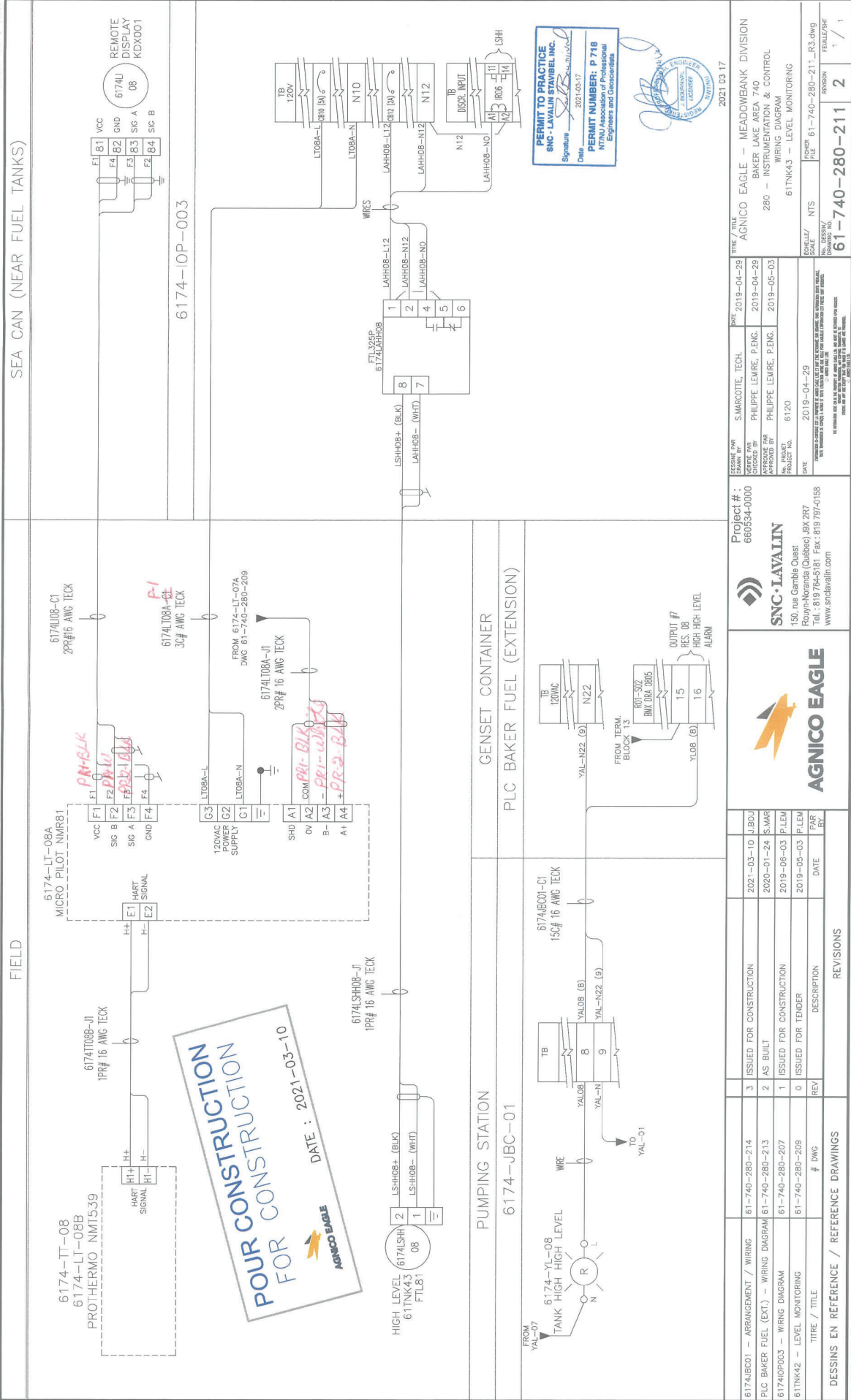
DESIGNER: S.MARCOCCO, TECH. DATE: 2019-04-29
CHECKED BY: PHILIPPE LEMIRE, P.ENG. DATE: 2019-04-29
APPROVED BY: PHILIPPE LEMIRE, P.ENG. DATE: 2019-05-03
No. SHEETS: 1 PROJECT NO.: 6120
DATE: 2019-04-29

REVISIONS

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2	AS BUILT	2020-01-24	S.MAR
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0	ISSUED FOR TENDER	2019-05-03	P.LEM

AGNICO EAGLE - MEADOWBANK DIVISION
BAKER LAKE AREA 740
280 - INSTRUMENTATION & CONTROL
WIRING DIAGRAM
61TNK42 - LEVEL MONITORING

FILE: 61-740-280-209_R3.dwg
REVISION: FEALZ/DST
1 / 1



SEA CAN (NEAR FUEL TANKS)

FIELD

PUMPING STATION

GENSET CONTAINER

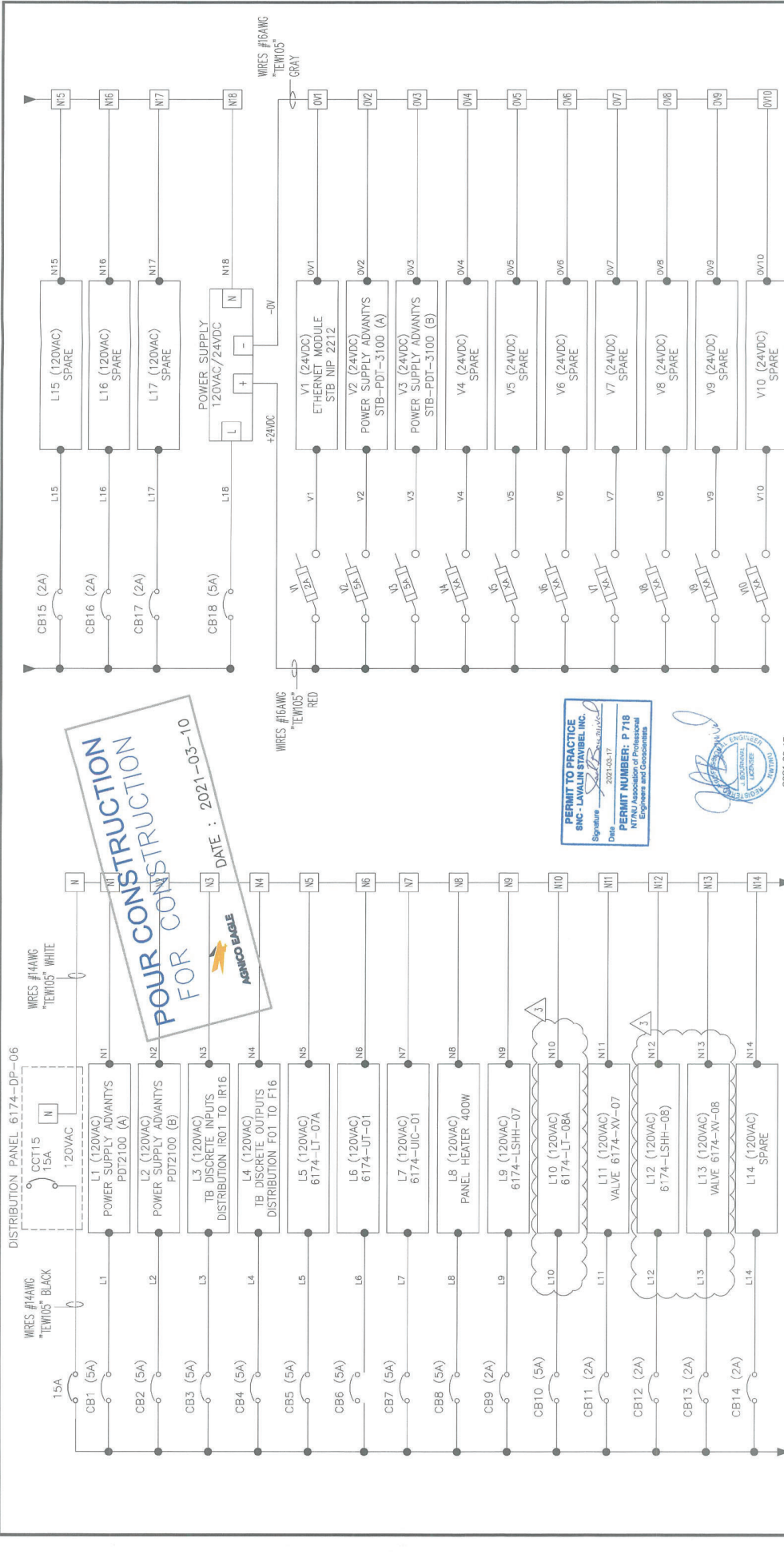
PLC BAKER FUEL (EXTENSION)

6174-JBC-01

6174-BCC01-C1

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6174JBC01	WIRING DIAGRAM (EXT.) - WIRING DIAGRAM	2019-04-29	2	2020-01-24	S.MAR				
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100	6174-TT-08	2019-04-29	ISSUED FOR CONSTRUCTION



POUR CONSTRUCTION
FOR CONSTRUCTION
 DATE : 2021-03-10

PERMIT TO PRACTICE
SNC-LAVALLIN STAMBELE INC.
 Signature: [Signature]
 Date: 2021-03-17
PERMIT NUMBER: P 718
 NFPUL Association of Professional Engineers and Geoscientists

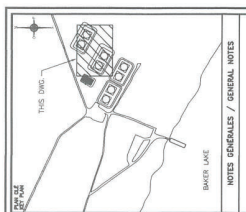
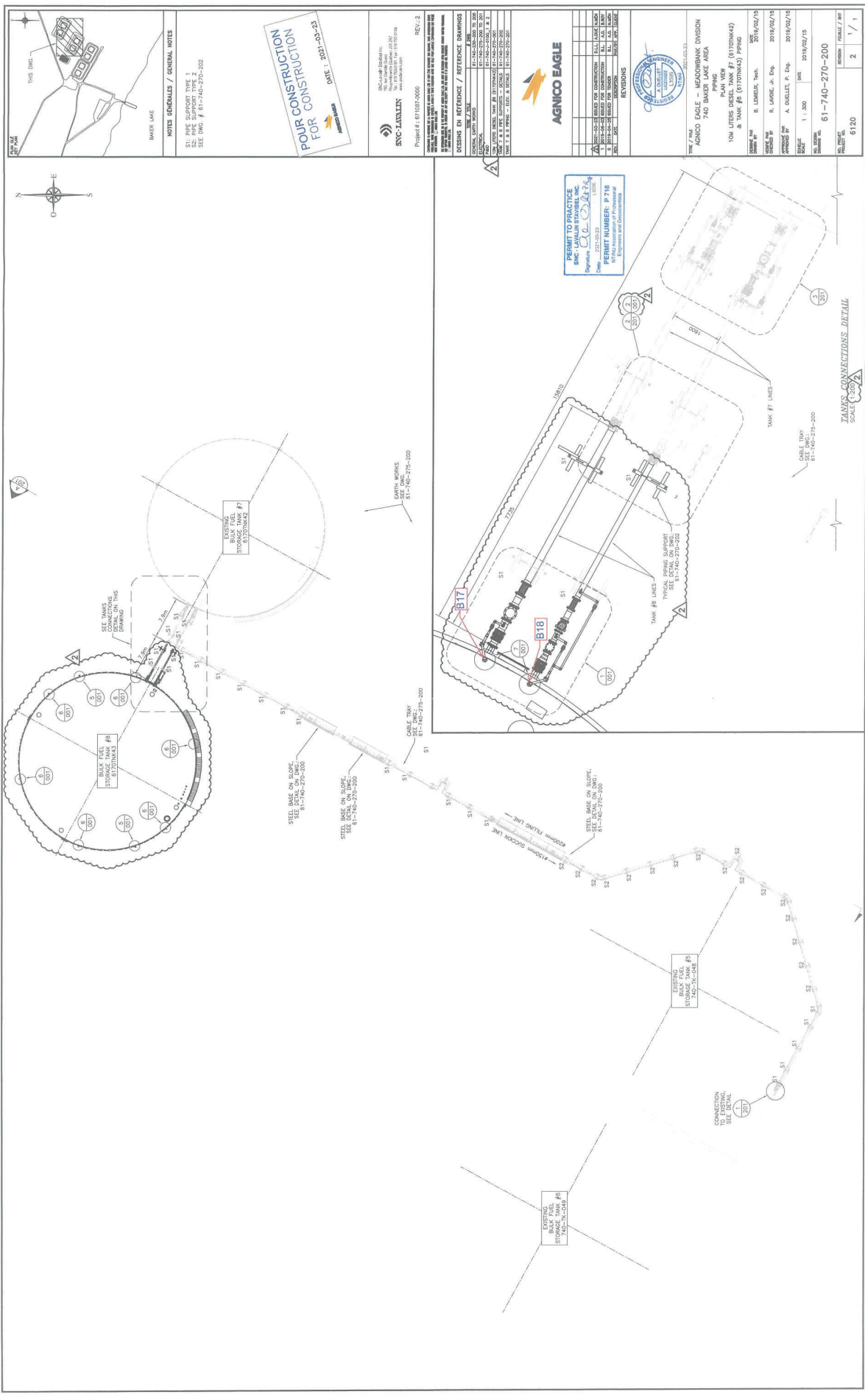


Project # : 660534-0000 150, rue Gamble Ouest Rouyn-Noranda (Québec) J8X 2R7 Tel. : 819 764-5181 Fax: 819 797-0158 www.snc-lavalin.com	AGNICO EAGLE
DESIGNER: S. MARCOTTE, TECH. CHECKED BY: PHILIPPE LEMIRE, P. ENG. APPROVED BY: PHILIPPE LEMIRE, P. ENG. PROJECT NO.: 6120 DATE: 2019-04-18	TITLE / TITLE: AGNICO EAGLE - MEADOWBANK DIVISION BAKER LAKE AREA 740 280 - INSTRUMENTATION & CONTROL 120VAC AND 24VDC DISTRIBUTION
ISSUED FOR CONSTRUCTION 2021-03-10 J.BOU	DATE
AS BUILT 2020-01-24 S.MAR	DATE
ISSUED FOR CONSTRUCTION 2019-05-15 P.LEM	DATE
ISSUED FOR TENDER 2019-05-03 P.LEM	DATE
REV	DESCRIPTION
DESSINS EN REFERENCE / REFERENCE DRAWINGS	REVISIONS
TITRE / TITLE	NO. DESSIN
61-740-280-208	61-740-280-208
3	3

Rev. Date	Qty ¹	Unit	Description	ND	STANDARD	SCH./PN	PACKAGE #	MTO #	MATERIAL	MANUFACTURER	MODEL	REMARKS	AGNICO EAGLE		
													OWNER	PROJECT NAME:	PROJECT NO:
2021-06-30	260	m	STEEL PIPING	Ø150mm	ASTM A333 GR.6	SCH. STD			CARBON STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	20	UNIT	WELDING NECK FLANGE	Ø150mm	A350 GR. LF2	CL150			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	2	UNIT	BLIND FLANGE	Ø150mm	ASTM A420 GR WP16	CL150			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	19	UNIT	45° ELBOW BUTT WELD	Ø150mm	ASTM A420 GR WP16, BW	SCH. STD			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	4	UNIT	90° LONG RADIUS ELBOW BUTT WELD	Ø150mm	ASTM A420 GR WP16, BW	SCH. STD			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	5	UNIT	STRAIGHT TEE BUTT WELD	Ø150mm	ASTM A420 GR WP16, BW	SCH. STD			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	1	UNIT	WELDED 45° LATERAL BUTT WELD	Ø150mm	ASTM A420 GR WP16, BW	SCH. STD			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	2	UNIT	FLEXIBLE HOSE, 350 mm I.D.	Ø150mm	FLANGED	CL150			STAINLESS STEEL	SENIOR FLEXTRONICS	SA88FS SERIES				
2021-06-30	1	UNIT	FLEXIBLE HOSE, 450 mm I.D.	Ø150mm	FLANGED	CL150			STAINLESS STEEL	SENIOR FLEXTRONICS	SA88FS SERIES				
2021-06-30	6	UNIT	ECCENTRIC REDUCER BUTT WELD	Ø150x100mm	ASTM A420 GR WP16, BW	SCH. STD			CARBON STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	6	UNIT	BLIND FLANGE	Ø100mm	ASTM A420 GR WP16	CL150			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	10	UNIT	WELDING NECK FLANGE	Ø100mm	A350 GR. LF2	CL150			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	3	UNIT	THREADolet FOR Ø150mm PIPE	Ø25mm	ASTM A350 GR LF2	CL3000			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	2	m	PIPING	Ø25mm	ASTM A333 GR.6	SCH. 80			CARBON STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	3	UNIT	SCREW CAP	Ø25mm	FORGED STEEL	CL3000			FORGED STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, YELLOW			
2021-06-30	22	UNIT	FLEXIBLE BRAID	-	-	-				NVENT	MBJ 35-250-25				
PIPING AND SUPPORT TABLE															
2021-06-30	12	UNIT	TYPE 1 PREFAB PIPING SUPPORT ON DRAWING 61-740-270-XXX	-	HSS G40 350 W OR ASTM A500	-			STRUCTURAL STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, GREY			
2021-06-30	43	UNIT	TYPE 2 PREFAB PIPING SUPPORT ON DRAWING 61-740-270-XXX	-	HSS G40 350 W OR ASTM A500	-			STRUCTURAL STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, GREY			
2021-06-30	4	UNIT	TYPE 3 PREFAB PIPING SUPPORT ON DRAWING 61-740-270-XXX	-	HSS G40 350 W OR ASTM A500	-			STRUCTURAL STEEL			SHOP PAINTED AS PER 60-000-245-GGD-001, GREY			
2021-06-30	15	UNIT	EXTRA GREY PAINT GALLONS	-	-	-			-			FOR PAINT TOUCH-UP ON SITE			
2021-06-30	10	UNIT	EXTRA YELLOW PAINT GALLON	-	-	-			-			FOR PAINT TOUCH-UP ON SITE			
VALVE TABLE															
2021-06-30	7	UNIT	GATE VALVE	Ø150mm	ASTMA-352, FLANGED	CL150			LCC	BERIC	API 600, LCC BODY				
2021-06-30	3	UNIT	BALL VALVE API 607	Ø25mm	SOCKET WELD	LCC			LCC	APOLLO	8BL-240-24 SERIES				

¹ No contingency was planned on material take off list and no material was planned for field adjustment.

Roxanne Lavare
 2021/06/30
 L3940



BAKER LAKE

NOTES / GENERAL NOTES

1. SEE SHEET 61-740-270-200 FOR GENERAL NOTES.

2. SEE SHEET 61-740-270-200 FOR GENERAL NOTES.

3. SEE SHEET 61-740-270-200 FOR GENERAL NOTES.

POUR CONSTRUCTION FOR CONSTRUCTION

DATE: 2021-03-23

SNC-LAVALIN

Project # 617107-0000

REV. 2

DESIGNER BY REFERENCE / REFERENCE DRAWINGS

61-740-270-200 TO 202

61-740-270-200 TO 202

61-740-270-200 TO 202

AGNICO EAGLE

PERMIT TO PRACTICE

SNC-LAVALIN

61-740-270-200

PERMIT NUMBER: P 718

AGNICO EAGLE - HEADQUARTERS DIVISION

740 BAKER LAKE AREA

PLAN VIEW

TOM LIEBS DIESEL TANK #1 (617018K42)

at TANK #2 (617018K40) PIPING

DATE: 2019/02/15

BY: S. LEMAY, Tech.

DATE: 2019/02/15

APPROVED BY: R. LAPOINTE, P. Eng.

DATE: 2019/02/15

SCALE: 1:300

DATE: 2019/02/15

NO. OF SHEETS: 1

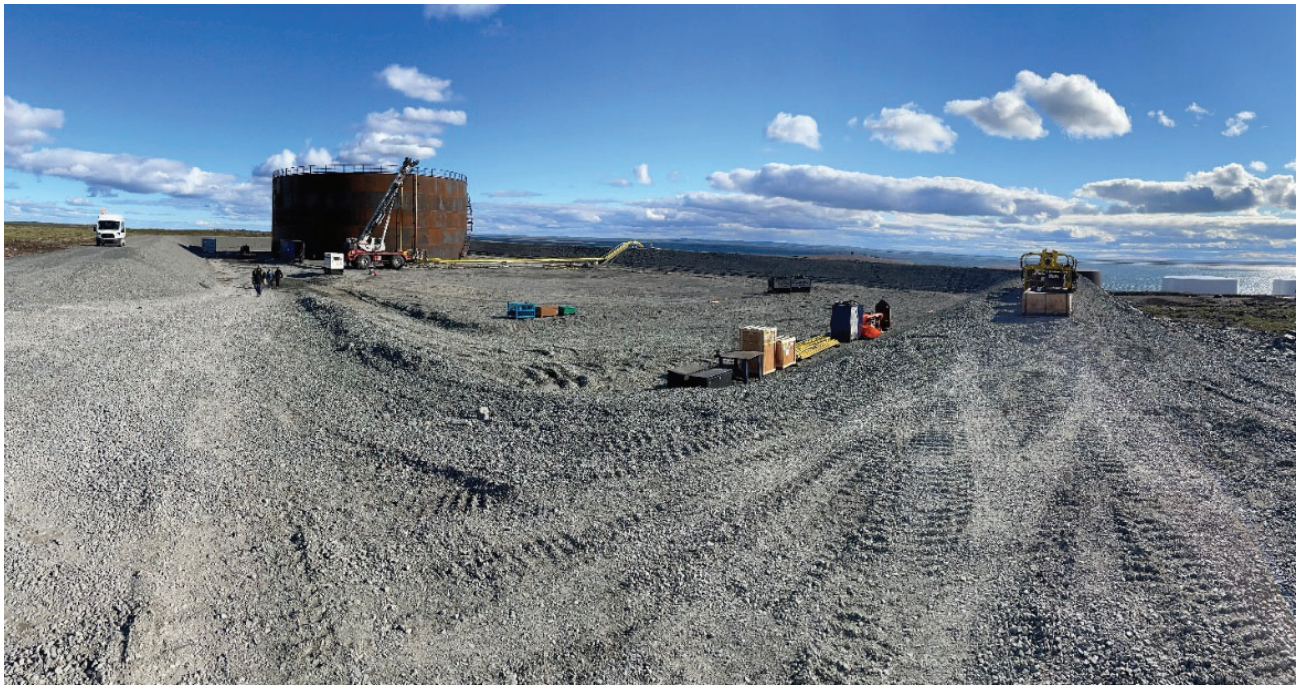
SHEET: 1

61-740-270-200

NO. OF SHEETS	1
SHEET	1
DATE	2019/02/15
SCALE	1:300
NO. OF SHEETS	1
SHEET	1
DATE	2019/02/15
SCALE	1:300
NO. OF SHEETS	1
SHEET	1
DATE	2019/02/15
SCALE	1:300
NO. OF SHEETS	1
SHEET	1
DATE	2019/02/15
SCALE	1:300

Appendix C

Photographs



Tank #8 pad before construction



Tank floor construction



Weld testing with vacuum



Tank wall welding



Tank wall third ring installation



Tank general view



Tank roof structure



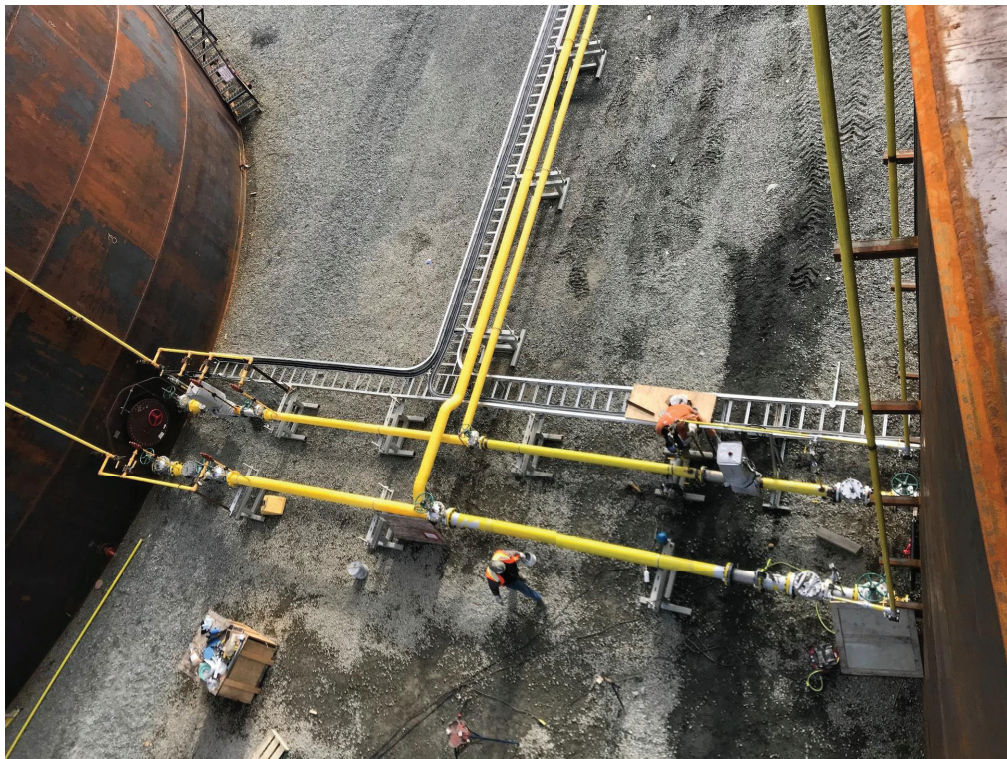
Tank roof plate welding



Control cable tray and over pressure valve piping



Tank #8 piping installation



Tank #8 piping overview