Baffinland Iron Mines LP
Mary River Expansion Project

Construction Summary Report: Milne Port Tank Farm - Capacity Addition

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date APRIL 8, 2020
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

REGISTERED PROFESSIONAL ENGINEER
G.A. PEACE
LICENSEE
APR. 8, 20
NT/NU

						Denton Henkelman Digitally signed by Denton Henkelman Date: 2020.04.13 13:12:25 -04'00'
2020-04-08	1	Approved for Use	G. Peace	N. Mason	N. Mason	D. Henkelman
2019-03-28	0	Approved for Use	G. Peace	D. Moffett	B. Chaput	T. Atiba
Date	**Rev.**	**Status**	**Prepared By**	**Checked By**	**Approved By**	**Approved By**
			HATCH			**Client**

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1. Facility Description

1.1 Purpose and Design Basis

Baffinland Iron Mines Corporation (Baffinland) recently added capacity to the existing fuel tank farm at Milne Inlet, Baffin Island, Nunavut to support the current operation.

This additional capacity consisted of two (2) new diesel fuel storage tanks and one (1) new Jet-1A storage tank in the Milne Port Tank Farm as well as relocation of an existing Marine Manifold and associated piping.

The initial Milne Port tank farm consisted of one (1) 5-million-litre above ground diesel fuel storage tank. Subsequently the tank farm was expanded by adding three (3) 12-million-litre diesel storage tanks, one (1) 5-million-litre diesel storage tank and three (3) 750,00-litre Jet-A1 storage tanks. The secondary containment was increased to allow for the additional tanks as well containment to allow for further capacity addition. This is summarized in Hatch document H349000-2610-50-124-0001, Rev. 0, *Construction Summary Report: Milne Port Tank Farm & Dispensing Package*.

This current report summarizes the addition of three (3) new tanks all added inside the existing containment area resulting in a tank farm consisting of four (4) 12-million-litre diesel storage tanks, two (2) five-million-litre diesel storage tanks, one (1) 3-million-litre diesel storage tanks and four (4) Jet-1A storage tanks. The new 12-million-litre tank was originally designed for 15 million litres, but due to construction time limitations one shell course was not installed reducing the capacity to 12 million litres. Earthwork pads were constructed on which the tanks were placed. The existing containment area was reviewed and deemed adequate for the additional capacity. See Appendix F for the Milne Port Dyke Calculations to NFC Requirements.

The new tanks are all vertical single wall steel construction designed to API 650. They have been inspected and tested to API Section 8 which includes visual inspection of all welds, vacuum box test of welds, liquid penetration testing, magnetic particle testing and UT tests as required. In lieu of hydrostatic testing, additional liquid penetration tests and vacuum box tests have been completed in accordance with API 650 Section 7.3.5. Complete information on inspection and testing for each tank is contained in the tank “Data Book” referenced in Appendix C.

The facility was designed and constructed to the following codes and standards:

- Tank construction will adopt the API 650 12th Edition, 2013, Welded Steel tanks for Oil Storage.
- Tank inspection, repair, alteration and reconstruction will use API 653 4th Edition, 2009; including Addendums 1 and 2.
- National Building Code of Canada (NBC) 2010.
- National Fire Code of Canada (NFCC) 2010.

- NFPA 30, 2012 Edition, Flammable and Combustible Liquids Code.
- CCME Environmental Code of Practice for Aboveground Storage Tank Systems containing Petroleum Products, 2003.
- ANSI B31.3-2012, Process Piping.
- CSA W47.1-09, Certification of Companies for Fusion Welding of Steel.
- CSA W59-03 (R2008) – Welded Steel Construction (Metal Arc Welding).
- Canadian Environmental Protection Act 1999 (2008 Update), Storage Tank System for Petroleum Products and Allied Petroleum Products Regulations.
- CSA W178.2-08, Certification of Welding Inspectors.

1.2 Location and Base Elevations

The Milne Port Tank Farm is located on the north side of the Milne Port facility between northing N7976099 and N7976298, and easting E503582 and 503781. The 12-million-liter tank (TK-003) setting out point (center of tank) is Northing 7976196.948, Easting 503617.533, elevation 12.605m. The 3 million litre tank (TK-011) setting out point is Northing 7976273.168, Easting 503641.393, elevation 11.98m. The 750,000 litre tank (TK-010) setting out point is Northing 7976164.948, Easting 503608.208, elevation 12.32m.

1.3 Geometry and Access

The containment berm constructed under the previous expansion was designed to accommodate the additional storage tanks constructed under this scope. The calculation sheet is attached in Appendix F.

1.4 Earthworks Materials Details

The earthworks pads for the new tanks were constructed to meet the elevation requirements of the design.

The liner is buried 450mm below the floor as shown on previous As-built H349000-2613-10-035-0001 Rev 2.

2. Construction Activity Summary

The Construction Methodology for the Milne Inlet capacity addition is stated in Hatch document H353004-40000-400-050-0002.

Construction activities for the Milne Port Fuel Farm Capacity Addition started in mid 2017 and were completed in October of 2018.

The following summarizes construction activities:

2.1 Tank Foundation Pads

- Crushed blast rock and fill material was sourced from Milne Quarry Q1.

- Three new earthwork tank foundation pads, including geotextile installation, were constructed along with access ramps for access to the tank farm as detailed in attached Appendix G.
- Installed tank grounding system in conjunction with earthworks.

2.2 Fuel Tank and Piping

- Installed fuel tank bodies.
- Installed piping, valves and fittings for all tanks to interconnect the inlet/outlet piping and low suction piping per design to the fuel module supply piping.
- Installed piping vents and drain assemblies.
- Installed pressure relief valves, piping and gate valve assemblies.
- Installed tank emergency vent/gauge hatch.
- Installed radar gauge assembly and components.
- Installed new precast pipe supports and structural steel to match existing.
- Installed miscellaneous bolting, gaskets for all piping systems.
- Installed cable tray supports, cable tray and teck cable for tank gauging system, tank lighting and tank obstruction light.
- Installed tank/stairway station and light fixture.
- Tested and calibrated tank level gauges and display units.

Note that the 750,000-litre tank was fabricated offsite, brought in on the sealift and placed on its pad.

The new large storage tank originally designed for 15 ML was constructed with a capacity of 12 ML. This was due to weather conditions at the end of construction of the tank and was accomplished by eliminating one course.

3. QA/QC

Quality Assurance (QA) was performed by the Hatch Construction Supervisor during daily audits with the Nuna Supervisor during the construction of the tank pads. Quality Surveillance Inspection Acceptance and Sign-off Reports were prepared by the Nuna Supervisor and signed off by the Hatch Representative. Reports are attached in Appendix G.

QA was also performed by the Hatch Construction Supervisor during daily audits with the Laframboise Supervisor during the erection and placement of the fuel tanks. The new tanks were inspected and tested to API Section 8 which includes visual inspection of all welds, vacuum box test of welds, liquid penetration testing, magnetic particle testing and UT tests as required. In lieu of hydrostatic testing, additional liquid penetration tests and vacuum box tests have been completed in accordance with API 650 Section 7.3.5. Complete information

on inspection and testing for each tank is contained in the tank “Data Book” referenced in Appendix C. Pressure testing of the piping was conducted using approved pneumatic testing.

4. Photographic Records

Photo 4-1: TK010 Installed

Photo 4-2: Pad for TK011

Photo 4-3:TK011 Construction

Photo 4-4:TK011 Construction

Photo 4-5: TK011 Complete

Photo 4-6: Pad for TK003

Photo 4-7: TK003 Construction

Photo 4-8: TK003 Construction

Photo 4-9: TK003 Complete

5. As-built Drawings

The as-built drawings incorporate contractor red line markups, field instructions, requests for information, field sketches and all other inputs provided by the EPCM field team. As-built drawings are attached in Appendix A. These drawings are representative of the final as-built conditions. Original Hatch drawings are listed below. The as-built drawings were done by Laframboise for the tanks.

5.1 Laframboise Drawings

- Laframboise Group C-70751-GL-11 Rev 2.
- Laframboise Group C-70751-GL-12 Rev 1.
- Laframboise Group C-70751-GL-13 Rev 0.
- Laframboise Group C-70751-GL-14 Rev 0.
- Laframboise Group C-70751-GL-15 Rev 0.
- Laframboise Group C-70751-GL-41 Rev 1.
- Laframboise Group C-70751-GL-42 Rev 1.
- Laframboise Group C-70751-GL-43 Rev 1.
- Laframboise Group C-70751-GL-44 Rev 1.
- Laframboise Group C-70751-GL-45 Rev 1.

- Laframboise Group C-70751-GL-31 Rev 3.
- Laframboise Group C-70751-GL-31 Rev 2.
- Laframboise Group C-70751-GL-32 Rev 2.
- Laframboise Group C-70751-GL-33 Rev 2.
- Laframboise Group C-70751-GL-34 Rev 3.
- Laframboise Group C-70751-GL-34 Rev 2.
- Laframboise Group C-70751-GL-35 Rev 2.
- Laframboise Group C-70751-GL-36 Rev 2.
- Laframboise Group C-70751-GL-37 Rev 2.
- Laframboise Group C-70751-GL-38 Rev 2.
- Laframboise Group C-70751-GL-39 Rev 1.

5.2 Hatch Drawings

- H353004-40000-220-260-0003-0001 Rev 2.
- H353004-40000-220-273-0001-0001 Rev 2.
- H353004-48400-240-270-0002 Rev 0.
- H353004-48400-240-270-0006 Rev 0.
- H353004-48400-240-270-0007 Rev 0.
- H353004-48400-210-282-0002 Rev1.

6. Field Decisions

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

- Due to the weather conditions at the end of construction the 15 ML tank was reduced to 12 ML by eliminating one shell course.

7. Performance Evaluation

As of the date for this report there have been no adverse observations in operational performance of the work constructed under this scope.

8. Vibration Monitoring and Quarrying Activity

No vibration monitoring was conducted during the construction of this work as it was not deemed necessary based on the scope of activities required for construction.

Material for the tank pads was obtained from existing stockpiles, therefore there was no specific quarrying activities conducted.

9. Environmental Monitoring

Baffinland Environment was responsible for environmental monitoring at the site during this work and following-up with construction if there were any reported environmental incidents or non-conformances.

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

The risks to the environment as a result of construction activity for this work would originate from spills from equipment. There was one spill of hydraulic fluid reported. The volume of the spill was 20 L. The spill was contained and cleaned up using absorbent pads. The spill was entirely within the lined area of the tank farm. The spill report is included in Appendix H.

Compliance with CCME is detailed in Appendix I, the CCME Code Compliance Table. It is Hatch's opinion that the facility conforms to the requirements as laid in out in the CCME Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products, 2003. △1

10. Earthworks Data

No Earthworks/Geotechnical investigations were performed on the pads constructed for the tanks; therefore there is nothing to report for Earthworks data.

11. Unanticipated Observations

Not applicable.

12. Surface Monitoring

Not applicable.

13. Required Maintenance

Not applicable.

14. Adaptive Management

Construction changes were managed through issue of Engineering Change Notices (ECNs) for changes to the design and through Requests For Information (RFIs) for changes requested by the Contractor.

For discussion of adaptive management principles and practices applied and their overall effectiveness please refer to the Annual Report to the Nunavut Water Board and the Nunavut Impact Review Board.

15. Concordance with Type "A" Water Licence

Baffinland's Type A Water Licence, Schedule D, outlines the requirements for Construction Summary/Monitoring Reports. Table 15-1 provides a concordance of this report with the requirements of Schedule D.

Table 15-1: Concordance with Type "A" Water Licence

Schedule D Item No.	Schedule D Description	Corresponding Section in this Report
1a	Description of all infrastructure and facilities designed and constructed to contain, withhold, divert or retain Water and/or Waste;	1
1b	A summary of construction activities including photographic records before, during and after construction of the facilities and infrastructure designed to contain, withhold, divert or retain Water and/or Waste;	2, 3, 4
1c	As-built drawings and design for facilities and infrastructure, in Item 1(a) of this schedule, designed and constructed to contain, withhold, divert or retain Water and/or Waste;	5
1d	Documentation of field decisions that deviate from the original plans and any data used to support or developed facilities and infrastructure to withhold, divert or retain Water and/or Waste;	6
1e	A comparison of measured versus predicted performance of infrastructure and facilities;	7
1f	Any blast vibration monitoring and control for quarrying activity carried out in close proximity to fish bearing waters;	8
1g	Monitoring conducted for sediment and explosives residue release from construction areas;	9
1h	Monitoring undertaken in accordance with Part D of the Licence during the Construction Phase of the Project;	8, 9
1i	Details confirming that the requirements of the CCME guidance document entitled "Aboveground Storage Tank Systems for Petroleum and Allied Petroleum Products (2003)" have been met by the Licensee;	9 Appendix I
1j	Data collected from instrumentation used to monitor earthworks and the interpretation of that data;	10
1k	A discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk during construction;	11
1l	An overview of any method including frequency used to monitor deformations, seepage and geothermal responses;	12
1m	A summary of maintenance work undertaken as a result of settlement or deformation of dikes and dams;	13
1n	A summary of adaptive management principles and practices applied during the relevant phases of the Project and their overall effectiveness.	14

16. Concordance with Commercial Lease Requirements

Table 16-1 provides a concordance of this report with the requirements of the Commercial Lease for As-built reporting.

Table 16-1: Concordance for Commercial Lease As-built Requirements

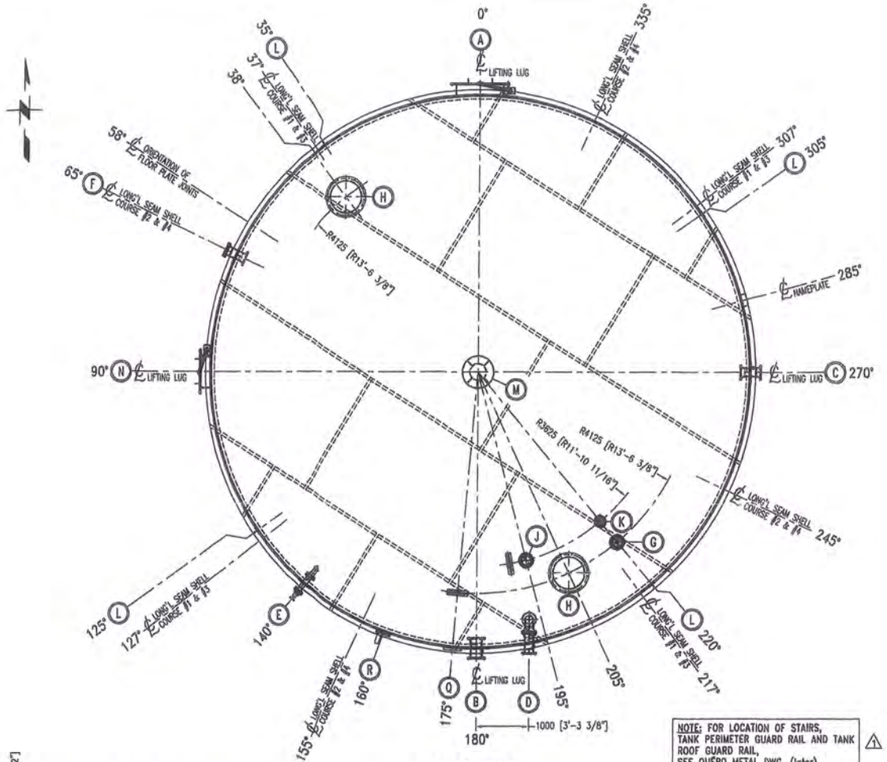
Component	Minimum Information Requirements	Corresponding Section in this report
1	The name and contact information of the person and company responsible for completing the construction, construction monitoring and preparing the As-built Report	Appendix D
2	The name and contact information of the Baffinland representatives(s) that QIA can contact should it have any questions or comments regarding the As-built Report	Appendix D
3	An introduction to the infrastructure or facilities including but not limited to the construction background, concept and construction history	1,2
4	Construction records including As-built drawings signed and stamped by a professional engineer detailing surveys, planar and cross sections that illustrate all designed components. This should be provided in PDF format and if requested the native file (e.g. CAD, .dxf, etc.)	Appendix A Appendix B Appendix C
5	Detailed description of any deviations from the For Construction Design. Deviations that should be noted include, but are not limited to, changes in design and construction materials, construction methodology or monitoring	6
6	Observed performance of the construction including a comparison to predicted performance. Recommendations for performance monitoring based on observations during construction if applicable	NA
7	A description and list of instrumentation installed, if applicable, and results of construction monitoring including all environmental data. Recommendations for additional performance or environmental monitoring based on observations and monitoring results, if applicable.	NA
8	A summary of quality assurance testing results, if applicable, and comparison of these results to construction/design requirements to ensure performance of the infrastructure or facilities.	3 Appendix C Appendix G
9	A summary of adaptive management principles and practices related to environmental management and monitoring applied during the relevant phases of the Project and their overall effectiveness	NA
10	Photographic records before, during and after construction of the facilities or infrastructure.	4
11	Map(s) to illustrate the completed construction in relation to Lease boundaries and water bodies. The minimum distance from completed or modified facilities and infrastructure to the surveyed boundary of the Property, surveyed boundary of the Impact Area, and the original high water mark should be provided.	Appendix E

1

Appendix A

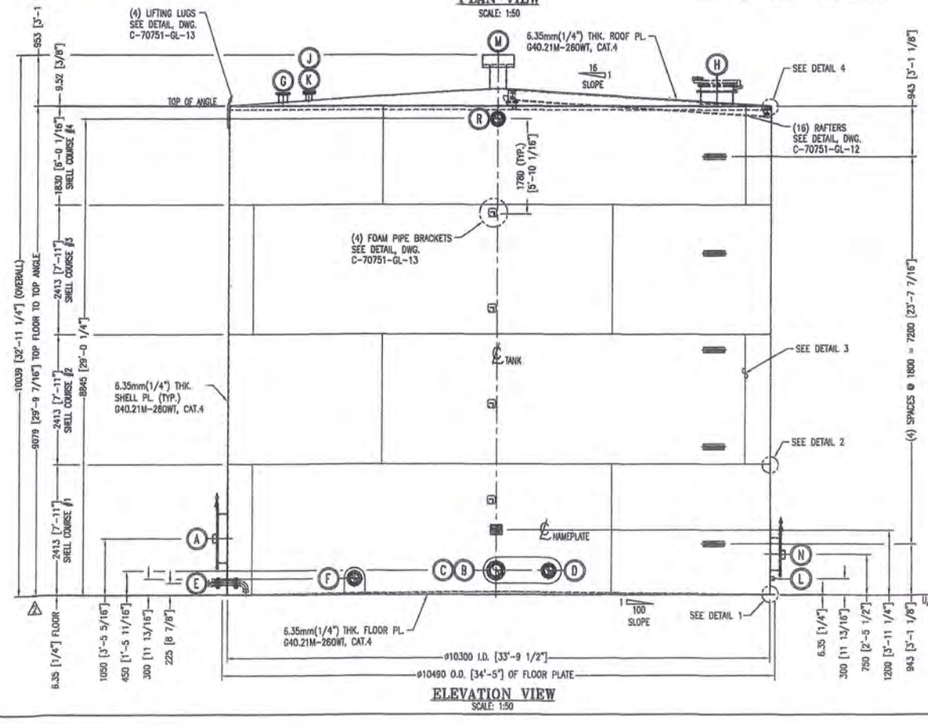
As-built Drawings

TK-010

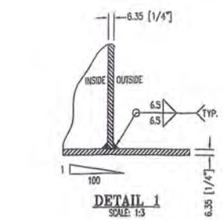


PLAN VIEW
SCALE: 1:50

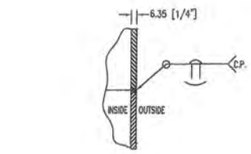
NOTE: FOR LOCATION OF STAIRS, TANK PERIMETER GUARD RAIL AND TANK ROOF GUARD RAIL, SEE QUÉRO METAL DWG. (later)



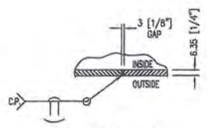
ELEVATION VIEW
SCALE: 1:50



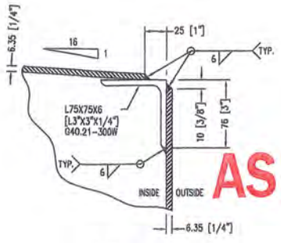
DETAIL 1
SCALE: 1:3



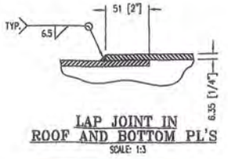
DETAIL 2
CIRC'L SEAM OF SHELL PL'S
SCALE: 1:3



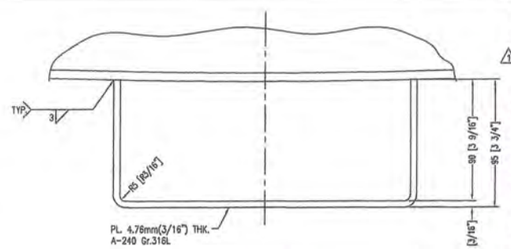
DETAIL 3
LONG'L SEAM OF SHELL PL'S
SCALE: 1:3

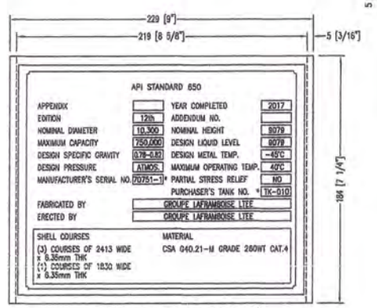


DETAIL 4
SCALE: 1:3

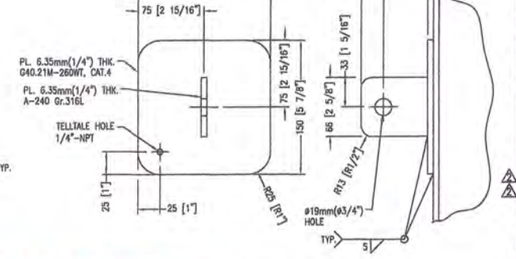


LAP JOINT IN ROOF AND BOTTOM PL'S
SCALE: 1:3





NAMEPLATE DETAIL ⚠
SCALE: 1:2



DETAIL GROUNDING LUGS Ⓛ
(4) ASS'Y REQ'D
SCALE: 1:3

AS BUILT

GENERAL NOTES

⚠
1. TANK SHALL BE DESIGNED, FABRICATED, & ERECTED AS PER API-650 12TH EDITION.
2. ALL SHELL AND ROOF NOZZLES FLANGE BOLT HOLES TO STRADDLE THE CENTERLINE OF THE TANK.
3. RE-PADS AT NOZZLES LOCATED ON THE SHELL SHALL BE PROVIDED WITH (1) ONE 1/4"-NPT TELLTALE HOLE AND SHALL BE AIR TESTED AT 100 kPa (15 Psi) WITH SOAP SOLUTION.
4. ALL EXTERNAL ATTACHMENTS TO THE SHELL OR ATTACHMENTS TO PLATFORM AND GUARDRAILS SHALL BE COMPLETELY SEAL WELDED TO PREVENT CORROSION BETWEEN PARTS.
5. THE END OF THE INTERNAL NOZZLES PROJECTION SHALL BE GROUND INSIDE AND OUTSIDE 3mm (1/8") MIN. RADIUS. WHERE NOZZLES HAVE BEEN FLAME CUT TO TO LENGTH, THE FLAME CUT SHALL BE GROUND SMOOTH.
6. ALL MATERIALS SHALL BE CLEARLY IDENTIFIED AND PROVIDED WITH MILL TEST CERTIFICATES.
7. PAINTING:
   -INTERNAL FOR THE BOTTOM 1.5m, SEE DETAILS IN PARA. 2.1.12 OF SPEC H353004-TM001-240-248-0001.
   -NO EXTERNAL PAINTING.
8. FOR SHOP HYDROSTATIC TEST, USE RUBBER OR NEOPRENE GASKETS AT ALL NOZZLES.
9. IDENTIFICATION AND MARKING AS PER PARA 5.3.20 THRU 5.3.24 OF SCOPE OF WORK SPEC H353004-TM001-240-248-0001.

DESIGN DATA

DATA	
APPLICABLE STANDARD:	API-650, 12TH EDITION AND NBC OF CANADA 2010 ED.
MEDIUM CIRCULATED:	FUEL JET A-1
DESIGN INTERNAL PRESSURE:	ATMOSPHERIC
DESIGN EXTERNAL PRESSURE:	N/A
DESIGN TEMPERATURE:	40°C TO -45°C
SPECIFIC GRAVITY	0.78-0.82
HYDROSTATIC TEST PRESS.:	YES, BEFORE SHIPMENT, FILL WITH WATER UP TO TOP OF SHELL
RADIOGRAPHY: IN ACCORDANCE TO API 650 SECTION 8	YES, IN ACCORDANCE WITH API-650 PARA. 8.1.2 TO 8.1.8
MT OR PT: IN ACCORDANCE TO API 650 SECTION 8	-1ST PASS OF INTERNAL SHELL-TO-BOTTOM WELD -NON-STRUCTURAL SMALL ATTACHMENTS -ALL SHELL WELDS -MT ON NOZZLE TO SHELL AND NOZZLE TO PAD WELDS ON BACK GOUGED PASS AND ON COMPLETED WELD
UT IN ACCORDANCE TO API 650 PARA. 8.3.2	YES ON THE COMPLETED WELDS OF NOZZLE TO SHELL AND NOZZLE TO PAD JOINTS ACCEPTANCE CRITERIA PER ASME B & PV CODE SEC VIII DIV.1 APPENDIX 12
VACUUM BOX LEAK TEST: IN ACCORDANCE TO API 650 SECTION 8	-ON SHELL-TO-BOTTOM PLATE JOINT AFTER COMPLETION OF WELDING ON BOTH SIDES -ON ALL WELDS IN BOTTOM PLATE
"KEROSENE & CHALK" TEST:	NO
VISUAL EXAMINATION: IN ACCORDANCE TO API 650 SECTION 8	1- ALL SHELL PLATE BUTT WELDS 2- ALL FILLET WELDS INCLUDING ROOF PLATE WELDS 3- SHELL-TO-BOTTOM WELD. a) INITIAL WELD PASS INSIDE & OUTSIDE b) FINISHED JOINT INSIDE & OUTSIDE 4- WELDING OF NON-STRUCTURAL SMALL ATTACHMENTS
AIR TEST:	ALL NOZZLE REPADS AT 100 kPa (15 Psi)
TOLERANCES:	IN ACCORDANCE WITH API 650 PARA. 7.5
CORROSION ALLOWANCE:	NIL
STRESS RELIEF:	NO
IMPACT TEST:	YES, ON WELDING PROCEDURES @ -45°C IN ACCORDANCE WITH API 650 PARA. 9.2.2
WELDING:	TO ASME SEC IX 2015 ED.
WELDING PROCEDURE:	LATER
INSPECTION BY:	CUSTOMER
WEIGHTS:	EMPTY= 30,000KG | FULL OF WATER: 790,000KG | OPERATING: 650,000KG
CAPACITY:	750,000 LITERS
FRANGIBLE ROOF:	NO
LOCATION:	MILNE PORT
SEISMIC: Sa (0.2) / Sa (1.0) / SITE CLASS	0.342 / 0.101 / C
SNOW: Ss / Sr	2.1 kPa / 0.2 kPa
WIND LOAD:	REFERENCE VELOCITY PRESSURE = 0.55 kPa
SOIL BEARING:	188 kPa MAX.

MATERIAL SPECIFICATIONS

ITEM	MATERIAL
SHELL:	G40.21M GRADE 260WT CAT.4 (-50°F), KILLED AND FINE GRAIN PRACTICE
TOP & BOTTOM:	G40.21M GRADE 260WT CAT.4 (-50°F), KILLED AND FINE GRAIN PRACTICE
PADS UNDER EXTERNAL ATTACHMENTS	G40.21M GRADE 260WT CAT.4 (-50°F), KILLED AND FINE GRAIN PRACTICE
REINFORCING PADS:	G40.21M GRADE 260WT CAT.4 (-50°F), KILLED AND FINE GRAIN PRACTICE
PIPE:	A-333 GRADE 6
FLANGES:	A-350 LF2 CLASS 1
FITTINGS:	A-420-WPL 6
EXTERNAL BOLTING:	A-193-B7 CADMIUM PLATED/A-194-2H CADMIUM PLATED TO ASTM B766-86 (2008)
INTERNAL BOLTING:	A-193-B8M/A-194-8/8M
⚠ GASKETS FOR MANWAYS:	1/16" THK. GARLOCK G9900
⚠ GASKETS FOR NOZZLES:	1/16" THK. GARLOCK G9900 FOR CLASS 150 FLANGES.
STRUCTURAL STEEL SUPPORTING COMPONENTS WITHIN THE TANK	W, WT, S SHAPES: G40.21-350W STRUCTURAL HOLLOW: G40.21-350W C SHAPES, ANGLES: G40.21-300W

TABLE OF CONNECTIONS

THICK x WIDTH.	MARK	QTY	NOM. SIZE	NECK	FLANGE	SERVICE	DET	DWG.NO.
SEE DETAIL	A	1	915(36")	12.7mm PL.	API 650 F.F.	SHELL MANWAY	20	C-70751-GL-43
9.5 X 130	B	1	200(8")	SCH:X.S.	W.N.R.F. CLASS:150	TANK SUCTION	10	C-70751-GL-41
8.5 X 116	C	1	150(6")	SCH:X.S.	W.N.R.F. CLASS:150	TANK FILL	19	C-70751-GL-42
9.5 X 155	D	1	150(6")	SCH:X.S.	W.N.R.F. CLASS:150	TANK DRAW-DOWN	11	C-70751-GL-41
9.5 X 88	E	1	75(3")	SCH:X.S.	W.N.R.F. CLASS:150	WATER DRAIN NOZZLE	12	C-70751-GL-41
SEE DETAIL	F	1	150(6")	SCH:X.S.	W.N.R.F. CLASS:150	SPARE SHELL NOZZLE C/W BLIND	13	C-70751-GL-41
-	G	1	150(6")	SCH:40	S.O.R.F. CLASS:150	GAUGE HATCH	14	C-70751-GL-41
6.35 X 270	H	2	610(24")	SCH:40	API 650 F.F.	ROOF MANWAY C/W EMERGENCY RELIEF	18	C-70751-GL-42
-	J	1	150(6")	SCH:40	S.O.R.F. CLASS:150	RADAR GAUGE	14	C-70751-GL-41
-	K	1	100(4")	SCH:40	S.O.R.F. CLASS:150	ROOF NOZZLE (ENSEAL PROBE) C/W BLIND	15	C-70751-GL-41
-	L	4	-	-	-	GROUNDING LUGS	-	C-70751-GL-1
-	M	1	305(12")	SCH:STD.	-	ROOF VENT	17	C-70751-GL-42
-	N	1	610(24")	12.7mm PL.	API 650 F.F.	SHELL MANWAY	21	C-70751-GL-44
-	Q	8	-	-	-	CABLE TRAY SUPPORT	-	C-70751-GL-13
-	R	1	150(6")	-	STUDDING OUTLET CLASS:150	FOAM CHAMBER INLET C/W BLIND	16	C-70751-GL-42

REV	REVISION DESCRIPTION	BY	APR'D	DATE
⚠	MAT'L OF GASKET & DIM. ON ELEVATION REVISED	M.H.	M.N.	12/06/17
⚠	NOTE ADDED ON PLAN VIEW, NAME PLATE & API EDITION REVISED	M.H.	M.N.	24/05/17

REGISTERED PROFESSIONAL ENGINEER M. NAWAR LICENSEE

2017-07-11

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5" NOT EXCEEDING 0.060" PER 12"	ANGULAR ± 0.5" NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

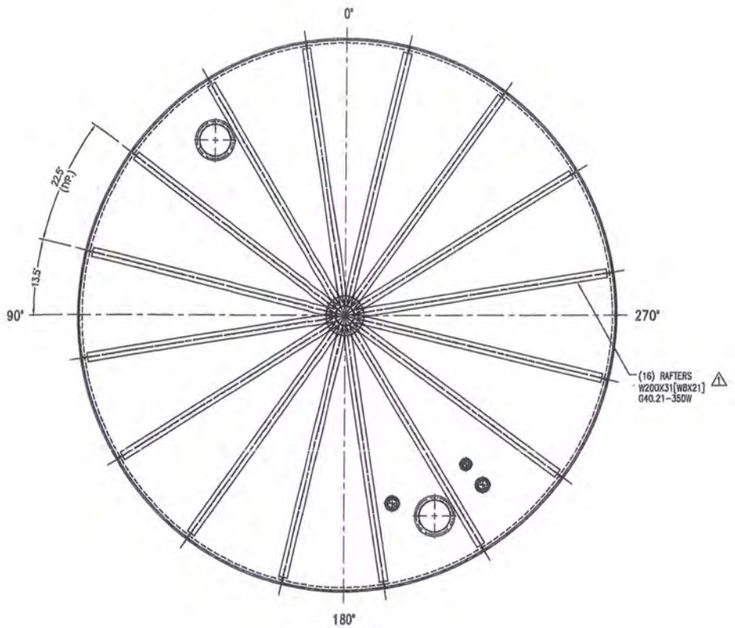
QTY. REQ'D.= (1) ONE
REF. HATCH DWG. H349000-2614-50-035-0008

STANDARD SYMBOLS
- ○ – DENOTES NOZZLE No.
- ⬡ – DENOTES PART No.
- △ – DENOTES REVISION No.
- □ – DENOTES WELD No.

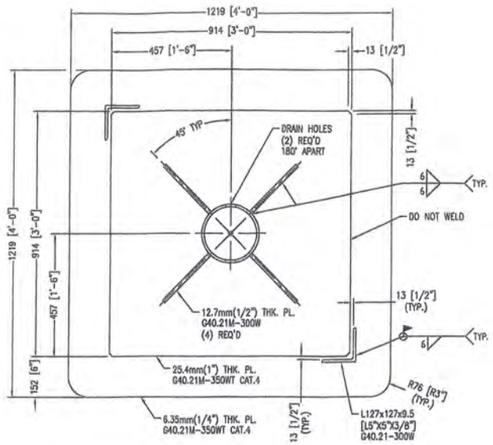
RT – DENOTES RADIOGRAPHY
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

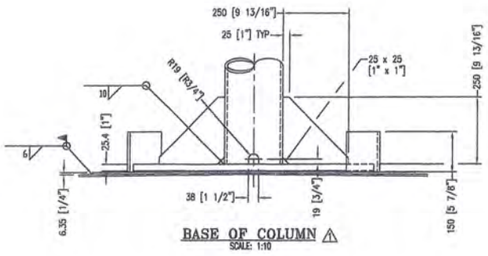
Groupe Laframboise
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-8684 FAX: (613) 933-9910

CUSTOMER:	BAFFINLAND IRON MINES CORP.	CONTRACT NO.:	-
PROJECT:	MARY RIVER PROJECT – ERP PROJECT NO.: H353004		
TITLE:	JET-A1 STORAGE TANK GENERAL ARRANGEMENT		
TANK NO.: TK-010			
DRAWN BY: M.H.	DRAWING NO.	REV	
DATE: APRIL 24, 2017	C-70751-GL-11	2	
SCALE: AS NOTED			
CHK'D BY: M.N.			

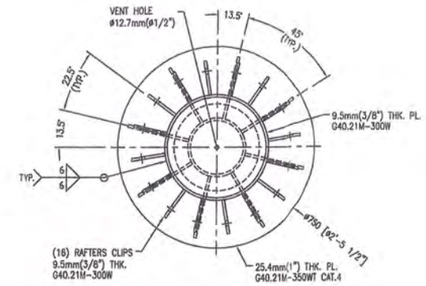


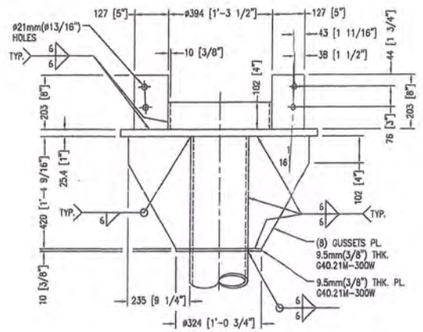
PLAN VIEW
SCALE: 1:50



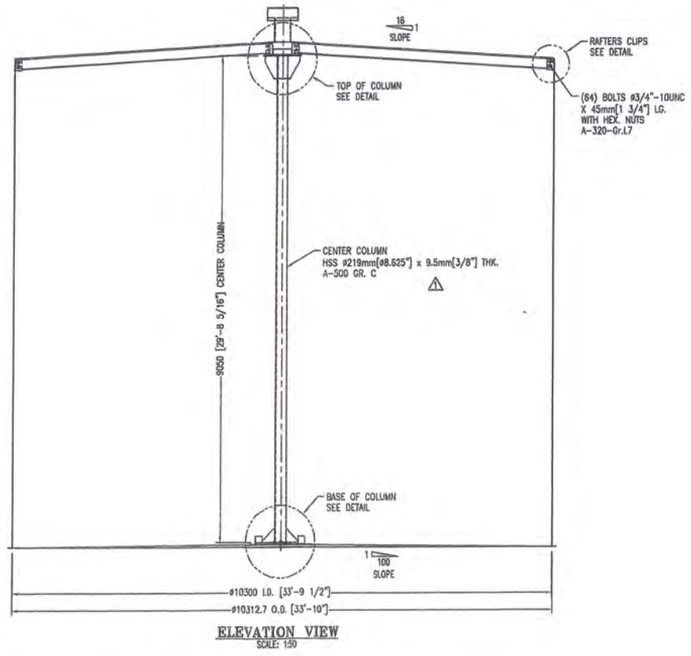


BASE OF COLUMN ⚠
SCALE: 1:10

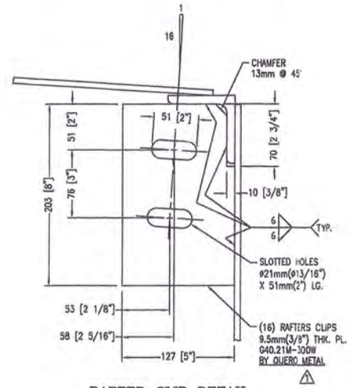




TOP OF COLUMN ⚠
SCALE: 1:10



ELEVATION VIEW
SCALE: 1:50



RAFTER CLIP DETAIL
SCALE: 1:3

AS BUILT

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
2017-07-11

REV	DESCRIPTION	BY	APP'D	DATE
⚠	GENERAL REVISION AS NOTED	M.H.	M.N.	09/06/17

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1,6 N8=3,2 N9=6,4

QTY. REQ'D.= (1) ONE

REF. HATCH DWG.
H349000-2614-50-035-000B

STANDARD SYMBOLS
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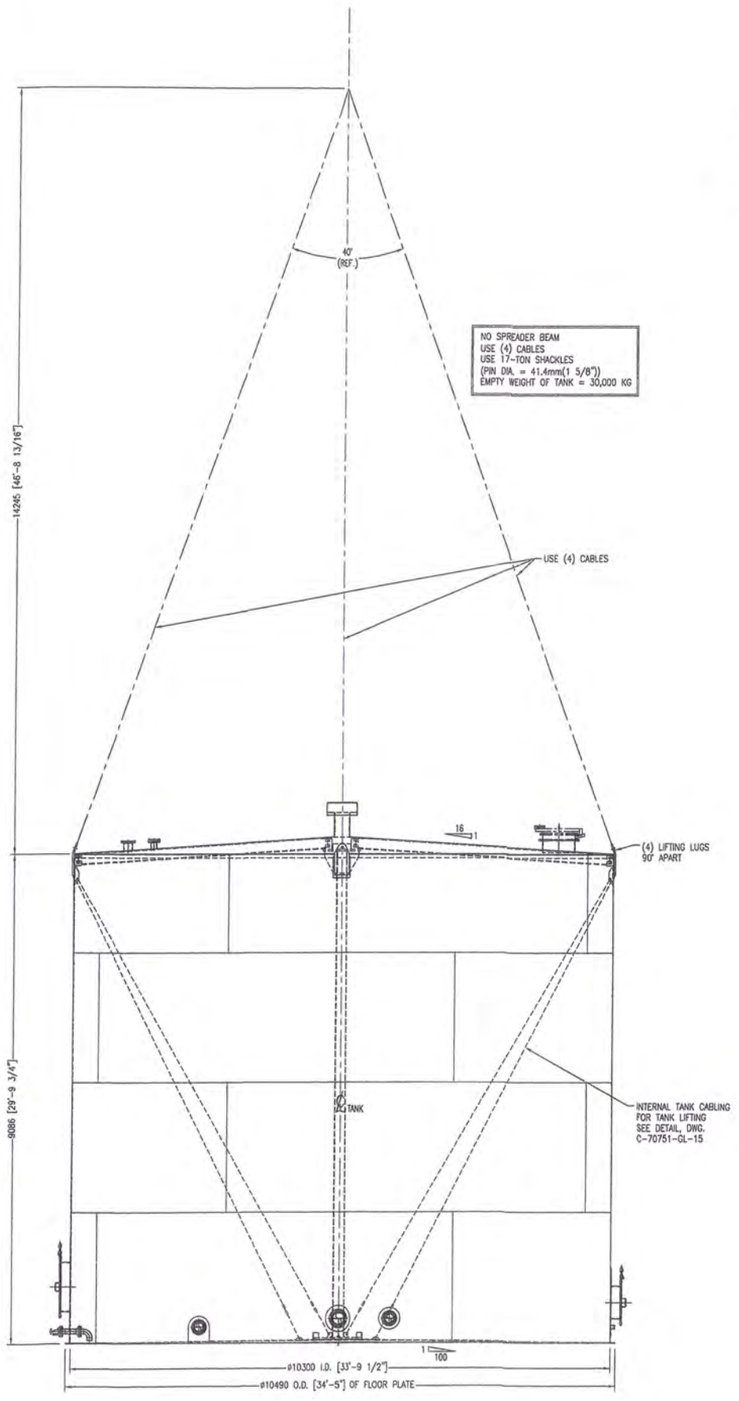
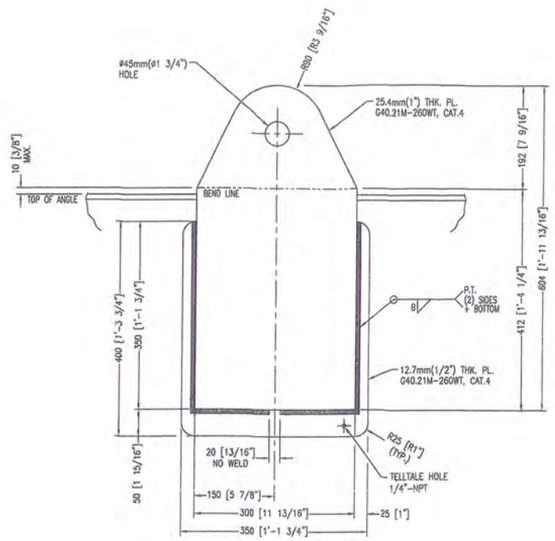
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

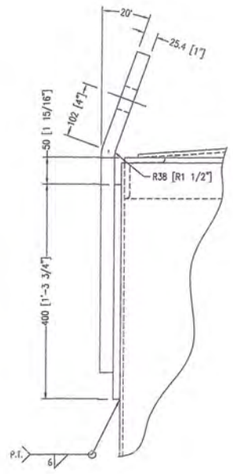
CUSTOMER:	BAFFINLAND IRON MINES CORP.
CONTRACT NO.:	–
PROJECT:	MARY RIVER PROJECT – ERP PROJECT NO.: H353004
TITLE:	JET-A1 STORAGE TANK DETAILS DRAWING
TANK NO.:	TK-010
DRAWN BY:	M.H.
DATE:	APRIL 24, 2017
SCALE:	AS NOTED
CHK'D BY:	M.N.
DRAWING NO.	C-70751-GL-12
REV	1

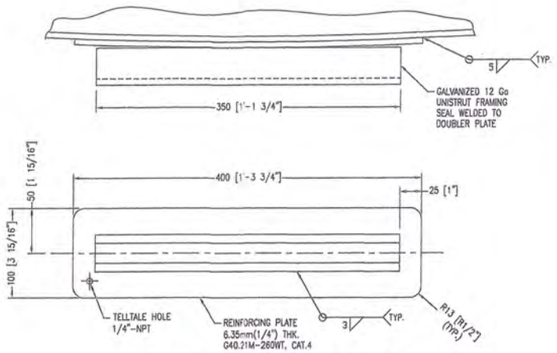


LIFTING DETAIL
ELEVATION VIEW
SCALE: 1:50

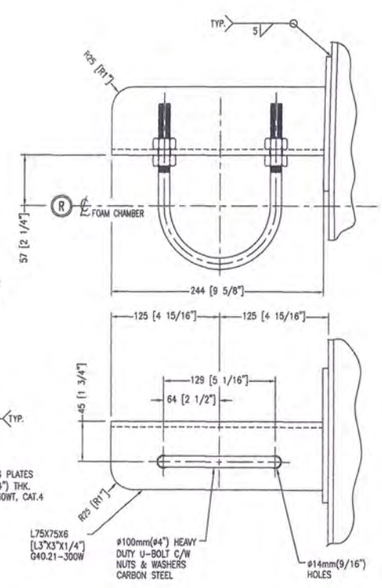


LIFTING LUG DETAIL
(4) ASS'Y REQ'D
SCALE: 1:5





CABLE TRAY SUPPORT DETAIL (G)
(8) ASS'Y REQ'D
SCALE: 1:3



FOAM PIPE BRACKET DETAIL
(4) ASS'Y REQ'D
SCALE: 1:3

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NT/NU
2017-07-11

AS BUILT

REV	REVISION DESCRIPTION	BY	APRV'D	DATE
△	-	-	-	-

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC–mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra)	SURFACE FINISH: (Ra)
N7=63 N8=125 N9=250	N7=1,6 N8=3,2 N9=6,4

QTY. REQ'D.= (1) ONE

REF. HATCH DWG.
H349000-2614-50-035-0008

STANDARD SYMBOLS
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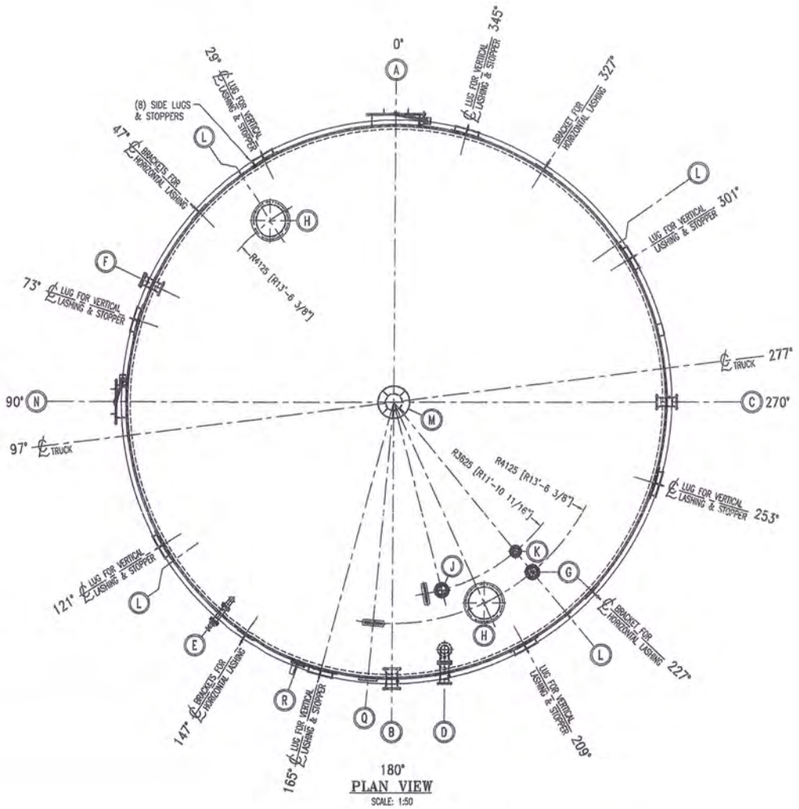
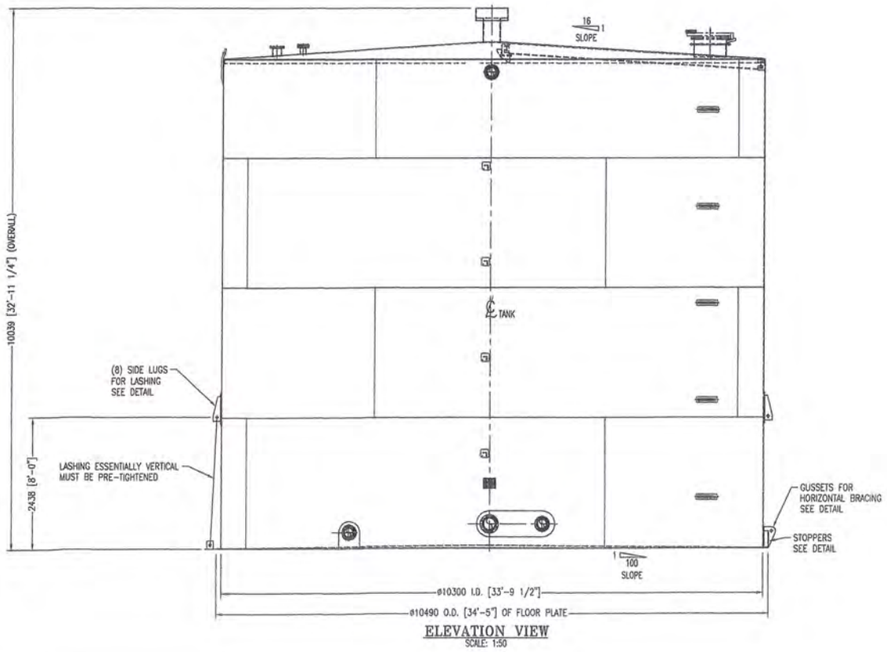
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

Groupe Laframboise
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

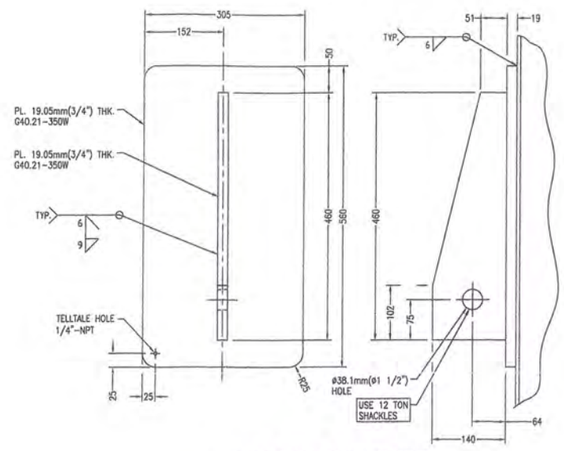
CUSTOMER: BAFFINLAND IRON MINES CORP.	CONTRACT NO.: –
PROJECT: MARY RIVER PROJECT – ERP PROJECT NO.: H353004	
TITLE: JET–A1 STORAGE TANK DETAILS DRAWING	
TANK NO.: TK–010	
DRAWN BY: M.H.	DRAWING NO. C-70751-GL-13 REV 0
DATE: APRIL. 24. 2017	
SCALE: AS NOTED	
CHK'D BY: M.N.	



PLAN VIEW
SCALE: 1:50

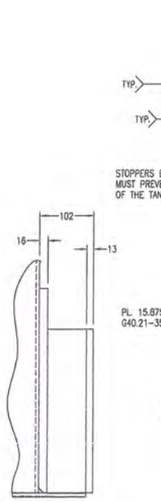


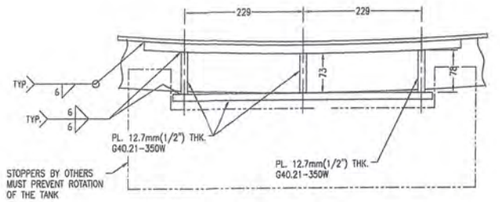
ELEVATION VIEW
SCALE: 1:50

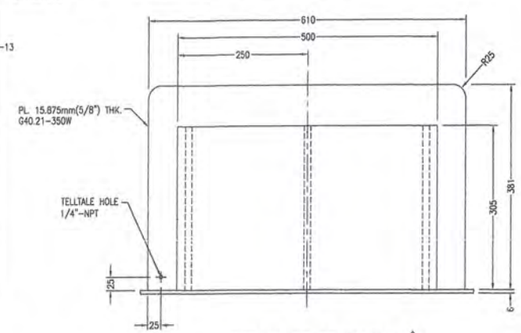


SIDE LUGS FOR LASHING
FOR SHIP/BARGE TRANSPORT
(8) ASS'Y REQ'D PER TANK
SCALE: 1:5

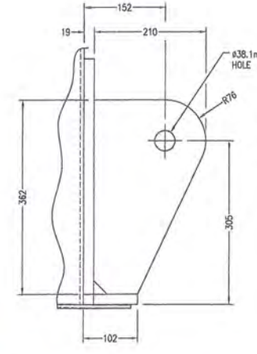
NOTE: LASHING MUST BE VERTICAL OR CLOSE TO VERTICAL (MAX. ANGLE = 3°)

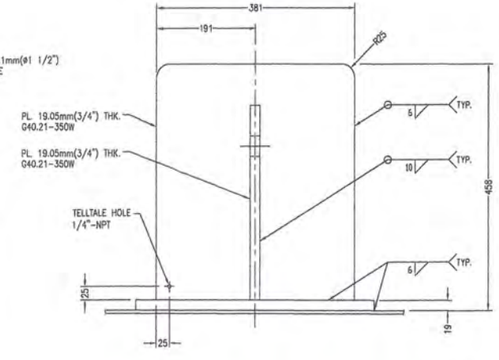






DETAIL OF STOPPERS ⚠1
(8) ASS'Y REQ'D PER TANK
SCALE: 1:5





DETAIL OF GUSSET FOR HORIZONTAL BRACING ⚠1
(4) ASS'Y REQ'D PER TANK
SCALE: 1:5

AS BUILT

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
2017-07-11

REV	REVISION DESCRIPTION	BY	APR'D	DATE
⚠1	-	-	-	-

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120"± 0.125"	300 TO 3000 ± 3.1
121" TO 240"± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra)	SURFACE FINISH: (Ra)
N7=63 N8=125 N9=250	N7=1,6 N8=3,2 N9=6,4

QTY. REQ'D.= (1) ONE

REF. HATCH DWG.
H349000-2614-50-035-0008

STANDARD SYMBOLS
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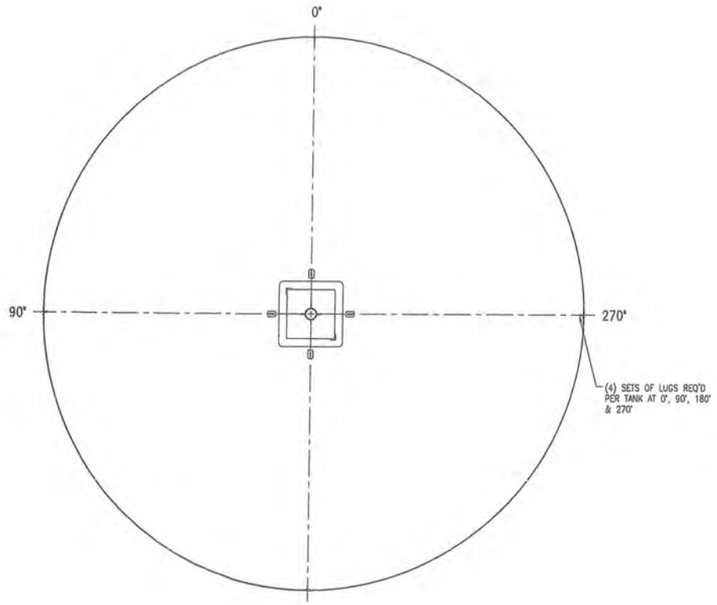
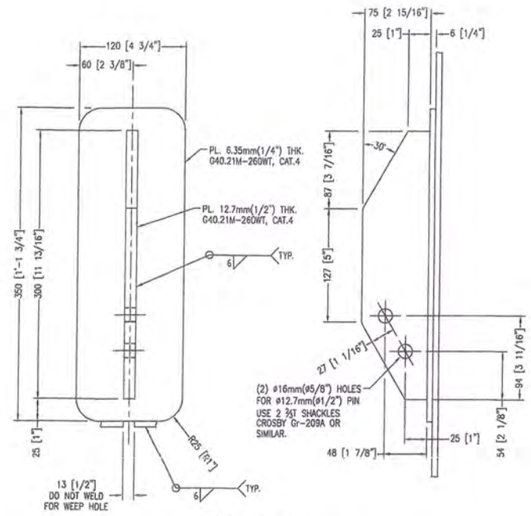
Groupe Laframboise
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

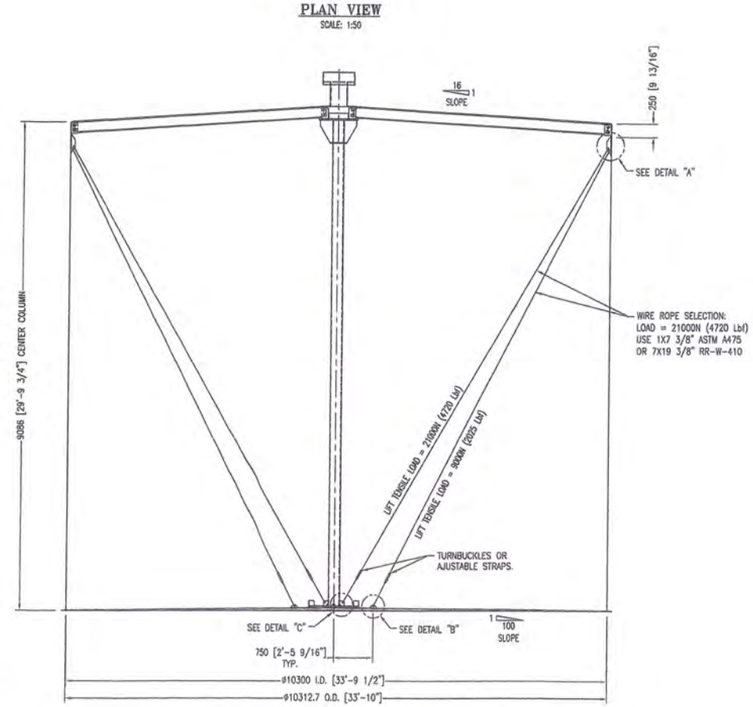
CUSTOMER:	BAFFINLAND IRON MINES CORP.	CONTRACT NO.:	-
PROJECT:	MARY RIVER PROJECT – ERP PROJECT NO.: H353004		
TITLE:	JET-A1 STORAGE TANK BRACKETS FOR LASHING		
TANK NO.:	TK-010		
DRAWN BY:	M.H.	DRAWING NO.	REV
DATE:	APRIL 24, 2017	C-70751-GL-14	0
SCALE:	AS NOTED		
CHK'D BY:	M.N.		



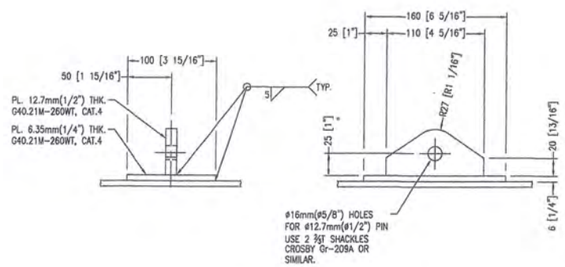
PLAN VIEW
SCALE: 1:50



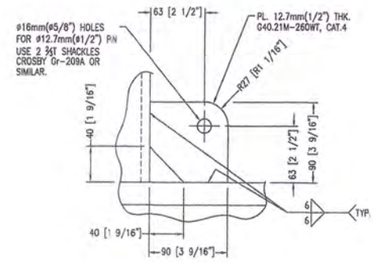
DETAIL "A"
(4) REQ'D PER TANK
SCALE: 1:3



ELEVATION VIEW
FLOOR BRACING FOR LIFTING
SCALE: 1:50



DETAIL "B"
(4) REQ'D PER TANK
SCALE: 1:3



DETAIL "C"
(4) REQ'D PER TANK
SCALE: 1:3

AS BUILT

REV	REVISION DESCRIPTION	BY	APRV'D	DATE
△	-	-	-	-

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

QTY. REQ'D.= (1) ONE

REF. HATCH DWG.
H349000-2614-50-035-0008

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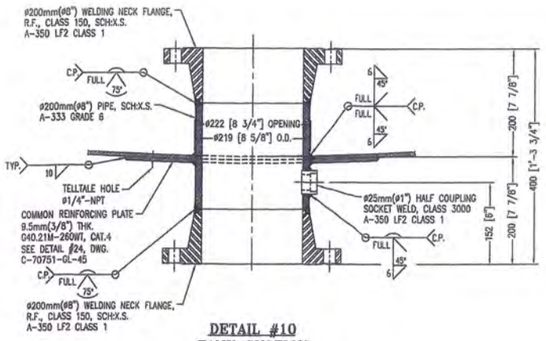
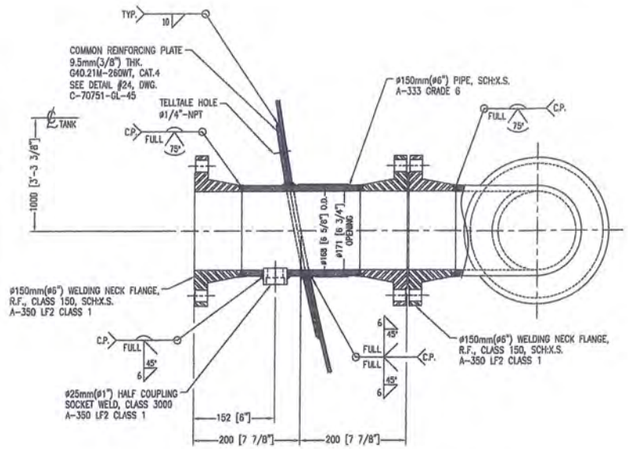
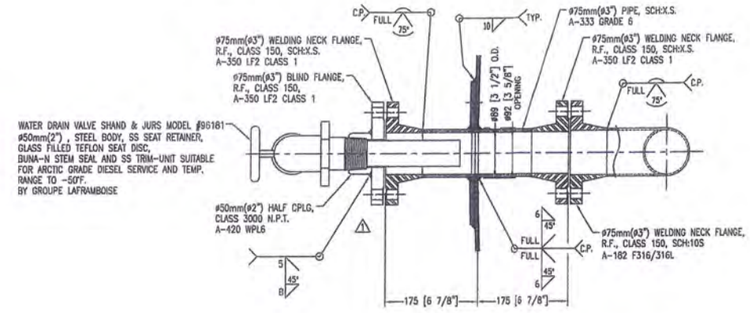
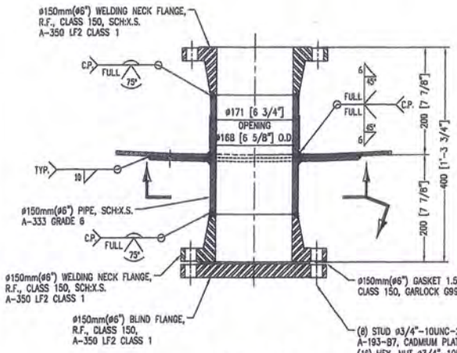
CUSTOMER:	BAFFINLAND IRON MINES CORP.	CONTRACT NO.:	-
PROJECT:	MARY RIVER PROJECT - ERP PROJECT NO.: H353004		
TITLE:	JET-A1 STORAGE TANK DETAILS DRAWING		
TANK NO.: TK-010			
DRAWN BY: M.H.		DRAWING NO.	REV
DATE: APRIL 24, 2017		C-70751-GL-15	0
SCALE: AS NOTED			
CHK'D BY: M.N.			



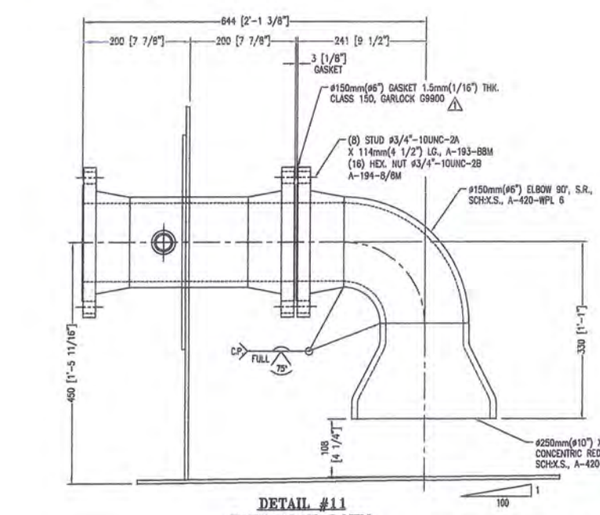
DETAIL #10
TANK SUCTION
SCALE: 1:5



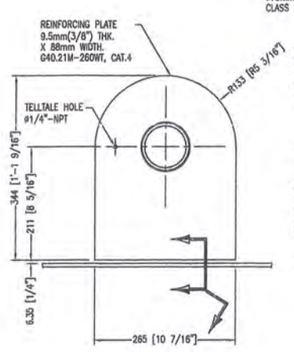


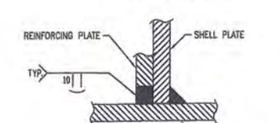


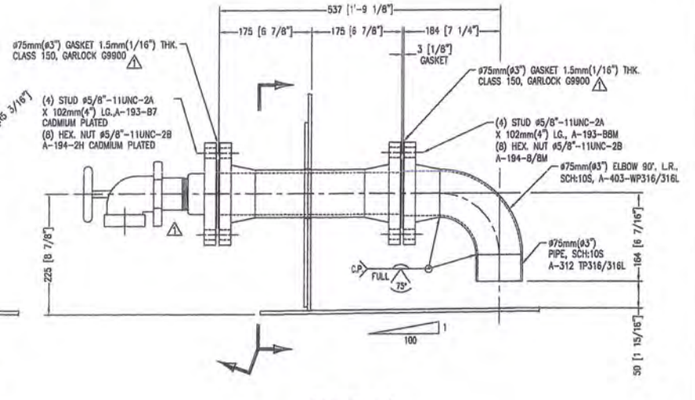
DETAIL #13
SPARE SHELL NOZZLE C/W BLIND
SCALE: 1:5



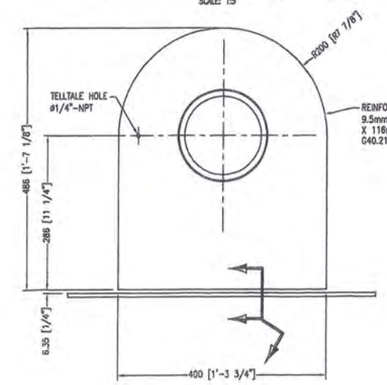
DETAIL #11
TANK DRAW-DOWN
SCALE: 1:5

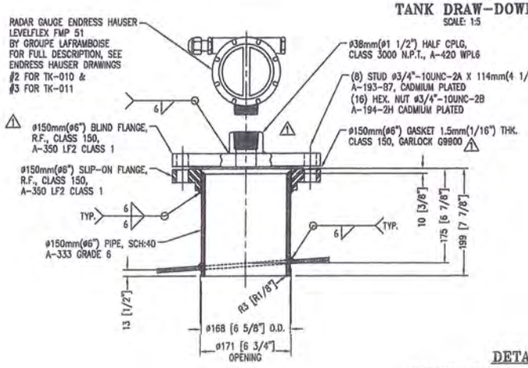




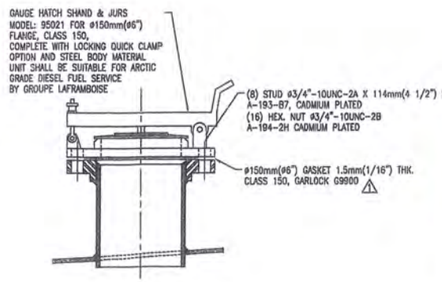


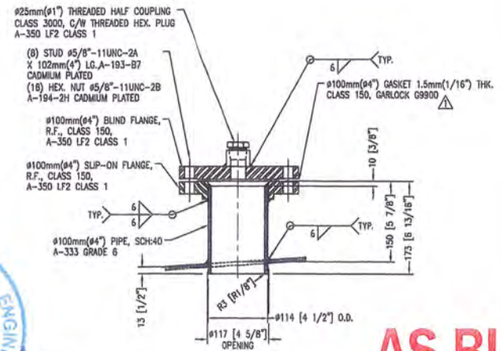
DETAIL #12
WATER DRAIN NOZZLE
SCALE: 1:5





DETAIL #14
GAUGE HATCH & RADAR GAUGE
SCALE: 1:5





DETAIL #15
ROOF NOZZLE (OVERFILL PROBE)
SCALE: 1:5

AS BUILT

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
2017-11

REV	REVISION DESCRIPTION	BY	APRV'D	DATE
1	RADAR GAUGE, WATER DRAIN & MAT'L OF GASKET	M.H.	M.N.	12/06/17
	REVISED	M.H.	M.N.	09/06/17

TOLERANCES
UNLESS OTHERWISE NOTED

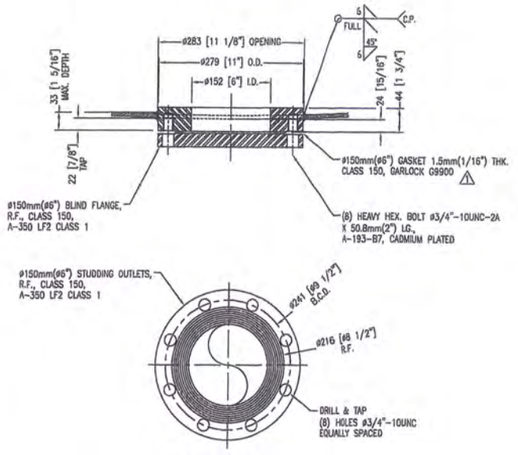
INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120"± 0.125"	300 TO 3000 ± 3.1
121" TO 240"± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5' NOT EXCEEDING 0.060" PER 12"	ANGULAR ± 0.5' NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

STANDARD SYMBOLS
- ○ – DENOTES NOZZLE No.
- ⬡ – DENOTES PART No.
- △ – DENOTES REVISION No.
- □ – DENOTES WELD No.

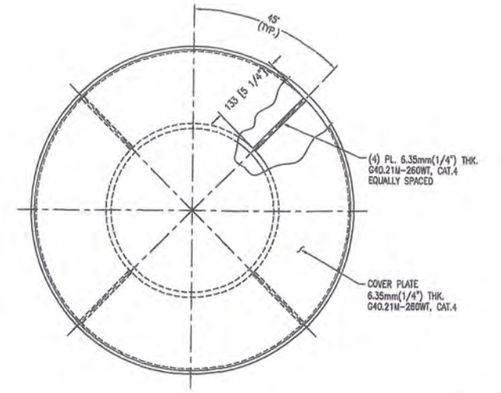
RT – DENOTES RADIOGRAPHY
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

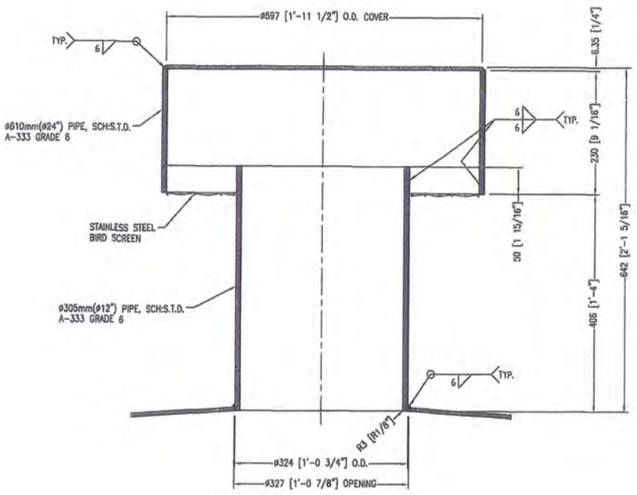
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-8664 FAX: (613) 933-9910

CUSTOMER:	BAFFINLAND IRON MINES CORP.
CONTRACT NO.:	-
PROJECT:	MARY RIVER PROJECT – ERP
PROJECT NO.:	-
TITLE:	STORAGE TANK TYPICAL DETAILS DRAWING
TANK NO.:	
DRAWN BY:	B.C.
DRAWING NO.	C-70751-GL-41
REV	1
DATE:	APRIL. 28. 2013
SCALE:	AS NOTED
CHK'D BY:	M.N.

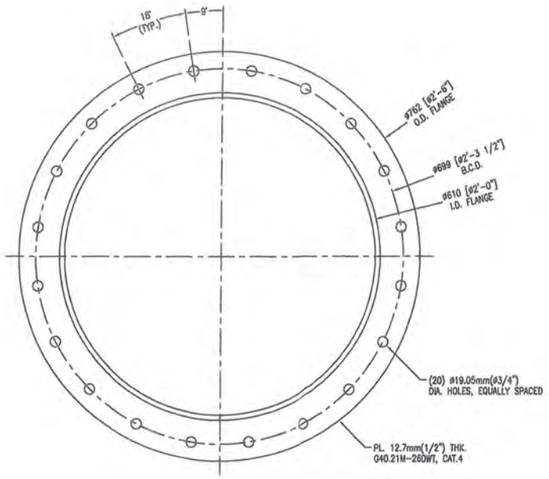


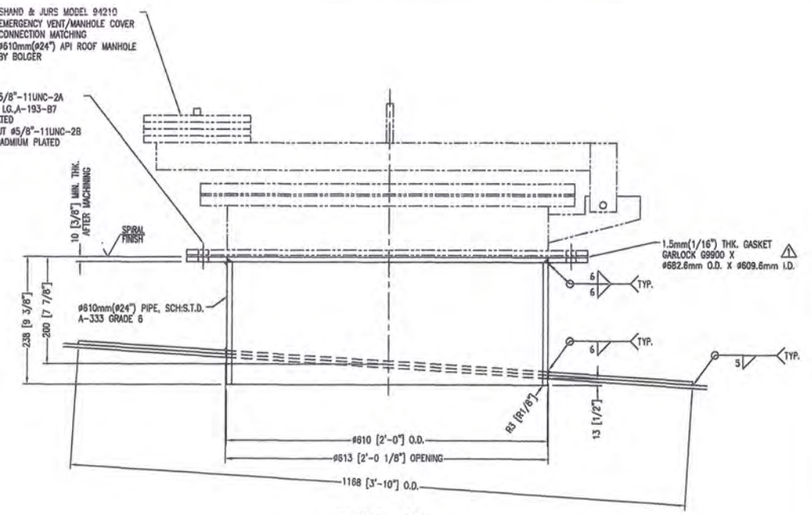
DETAIL #16
FOAM CHAMBER INLET
SCALE: 1:5



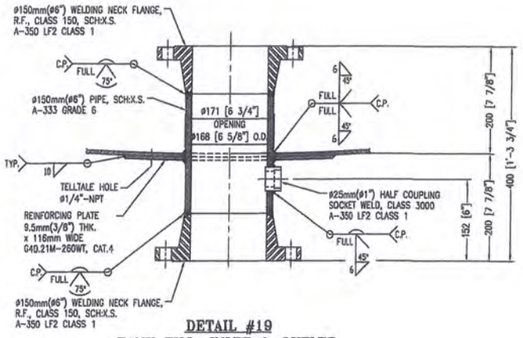


DETAIL #17
ROOF VENT
SCALE: 1:5





DETAIL #18
ROOF MANWAY WITH EMERGENCY RELIEF
SCALE: 1:5



DETAIL #19
TANK FILL, INLET & OUTLET
SCALE: 1:5

AS BUILT

REV	REVISION DESCRIPTION	BY	APR'D	DATE
⚠	MAT'L OF GASKET REVISED	M.H.	M.N.	12/05/17

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC–mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120"± 0.125"	300 TO 3000 ± 3.1
121" TO 240"± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1,6 N8=3,2 N9=6,4

STANDARD SYMBOLS
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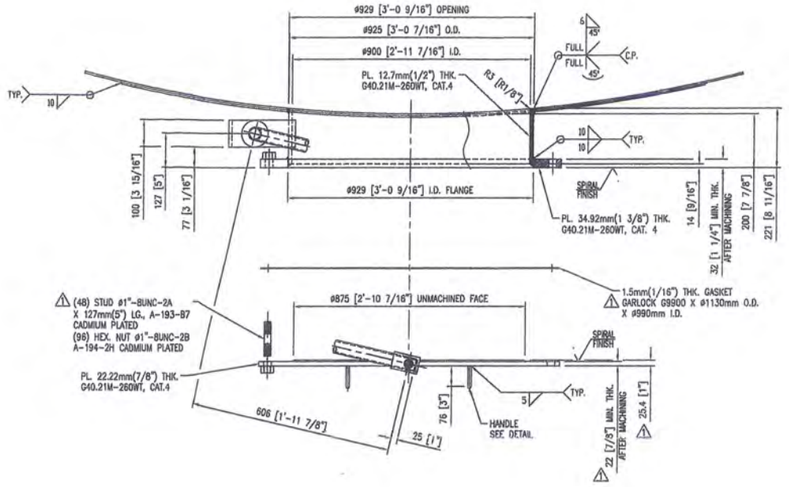
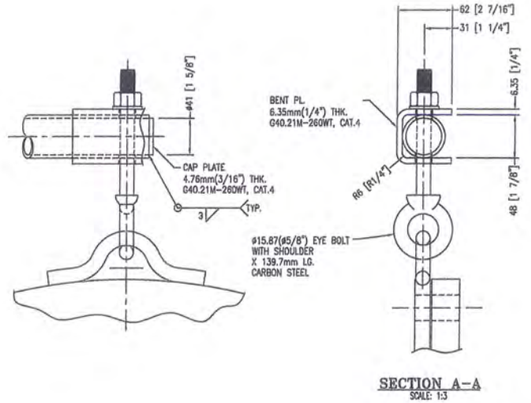
- ⬡ – DENOTES PART No.
- △ – DENOTES REVISION No.
- □ – DENOTES WELD No.

RT – DENOTES RADIOGRAPHY
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

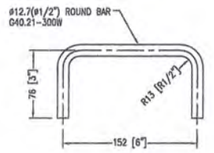
Groupe Laframboise
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

CUSTOMER:	BAFFINLAND IRON MINES CORP.
CONTRACT NO.:	–
PROJECT:	MARY RIVER PROJECT – ERP PROJECT NO.:
TITLE:	STORAGE TANK TYPICAL DETAILS DRAWING
TANK NO.:	
DRAWN BY:	B.C.
DATE:	APRIL 30. 2013
SCALE:	AS NOTED
CHK'D BY:	M.N.
DRAWING NO.	C-70751-GL-42
REV	1

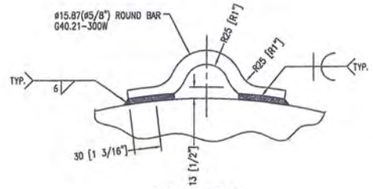




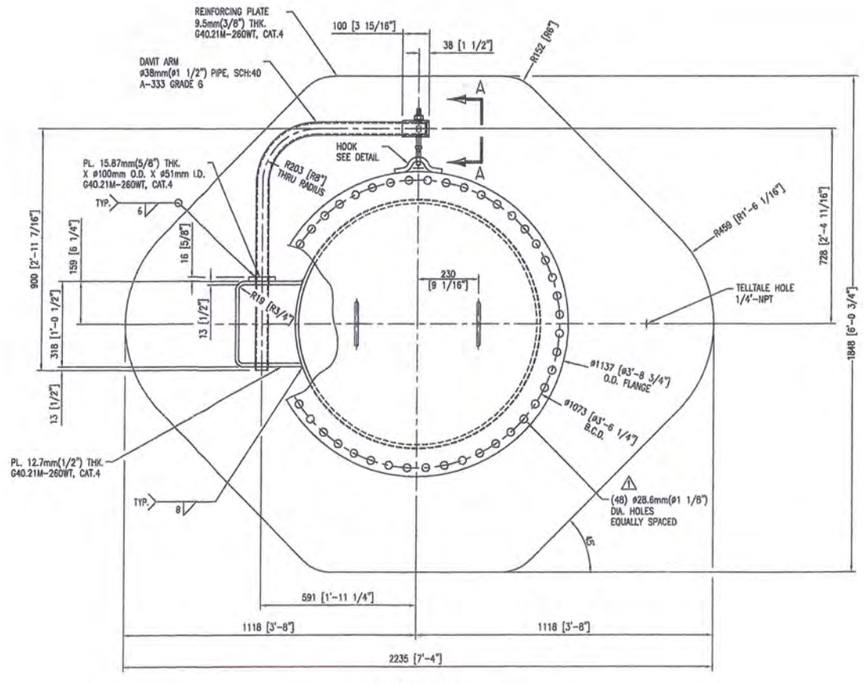
SECTION A-A
SCALE: 1:3



HANDLE DETAIL
SCALE: 1:3



HOOK DETAIL
SCALE: 1:3



DETAIL #20
ø915mm(ø36") SHELL MANWAY
SCALE: 1:10

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
2017-07-11

AS BUILT

REV	REVISION DESCRIPTION	BY	APP'D	DATE
1	MANWAY DETAIL #20 & MAT'L OF GASKET REVISED	M.N.	M.N.	12/06/17

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120"± 0.125"	300 TO 3000 ± 3.1
121" TO 240"± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1,6 N8=3,2 N9=6,4

STANDARD SYMBOLS
- ○ – DENOTES NOZZLE No.
- ⬡ – DENOTES PART No.
- △ – DENOTES REVISION No.
- □ – DENOTES WELD No.

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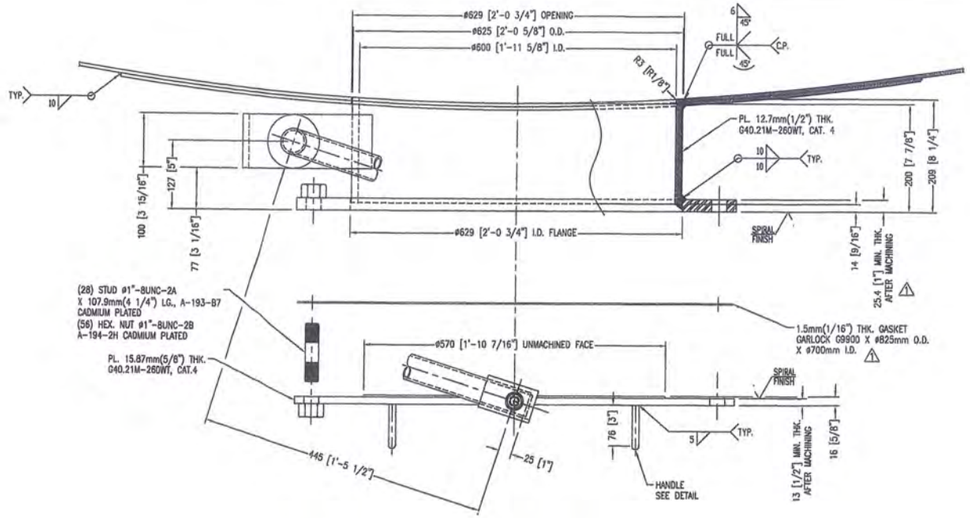
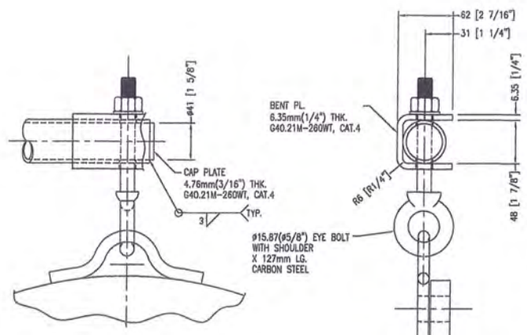
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

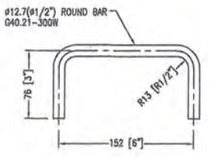
Groupe Laframboise
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

CUSTOMER:	BAFFINLAND IRON MINES CORP.
CONTRACT NO.:	-
PROJECT:	MARY RIVER PROJECT – ERP
PROJECT NO.:	
TITLE:	STORAGE TANK TYPICAL DETAILS DRAWING
TANK NO.:	
DRAWN BY:	B.C.
DATE:	MAY. 01. 2013
SCALE:	AS NOTED
CHK'D BY:	M.N.
DRAWING NO.	C-70751-GL-43
REV	1



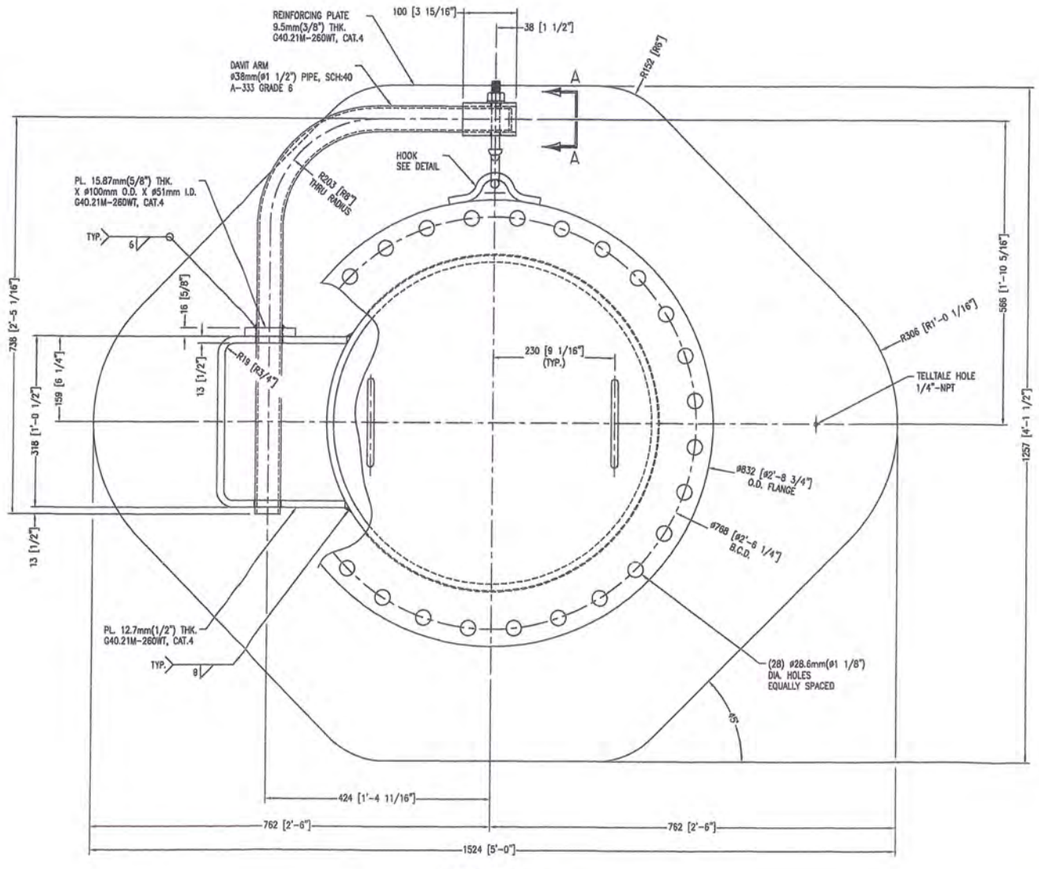


SECTION A-A
SCALE: 1:3



HANDLE DETAIL
SCALE: 1:3

HOOK DETAIL
SCALE: 1:3



DETAIL #21
ø610mm(ø24") SHELL MANWAY
SCALE: 1:5

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
M. Nawar P. Eng.
2017-07-11

AS BUILT

REV	REVISION DESCRIPTION	BY	APR'D	DATE
⚠	FL'G OF MANWAY DETAIL #21 & MAT'L OF GASKET EVISED	M.H.	M.N.	12/06/17

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120"± 0.125"	300 TO 3000 ± 3.1
121" TO 240"± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra)	SURFACE FINISH: (Ra)
N7=63 N8=125 N9=250	N7=1,6 N8=3,2 N9=6,4

STANDARD SYMBOLS
○ – DENOTES NOZZLE No.
⬡ – DENOTES PART No.
△ – DENOTES REVISION No.
□ – DENOTES WELD No.
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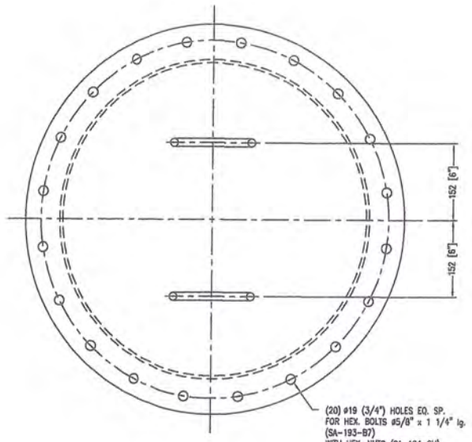
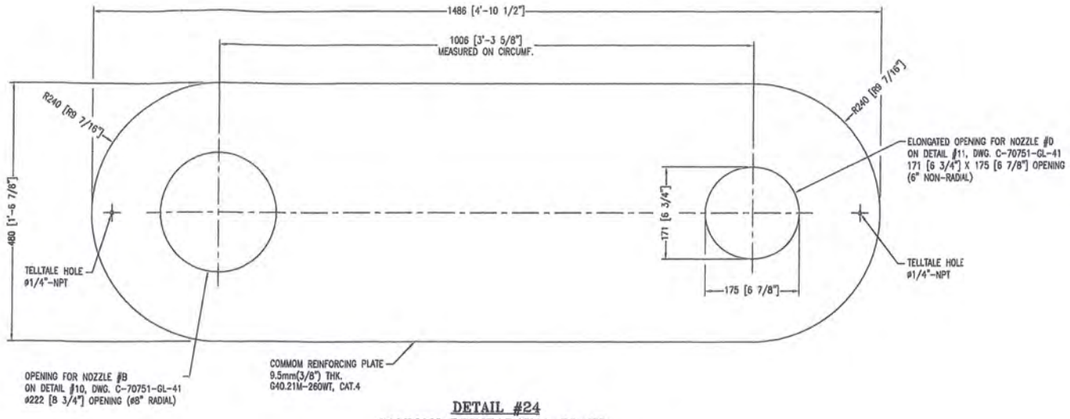
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

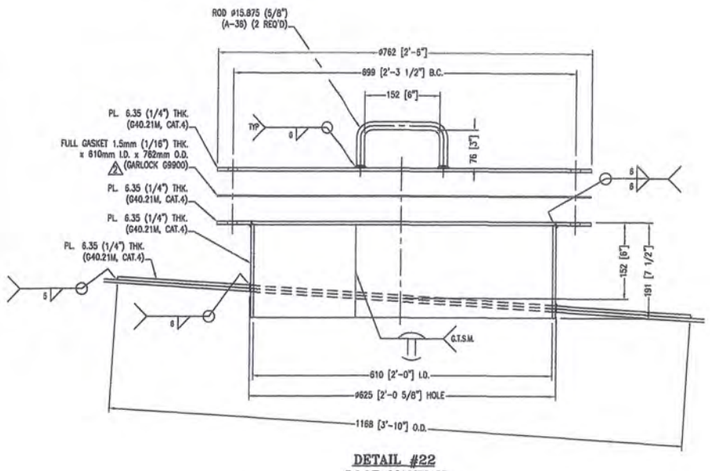
Groupe Laframboise
1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

CUSTOMER:	BAFFINLAND IRON MINES CORP.
CONTRACT NO.:	–
PROJECT:	MARY RIVER PROJECT – ERP
PROJECT NO.:	
TITLE:	STORAGE TANK TYPICAL DETAILS DRAWING
TANK NO.:	
DRAWN BY:	B.C.
DATE:	MAY. 01. 2013
SCALE:	AS NOTED
CHK'D BY:	M.N.
DRAWING NO.	C-70751-GL-44
REV	1

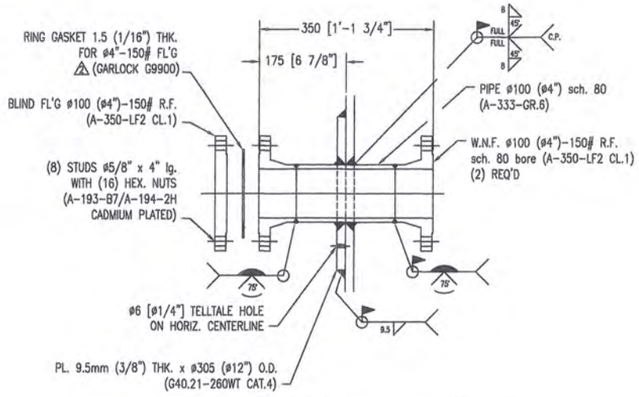




DETAIL #24
COMMON REINFORCING PLATE
FOR NOZZLES B & D ON TK-010
SCALE: 1:5



DETAIL #22
ROOF MANWAY



DETAIL # 23 ⚠1
SPARE NOZZLE, DOUBLE FLANGED

AS BUILT

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NTNU-
2017-07-11

REV	REVISION DESCRIPTION	BY	APR'D	DATE
⚠2	MAT'L OF GASKET REVISED	M.H.	M.N.	12/06/17
⚠1	DETAIL #23 ADDED	M.H.	M.N.	23/05/17

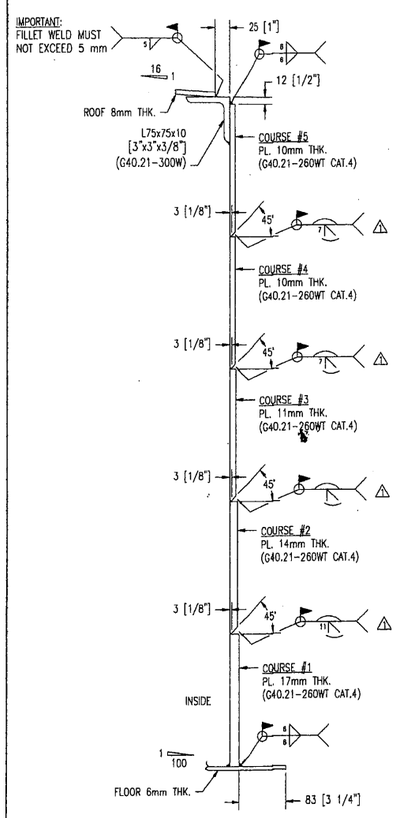
TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120"± 0.125"	300 TO 3000 ± 3.1
121" TO 240"± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra)	SURFACE FINISH: (Ra)
N7=63 N8=125 N9=250	N7=1.6 N8=3.2 N9=6.4

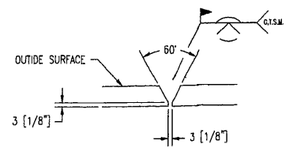
STANDARD SYMBOLS
○ – DENOTES NOZZLE No.
⬡ – DENOTES PART No.
△ – DENOTES REVISION No.
□ – DENOTES WELD No.
RT – DENOTES RADIOGRAPHY
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

1397 Rosemount Ave., Cornwall, ONT. K6J 3E5
TEL: (613) 933-6664 FAX: (613) 933-9910

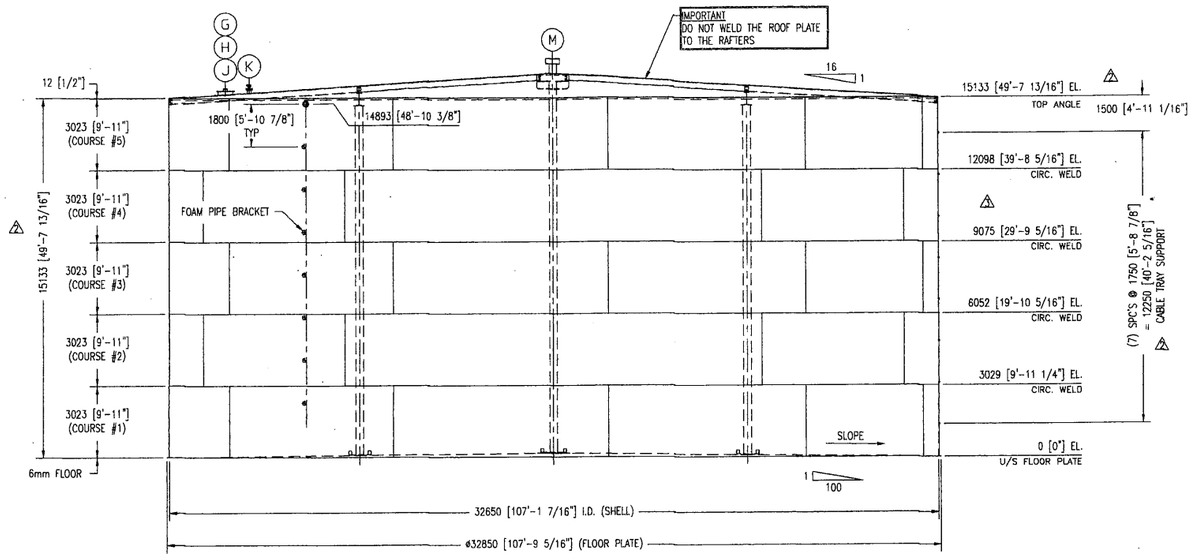
CUSTOMER:	BAFFINLAND IRON MINES CORP.
CONTRACT NO.:	-
PROJECT:	MARY RIVER PROJECT – ERP PROJECT NO.:
TITLE:	STORAGE TANK TYPICAL DETAILS DRAWING
TANK NO.:	
DRAWN BY: B.C.	DRAWING NO. C-70751-GL-45 REV 2
DATE: MAY. 03. 2013	
SCALE: AS NOTED	
CHK'D BY: M.N.	



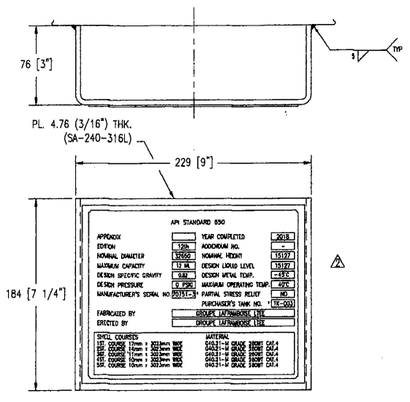
SECTION OF SHELL



LONG. WELD (TYP)



ELEVATION



NAME PLATE DETAIL

AS BUILT DRAWING
Laframboise Group Inc.
Date: OCT-05-2018
Signed:

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
4, 2
NTNU

DESIGN DATA

APPLICABLE STANDARD:	API-650, 12TH EDITION & NBC OF CANADA 2010 EDITION			
FRANGIBLE ROOF:	YES			
MEDIUM CIRCULATED:	ARCTIC DIESEL			
DESIGN INTERNAL PRESSURE:	ATMOSPHERIC			
DESIGN EXTERNAL PRESSURE:	N/A			
DESIGN TEMPERATURE:	40°C [104°F] TO -45 °C [-50 °F]			
LOCATION:	MILNE PORT			
SEISMIC:	Ss (0.2): 0.342	Sa (0.1): 0.101		SITE CLASS: C
SNOW:	Ss 2.1 kPa	Sr 0.2 kPa		
SOIL BEARING:	158 kPa MAX.			
WIND LOAD	REFERENCE VELOCITY PRESSURE = 0.55 kPa			
SPECIFIC GRAVITY	0.78 - 0.82			
HYDROSTATIC TEST PRESS.:	NONE			
RADIOGRAPHY:	IN ACCORDANCE WITH API 650 SEC. 8 AND PER API 650 PARA. 8.1.2 TO 8.1.8			
MT OR PT, IN ACCORDANCE TO API 650 SEC. 8	- 1ST PASS OF INTERNAL SHELL TO BOTTOM WELD - NON STRUCTURAL SMALL ATTACHMENTS - ALL SHELL WELDS			
UT IN ACCORDANCE TO API 650 PARA. 8.3.2	YES, ON THE COMPLETED WELDS OF NOZZLE TO SHELL AND NOZZLE TO PAD JOINTS ACCEPTANCE CRITERIA PER ASME 8 & PV CODE SEC. VIII DIV. 1 APPENDIX 12			
MT, IN ACCORDANCE TO API 650 SEC. 8	NOZZLE-TO-SHELL AND NOZZLE-TO-PAD WELDS ON BACK GOUGED PASS AND ON COMPLETED WELDS			
KEROSENE & CHALK TEST	CHALK & KEROSENE ON THE FIRST PASS OF THE EXTERNAL SHELL TO BOTTOM WELD			
VACUUM BOX LEAK TEST	- ON SHELL-TO-BOTTOM PLATE JOINT AFTER COMPLETION OF WELDING ON BOTH SIDES. - ON ALL WELDS IN BOTTOM PLATE			
HARDNESS TEST:	N/A			
TOLERANCES:	IN ACCORDANCE WITH API 650 PARA. 7.5			
THICKNESS SHELL:	1st COURSE: 17mm, 2nd: 14mm, 3rd: 11mm, 4th,5th: 10mm			
THICKNESS BOTTOM:	6mm			
THICKNESS ROOF:	8mm			
CORROSION ALLOWANCE:	NONE			
STRESS RELIEF:	NO			
IMPACT TEST:	YES ON ALL WELDING PROCEDURES @ -45°C IN ACCORDANCE WITH API 650 PARA. 7.5			
WELDING PROCEDURE:	LATER			
INSPECTION BY:	CUSTOMER			
WEIGHTS:	EMPTY: 350,000Kg	FULL OF WATER: 12,480,000Kg	OPERATING: 10,300,000Kg	
CAPACITY:	12,000,000 LITERS			

MATERIAL SPECIFICATIONS

ITEM	MATERIAL
SHELL:	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
TOP & BOTTOM:	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
TOP & BTM PL'S AT COLUMNS, DOUBLER PL'S UNDER COLUMNS & UNDER EXT. ATTACHMENTS, RAFTER CUPS	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
REINFORCING PADS:	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
GIRDERS (W SHAPES)	G40.21-350W
COLUMNS (HSS)	G40.21-350W
RAFTERS (C SHAPES)	G40.21-300W
ANGLES	G40.21-300W
TIE RODS	G40.21-300W
EXTERNAL STRUCT. STEEL BOLTING	A-320 GR. L7, HOT DIPPED GALVANIZED TO ASRM A 153
STRUCT. STEEL BOLTING AT RAFTERS	A-320 GR. L7
PIPE:	A-333 GR. 6
FLANGES:	A-350 LF2 CLASS 1
FITTINGS:	A-420 WPL 6
STUDS/NUTS FOR FLANGES:	EXTERNAL: A-193-B7/A-194-2H CADMIUM PLATED TO ASTM B766-86 (2008) INTERNAL: A-193 B8M/A-194-8/8M
NOZZLE W/BLIND GASKETS:	GARLOCK 09900 1/16" THK
MANWAY GASKETS:	GARLOCK 09900 1/16" THK

GENERAL NOTES

1. ALL MATERIALS SHALL BE CLEARLY IDENTIFIED AND PROVIDED WITH MILL TEST CERTIFICATES.
2. ALL FLANGE BOLT HOLES SHALL STRADDLE THE CENTERLINE OF THE TANK.
3. RE-PADS AT NOZZLES LOCATED ON THE SHELL SHALL BE PROVIDED WITH (1) ONE 1/4" NPT T.T. HOLE AND SHALL BE AIR TESTED AT 15 PSIG WITH SOAP SOLUTION.
4. VISUAL EXAMINATION, TO API 650 SECTION 8.
   1. ALL SHELL PLATE BUTT WELDS
   2. ALL FILLET WELDS INCLUDING ROOF PLATE WELDS
   3. SHELL TO BOTTOM WELDS WELDS
      a) INITIAL WELD PASS, INSIDE AND OUTSIDE
      b) FINISHED JOINT, INSIDE AND OUTSIDE
   4. WELDING OF NON STRUCTURAL SMALL ATTACHMENTS
5. SUPPLY WITH TANK (BY LAFRAMBOISE GROUP):
   - FOUR (4) ONLY SHAND AND JURS MODEL # 98181, 50mm [2"] WATER DRAW OFF VALVES AS DESCRIBED ON DRAWING #C-70751-GL-35.
   - ONE (1) ONLY SHAND AND JURS MODEL # 95021, 150mm [6"] GAUGE HATCH
6. SUPPLY WITH TANK (BY GROUPE LAFRAMBOISE LTEE):
   -ONE (1) ONLY ENDRESS HAUSER LEVELFLEX , AS DESCRIBED ON DRAWING #C-70751-GL-38

REV	REVISION DESCRIPTION	BY	APP'D	DATE
3	REMOVED INSIDE RING	J.C.	M.N.	03/10/18
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	M.N.	04/09/18
1	G.T.S.M. REMOVED FOR HORIZONTALY JOINTS & GENERAL NOTES #5, #6 & MAT'L OF GASKET REV.	M.H.	M.N.	12/08/17
0	ISSUE FOR APPROVAL	M.H.	M.N.	15/05/17

QTY. REQ'D.= (1) ONE

REFERENCE DOCUMENTS =

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5°	ANGULAR ± 0.5°
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

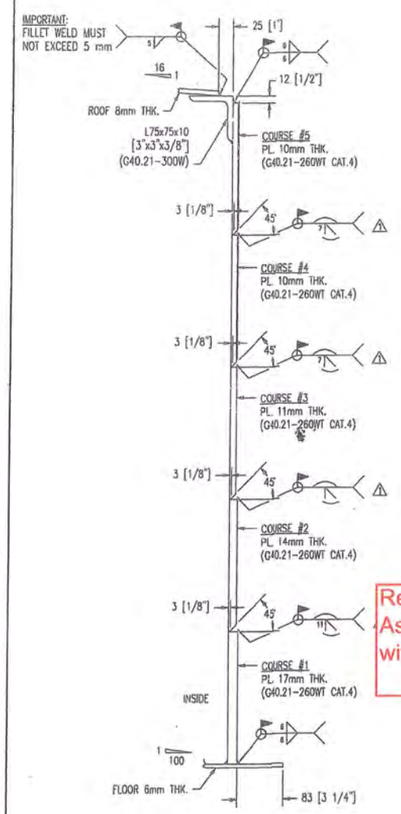
STANDARD SYMBOLS
- ○ – DENOTES NOZZLE No.
- ⬡ – DENOTES PART No.
- △ – DENOTES REVISION No.
- □ – DENOTES WELD No.

RT – DENOTES RADIOGRAPHY
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

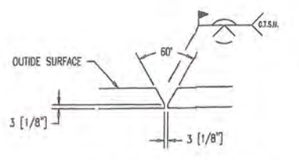
Groupe Laframboise Ltée

LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET PO. BOX 727
CORNWALL, ONTARIO K6H 5T5

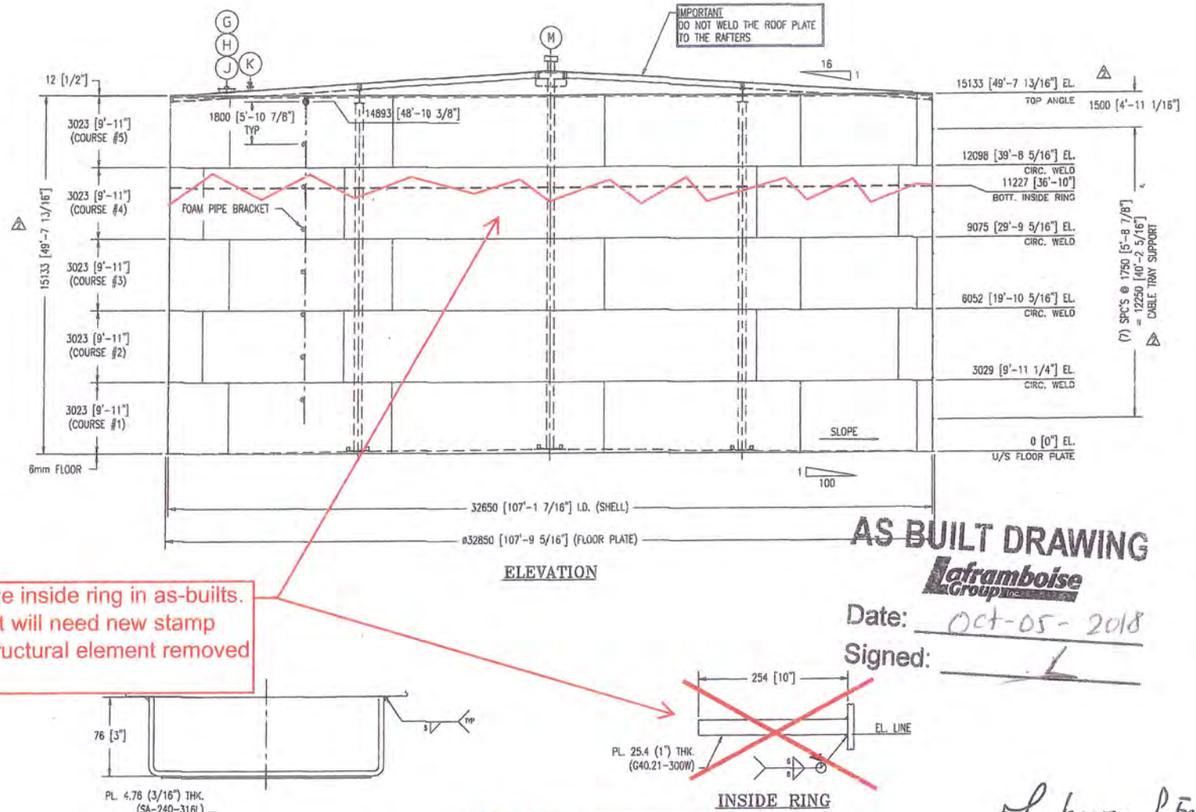
CUSTOMER:	BAFFINLAND IRON MINES CORP.	CUST. P.O.#	-
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004		
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" GENERAL ARRANGEMENT		
DRAWN BY:	M.H.	JOB No.:	70751
DATE:	15/05/2017	DRAWING NO:	C-70751-GL-31
SCALE:	AS NOTED	REV	3
CHK'D BY:	M.N.		



SECTION OF SHELL

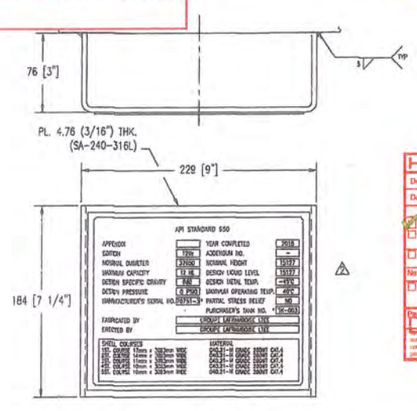


LONG. WELD (TYP)



ELEVATION

Remove inside ring in as-builts.
As-built will need new stamp
with structural element removed



NAME PLATE DETAIL

INSIDE RING

AS BUILT DRAWING

Laframboise Group

Date: Oct-05-2018

Signed:

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0003	SUB	03
Date Received			

Review Grade
- ☑ C1 - Proceed to next submission & status
- ☐ C2 - Proceed with exceptions as noted to next submission & status
- ☐ C3 - Do not proceed. Revise as noted & resubmit
- ☐ C4 - No further submission required - Complete (see) status below)

Next Submittal Status
- ☐ Certified
- ☑ As-Built
- ☐ Internal Review
- ☐ Certified ☐ As-Built
- ☐ Certified Final ☑ Final ☐ Cancelled ☐ Superseded

Next Submittal Date:

Package Engineer (Name, signature and date)

D. Fraser 2018-Sept-28

M. Nawar, P.Eng. Sept 13, 2018

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NT/NU

DESIGN DATA

APPLICABLE STANDARD:	API-650 12TH EDITION & NBC OF CANADA 2010 EDITION			
FRANGIBLE ROOF:	YES			
MEDIUM CIRCULATED:	ARCTIC DIESEL			
DESIGN INTERNAL PRESSURE:	ATMOSPHERIC			
DESIGN EXTERNAL PRESSURE:	N/A			
DESIGN TEMPERATURE:	40°C [104°F] TO -45 °C [-50 °F]			
LOCATION:	MILNE PORT			
SEISMIC:	Sa (0.2): 0.342	Sa (0.1): 0.101		SITE CLASS: C
SNOW:	Ss 2.1 kPa	Sr 0.2 kPa		
SOIL BEARING:	168 kPa MAX.			
WIND LOAD	REFERENCE VELOCITY PRESSURE = 0.55 kPa			
SPECIFIC GRAVITY	0.78 - 0.82			
HYDROSTATIC TEST PRESS.:	NONE			
RADIOGRAPHY:	IN ACCORDANCE WITH API 650 SEC. 8 AND PER API 650 PARA. 8.1.2 TO 8.1.8			
RT OR PT, IN ACCORDANCE TO API 650 SEC. 8	- 1ST PASS OF INTERNAL SHELL TO BOTTOM WELD - NON STRUCTURAL SMALL ATTACHMENTS - ALL SHELL WELDS			
UT IN ACCORDANCE TO API. 650 PARA. 8.3.2	YES, ON THE COMPLETED WELDS OF NOZZLE TO SHELL AND NOZZLE TO PAD JOINTS ACCEPTANCE CRITERIA PER ASME B & PV CODE SEC. VIII DIV. 1 APPENDIX 12			
MT, IN ACCORDANCE TO API 650 SEC. 8	NOZZLE-TO-SHELL AND NOZZLE-TO-PAD WELDS ON BACK GOUGED PASS AND ON COMPLETED WELDS			
KEROSENE & CHALK TEST	CHALK & KEROSENE ON THE FIRST PASS OF THE EXTERNAL SHELL TO BOTTOM WELD			
VACUUM BOX LEAK TEST	- ON SHELL-TO-BOTTOM PLATE JOINT AFTER COMPLETION OF WELDING ON BOTH SIDES. - ON ALL WELDS IN BOTTOM PLATE			
HARDNESS TEST:	N/A			
TOLERANCES:	IN ACCORDANCE WITH API 650 PARA. 7.5			
THICKNESS SHELL:	1st COURSE: 17mm, 2nd: 14mm, 3rd: 11mm, 4th,5th: 10mm			
THICKNESS BOTTOM:	6mm			
THICKNESS ROOF:	8mm			
CORROSION ALLOWANCE:	NONE			
STRESS RELIEF:	NO			
IMPACT TEST:	YES ON ALL WELDING PROCEDURES @ -45°C IN ACCORDANCE WITH API 650 PARA. 7.5			
WELDING PROCEDURE:	LATER			
INSPECTION BY:	CUSTOMER			
WEIGHTS:	EMPTY: 350,000Kg	FULL OF WATER: 12,480,000Kg	OPERATING: 10,300,000Kg	
CAPACITY:	12,000,000 LITERS			

MATERIAL SPECIFICATIONS

ITEM	MATERIAL
SHELL:	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
TOP & BOTTOM:	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
TOP & BTM PL'S AT COLUMNS, DOUBLER PL'S UNDER COLUMNS & UNDER EXT. ATTACHMENTS, RAFTER CLIPS	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
REINFORCING PADS:	G40.21M GRADE 260 WT, CAT.4, KILLED AND FINE GRAIN PRACTICE
GIRDERS (W SHAPES)	G40.21-350W
COLUMNS (HSS)	G40.21-350W
RAFTERS (C SHAPES)	G40.21-300W
ANGLES	G40.21-300W
TIE RODS	G40.21-300W
EXTERNAL STRUCT. STEEL BOLTING	A-320 GR. L7, HOT DIPPED GALVANIZED TO ASRM A 153
STRUCT. STEEL BOLTING AT RAFTERS	A-320 GR. L7
PIPE:	A-333 GR. 6
FLANGES:	A-350 LF2 CLASS 1
FITTINGS:	A-420 WPL 6
STUDS/NUTS FOR FLANGES:	EXTERNAL: A-193-B7/A-194-2H CADMIUM PLATED TO ASTM B766-86 (2008) INTERNAL: A-193 B8M/A-194-8/8M
NOZZLE W/BLIND GASKETS:	GARLOCK 09900 1/16" THK
MANWAY GASKETS:	GARLOCK 09900 1/16" THK

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REV	REVISION DESCRIPTION	BY	APP'D	DATE
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	M.N.	04/09/18
1	G.T.S.M. REMOVED FOR HORIZONTALY JOINTS & GENERAL NOTES #5, #6 & MAT'L OF GASKET REV.	M.H.	M.N.	12/06/17
0	ISSUE FOR APPROVAL	M.H.	M.N.	15/05/17

QTY. REQ'D.= (1) ONE

REFERENCE DOCUMENTS =

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UNLESS OTHERWISE NOTED

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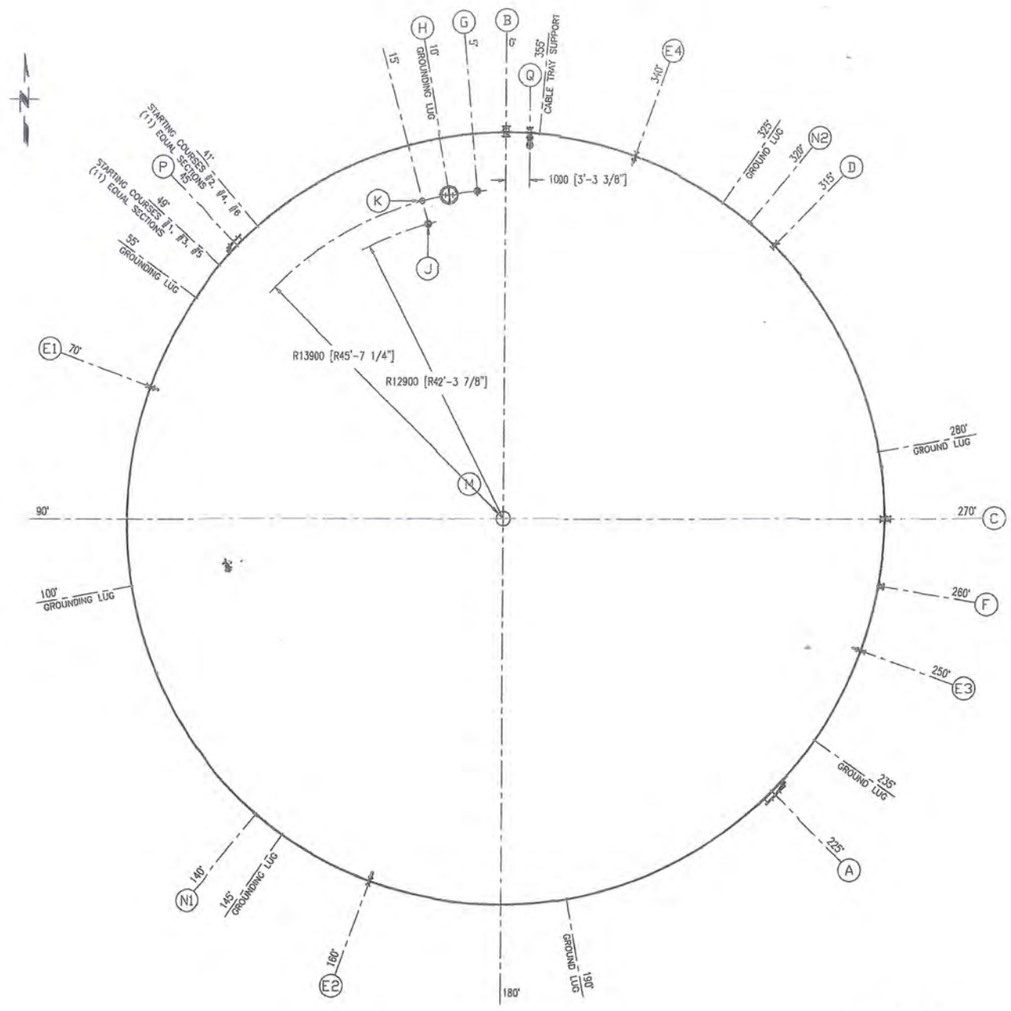
LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET PO. BOX 727
CORNWALL, ONTARIO K6H 5T5

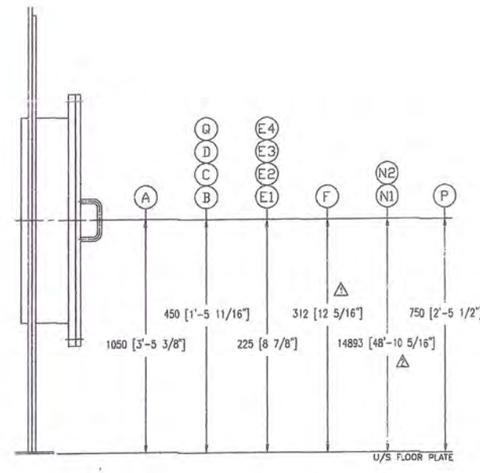
CUSTOMER:	BAFFINLAND IRON MINES CORP.
CUST. P.O.#	-
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" GENERAL ARRANGEMENT
DRAWN BY:	M.H.
JOB No.:	70751
DATE:	15/05/2017
DRAWING NO:	C-70751-GL-31
REV	2
SCALE:	AS NOTED
CHK'D BY:	M.N.



ORIENTATION

ARC DIMENSION ON TANK 1ST COURSE O.D.	
1ST RING OUTSIDE CIRC. = 102680 [336'-10 1/2"]	
DEG.	mm [FT-IN]
1°	285 [11 1/4"]
5°	1426 [4'-8 1/8"]
10°	2852 [9'-4 5/16"]
15°	4278 [14'-0 7/16"]
20°	5704 [18'-8 9/16"]
30°	8557 [28'-0 7/8"]
45°	12835 [42-1 5/16"]
60°	17113 [56'-1 3/4"]
90°	25670 [84'-2 5/8"]
180°	51340 [168'-5 1/4"]

REINF. PAD	TABLE OF CONNECTIONS						
THICK x O.D.	MARK	QTY	NOM. SIZE	NECK	FLANGE	SERVICE	DWG. No.
17mm x DET'L	A	1	900 (36")	12.7mm	API	SHELL MANWAY	C-70751-GL-35
17mm x DET'L	B	1	200 (8")	SCH. 80	150# RF WN	TANK SUCTION	C-70751-GL-37
17mm x DET'L	C	1	150 (6")	SCH. 80	150# RF WN	TANK FILL	C-70751-GL-37
17mm x 305	D	1	100 (4")	SCH. 80	150# RF WN	SPARE c/w BLIND	C-70751-GL-35
17mm x DET'L	E1-4	4	75 (3")	SCH. 80	150# RF WN	WATER DRAIN NOZZLE, SEE NOTE #5	C-70751-GL-35
17mm x DET'L	F	1	150 (6")	SCH. 80	150# RF WN	SPARE c/w BLIND	C-70751-GL-36
NONE	G	1	150 (6")	SCH. 80	150# RF SO	GAUGE HATCH, SEE NOTE #5	C-70751-GL-38
6.35mm x 1168	H	1	600 (24")	6.35mm	API F.F.	ROOF MANWAY	C-70751-GL-38
NONE	J	1	150 (6")	SCH. 80	150# RF SO	RADAR GAUGE, SEE NOTE #6	C-70751-GL-38
NONE	K	1	100 (4")	SCH. 80	150# RF SO	OVERFILL PROBE c/w BLIND, HALF CPLG	C-70751-GL-38
6.35mm x 600	M	1	12"	SCH. STD	-----	ROOF VENT	C-70751-GL-38
NONE	N1-2	2	150 (6")	PAD	-----	FOAM CONNECTION NOZZLES	C-70751-GL-36
17mm x DET'L	P	1	600 (24")	12.7mm	API F.F.	SHELL MANWAY	C-70751-GL-36
17mm x 400	Q	1	150 (6")	SCH. 80	150# RF WN	TANK DRAW DOWN	C-70751-GL-37



ELEVATION OF NOZZLES ON SHELL

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0004	SUB	03
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status	☐ Certified
☐ C2 - Proceed with exceptions as noted to next submission & status	☐ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit	☐ Internal Review
Next Submittal Date:	☐ Certified/☐ As-Built

☑ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☑ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
D. Fraser 2018-Sept-28

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

AS BUILT DRAWING
Laframboise Group
Date: Oct-05-2018
Signed:

M. Nawar, P.Eng. Sept 13, 2018

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NT/NU

REV	REVISION DESCRIPTION	BY	APP'D	DATE
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	M.N.	04/09/18
1	ORIENTATION OF LONG. WELD & ELEVATION OF NOZZLE 'F' REVISED	M.H.	M.N.	12/06/17
0	ISSUE FOR APPROVAL	M.H.	M.N.	15/05/17

QTY. REQ'D.= (1) ONE
REFERENCE DOCUMENTS =

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UNLESS OTHERWISE NOTED

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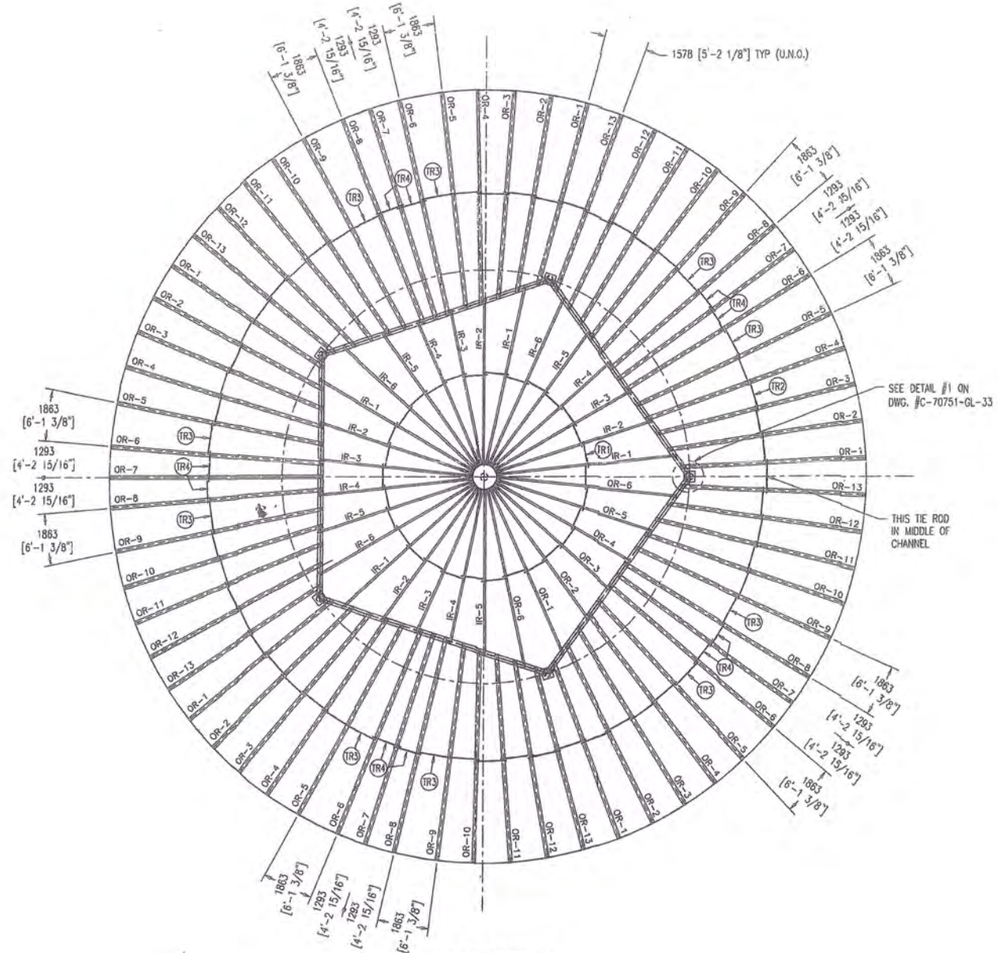
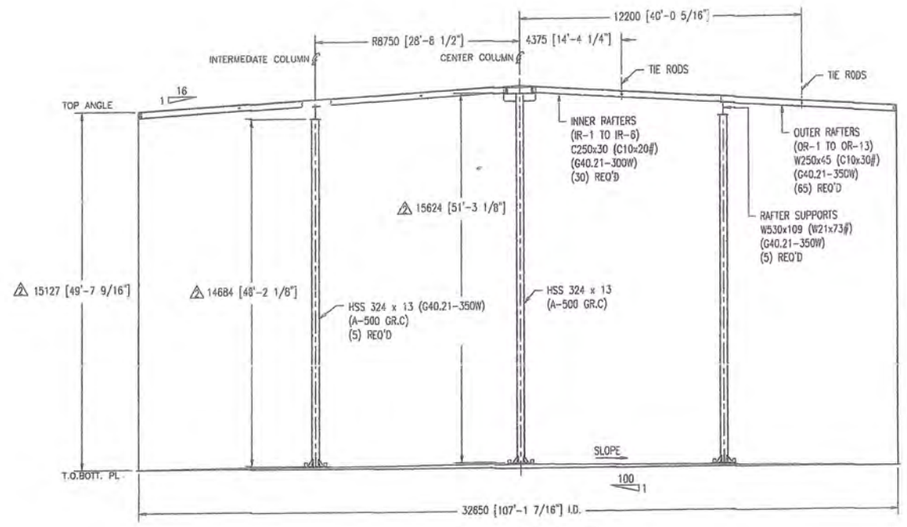
Groupe Laframboise
LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET P.O. BOX 727
CORNWALL, ONTARIO K6H 5T5

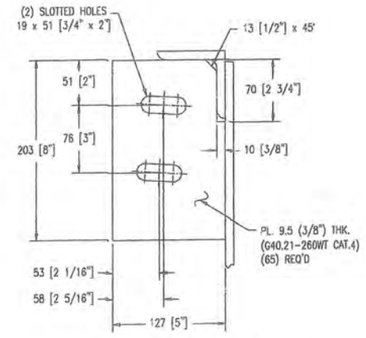
CUSTOMER:	BAFFINLAND IRON MINES CORP.	CUST. P.O.#	-
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004		
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" ORIENTATION, NOZZLES DESCRIPTION		
DRAWN BY:	M.H.	JOB No.:	70751
DATE:	15/05/2017	DRAWING NO:	C-70751-GL-32
SCALE:	AS NOTED	REV	2
CHK'D BY:	M.N.		



PLAN VIEW ⚠



ELEVATION ⚠



RAFTER CLIPS ⚠

M. Nawar, P.Eng.
Sep 13, 2018

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NT/NU

AS BUILT DRAWING

Laframboise Group

Date: Oct-05-2016

Signed:

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-260-0059	SUB	01
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status	☐ Certified
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Package Engineer: Name, signature and date
D. Fraser 2018-Sept-28

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REV	REVISION DESCRIPTION	BY	APP'D	DATE
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	N.N.	04/09/18
1	GENERAL REVISION & RAFTER CLIPS ADDED	M.N.	N.N.	12/06/17
0	ISSUE FOR APPROVAL	M.N.	N.N.	08/05/17

QTY. REQ'D.= (1) ONE

REFERENCE DOCUMENTS =

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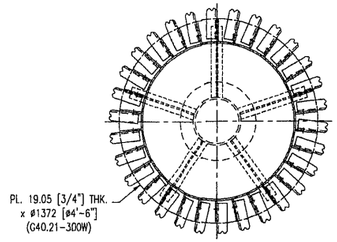
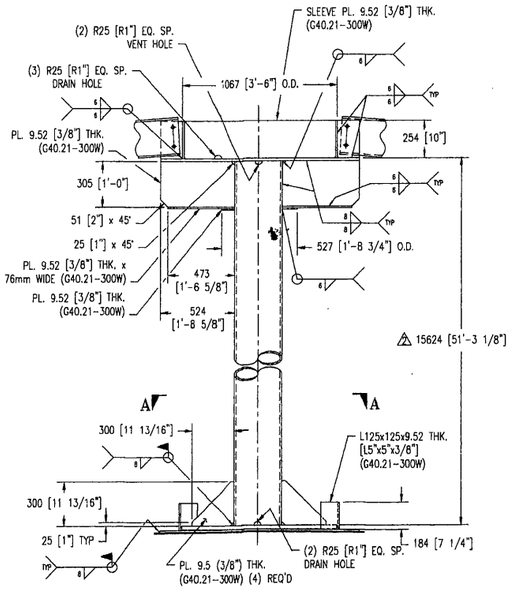
Groupe Laframboise

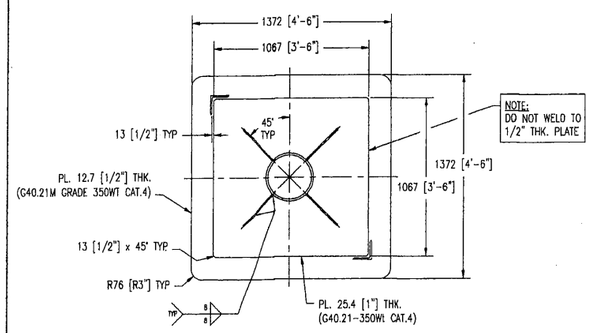
LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET PO. BOX 727
CORNWALL, ONTARIO K6H 5T5

CUSTOMER:	BAFFINLAND IRON MINES CORP.
CUST. P.O.#	-
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" GENERAL ROOF SUPPORT ARRANGEMENT
DRAWN BY:	M.H.
JOB No.:	70751
DATE:	08/05/2017
DRAWING NO:	C-70751-GL-33
REV	2
SCALE:	AS NOTED
CHK'D BY:	M.N.

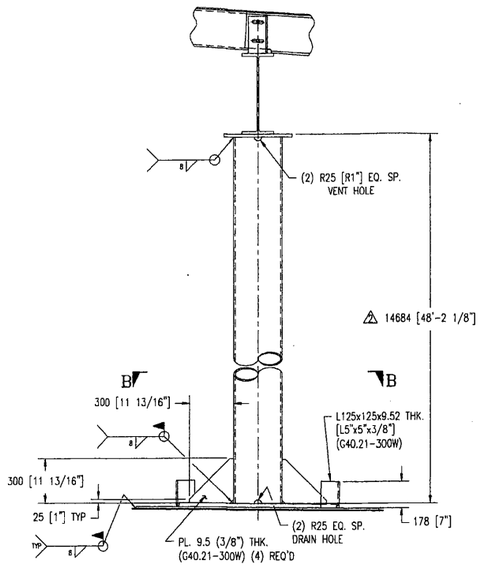




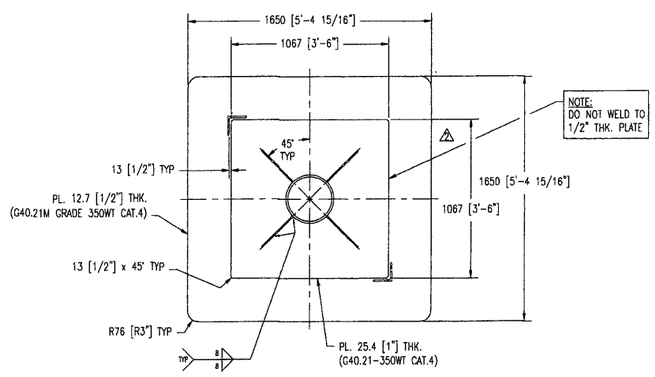
CENTER COLUMN DETAIL ⚠



SECTION A-A ⚠



INTERMEDIATE COLUMN DETAIL ⚠
(5) REQ'D



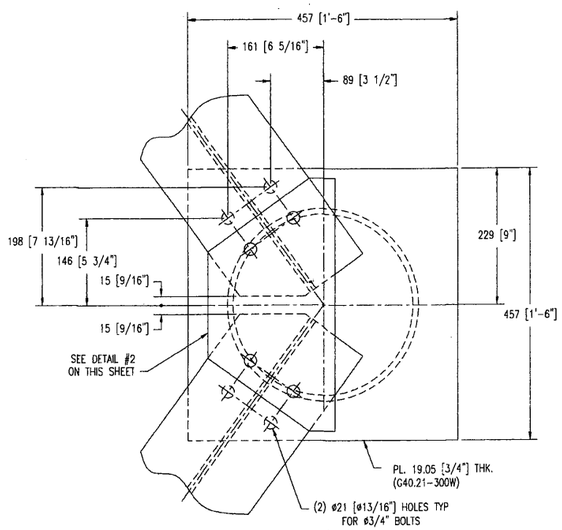
SECTION B-B ⚠

AS BUILT DRAWING

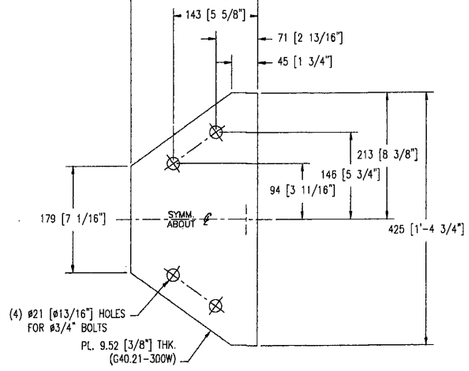
Laframboise Group Inc.

Date: Oct-05-2018

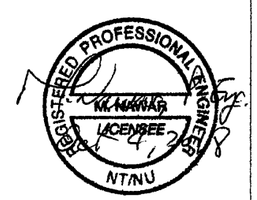
Signed:



DETAIL #1
GIRDER CONNECTION
(5) REQ'D



DETAIL #2



REV	REVISION DESCRIPTION	BY	APR'D	DATE
3	CORRECTED CALLOUT ON SECTION B-B	J.C.	M.N.	03/10/18
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	M.N.	04/09/18
1	COLUMNS & SECTIONS A-A & B-B REVISED	M.H.	M.N.	12/06/17
0	ISSUE FOR APPROVAL	M.H.	M.N.	08/05/17

QTY. REQ'D.= (1) ONE

REFERENCE DOCUMENTS =

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5'	ANGULAR ± 0.5'
NOT EXCEEDING 0.080" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra)	SURFACE FINISH: (Ra)
N7=63 N8=125 N9=250	N7=1.6 N8=3.2 N9=6.4

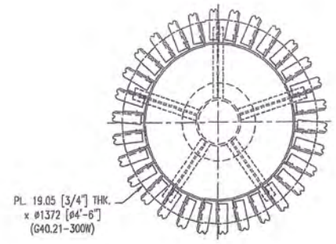
STANDARD SYMBOLS
- ○ – DENOTES NOZZLE No.
- ⬡ – DENOTES PART No.
- △ – DENOTES REVISION No.
- □ – DENOTES WELD No.

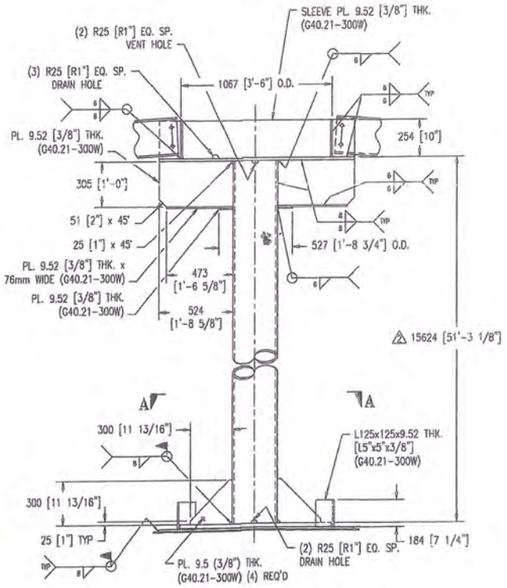
RT – DENOTES RADIOGRAPHY
UT – DENOTES ULTRA-SONIC
PT – DENOTES LIQUID PENETRANT

Group Laframboise

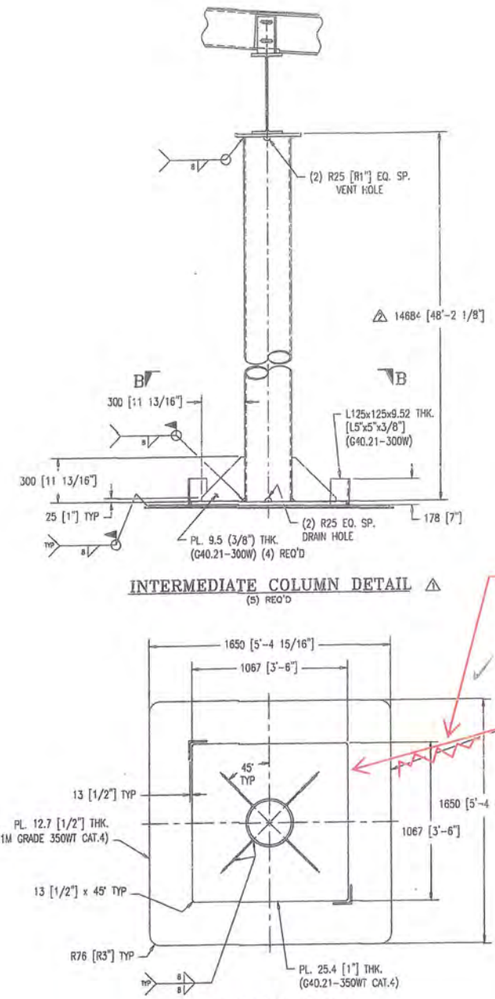
LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET PO. BOX 727
CORNWALL, ONTARIO K6H 5T5

CUSTOMER:	BAFFINLAND IRON MINES CORP.	CUST. P.O.#	–
LOCATION:	MARY RIVER PROJECT – ERP PROJECT NO. H353004		
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" COLUMN & DETAILS		
DRAWN BY:	M.H.	JOB No.:	70751
DATE:	08/05/2017	DRAWING NO:	C-70751-GL-34
SCALE:	AS NOTED	REV	3
CHK'D BY:	M.N.		

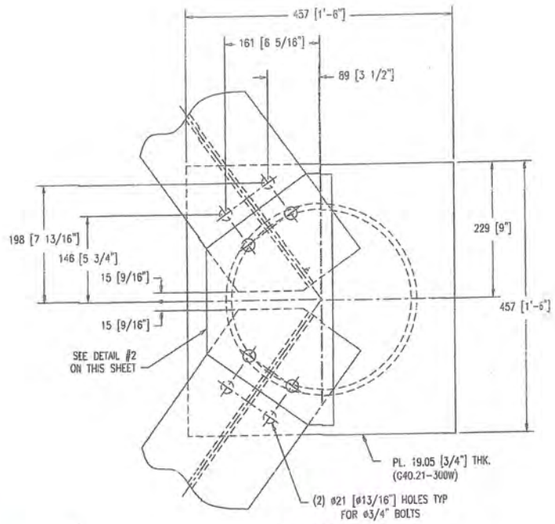




CENTER COLUMN DETAIL ⚠



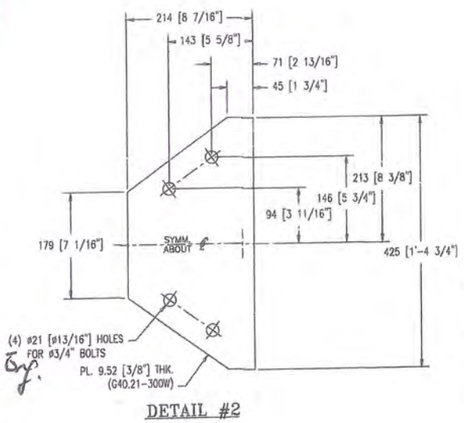
INTERMEDIATE COLUMN DETAIL ⚠
(5) REQ'D



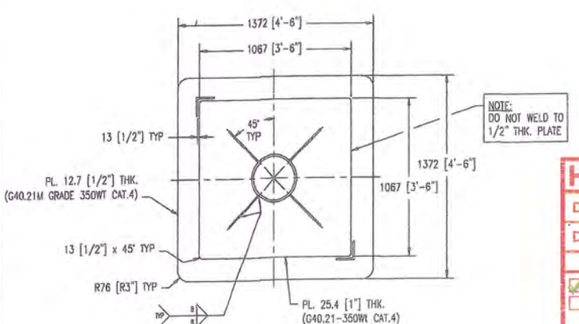
DETAIL #1
GIRDER CONNECTION
(5) REQ'D

Relocate leader - capture in red lines

SECTION B-B ⚠



DETAIL #2



SECTION A-A ⚠

AS BUILT DRAWING
Groupe Laframboise
Date: Oct-05-2018
Signed:

M. Nawar, P. Eng.
Sep 13 2018

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NT/NU

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-260-0060	SUB	01
Date Received			

Review Grade	Next Submittal Status
☑ C1 - Proceed to next submission & status	☐ Certified
☐ C2 - Proceed with exceptions as noted to next submission & status	☑ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit	☐ Internal Review
Next Submittal Date:	☐ Certified/☐ As-Built

☐ C4 - No further submission required - Complete (select status below)
☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded

Package Engineer: Name, signature and date
D. Fraser 2018-Sept-28

Reviewed only for general conformity with our specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

REV	REVISION DESCRIPTION	BY	APP'D	DATE
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	M.N.	04/09/18
1	COLUMNS & SECTIONS A-A & B-B REVISED	M.H.	M.N.	12/06/17
0	ISSUE FOR APPROVAL	M.H.	M.N.	08/05/17

QTY. REQ'D.= (1) ONE
REFERENCE DOCUMENTS =

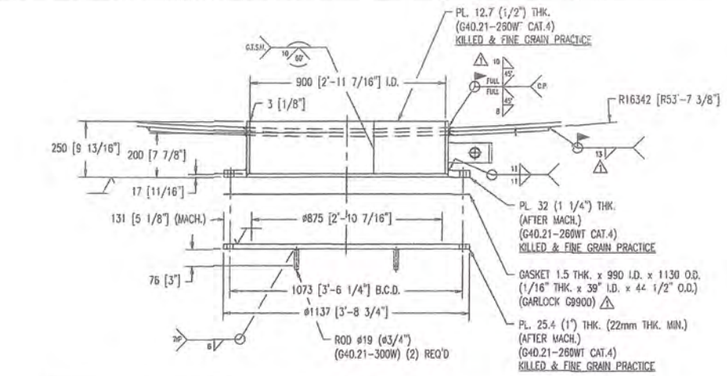
TOLERANCES
UNLESS OTHERWISE NOTED

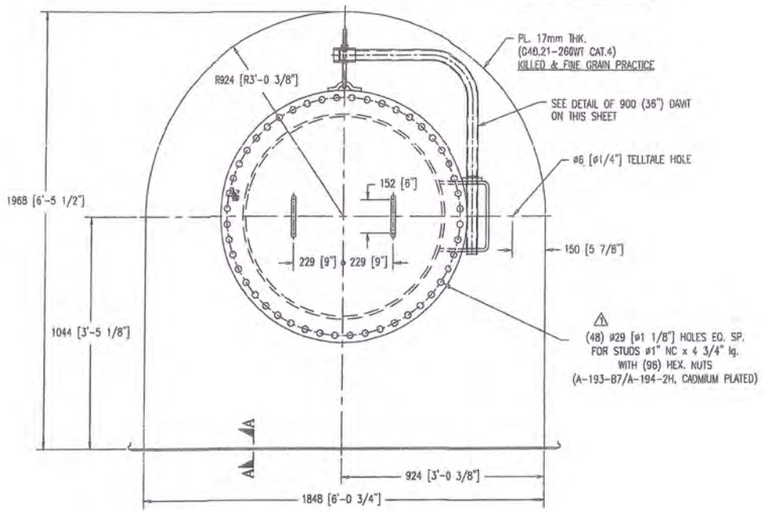
INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5°	ANGULAR ± 0.5°
NOT EXCEEDING 0.080" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra)	SURFACE FINISH: (Rz)
N7=63 N8=125 N9=250	N7=1.6 N8=3.2 N9=6.4

STANDARD SYMBOLS
○ - DENOTES NOZZLE No.
⬡ - DENOTES PART No.
△ - DENOTES REVISION No.
□ - DENOTES WELD No.
RT - DENOTES RADIOGRAPHY
UT - DENOTES ULTRA-SONIC
PT - DENOTES LIQUID PENETRANT

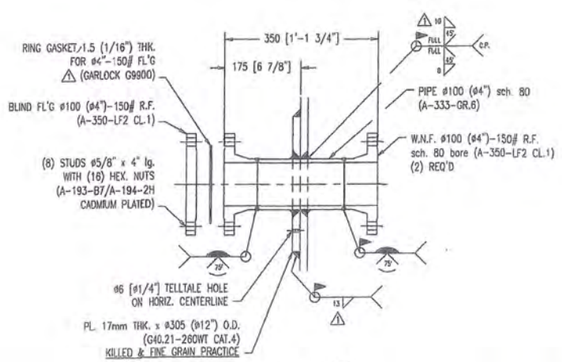
Groupe Laframboise
LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET PO. BOX 727
CORNWALL, ONTARIO K6H 5T5

CUSTOMER:	BAFFINLAND IRON MINES CORP.	CUST. P.O.#	-
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004		
TITLE: 12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" COLUMN & DETAILS			
DRAWN BY: M.H.		JOB No.: 70751	
DATE: 08/05/2017		DRAWING NO: C-70751-GL-34	REV 2
SCALE: AS NOTED			
CHK'D BY: M.N.			

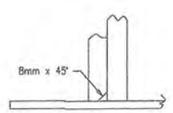




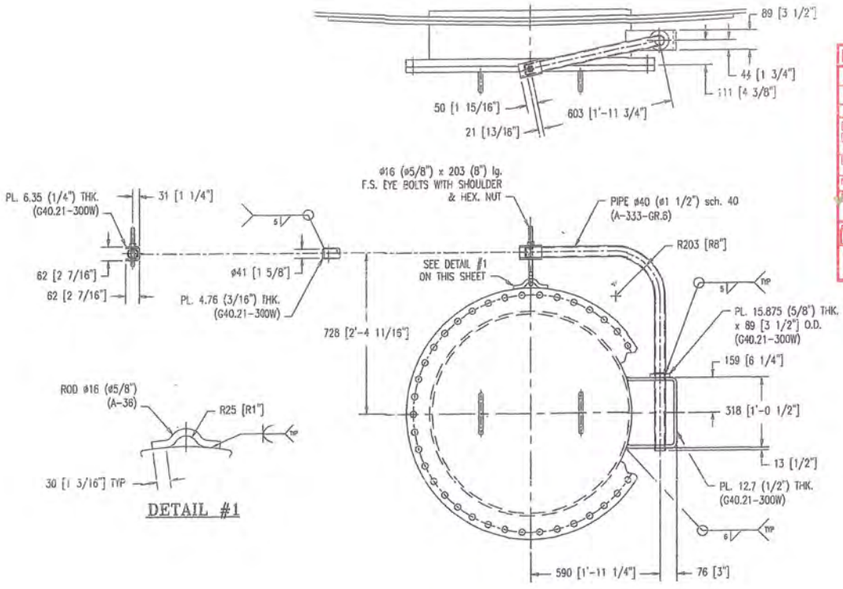
SHELL MANWAY (A)



NOZZLE (D)

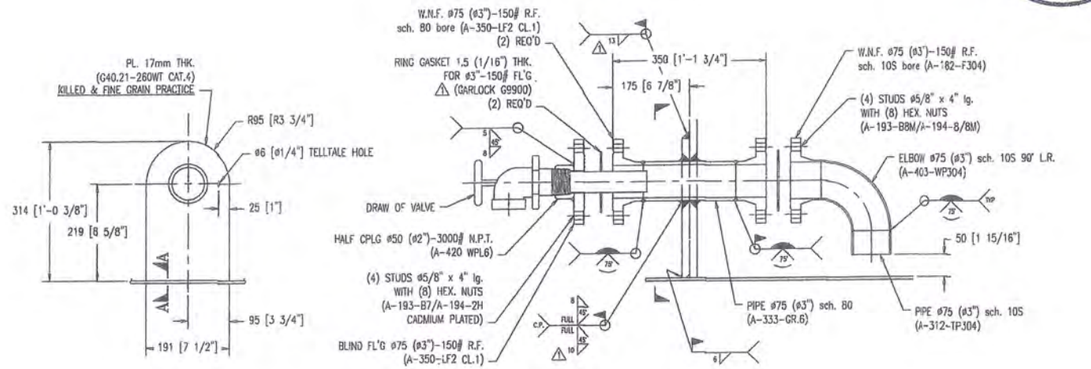


SECTION A-A



DETAIL #1

ø900 (ø36") DAVIT DETAIL



NOZZLES (E1), (E2), (E3), (E4) ⚠

REV	REVISION DESCRIPTION	BY	APP'D	DATE
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	M.N.	04/09/18
1	NOZZLES "E1-E4", QTY. OF HOLES ON MANWAY "A" MAT'L. OF GASKET & WELDS REVISE AS NOTED	M.H.	M.N.	12/06/17
0	ISSUE FOR APPROVAL	M.H.	M.N.	15/05/17

QTY. REQ'D.= (1) ONE

REFERENCE DOCUMENTS =

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5°	ANGULAR ± 0.5°
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

STANDARD SYMBOLS
○ - DENOTES NOZZLE No.
◯ - DENOTES PART No.
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□ - DENOTES WELD No.
RT - DENOTES RADIOGRAPHY
UT - DENOTES ULTRA-SONIC
PT - DENOTES LIQUID PENETRANT

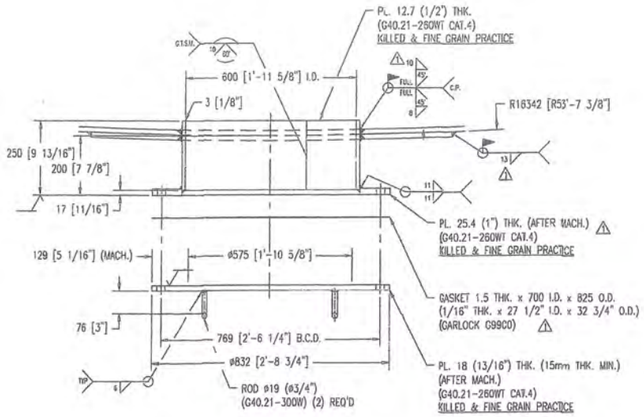
LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET P.O. BOX 727
CORNWALL, ONTARIO K6H 5T5

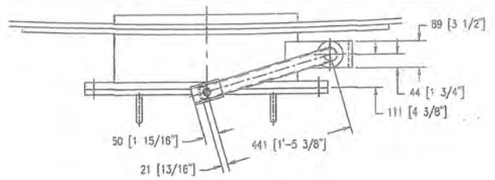
CUSTOMER:	BAFFINLAND IRON MINES CORP.
CUST. P.O.#	--
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" SHELL MANWAY "A" & NOZZLES "D, E1-E4"
DRAWN BY:	M.H.
JOB No.:	70751
DATE:	15/05/2017
DRAWING NO:	C-70751-GL-35
REV	2
SCALE:	AS NOTED
CHK'D BY:	M.N.

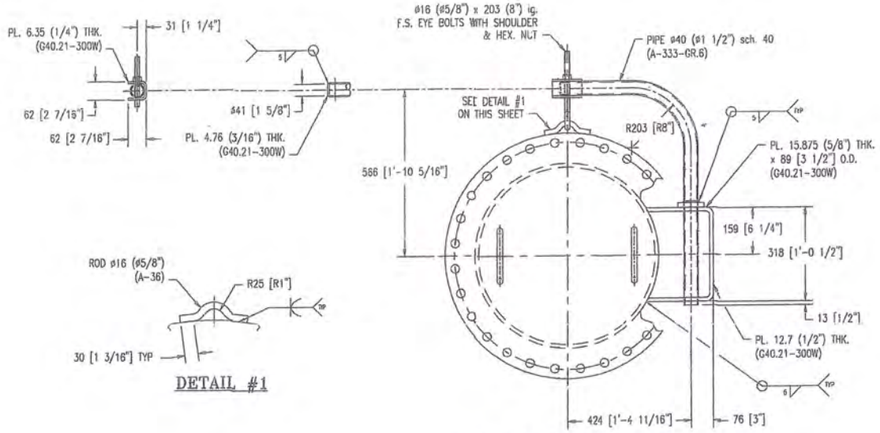
HATCH Vendor/Contractor Document Review
Doc Number: E353004-TM001-240-270-0005 | 3UP | 03
Date Received:
Review Grade: C1 - Proceed to next submission & status; C2 - Proceed with exceptions as noted to next submission & status; C3 - Do not proceed. Revise as noted & resubmit; C4 - No further submission required - Complete
Next Submittal Status: Certified; As-Built; Internal Review; Certified; As-Built
Next Submittal Date:
Certified Final; Final; Cancelled; Superseded
Package Engineer: Name, signature and date: D. Fraser 2018 Sept-28
Reviewed only for general conformity with the Specifications. Acceptance by the engineer does not relieve or release from the information contained on the drawings/documents or other submitted or omitted. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

M. Nawar, P.Eng. Sep 13, 2018
REGISTERED PROFESSIONAL ENGINEER M. NAWAR LICENSEE NT/NU

AS BUILT DRAWING
Laframboise Group
Date: OCT-05-2018
Signed:





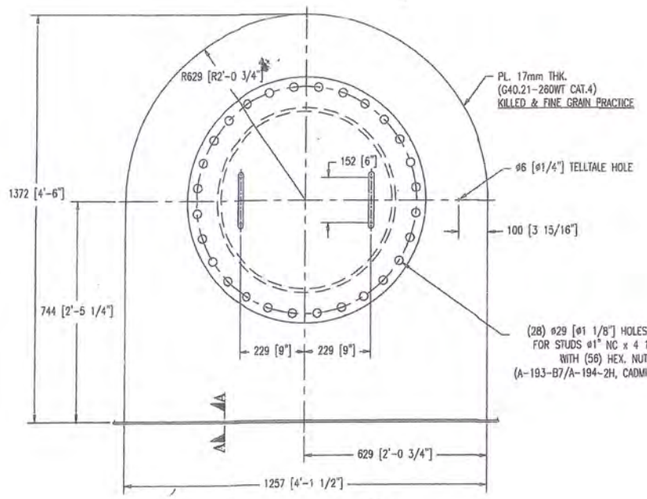


DETAIL #1

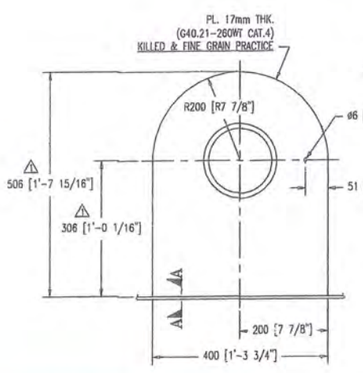
ø600 (ø24") DAVIT DETAIL

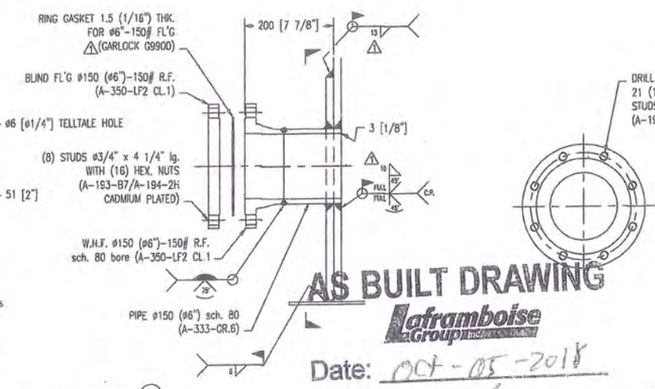
M. Nawar, P.Eng
Sep 13, 2018

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NT/NU

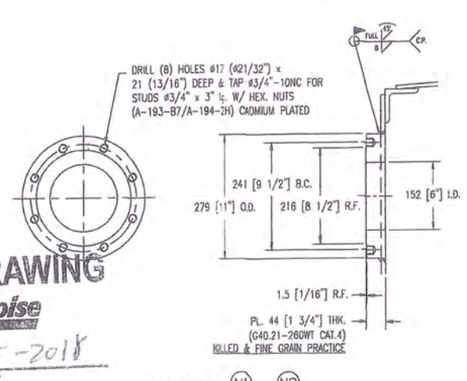


SHELL MANWAY (P)



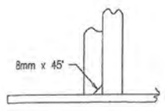


NOZZLE (F)



NOZZLES (N1), (N2)

AS BUILT DRAWING
Laframboise Group
Date: Oct-05-2018
Signed:



SECTION A-A

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0006	SUB	03
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status ☐ C2 - Proceed with exceptions as noted to next submission & status	☐ Certified ☐ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit	☐ Internal Review ☐ Certified/☐ As-Built
Next Submittal Date:	
☑ C4 - No further submission required - Complete (select status below) ☐ Certified Final ☑ Final ☐ Cancelled ☐ Superseded	

Package Engineer: Name, signature and date
D. Fraser 2018-Sept-28
Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

REV	REVISION DESCRIPTION	BY	APP'D	DATE
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	M.N.	04/09/18
1	REINF. OF NOZZLE "F", FL'G OF MANWAY "P", MAT'L OF GASKET & WELDS REV. AS NOTED	M.H.	M.N.	12/06/17
0	ISSUE FOR APPROVAL	M.H.	M.N.	15/05/17

QTY. REQ'D.= (1) ONE

REFERENCE DOCUMENTS =

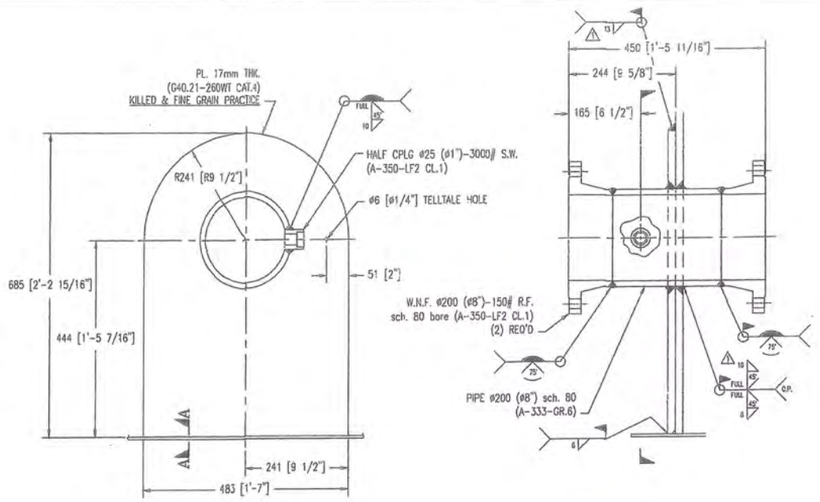
TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5° NOT EXCEEDING 0.060" PER 12"	ANGULAR ± 0.5° NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

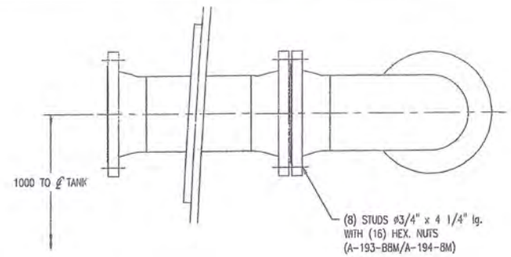
LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET P.O. BOX 727
CORNWALL, ONTARIO K6H 5T5

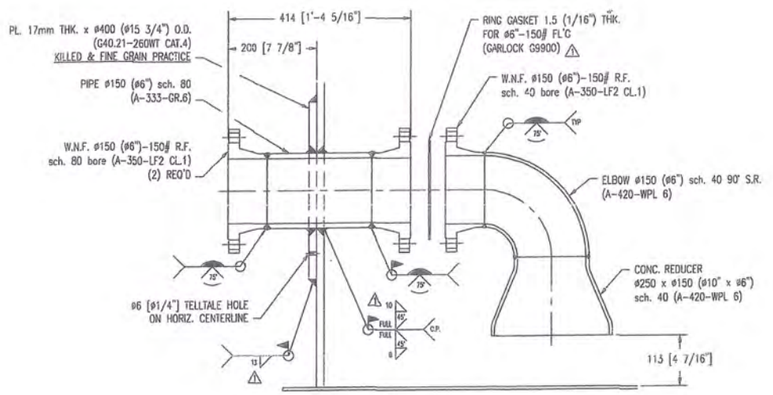
STANDARD SYMBOLS
○ - DENOTES NOZZLE No.
⬡ - DENOTES PART No.
△ - DENOTES REVISION No.
□ - DENOTES WELD No.
RT - DENOTES RADIOGRAPHY
UT - DENOTES ULTRA-SONIC
PT - DENOTES LIQUID PENETRANT

CUSTOMER:	BAFFINLAND IRON MINES CORP.
CUST. P.O.#	-
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" SHELL MANWAY "P" & NOZZLES "F, N1-N2"
DRAWN BY: M.H.	JOB No.: 70751
DATE: 15/05/2017	DRAWING NO: C-70751-GL-36 REV 2
SCALE: AS NOTED	
CHK'D BY: M.N.	

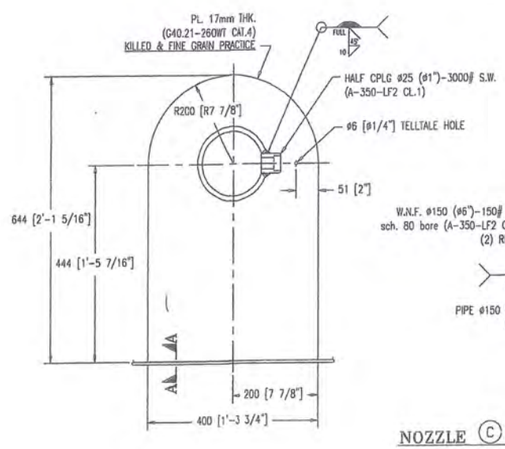


NOZZLE (B)





NOZZLE (Q)



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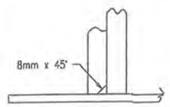


SECTION A-A

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0007	SUB	03
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status ☐ C2 - Proceed with exceptions as noted to next submission & status	☐ Certified ☐ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit	☐ Internal Review ☐ Certified/☐ As-Built
Next Submittal Date:	
☑ C4 - No further submission required - Complete (select status below) ☐ Certified Final ☐ Final ☐ Cancelled ☐ Superseded	

Package Engineer: Name, signature and date
D Fraser 2018-Sept-28
Reviewed only for general conformity with specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document

M. Nawar, P. Eng.
Sept 13, 2018
REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NT/NU

AS BUILT DRAWING
Laframboise Group
Date: Oct-05-2018
Signed:

REV	REVISION DESCRIPTION	BY	APV'D	DATE
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	M.N.	04/09/18
1	MAT'L OF GASKET & WELDS REVISE AS NOTED	M.H.	M.N.	12/06/17
0	ISSUE FOR APPROVAL	M.H.	M.N.	15/05/17

QTY. REQ'D.= (1) ONE

REFERENCE DOCUMENTS =

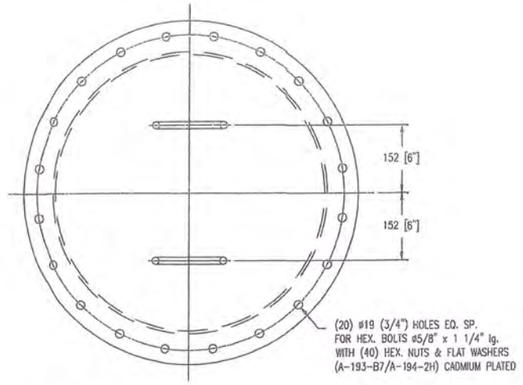
TOLERANCES
UNLESS OTHERWISE NOTED

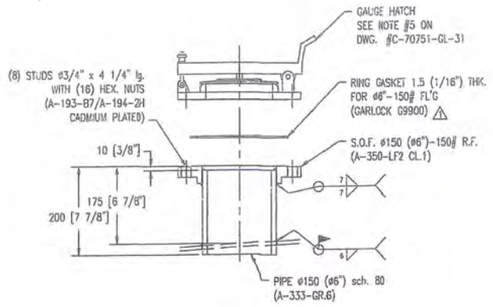
INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120" ± 0.125"	300 TO 3000 ± 3.1
121" TO 240" ± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5°	ANGULAR ± 0.5°
NOT EXCEEDING 0.060" PER 12"	NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

STANDARD SYMBOLS
○ - DENOTES NOZZLE No.
⬡ - DENOTES PART No.
△ - DENOTES REVISION No.
□ - DENOTES WELD No.
RT - DENOTES RADIOGRAPHY
UT - DENOTES ULTRA-SONIC
PT - DENOTES LIQUID PENETRANT

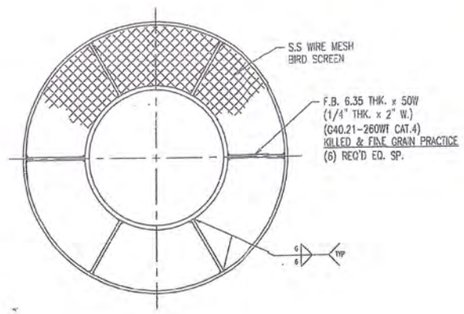
Groupe Laframboise
LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET P.O. BOX 727
CORNWALL, ONTARIO K6H 5T5

CUSTOMER:	BAFFINLAND IRON MINES CORP.	CUST. P.O.#	-
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004		
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" NOZZLES "B, C, Q"		
DRAWN BY:	M.H.	JOB No.:	70751
DATE:	15/05/2017	DRAWING NO:	C-70751-GL-37
SCALE:	AS NOTED	REV	2
CHK'D BY:	M.N.		

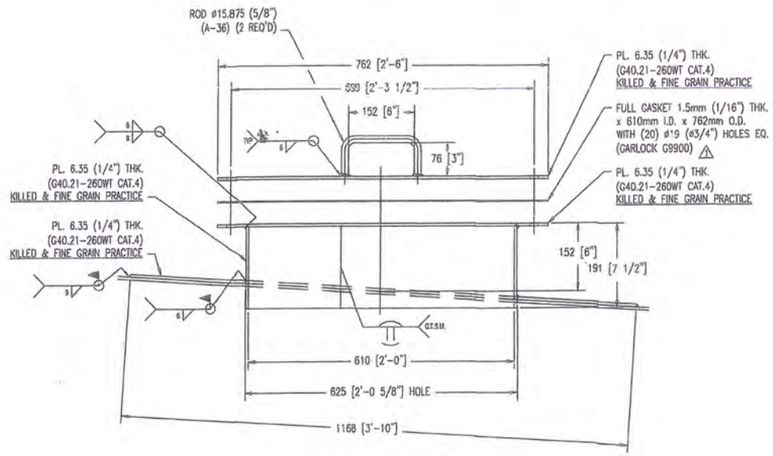




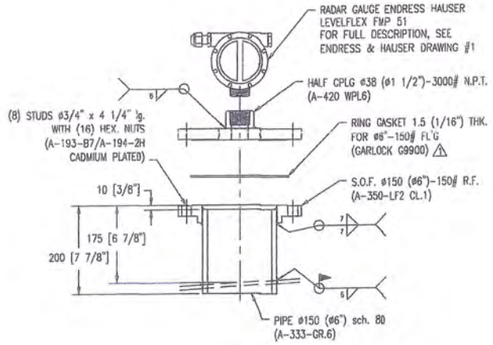
NOZZLE (G)



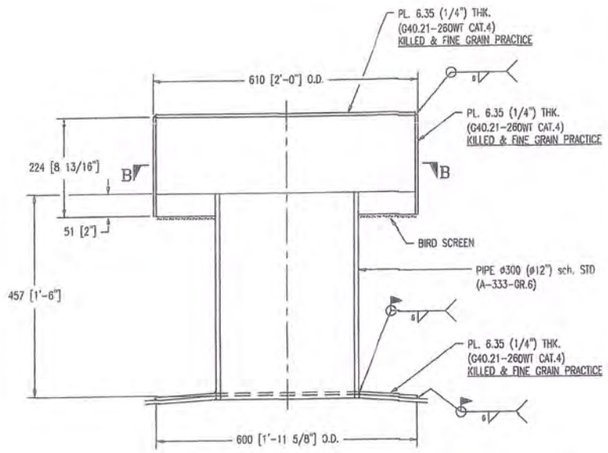
SECTION B-B



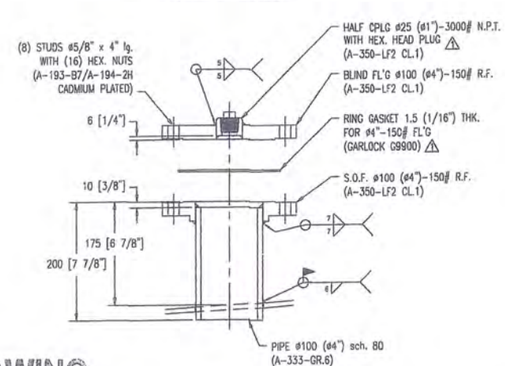
ROOF MANWAY (H)



NOZZLE (J) ⚠



ROOF VENT (M)



NOZZLE (K)

M. Nawar, P.Eng.
Sep 13, 2018

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NT/NU

AS BUILT DRAWING

laframboise (Group) Inc.

Date: Oct-05-2018

Signed:

HATCH Vendor/Contractor Document Review

Doc Number	E353004-TM001-240-270-0008	SUB	03
Date Received			

Review Grade	Next Submittal Status
☐ C1 - Proceed to next submission & status ☐ C2 - Proceed with exceptions as noted to next submission & status	☐ Certified ☐ As-Built
☐ C3 - Do not proceed. Revise as noted & resubmit	☐ Internal Review
Next Submittal Date:	☐ Certified/☐ As-Built
☑ C4 - No further submission required - Complete (select status below) ☐ Certified Final ☑ Final ☐ Cancelled ☐ Superseded	

Package Engineer: Name, Signature and date
D. Fraser 2018-Sept-28
Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document

REV	REVISION DESCRIPTION	BY	APP'D	DATE
2	CAPACITY REDUCED TO 12ML - TOP SHELL COURSE REMOVED	J.C.	M.N.	04/09/18
1	PLUG ADDED ON NOZZLE "K", NOZZLE "J" & MAT'L OF GASKET REVISED	M.H.	M.N.	12/06/17
0	ISSUE FOR APPROVAL	M.H.	M.N.	15/05/17

QTY. REQ'D.= (1) ONE

REFERENCE DOCUMENTS =

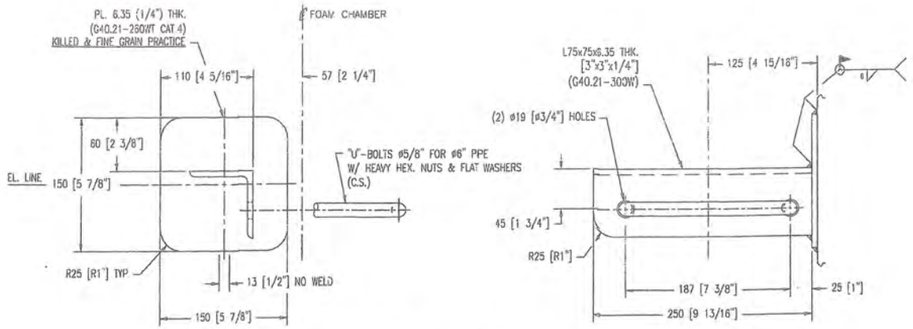
TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120"± 0.125"	300 TO 3000 ± 3.1
121" TO 240"± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5° NOT EXCEEDING 0.060" PER 12"	ANGULAR ± 0.5° NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

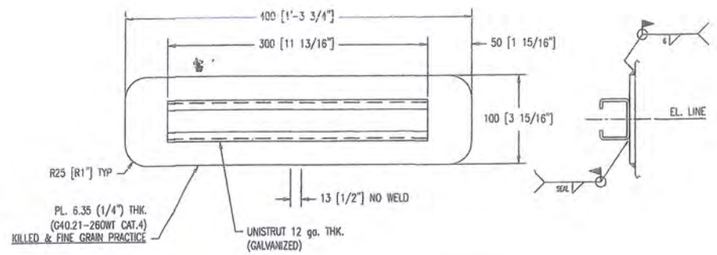
STANDARD SYMBOLS
○ - DENOTES NOZZLE No.
⬡ - DENOTES PART No.
△ - DENOTES REVISION No.
□ - DENOTES WELD No.
RT - DENOTES RADIOGRAPHY
UT - DENOTES ULTRA-SONIC
PT - DENOTES LIQUID PENETRANT

LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET PO. BOX 727
CORNWALL, ONTARIO K6H 5T5

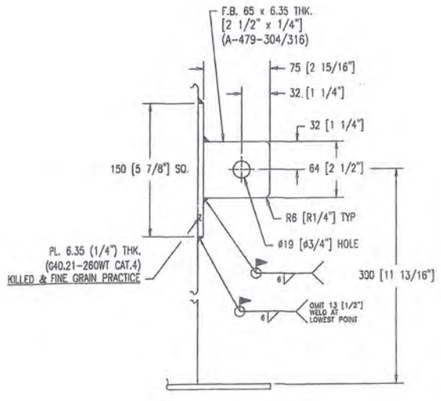
CUSTOMER:	BAFFINLAND IRON MINES CORP.
CUST. P.O.#	-
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" ROOF MANWAY "H", VENT "M" & NOZZLES "G, J, K"
DRAWN BY:	M.H.
JOB No.:	70751
DATE:	15/05/2017
DRAWING NO:	C-70751-GL-38
REV	2
SCALE:	AS NOTED
CHK'D BY:	M.N.



FOAM PIPE BRACKET
(16) ~~(18)~~ REQ'D



CABLE TRAY SUPPORT
(8) ~~(40)~~ REQ'D ON SHELL



GROUNDING LUG
(8) REQ'D

HATCH **Vendor/Contractor Document Review**

Doc Number	E353004-TM001-240-260-0032	**SUB**	02
Date Received			

Review Grade	**Next Submittal Status**
☐ **C1** - Proceed to next submission & status ☐ **C2** - Proceed with exceptions as noted to next submission & status	☐ Certified ☐ As-Built
☐ **C3** - Do not proceed. Revise as noted & resubmit	☐ Internal Review
Next Submittal Date:	☐ Certified/☐ As-Built
☑ **C4** - No further submission required - Complete (select status below) ☐ Certified Final ☑ Final ☐ Cancelled ☐ Superseded	

Package Engineer: Name, signature and date
D. Fraser 27-Sept-2018

Reviewed only for general conformity with the specifications. Acceptance by the engineer does not warrant or represent that the information contained on this drawing/document is either accurate or complete. The sole responsibility for correct design, details & dimensions shall remain with the party submitting the drawing/document.

AS BUILT DRAWING
Laframboise Group Inc.
Date: 04-05-2018
Signed:

M. Nawar, P.Eng.
Sept 13, 2018

REGISTERED PROFESSIONAL ENGINEER
M. NAWAR
LICENSEE
NT/NU

REV	REVISION DESCRIPTION	BY	APP'D	DATE
1	CAPACITY REDUCED TO 12ML - TOP SHELL	J.C.	M.N.	04/09/18
	COURSE REMOVED			
0	ISSUE FOR APPROVAL	M.H.	M.N.	16/05/17

QTY. REQ'D.= (1) ONE

REFERENCES DOCUMENTS =

TOLERANCES
UNLESS OTHERWISE NOTED

INCHES	METRIC-mm
UNDER 12" ± 0.063"	UNDER 300 ± 1.5
12" TO 120"± 0.125"	300 TO 3000 ± 3.1
121" TO 240"± 0.187"	3001 TO 6000 ± 4.7
OVER 240" ± 0.250"	OVER 6000 ± 6.35
ANGULAR ± 0.5° NOT EXCEEDING 0.060" PER 12"	ANGULAR ± 0.5° NOT EXCEEDING 1.5mm PER 300mm
SURFACE FINISH: (Ra) N7=63 N8=125 N9=250	SURFACE FINISH: (Ra) N7=1.6 N8=3.2 N9=6.4

STANDARD SYMBOLS
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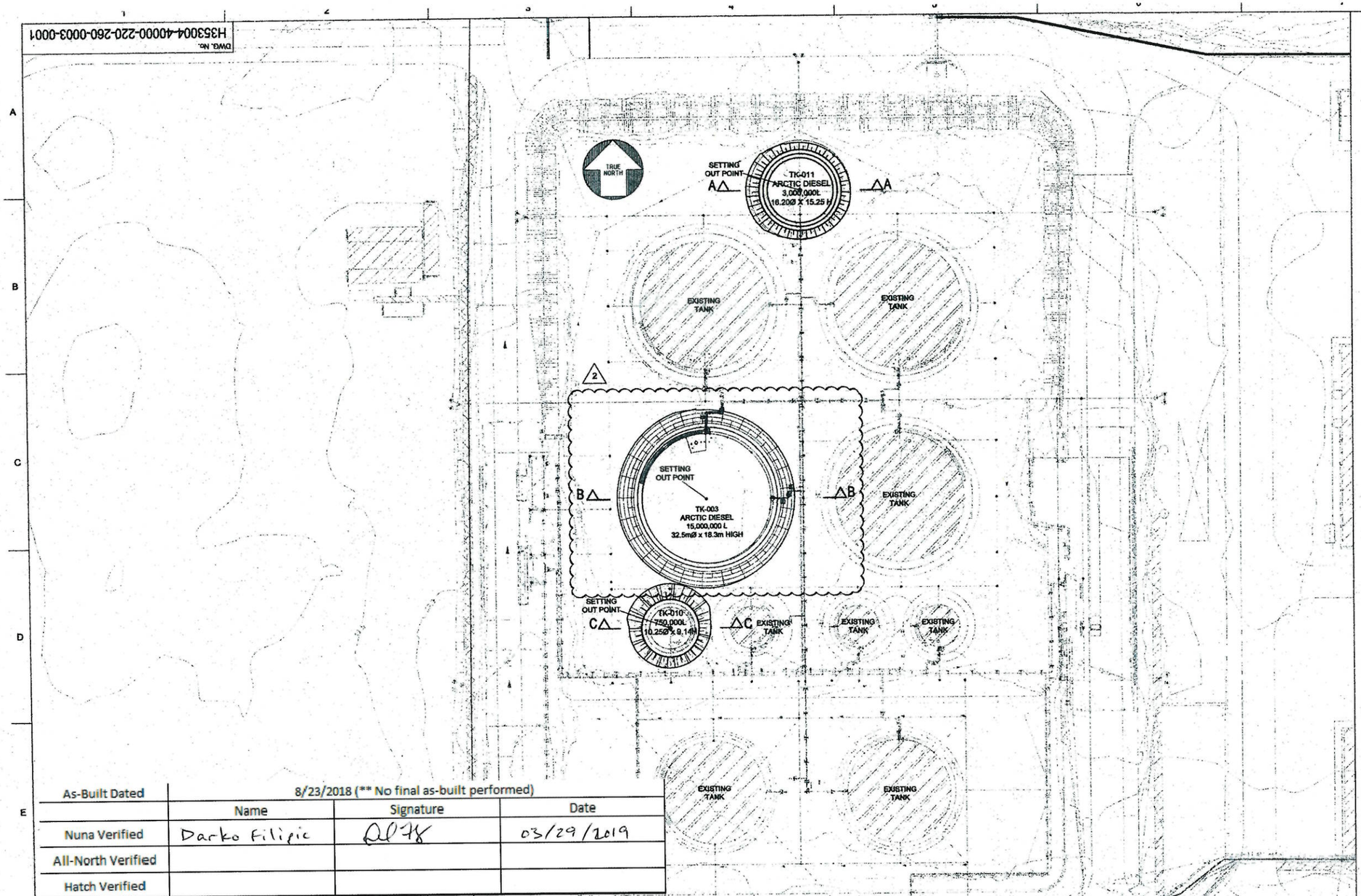
⬡ - DENOTES PART No.
△ - DENOTES REVISION No.
□ - DENOTES WELD No.
RT - DENOTES RADIOGRAPHY
UT - DENOTES ULTRA-SONIC
PT - DENOTES LIQUID PENETRANT

Group Laframboise Ltée
LAFRAMBOISE GROUP Inc.
59 WILLIAM STREET PO. BOX 727
CORNWALL, ONTARIO K6H 5T5

CUSTOMER:	BAFFINLAND IRON MINES CORP.
CUST. P.O.#	-
LOCATION:	MARY RIVER PROJECT - ERP PROJECT NO. H353004
TITLE:	12,000,000 L ARCTIC DIESEL STORAGE TANK "TK-003" FOAM TRAY BKT, CABLE TRAU SUPP., GROUNDING LUG
DRAWN BY:	M.H.
JOB No.:	70751
DATE:	16/05/2017
DRAWING NO:	C-70751-GL-39
REV	1
SCALE:	AS NOTED
CHK'D BY:	M.N.

DWG. No. H353004-40000-220-260-0003-0001



MATERIAL VOLUMES:

CRUSHER FINES MATERIAL (-2mm)	= 160m3
FILL MATERIAL (TYPE 5)	= 3822m3
TOTAL FILL MATERIAL REQUIRED	= 3982m3
TOTAL SURFACE AREA	= 2490m2

TANK EARTHWORKS SETTING OUT POINT (CENTRE OF TANK)

TANK No.	N	E	TANK PERIMETER LEVEL (EL)
TANK 011	7976273.166	503641.393	11.95
TANK 003	7976198.948	503617.533	12.55 12.45
TANK 010	7976164.948	503608.208	12.30

2

NOTES:

1. LIDAR SURVEY PROVIDED BY PHOTSAT (2016)
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METERS.
3. CONTOURS ARE IN METERS. CONTOUR INTERVAL IS 0.5m.
4. FOR TYPICAL CROSS SECTIONS REFER TO DRAWING No. H353004-40000-220-273-0001-0001

Tank Pad 003 final grade was laid out by All-North survey and spot elevations were picked up for quantity purposes. Final grading was done using a laser level to acheive consistent elevation of 12.45m all around the perimeter.

No final as-built by survey to confirm grades was able to be performed before Tank building contractor began placing base plates for the Tank-003.

As-Built Dated	8/23/2018 (** No final as-built performed)		
	Name	Signature	Date
Nuna Verified	Darko Filipic		03/29/2019
All-North Verified			
Hatch Verified			

REGISTERED PROFESSIONAL ENGINEER — Reg. L1217 — R. A. HALIM — LICENSEE — 2018-03-23 — NWT/NU

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 2018-02-22
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

FOR CONSTRUCTION

No.	DESCRIPTION	BY	CHK'D	DATE
2	15Mł DIESEL TANK ADDED	IHB	RG	13/02/2018
1	APPROVED FOR CONSTRUCTION	KT	MB	21/08/2017
0	APPROVED FOR CONSTRUCTION	FH	MB	30/06/2017

REVISIONS

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	K TEFFU	NR	
DESIGNER	F HUGO	NR	2018-02-22
CHECKER	F HUGO		2018-02-22
DESIGN COORD.	R GOOSEN		2018-02-23
RESP. ENG.	R HALIM		2018-02-22
LEAD DISC. ENG.	A GROBBELAAR		2018-02-23
AREA MANAGER	V LAVRIC		2018-02-23
PROJ. MANAGER	D STANGER		
CLIENT			

DRAWING APPROVAL STATUS: Approved for Construction

HATCH

Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION PROJECT

MILNE PORT
FUEL TANKS 003, 010 & 011 SETTING OUT EARTHWORKS

SCALE	DWG. No.	REV
1:500 OR AS NOTED	H353004-40000-220-260-0003-0001	2

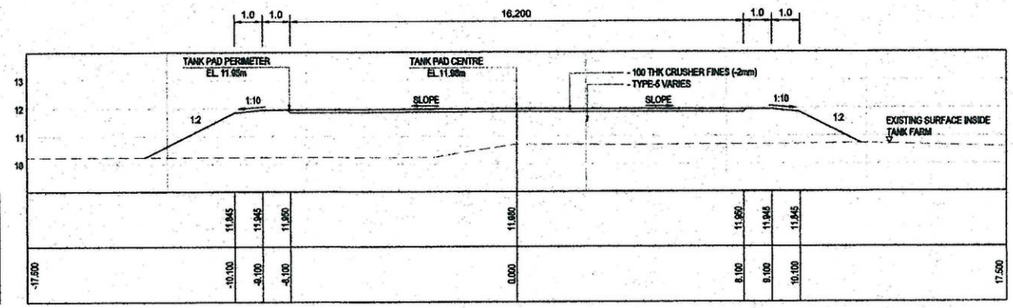
SHEET SIZE: D

H353004-40000-220-273-0001-0001	FUEL TANK 010 & 011 DETAILS - TYPICAL SECTIONS
DRAWING No.	DRAWING TITLE
REFERENCE DRAWINGS	

NAME
SIGNATURE
ENG REG NUMBER
REVISION DATE
ORIGINAL DATE
REG. PROFESSIONAL

$USERNAME$
$DATE$
$FILE$
$TIME$

DWG. No. H353004-40000-220-273-0001-0001



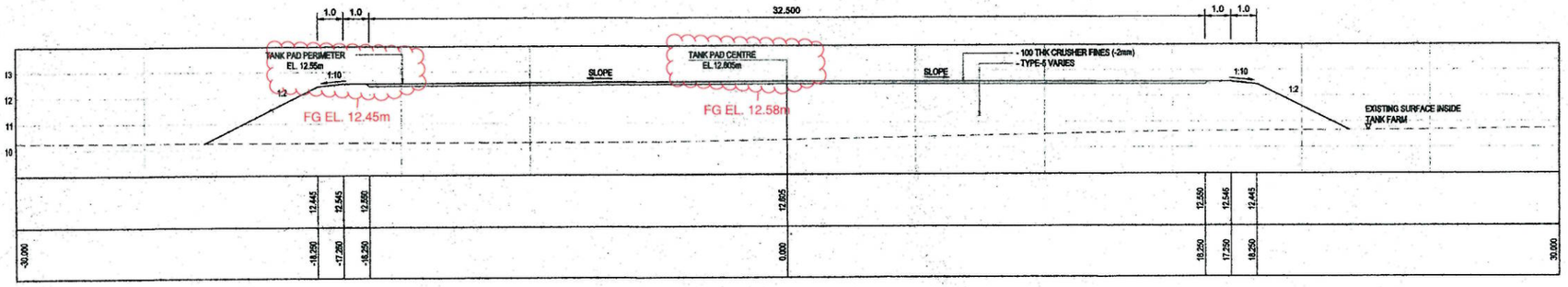
SCALES:
HORIZONTAL 1:100
VERTICAL 1:100

DATUM 9.000

TERRACE LEVELS THROUGH CENTRE	
DISTANCE(m)	

SECTION A-A THROUGH TK011 TERRACE
FROM -17.500 TO +17.500

2



SCALES:
HORIZONTAL 1:100
VERTICAL 1:100

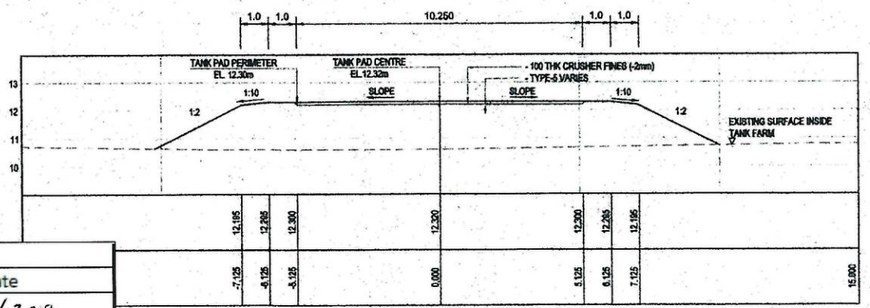
DATUM 9.000

TERRACE LEVELS THROUGH CENTRE	
DISTANCE(m)	

SECTION B-B THROUGH TK003 TERRACE
FROM -30.000 TO +30.000

Tank Pad 003 final grade was laid out by All-North survey and spot elevations were picked up for quantity purposes. Final grading was done using a laser level to acheive consistent elevation of 12.45m all around the perimeter.

No final as-built by survey to confirm grades was able to be performed before Tank building contractor began placing base plates for the Tank-003.



SCALES:
HORIZONTAL 1:100
VERTICAL 1:100

DATUM 9.000

TERRACE LEVELS THROUGH CENTRE	

SECTION C-C THROUGH TK010 TERRACE
FROM -15.000 TO +15.000

As-Built Dated	8/23/2018 (** No final as-built performed)		
	Name	Signature	Date
Nuna Verified	Darko Filipic	DF	03/29/2019
All-North Verified			
Hatch Verified			

REGISTERED PROFESSIONAL ENGINEERS
R.A.H
L1247
R. A. HALIM
LICENSEE
2018-02-28
NWT/NU

PERMIT TO PRACTICE
HATCH LTD.
Signature
Date 2018-08-28
PERMIT NUMBER: P 512
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

DRAWING No.	DRAWING TITLE
H353004-40000-220-260-0003-0001	NEW FUEL TANKS SETTING OUT DETAILS
REFERENCE DRAWINGS	

NAME
SIGNATURE
ENG REG NUMBER
REVISION DATE
ORIGINAL DATE
REG. PROFESSIONAL

FOR CONSTRUCTION

No.	DESCRIPTION	BY	CHK'D	DATE
2	CROSS SECTION B-B ADDED	IHB	RG	13/02/2018
1	APPROVED FOR CONSTRUCTION	KT	MB	21/08/2017
0	APPROVED FOR CONSTRUCTION	FH	MB	30/06/2017

REVISIONS

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	K TEFFU	NR	
DESIGNER	K TEFFU	NR	
CHECKER	F HUGO		2018.02.22
DESIGN COORD.	R GOOSEN		2018-02-22
RESP. ENG.	R HALIM		2018-02-28
LEAD DISC. ENG.	A GROBBELAAR		2018-02-22
AREA MANAGER	V LAVRIC		2018-08-28
PROJ. MANAGER	D STANGER		2018-08-28
CLIENT	T. Kitka		3-1-18

DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION PROJECT

MILNE PORT
FUEL TANKS 003, 010 & 011 DETAILS
TYPICAL SECTIONS

SCALE	DWG. No.	REV
1:100 OR AS NOTED	H353004-40000-220-273-0001-0001	2

SHEET SIZE: D

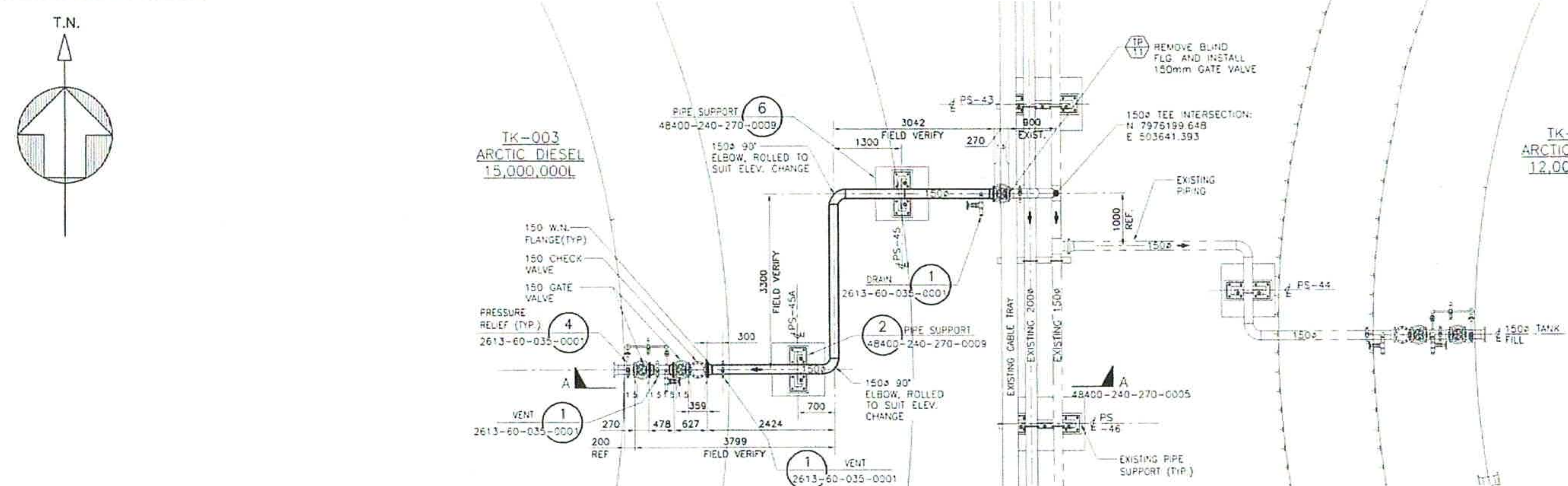
$USERNAME$

H353004-48400-240-270-0005

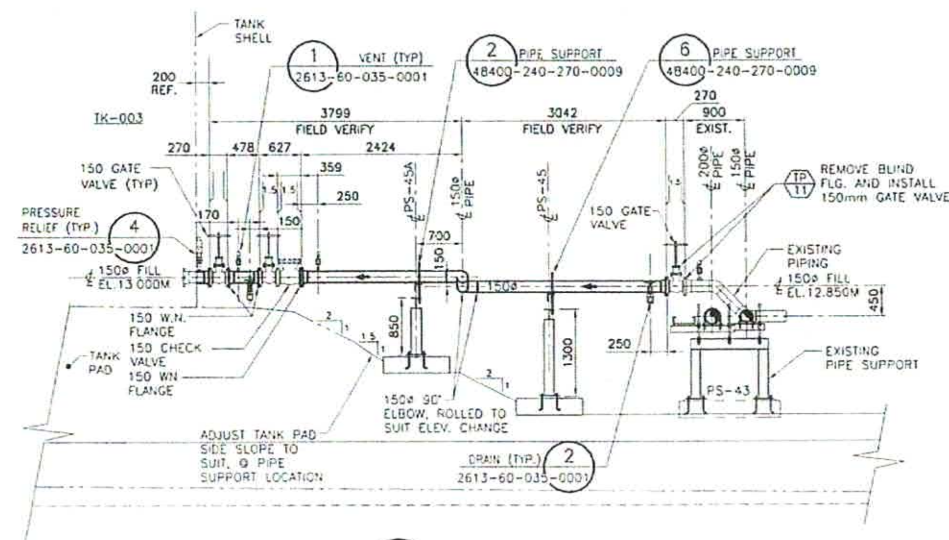
DWG. No.

NOTE:

1. FOR PIPE AND CABLE TRAY SUPPORTS SEE DRAWING 48400-240-270-0009



PLAN 1 240-272-0002-0001



SECTION A 48400-240-270-0005

Laframboise Group Ltd.

AS BUILT

REGISTERED PROFESSIONAL ENGINEER F.E. BUTTS LICENSEE NT/NU

DRAWING No.	DRAWING TITLE		
REFERENCE DRAWINGS			

NAME

SIGNATURE

ENG REG NUMBER

REVISION DATE

ORIGINAL DATE

REG. PROFESSIONAL

Reserved space for Issue Reason stamp applied by Document Control

No.	DESCRIPTION	BY	CHK'D	DATE
0	ISSUED FOR CONSTRUCTION			05/25/17

REVISIONS

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	S. LEY	NR	
DESIGNER	M. MACINTYRE	NR	
CHECKER			05/25/17
DESIGN COORD.			
RESP. ENG.			05/25/17
LEAD DISC. ENG.			
ENG. MANAGER			
PROJ. MANAGER	-		

DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

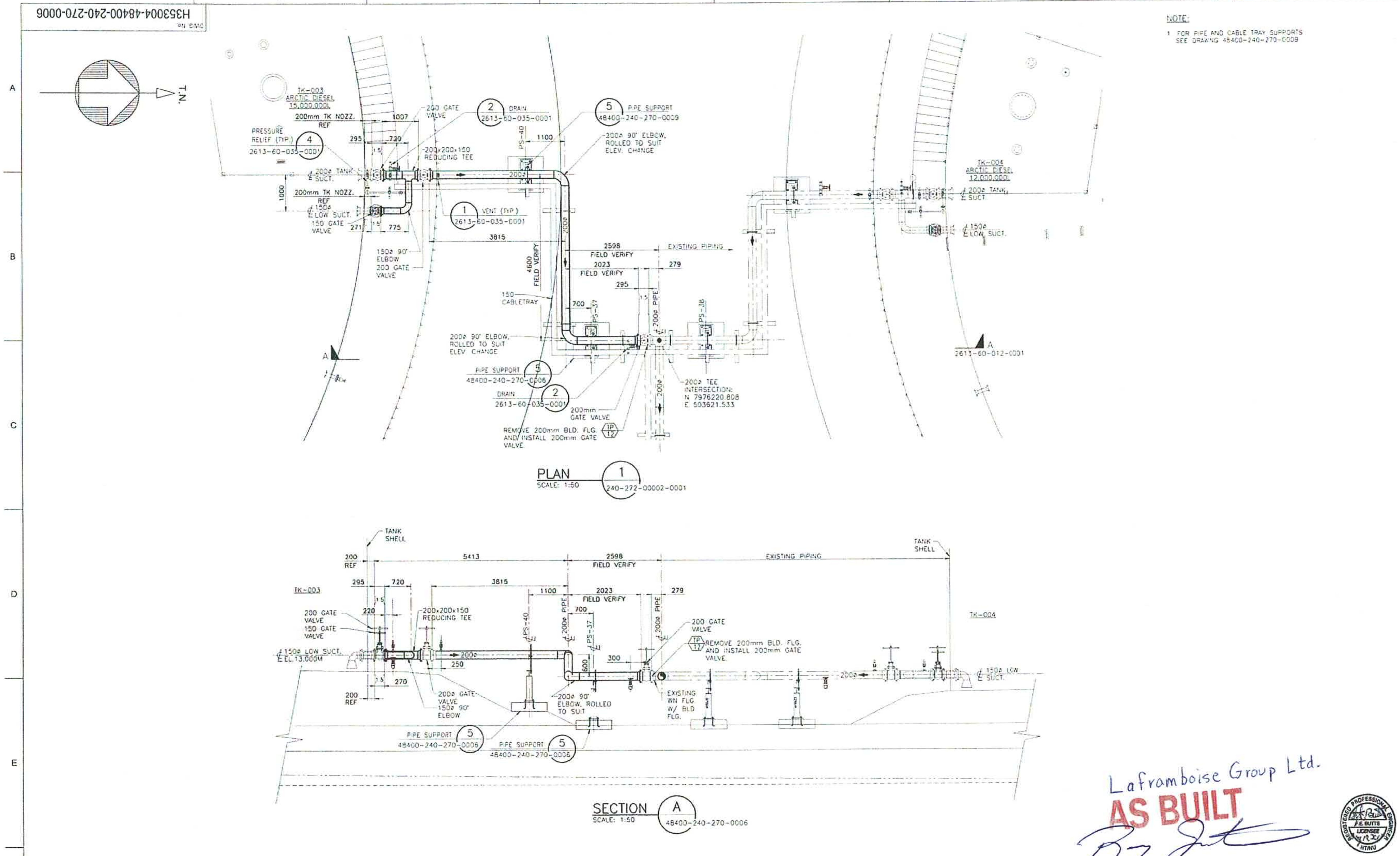
PORT SITE
TK-003 INLET PIPING
PLAN & SECTION

SCALE AS NOTED OR AS NOTED

DWG. No. H353004-48400-240-270-0005

REV 0

SHEET SIZE: A1



Reserved space for Issue Reason stamp applied by Document Control

No.	DESCRIPTION	BY	CHK'D	DATE
0	ISSUED FOR CONSTRUCTION			

REVISIONS

DRAWING No.	DRAWING TITLE

REFERENCE DRAWINGS

NAME
SIGNATURE
ENG REG NUMBER
REVISION DATE
ORIGINAL DATE
REG. PROFESSIONAL

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	S. LEY	NR	
DESIGNER	M. MACINTYRE	NR	
CHECKER			
DESIGN COORD.			
RESP. ENG.			
LEAD DISC. ENG.			
ENG. MANAGER			
PROJ. MANAGER			

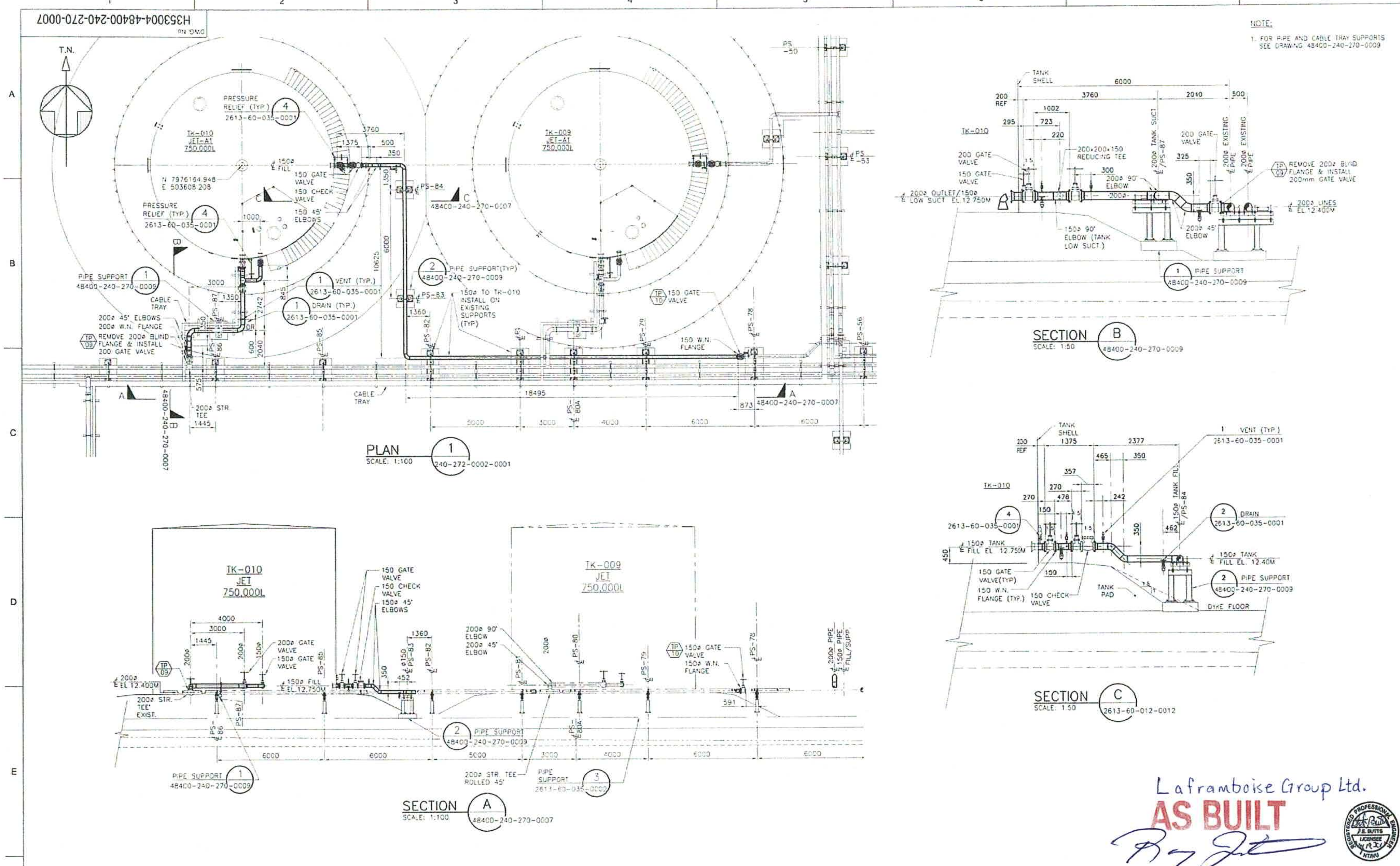
DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

PORT SITE
TK-003 OUTLET PIPING
PLAN & SECTION

SCALE: AS NOTED
DWG. No. H353004-48400-240-270-0006
REV 0
SHEET SIZE A1



Laframboise Group Ltd.

AS BUILT

0	ISSUED FOR CONSTRUCTION				
No.	DESCRIPTION	BY	CHKD	DATE	

REVISIONS

DRAWING No. | DRAWING TITLE — REFERENCE DRAWINGS

NAME / SIGNATURE / ENG REG NUMBER / REVISION DATE / ORIGINAL DATE / REG. PROFESSIONAL

Reserved space for Issue Reason stamp applied by Document Control

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	S. LEY	NR	
DESIGNER	M. MACINTYRE	NR	
CHECKER			
DESIGN COORD.			
RESP. ENG.			
LEAD DISC. ENG.			
ENG. MANAGER			
PROJ. MANAGER			

DRAWING APPROVAL STATUS: Approved for Construction

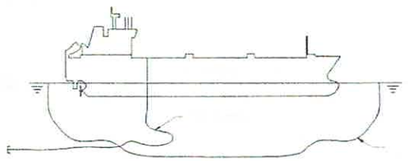
Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

PORT SITE
TK-010 INLET/OUTLET PIPING
PLAN & SECTION

SCALE: AS NOTED
DWG. No. H353004-48400-240-270-0007
REV 0
SHEET SIZE: A1

DWG. No. H353004-48000-210-282-0002



NOTE:

1. PIPING AND INSTRUMENTATION IN GREY IS FOR REFERENCE ONLY. REFER TO H349000-2610-05-031-0001 (EXISTING P&ID).
2. TANKS ARE FILLED ONE AT A TIME.
3. TANKS ARE DRAWN DOWN ONE AT A TIME.
4. TANKS FILLED TO 95% OF NOMINAL CAPACITY.

2614-TK-007

2613-TK-005

2613-TK-006

2614-TK-008

2613-TK-002

2613-TK-004

2614-TK-009

2613-TK-001

2613-TK-011
ARCTIC DIESEL STORAGE TANK
3 000 000 L

2613-TK-003
ARCTIC DIESEL STORAGE TANK
12 000 000 L

2614-TK-010
STORAGE TANK
750 000 L

Laframboise Group Ltd.
AS BUILT

DRAWING No.	DRAWING TITLE
349000-2610-05-031-0001	MILNE PORT TANK FARM P&ID
349000-1000-75-041-0007	LEGEND SHEET 6 OF 7 - EQUIPMENT
349000-1000-75-041-0006	LEGEND SHEET 5 OF 7 - EQUIPMENT
349000-1000-75-041-0005	LEGEND SHEET 5 OF 7 - INSTRUMENTATION
349000-1000-75-041-0004	LEGEND SHEET 4 OF 7 - INSTRUMENTATION
349000-1000-75-041-0003	LEGEND SHEET 3 OF 7 - PIPING
349000-1000-75-041-0002	LEGEND SHEET 2 OF 7 - ASSET TAGGING
349000-1000-75-041-0001	LEGEND SHEET 1 OF 7 - ASSET TAGGING

REFERENCE DRAWINGS

NAME
SIGNATURE
ENG REG NUMBER
REVISION DATE
ORIGINAL DATE
REG. PROFESSIONAL

Reserved space for Issue Reason stamp applied by Document Control

No.	DESCRIPTION	BY	CHK'D	DATE
1	TK-003 ADDED, ISSUED FOR USE	SJH	SS	17/10/23
0	ISSUED FOR CONSTRUCTION	SJH	SS	17/07/23

REVISIONS

HATCH

ROLE	NAME	SIGNATURE	DATE
DRAFTSPERSON	J. MCNEIL		17/10/23
DESIGNER	M. MACINTYRE		17/10/23
CHECKER	S. SKINNER		17/10/23
DESIGN COORD.	M. MACINTYRE		17/10/23
RESP. ENG.	F. BUTTS		17/10/23
LEAD DISC. ENG.	F. BUTTS		17/10/23
ENG. MANAGER	J. HOWES		
PROJ. MANAGER	SVEN HEINER		

DRAWING APPROVAL STATUS: Approved for Construction

Baffinland

MARY RIVER EXPANSION PROJECT
BAFFINLAND IRON MINES LP

PORT SITE
TM001 FUEL SYSTEM
P&ID

SCALE	DWG. No.	REV
AS NOTED OR AS NOTED	H353004-48000-210-282-0002	1

SHEET SIZE: A1

Appendix B

Additional Survey Data

0822SMR100	7976197	503617.4	12.584	SPOT
0822SMR101	7976208	503628.6	12.411	SPOT
0822SMR102	7976201	503631.7	12.465	SPOT
0822SMR103	7976197	503633	12.447	SPOT
0822SMR104	7976189	503631.6	12.508	SPOT
0822SMR105	7976184	503627.4	12.492	SPOT
0822SMR106	7976181	503622.3	12.47	SPOT
0822SMR107	7976188	503619.3	12.523	SPOT
0822SMR108	7976182	503611.8	12.454	SPOT
0822SMR109	7976187	503605.8	12.457	SPOT
0822SMR110	7976194	503601	12.45	SPOT
0822SMR111	7976202	503602.1	12.447	SPOT
0822SMR112	7976209	503606.5	12.47	SPOT
0822SMR113	7976205	503610.2	12.533	SPOT
0822SMR114	7976212	503610.9	12.454	SPOT
0822SMR115	7976213	503616.4	12.448	SPOT
0822SMR116	7976212	503622.5	12.46	SPOT
0822SMR117	7976209	503627.3	12.426	SPOT
0822SMR118	7976201	503624.5	12.502	SPOT
0822SMR119	7976204	503617.8	12.523	SPOT
0822SMR120	7976196	503609.4	12.52	SPOT
0822SMR121	7976190	503613.9	12.524	SPOT
0822SMR122	7976193	503624.5	12.533	SPOT
0822SMR123	7976201	503610.1	12.524	SPOT
0822SMR124	7976208	503619	12.455	SPOT
0822SMR125	7976196	503627.8	12.485	SPOT
0822SMR126	7976193	503619	12.553	SPOT
0822SMR127	7976191	503609	12.483	SPOT

1	7976273	503641.4	11.95	
0610JCB2000	7976285	503656.9	10.6276	TOPO
0610JCB2001	7976284	503656.5	10.8704	TOPO
0610JCB2002	7976281	503656.5	10.8746	TOPO
0610JCB2003	7976280	503656.5	10.5929	TOPO
0610JCB2004	7976275	503656.9	10.6405	TOPO
0610JCB2005	7976274	503656.5	11.3915	TOPO
0610JCB2006	7976269	503656	11.3553	TOPO
0610JCB2007	7976268	503655.7	10.6593	TOPO
0610JCB2008	7976268	503654.5	10.6247	TOPO
0610JCB2009	7976265	503652.2	10.6867	TOPO
0610JCB2010	7976263	503649.6	10.7559	TOPO
0610JCB2011	7976262	503652.7	10.7353	TOPO
0610JCB2012	7976263	503655.5	10.7731	TOPO
0610JCB2013	7976264	503657.2	10.6422	TOPO
0610JCB2014	7976262	503658.3	11.2439	TOPO
0610JCB2015	7976259	503653.3	11.9544	TOPO
0610JCB2016	7976257	503651.3	11.9541	TOPO
0610JCB2017	7976257	503652.9	12.0455	TOPO
0610JCB2018	7976260	503657.6	11.8908	TOPO
0610JCB2019	7976256	503647.5	10.7407	TOPO
0610JCB2020	7976258	503647.8	10.7646	TOPO
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0610JCB2022	7976257	503642.5	10.7153	TOPO
0610JCB2023	7976258	503642.4	10.7158	TOPO
0610JCB2024	7976260	503642.3	10.676	TOPO
0610JCB2025	7976260	503644.4	10.4078	TOPO
0610JCB2026	7976260	503645.8	10.4433	TOPO
0610JCB2027	7976262	503648.4	10.995	TOPO
0610JCB2028	7976264	503651.1	10.6484	TOPO
0610JCB2029	7976260	503638.6	10.6871	TOPO
0610JCB2030	7976257	503638.7	10.6721	TOPO
0610JCB2031	7976258	503634.7	10.8159	TOPO
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0610JCB2036	7976264	503625.2	10.6928	TOPO
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0610JCB2038	7976261	503624.3	12.2121	TOPO
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0610JCB2040	7976259	503629.2	12.1647	TOPO
0610JCB2041	7976257	503630.9	12.1782	TOPO
0610JCB2042	7976268	503627.8	10.5975	TOPO
0610JCB2043	7976265	503631.6	11.57	TOPO
0610JCB2044	7976262	503635.4	11.6825	TOPO
0610JCB2045	7976261	503639.6	11.7927	TOPO

0610JCB2046	7976262	503644.7	11.858	TOPO
0610JCB2047	7976265	503648.9	11.8575	TOPO
0610JCB2048	7976267	503651.1	11.8407	TOPO
0610JCB2049	7976270	503652.7	11.8456	TOPO
0610JCB2050	7976273	503653.2	11.7168	TOPO
0610JCB2051	7976277	503653	11.783	TOPO
0610JCB2052	7976280	503650.4	11.8331	TOPO
0610JCB2053	7976283	503645.6	11.8917	TOPO
0610JCB2054	7976286	503643.1	11.8705	TOPO
0610JCB2055	7976286	503641	11.6807	TOPO
0610JCB2056	7976286	503637	11.7592	TOPO
0610JCB2057	7976284	503634.7	11.843	TOPO
0610JCB2058	7976281	503632.1	11.8117	TOPO
0610JCB2059	7976278	503630.9	11.8686	TOPO
0610JCB2060	7976273	503629.5	11.7448	TOPO
0610JCB2061	7976269	503629.2	11.8369	TOPO
0610JCB2062	7976272	503627.3	10.7615	TOPO
0610JCB2063	7976275	503627.5	11.1148	TOPO
0610JCB2064	7976279	503628.2	11.0801	TOPO
0610JCB2065	7976280	503628.8	10.834	TOPO
0610JCB2066	7976282	503630	10.7032	TOPO
0610JCB2067	7976285	503631.7	10.7146	TOPO
0610JCB2068	7976287	503634.9	10.6685	TOPO
0610JCB2069	7976288	503636.9	10.827	TOPO
0610JCB2070	7976288	503639.5	11.0337	TOPO
0610JCB2071	7976288	503641.8	11.045	TOPO
0610JCB2072	7976287	503644.3	10.7614	TOPO
0610JCB2073	7976285	503646.4	10.7488	TOPO
0610JCB2074	7976285	503648	10.7017	TOPO
0610JCB2075	7976284	503649.2	10.9279	TOPO
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0610JCB2077	7976281	503652.4	10.7922	TOPO
0610JCB2078	7976280	503652.9	10.6528	TOPO
0610JCB2079	7976277	503654.9	10.719	TOPO
0610JCB2080	7976275	503657.2	10.6521	TOPO
0610JCB2081	7976273	503650	11.871	TOPO
0610JCB2082	7976273	503645.2	11.8246	TOPO
0610JCB2083	7976273	503638.5	11.8051	TOPO
0610JCB2084	7976273	503634.1	11.7446	TOPO
0610JCB2085	7976278	503634.2	11.8582	TOPO
0610JCB2086	7976278	503639.8	11.8327	TOPO
0610JCB2087	7976277	503646.7	11.7738	TOPO
0610JCB2088	7976283	503641.8	11.8332	TOPO
0610JCB2089	7976269	503634.8	11.7343	TOPO
0610JCB2090	7976268	503645.1	11.8439	TOPO
0610JCB2091	7976264	503640.4	11.7486	TOPO
Stkd1	7976273	503641.4	11.8023	

Appendix C

Tanks and Pipes

1. E353004-TM001-130-067-0001 Data Book for TK-011 3,000,000 L Arctic Diesel Tank **(489 MB)**
2. E353004-TM001-130-067-0004 Data Book for TK-010 750,000 L Jet A-1 Tank **(324 MB)**
3. E353004-TM001-130-067-0006 Data Book for TK-003 12,000,000 L Arctic Diesel Tank **(457 MB)**
4. E353004-TM001-130-067-0002 Shop QC Turnover package for Piping **(586 MB)**
5. E353004-TM001-130-067-0003 Piping Isometric As-builts **(58 MB)**
6. E353004-TM001-130-067-0005 Final Field Installation **(1 MB)**

The above tank data books typically include the following sections as submitted by Groupe Laframboise Ltee:

- Section 1: Inspection Test Plan
- Section 2: Procedures
- Section 3: Non-Destructive Examination Reports
- Section 4: Welding Data
- Section 5: Engineering
- Section 6: Material Data
- Section 7: Non conformity Report
- Section 8: Name Plate
- Section 9: Tank Calibration & Strapping
- Section 10: Request for Information

Appendix D

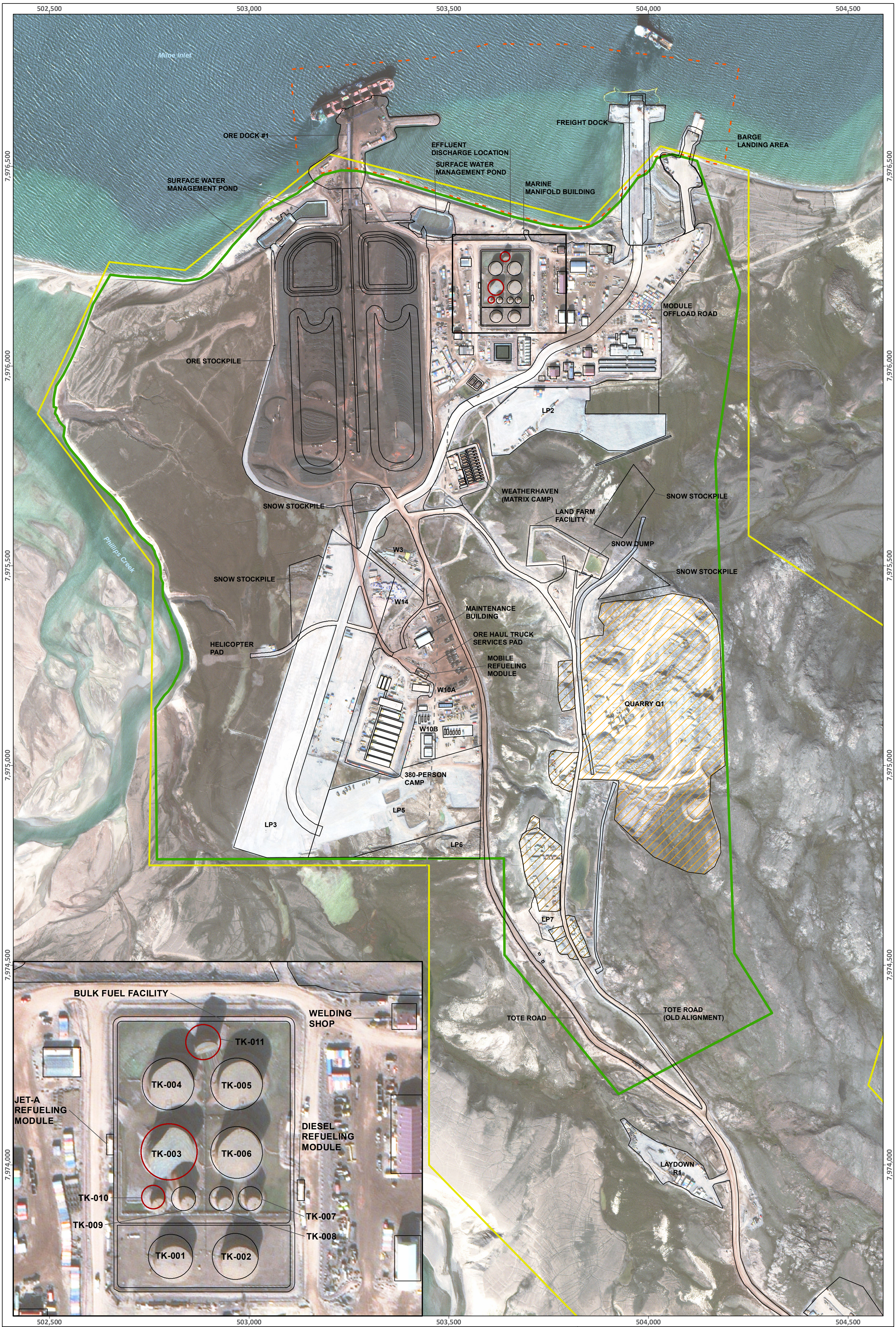
Contact Information as per Components 1 and 2 of the Commercial Lease Requirement

Company	Address	Contact Numbers
Hatch (Global Corporate Office) (EPCM Contractor)	Sheridan Science & Technology Park 2800 Speakman Drive Mississauga, Ontario L5K 2R7 Canada	Tel: 1-905-855-7600 Fax: 1-905-855-8270
Nuna East Limited	9839 – 31 Avenue NW Edmonton, AB T6N 1C5 Canada	Tel: 1-780-434-9114 Fax: 1-780-434-7758
Laframboise Group	1397 Rosemount Ave. Cornwall, Ontario K6J 3E5 Canada	Tel: 1-613-933-6664, Ext. 313 Fax: 1-613-933-9910

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

Appendix E

Map to Show Construction in Relation to Lease Boundaries and Water Bodies



LEGEND

- Foreshore Lease Boundary
- Borrow Area
- Quarry Area
- Project Development Area
- Commercial Lease Boundary
- Current Infrastructure

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Milne Port Site Layout

Projection: NAD 1983 UTM ZONE 17N.
Base Map: © 2019 Digital Global, Inc.
Imagery and Infrastructure are representative as of August 2019.

0 25 50 100 150 200 Meters
Scale 1:9,000
N

Baffinland

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FIGURE 1

Appendix F

Milne Port Dyke Calculations to NFC Requirements

Milne Port Dyke Calculations to NFC Requirements

11 Tank Combined Dyke (two tier)		353004 Earth Dyke	
Tanks 4, 5 & 6 Diameter (3 Tanks)		31.80 m	
Tanks 4, 5 & 6 Height		15.3 m	
Tanks 3 Diameter (1 Tank)		32.65 m	
Tanks 3 Height		18.15	
Tanks 1 & 2 Diameter (2 Tanks)		25.6 m	
Tanks 1 & 2 Height		9.76 m	
Tanks 7, 8, 9 & 10 Diameter (4 Tanks)		10.25	
Tanks 7, 8, 9 &10 Height		9.14	
Tanks 11 Diameter (1 Tank)		16.25	
Tanks 11 Height		15.10	
Tanks 4, 5 & 6 Capacity		12,151,658 Litre	
Tank 3 Capacity		15,196,126	
Tanks 1 & 2 Capacity		5,023,653 Litre	
Tanks 7, 8, 9 & 10 Capacity		754,195	
Tanks 11 Capacity		3,131,652	
Total Tank Volume		67,846,841 Litre	
Tank Volume		67,847 m^3	
Required Volume		20,461 m^3	
Number of Tanks		11	
Dyke - Overall Height		1.7 m	
Dyke - Crest Width		0.6 m	
Max Liquid Height		1.400 m	
Freeboard		0 m	
Useable volume from 3D Model	21,476 m3		
Difference	1,014.803 1,015		4.73%

Appendix G

Earthworks

Appendix H

Spill Report

INCIDENT MANAGEMENT REPORT

BASIC DETAILS

Date Record Created: 29-Sep-18

Incident Status	Complete		
Incident Number	INC105180	**Client Incident Number**	
Incident Date	29-Sep-18	**Incident Time**	12:30 PM
Reported By	CLARKE, Josh	**Supervisor at Time of Incident**	LAFONTAINE, RAY
Reported Date	29-Sep-18	**Reported Time**	1:32 PM

Project Responsible H-353004 Mary River Expansion Stage 3 by Groupe Laframboise Contractors in Mississauga

Exact Location Milne port tank farm

Is this a Work related incident? Yes **Has this incident been reported to Authorities?** No

Is this a Hatch Controlled site or a Hatch employee working on a client site? Yes

INCIDENT DESCRIPTION

Summary RT9150e hydraulic hose failure

Incident Type Equipment Failure

Detailed Description

While staged to performing lifting operations at Tank #003, a high pressure hydraulic 1/4" steering circuit hose failed causing approximately 20L of AN32 hydraulic oil to contact the ground. Operator was signaled to stop operations, safe out the crane and contact supervision. Spill was contained using absorbent pads. Containment area is within the lined bermed area of the tank farm. Supervision and HSE notified, investigation ongoing.

CONSEQUENCES

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

Maximum Potential Score 1

IMMEDIATE CORRECTIVE ACTIONS

Immediate Corrective Actions

Supervision, BIM site services notified, area contained and spill clean up efforts conducted. Equipment mechanic contacted to diagnose repairs. Dayshift notified BIM environmental and HSE.

NOTIFICATION

People Immediately Notified

COAKLEY, Marlon
MOFFETT, Dean
GOULD, Robert

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

PERRY, Steven
PIETRASZ, Jared
BARREIRA, Dominic
BLACHUT, Dominik
SHAIN, William
GAGNON, Pierre
GARDINER, Darren

Safety Coordinator

GOULD, Robert

Hatch Supervisor (who will review this notification)

COAKLEY, Marlon

Person Entering Record

HARVEY, Michael

INVESTIGATION

Investigator

Investigation Team

INCIDENT MANAGEMENT REPORT

HARVEY, Michael ,

Detailed Investigation Description

While staged to performing lifting operations at Tank #003, a high pressure hydraulic 1/4" steering circuit hose failed causing approximately 20L of AN32 hydraulic oil to contact the ground. Operator was signaled to stop operations, safe out the crane and contact supervision. Spill was contained using absorbent pads. Containment area is within the lined bermed area of the tank farm. Supervision and HSE notified.(steering hose to supply hose contact over time causing failure.(friction wear)

List of known witnesses to incident

,

Location of supporting documents (attachments)

ENVIRONMENT

Type of ecological loss
Habitat

Impact initiating event Spill and release
Habitat description lined gravel bermed contained fuel tank farm

Details

No Habitat loss-While staged to performing lifting operations at Tank #003, a high pressure hydraulic 1/4" steering circuit hose failed causing approximately 20L of AN32 hydraulic oil to contact the ground. Operator was signaled to stop operations, safe out the crane and contact supervision. Spill was contained using absorbent pads. Containment area is within the lined bermed area of the tank farm. Supervision and HSE notified.Supervision, BIM site services notified, area contained and spill clean up efforts conducted. Equipment mechanic contacted to diagnose repairs. Dayshift notified BIM environmental and HSE.

Species No
Number **Protected**

ROOT CAUSE ANALYSIS

Were procedures/safe systems of work/work instructions adequate? Yes
Was training adequate? Yes
Was quality control adequate? Yes
Was communication adequate? Yes
Is the management system adequate? Yes
Is the human engineering adequate? Yes
Was the immediate supervision adequate? Yes
Was the plant design adequate? Yes
Was the hardware adequate? Yes
Was the maintenance management adequate? Yes
Was housekeeping adequate? Yes
Was there clear guidance about priorities? Yes
Were the defences adequate? Yes
Was contractor management and alignment adequate? Yes
Was hazard identification adequate? Yes
Were there any other contributing factors? Yes
Details of other contributing factors

steering hose to supply hose contact over time causing failure.(friction wear)

INCIDENT MANAGEMENT REPORT

CORRECTIVE ACTIONS

Action No.	Action	Assigned To	Due Date	Completion Date
ACT112450	replace damaged steering circuit hose Replace hose and re route to segregate from rubbing against other hoses or parts.(see photo) clean and dispose of contaminated top layer of gravel to appropriate storage location as approved by BIM Environmental.(see photo)	LAFONTAINE, RAY	30-Sep-18	7-Oct-18

- -

KEY LEARNINGS

INVESTIGATOR COMMENTS

Investigation complete

Reviewed by: HARVEY, Michael Date: 1-Oct-18

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

Incident closed

Reviewed by: GOULD, Robert Date: 2-Oct-18

SUPERVISOR / TEAM LEADER / CONTRACT COORDINATOR COMMENTS

investigation completed

Reviewed by: COAKLEY, Marlon Date: 18-Nov-18

BU PROJECTS DIRECTOR / PROJECT OR CONSTRUCTION MANAGER COMMENTS

Reviewed by: Date:

BUSINESS UNIT DIRECTOR / REGIONAL PDG LEAD COMMENTS

Reviewed by: Date:

REGIONAL MANAGING DIRECTOR COMMENTS

Reviewed by: Date:

1

Appendix I

CCME Code Compliance Table

Part	Section	Reference	Requirement	Comment
Part 1: Application and Definitions	Not Applicable.	Not Applicable.	Not Applicable.	Not applicable.
Part 2: Registration and Approval of Storage Tank Systems	2.2 Registration of Existing Storage Tank Systems	2.2.1	The owner of an existing storage tank system shall register all storage tanks of the system with the authority having jurisdiction in a manner and timeframe prescribed by the authority having jurisdiction.	Details for the existing storage tank system (installed in 2011) were submitted in early 2012 as part of document H337697-4020-00-121-0001Rev01 Milne Inlet Fuel Storage Facility As-Built Documentation. Also see 2.4.1, 2.4.2 and 2.4.3 below. .
Part 2: Registration and Approval of Storage Tank Systems	2.2 Registration of Existing Storage Tank Systems	2.2.2	Registration of an existing storage tank system shall be conducted by completing and filing a registration form in a manner specified by the authority having jurisdiction. (See Appendix C)	Registration with the Fire Marshall following Appendix C of CCME is in-progress by Baffinland for the existing storage tank system. See 2.2.1 above.
Part 2: Registration and Approval of Storage Tank Systems	2.2 Registration of Existing Storage Tank Systems	2.2.3	The owner of an existing storage tank system shall identify registered tanks in a manner and time frame specified by the authority having jurisdiction.	See 2.2.2 above.
Part 2: Registration and Approval of Storage Tank Systems	2.2 Registration of Existing Storage Tank Systems	2.2.4	The authority having jurisdiction may deem the age of an existing storage tank system to be unknown unless the owner provides the authority having jurisdiction with either the date of installation and/or the date of manufacture.	Not applicable; the date of installation have been provided to the authority having jurisdiction.
Part 2: Registration and Approval of Storage Tank Systems	2.3 Approval of Storage Tank Systems	2.3.1	No person shall construct or cause to construct, install, *alter*, or operate a *storage tank system* unless all required permits and approvals have been obtained from the *authority having jurisdiction*.	Nunavut Water Board and the Qikiqtani Inuit Association. Requirements to operate a storage tank system are being confirmed with the Fire Marshal and will be met as required by the Fire Marshal.
Part 2: Registration and Approval of Storage Tank Systems	2.4 Registration of New Storage Tank Systems	2.4.1	The *owner* of a *new storage tank system* installed after a date specified by the *authority having jurisdiction* shall register the *storage tank system*.	Within Nunavut the authority having jurisdiction is the Fire Marshal (per Appendix C of CCME). Requirements for registration are being confirmed with the Fire Marshal and wil be met as required by the Fire Marshal.
Part 2: Registration and Approval of Storage Tank Systems	2.4 Registration of New Storage Tank Systems	2.4.2	The new *storage tank system* shall be registered by completing and filing a registration form as specified by the *authority having jurisdiction.*	Within Nunavut the *authority having jurisdiction* is the Fire Marshal (per Appendix C of CCME). Requirements for registration are being confirmed with the Fire Marshal and wil be met as required by the Fire Marshal.
Part 2: Registration and Approval of Storage Tank Systems	2.4 Registration of New Storage Tank Systems	2.4.3	The *owner* of a new *storage tank system* shall identify registered tanks in a manner specified by the *authority having jurisdiction*.	Within Nunavut the authority having jurisdiction is the Fire Marshal (per Appendix C of CCME). Requirements for registration are being confirmed with the Fire Marshal and wil be met as required by the Fire Marshal.
Part 2: Registration and Approval of Storage Tank Systems	2.5 Product Supply and Registration	2.5.1	After a date specified by the *authority having jurisdiction*, no person shall transfer or cause to be transferred *petroleum* or *allied petroleum products* to a *storage tank system* unless the *storage tank system* has been registered with the *authority having jurisdiction*.	See 2.4.1, 2.4.2 and 2.4.3 above.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.1	Except as provided in this Part, the design, fabrication and installation of an *aboveground storage tank system* shall be in conformance with the NFCC.	The new tank farm components have been installed in conformance with Section 4 of the NFCC.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.2	Except as provided in this Part, the design and installation of an *aboveground storage tank system* connected to an oil-burning appliance and equipment that comes within the scope of CAN/CSA-B139-00,"Installation Code for Oil Burning Equipment" shall be in conformance with that Code.	Not applicable; the system is not connected to an oil-burning appliance or equipment.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.3	An *aboveground storage tank*, components, and accessories, for which there is a recognized standard, shall be *approved* only for the uses indicated under the standard.	All components, accessories and trim comply to this section.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.4	A company or individual that is authorized by the *authority having jurisdiction* shall verify that the design and installation of an *aboveground storage tank system* meets the requirements of this Code or other requirements as specified by the *authority having jurisdiction*.	Hatch has reviewed the as-builts, as constructed status of the facility and confirms it meets the applicable requirements of this code.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.5	An *aboveground storage tank system* shall be installed by a company or individual that is authorized by the *authority having jurisdiction*.	Hatch is registered to practice engineering in Nunavut and has completed the design, managed the construction and reviewed all as-built documents pertaining to this tank system.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.6	An *aboveground storage tank* shall be equipped to control emissions of volatile organic compounds in conformance with CCME PN 1180, "Environmental Guideline for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks". (See Appendix B, note B.3.2.6)	Not applicable; stored fuel has vapour pressure less than 10kPA. Arctic Grade Diesel vapour pressure is 1kPA@20C per MSDS. Jet-A1 fuel vapour pressure is 1-1.4kPA@37.8C per MSDS.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.7(1)	The *owner* of an *aboveground storage tank system* shall provide an as-built drawing to the *authority having jurisdiction* in the manner and time frame as specified by the *authority having jurisdiction*.	As-built drawings form part of this report.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.7(2)	As-built drawings for an aboveground storage tank system shall include, as a minimum: (a) the outline of all storage tanks; (b) the centerline of all piping or piping groups; (c) the centerline of all underground electrical power and monitor sensor conduit; (d) building foundation outlines; (e) secondary containment systems; and (f) property lines.	As-built drawings forming part of this report meet the minimum requirements as stated in this section.

Part	Section	Reference	Requirement	Comment
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.8(1)	No person shall install an aboveground storage tank system unless: (a) required permits or approvals have been obtained from the authority having jurisdiction; (b) plans, drawings and specifications of the system or equipment have been examined by the authority having jurisdiction; and (c) the plans, drawings and specifications referred to in Clause (b) bear the stamp and signature of a professional engineer licensed to practice in the province/territory.	(a) Permit for the tank construction and containment dyke was obtained from the Nunavut Water Board and the Qikiqtani Inuit Association. (b) Drawings were submitted to the above authorities. (c) Submitted issued for construction (IFC) drawings to the authorities bear the stamp and signatures of Registered Professional Engineers.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.2 General Requirements	3.2.9	An *aboveground storage tank system* shall be designed and installed in accordance with the manufacturer's instructions, the appropriate standards, and this Code.	The above ground tanks have been constructed in conformance with API 650. The aboveground piping has been constructed in accordance with the NFCC and ANSI B31.3 Process Piping. The secondary containment has been constructed in conformance with this code and the NFCC.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.3 Field-erected Storage Tank Systems	3.3.1(1)	A field-erected storage tank system shall: (a) have corrosion protection in conformance with Section 3.8; (b) have a secondary containment system in conformance with Section 3.9; (c) have leak detection in conformance with Part 6; (d) have containment sumps, as applicable; (e) be provided with overfill protection: (i) for pipeline delivery, in the form of an alarm system that will automatically alert pipeline or terminal personnel so that action can be taken to prevent the storage tank from being overfilled; (ii) for truck, rail, ship, or barge delivery, in the form of a visual and audible alarm system for detecting a high level that will activate and alert personnel in enough time to terminate the flow of the product to the storage tank and prevent an overfill (See Appendix B, note B.3.3.1(1)(e)(ii)); or (iii) in conformance with API RP 2350-96, "Overfill Protection for Storage Tanks in Petroleum Facilities"; and (f) have piping in conformance with Part 5, as applicable.	(a) There are no underground steel piping or tanks in this facility. The use of secondary containment liner and low corrosion rates preclude the use of corrosion protection (CP) on the tank floor. (b) Conforms with Section 3.9. (c) Conforms, see Section 6 of this table. (d) Not applicable. (e) i) Not applicable. ii) Not applicable. iii) Conforms. Existing design includes a radar gauge and local display. Facility is classified as Category 1 under API 2350. A Category 1 facility shall be operated as a fully-attended facility for receipts with manual monitoring continuously during receipt. (f) Conforms.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.3 Field-erected Storage Tank Systems	3.3.2	If vapour balancing or vapour recovery systems are required, they shall be designed and built in conformance with CCME PN 1057, "Environmental Code of Practice for Vapour Recovery in Gasoline Distribution Networks".	Not applicable.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.4 Shop-fabricated Storage Tank Systems	3.4.1(1)	A shop-fabricated storage tank system shall: (a) have corrosion protection in conformance with Section 3.8; (b) have a secondary containment system in conformance with Section 3.9; (c) have leak detection in conformance with Part 6; (d) have containment sumps, as applicable; (e) except as specified in Sentence 3.4.1(2), be provided with overfill protection: (i) compatible with the intended method of filling; (ii) designed, built, and approved in conformance with ORD-C58.15- 1992, "Overfill Protection Devices for Flammable Liquid Storage Tanks," which will prevent filling the tank beyond 95% of the tank's capacity or activate an audible or combined audible/visual alarm at a product level of 90% of the tank's capacity; and (iii)where a high-level alarm system is used, with audible and visual alarms located where personnel are constantly on duty during the product transfer operation and can promptly stop or divert delivery to the tank; and (f) have piping in conformance with Part 5, as applicable.	Not applicable; tank systems are field-erected.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.4 Shop-fabricated Storage Tank Systems	3.4.1(2)	A shop-fabricated *storage tank* system having a capacity of less than 5 000 L may be provided with overfill protection in the form of visual monitoring and gauging of the level in the *storage tank system* by trained employees in constant attendance throughout the transfer operation and who are located so as to be able to promptly shut down the flow, or communicate immediately with the person controlling the delivery so that the flow can be shut down promptly.	Not applicable; tank systems are field-erected.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.4 Shop-fabricated Storage Tank Systems	3.4.2	A horizontal *storage tank* shall be supported above grade level.	Not applicable; tank systems do not include horizontal storage tanks.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.4 Shop-fabricated Storage Tank Systems	3.4.3	Where there is a dispenser, *leak detection* for the dispenser and related components shall be in conformance with Part 6.	Conforms; visual leak detection. See 6.7.2(1) Table 4 and Table 6.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.5 Aboveground Storage Tank Systems for Storing Used Oil	Not Applicable.	Not Applicable.	Not applicable.

Part	Section	Reference	Requirement	Comment
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.1(1)	Based on the design, an aboveground storage tank shall be designed, built, and approved in conformance with the following, as applicable: a) API Std 650-98, “Welded Steel Tanks for Oil Storage”; b) ULC-S601-2000, “Aboveground Horizontal Shop Fabricated Steel Tanks”; c) CAN/ULC-S602-1992, “Aboveground Steel Tanks for Fuel Oil and Lubricating Oil”; d) ULC-S630-2000, “Aboveground Vertical Shop Fabricated Steel Tanks”; e) CAN/ULC-S643-2000, “Aboveground Shop Fabricated Steel Utility Tanks”; f) ULC-S652-1993, “Tank Assemblies for Collection of Used Oil”; g) ULC-S653-1994, “Contained Aboveground Steel Tank Assemblies”; h) ORD-C142.5-1992, “Aboveground Concrete Encased Steel Tank Assemblies”; i) ORD-C142.18-1995, “Aboveground Rectangular Steel Tanks”; j) ORD-C142.21-1995, “Aboveground Used Oil Systems”; k) ORD-C142.22-1995, “Contained Aboveground Vertical Steel Tank Assemblies”; or (l) ORD-C142.23-1991, “Aboveground Waste Oil Tanks”.	The tanks have been designed and constructed in conformance with API 650 - 12th Edition. The waste oil (slop tanks) were designed to (b) ULC-S601 2007 edition.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.2	An *overfill protection device* shall be designed, built, and *approved* in conformance with ORD-C58.15-1992, “Overfill Protection Devices for Flammable Liquid Storage Tanks”.	Not applicable; see 3.3.1(1)(e)(iii). [Milne Port] All product transfer occurs by marine delivery and pipeline for which there is on-site monitoring during all operations and marine delivery of fuel. [Mine Site] All product transfer occurs by fuel truck delivery.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.3	A *containment sump* shall be designed, built, and *approved* in conformance with ORDC107.21- 1992, “Under-Dispenser Sumps”.	Not applicable; tank systems do not include containment sumps.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.4	A *liner* shall be designed, built, and *approved* in conformance with ORD-C58.9- 1997, “Secondary Containment Liners for Underground and Aboveground Tanks”.	The secondary containment dyke has been constructed with a Layfield Hazguard 535 synthetic liner installed and tested in conformance with this code and in accordance with manufacturers instructions.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.5	An *aboveground storage tank* designed to contain an *allied petroleum product* shall be designed, built, and *approved* for use with that product.	Not applicable.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.6 Design Standards	3.6.6(1)	An aboveground storage tank built in conformance with: (a) API Spec 12B-95, “Bolted Tanks for Storage of Production Liquids”; (b) API Spec 12D-94, “Field Welded Tanks for Storage of Production Liquids”; or (c) API Spec 12F-94, “Shop Welded Tanks for Storage of Production Liquids” shall be used only for the storage of production petroleum and allied petroleum products.	Not applicable.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.7 Repair, Alteration, Reconstruction, and Relocation	3.7.1(1)	The repair, alteration, reconstruction, or relocation of an aboveground storage tank system shall be done in conformance with the technical requirements of, as applicable: (a) ULC-S601(A)-2001, “Shop Refurbishing of Aboveground Horizontal Shop Fabricated Steel Tanks”; (b) ULC-S630(A)-2001, “Shop Refurbishing Aboveground Vertical Shop Fabricated Steel Tanks”; (c) API Std 653-01, “Tank Inspection, Repair, Alteration, and Reconstruction”; (d) STI SP001-00, “Standard for Inspection of In-service Shop Fabricated Aboveground Tanks for the Storage of Flammable and Combustible Liquids”; or (e) the special acceptance procedures of ULC or API.	[Milne Port] Not Applicable. Existing tank (TK-001) was not modified after it was built. The tanks constructed in 2013 were constructed and delivered to their final location prior to initialization and commissioning, and tested prior to initial use. [Mine Site] Not applicable; new system.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.7 Repair, Alteration, Reconstruction, and Relocation	3.7.2	The owner of an aboveground storage tank system shall provide a revised as-built drawing in conformance with Sentence 3.2.7(2) to the authority having jurisdiction in a time frame specified by the authority having jurisdiction whenever new construction, alteration, or site upgrade occurs.	As-built drawings form part of this report.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.8 Corrosion Protection of Aboveground Steel Storage Tank Systems	3.8.1(1)	When cathodic protection is used, it shall be designed by a corrosion expert (See Appendix B, note B.3.8.1(1)) and be in conformance with: (a) API RP 651-97, “Cathodic Protection of Aboveground Petroleum Storage Tanks”; (b) API Std 653-01, “Tank Inspection, Repair, Alteration, and Reconstruction”; (c) NACE RP0193-2001, “External Cathodic Protection of On-Grade Carbon Steel Storage Tank Bottoms”; or (d) STI R893-89, “Recommended Practice for External Corrosion Protection of Shop Fabricated Aboveground Tank Floors.”	Not applicable; see 3.3.1(1)(a) above.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.8 Corrosion Protection of Aboveground Steel Storage Tank Systems	3.8.2(1)	Atmospheric corrosion of an aboveground storage tank system shall be controlled by: (a) a protective coating applied in conformance with the coating manufacturer’s instructions; (b) a corrosion control program in accordance with API Std 653-01, “Tank Inspection, Repair, Alteration, and Reconstruction”; or (c) the use of a non-corroding material in its construction.	Conforms to (b). Due to there being low corrosion rates in this environment, no corrosion protection was utilized in the design. In the future all testing and repair will be done to API std. 653-01.

Part	Section	Reference	Requirement	Comment
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.1(1)	Subject to Sentences (2) and (3), a secondary containment system for an aboveground storage tank shall: (1) for a storage tank system that consists of a single storage tank, have a volumetric capacity of not less than 110% of the capacity of the tank; or (2) for a storage tank system that consists of more than one storage tank, 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.	(1) Not applicable. (2) Conforms.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.1(2)	A secondary containment system for a shop fabricated storage tank shall be designed, built, and approved in conformance with: (a) ULC-S653-1994, “Contained Aboveground Steel Tank Assemblies”; (b) ULC-S655-1998, “Aboveground Protected Tank Assemblies”; (c) ORD-C142.5-1992, “Aboveground Concrete Encased Steel Aboveground Tank Assemblies”; or (d) a recognized standard for double-wall tanks.	Conforms.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.1(3)	A secondary containment system for a field erected aboveground storage tank shall be: (a) a single-wall and single-bottom storage tank placed entirely within a dyked area, with an impermeable barrier in the floor of the containment area and in the dyke walls; (b) a single-wall, double-bottom storage tank placed entirely within a dyked area, with an impermeable barrier in the floor of the containment area and in the dyke walls, sealed to the perimeter of the storage tank or pad when the liner is not installed under the tank; (c) a double-wall storage tank for a storage tank with a capacity of 50 000 L or less; or (d) a double-wall storage tank placed entirely within a dyked area, with an impermeable barrier in the floor of the containment area and in the dyke walls, for a storage tank with a capacity of more than 50 000 L.	Construction conforms to 3.9.1(3)a) A synthetic membrane liner has been installed in the granular construction of the dyke.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.2(1)	Except as provided in Sentence (2), a secondary containment impermeable barrier shall be: (a) designed, built, and approved in conformance with: (i) ORD-C58.9-1997, “Secondary Containment Liners for Underground and Aboveground Tanks”; or (ii) ORD-C142.20-1995, “Aboveground Secondary Containment Tanks”; and (b) installed so that: (i) the liner is sealed to the perimeter of the storage tank or pad when the liner is not installed under the tank; (ii) the liner extends to the top of the dyke wall; (iii) the liner is covered with a noncombustible material of such nature and thickness that it will not fail when the secondary containment is exposed to fire; and (iv) liners that are intended to be exposed in service are listed for aboveground (exposed) use.	The liner for this facility is in conformance with ORD-C58.9-1997, the liner extends to the top of the dyke wall and is placed entirely under the tank floor. The liner is covered with a minimum of 450mm of granular material and placed between layers of geotextile and sand protection.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.2(2)	A secondary containment impermeable barrier that does not conform to Sentence (1) shall: (a) use material compatible with the product being stored and acceptable to the authority having jurisdiction (See Appendix B, note 3.9.2(2)(a)); and (b) be designed, constructed, and maintained to ensure a maximum hydraulic conductivity of 1 x 10-6 cm/s.	Not applicable.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.3(1)	*Liner* penetrations shall be located at the high point or in a raised part of the dyke floor. (See Appendix B, note B.3.9.3(1))	No liner penetrations were incorporated into the construction of the dyke.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.3(2)	All *liner* penetrations shall be sealed.	Conforms; see 3.9.3(1) above.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.9 Secondary Containment Requirements	3.9.4	Monitoring of the *interstitial space* of the *secondary containment* system shall be provided in conformance with Part 6 of this Code.	Conforms.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.10 Spill Containment and Runoff Collection	3.10.1	Spills, overfills, and storm water from product transfer areas shall be contained, treated and disposed of in conformance with the applicable provincial or territorial regulations, guidelines or policies.	The fuel transfer area is incorporated in the design of the secondary containment such that all run-off is collected into the containment area.
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.10 Spill Containment and Runoff Collection	3.10.2	Containment area floors within dykes shall slope away from the tank base towards a sump at a slope greater than 1%.	Dyke floor slope is a minimum of 1% from the tank to collection sumps.

Part	Section	Reference	Requirement	Comment
Part 3: Design and Installation of Aboveground Storage Tank Systems	3.10 Spill Containment and Runoff Collection	3.10.3(1)	An oil-water separator used to treat storm water runoff, overfills, or a spill from the product transfer area shall be sized for a minimum hydraulic flow rate of a ten year return, one hour storm event, with the one hour rainfall intensity data obtained for the nearest weather station, and: (a) be designed, built, and approved in conformance with ULC-S656-2000, “Oil-Water Separators”; or (b) conform to the following: (i) be designed to produce a discharge of water that does not contain more than 15 mg/L of free oil and grease as measured by the partition-gravimetric method or other protocol as defined by the authority having jurisdiction ; (ii) be designed for an insoluble-in-water oil with a specific gravity of 0.875 ±0.025; and (iii) be designed based on the hydraulic retention time required to separate oil with a particle droplet size of 60 microns from storm water.	An OWS was purchased as a mobile unit sized and conforming to this section for the tank farm facility. For more information on the purchased OWS refer to the operating and maintenance manual included in Appendix H of this Construction Summary Report.
Part 4: Design and Installation of Underground Storage Tank Systems	Not Applicable.	Not Applicable.	Not Applicable.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.1(1)	Piping materials shall, as applicable, be designed, built, and approved in conformance with the following: (a) ASTM A 53, “Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless”; (b) CAN/CSA Z245.1-98, “Steel Line Pipe”; (c) CAN/ULC-S633-1999, “Flexible Underground Hose Connectors”; (d) ORD-C107.7-1993, “Glass-Fibre Reinforced Plastic Pipe and Fittings”; (e) ORD-C107.4-1992, “Ducted Flexible Underground Piping Systems”; (f) ORD-C107.14-1992, “Non-Metallic Pipe and Fittings”; or (g)ORD-C536-1998, “Flexible Metallic Hose”.	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.2	Except as provided in this Part, the design and installation of *piping* shall be in conformance with the NFCC.	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.3	Except as provided in this Part, the design and installation of *piping* connected to an oil-burning appliance and equipment that comes within the scope of CSA Standard B139, “Installation Code for Oil Burning Equipment” shall be in conformance with that Code.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.4	*Piping* material shall be installed and maintained in accordance with an *approved* standard, code, or in a manner acceptable to the *authority having jurisdiction* .	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.5	Single-wall *piping* shall not have buried or concealed mechanical joints. (See Appendix B, note B.5.2.5)	No buried piping; not applicable.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.6	*Leak detection* testing and monitoring of *piping* shall be in conformance with Part 6.	Visual leak detection on piping; conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.7	A thermal relief valve shall *discharge* into the low pressure side of the *piping* .	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.8(1)	*Piping* located below the maximum product level in a tank shall be provided with a means to prevent the release of liquid from the tank by syphon flow.	[Milne Port] Inlet valving to the tank farm from the marine pipeline has check and gate valves installed on the tank inlet nozzle. [Mine Site] Inlet valving to the tank farm has check and gate valves installed on the tank inlet nozzle.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.8(2)	Except as provided in Sentence 5.2.8(3), a manual shut-off valve shall be lockable or have a method of locking.	Conforms.
Part 5: Design and Installation of New Piping Systems	5.2 General Requirements	5.2.8(3)	A manual shut-off valve on the *piping* connecting a *storage tank* and a heating appliance or a stationary combustion engine does not need to be lockable or have a method of locking.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.3 Product Transfer	5.3.1	The fill pipe on a *storage tank* with a capacity of 5 000 L or more shall be equipped for the attachment of a liquid and vapour-tight connection at the time of filling and shall be sealed with a liquid- and vapour-tight cap when not in use.	All piping systems are sealed on the inlet and outlet connection ends with liquid and vapour tight cap and connections; conforms.
Part 5: Design and Installation of New Piping Systems	5.3 Product Transfer	5.3.2	The suction tube of a *used oil* tank shall be equipped for the attachment of a liquid-tight fitting and shall be sealed with a liquid-tight cap when not in use.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.4 Design Standard for Underground Piping Systems	Not Applicable.	Not Applicable.	Not applicable.
Part 5: Design and Installation of New Piping Systems	5.5 Installation	5.5.1	Piping shall be installed by a company or individual that is authorized by the authority having jurisdiction.	Piping was installed by Certified Contractor with Certified Welders and procedure for same.
Part 5: Design and Installation of New Piping Systems	5.5 Installation	5.5.2	Piping shall be located and maintained to permit the eventual removal of the piping when the storage tank system is permanently withdrawn from service.	Conforms.
Part 5: Design and Installation of New Piping Systems	5.5 Installation	5.5.3	Piping shall be located in a manner that will prevent allowable design stress from being exceeded.	Piping is designed and constructed in conformance with B31.3 - Process Piping; conforms.

Part	Section	Reference	Requirement	Comment
Part 5: Design and Installation of New Piping Systems	5.5 Installation	5.5.4	Piping located aboveground shall be protected from physical damage due to impact.	Conforms.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.1(1)	A storage tank system shall be tested for leaks in conformance with Sections 6.2 and 6.3: (a) at the time of final installation: (i) for an underground storage tank system, final installation shall be when final surface materials have been installed and prior to being put into service; or (ii) for an aboveground storage tank system, final installation shall be before the storage tank system is put into service; and (b) whenever a leak is suspected in the primary or secondary containment of the storage tanks, piping, containment sumps or related components.	Tanks have been tested in conformance with API 650 and 653. Additional Radiographic testing has been performed in lieu of hydrostatic tank testing.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.2	A line-leak detector shall be designed, built, and approved in conformance with ORDC107.12- 1992, “Line Leak Detection Devices for Flammable Liquid Piping.”	Not applicable; not a pressure system and all piping is above grade and visible to detect leaks. Visual leak detection; see 6.7.2(1) Table 4 and Table 6.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.3	Manual or electronic dip or inventory reconciliation shall be in conformance with Section 8.3.	Refer to 8.5.3(2). Fuel dipping and inventory reconciliation follows the Baffinland BAF-PH1-310-PRO-0001 Fuel Dipping/ Tank Farm Inspection document in Appendix J of this report.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.4(1)	Statistical inventory reconciliation shall be in conformance with: (a) EPA/530/UST-90/007, “Standard Test Procedures for Evaluating Leak Detection Methods: Statistical Inventory Reconciliation Methods”; and (b) EPA 510-B-95-009, “Statistical Inventory Reconciliation.”	Refer to 8.5.3(2). Fuel dipping and inventory reconciliation follows the Baffinland BAF-PH1-310-PRO-0001 Fuel Dipping/ Tank Farm Inspection document.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.5	An automatic tank gauge system with a precision leak detection capability shall be designed, built, and approved in conformance with ORD-C58.12-1992, “Leak Detection Devices (Volumetric Type) for Underground Storage Tanks”.	Not applicable; tank systems are aboveground.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.6	A continuous in-tank leak detection system shall conform to good engineering practice and shall meet the requirements of a precision leak detection test. (See Appendix B, Note B6.2.6.)	Not applicable; continuous in-tank leak detection is not required, visual leak detection is used per 6.7.2(1) Table 4 and Table 6. The system includes a fuel management system to collect tank inventory and fuel delivery transaction data to provide an inventory reconciliation, though the fuel management system is not considered to be continuous in-tank leak detection.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.7(1)	High-technology secondary containment monitoring shall continuously monitor the interstitial space and include the use of an automatic device designed, built, and approved in conformance with: (a) ORD-58.12-1992, “Leak Detection Devices (Volumetric Type) for Underground Storage Tanks”, or (b) ORD-58.14-1992, “Leak Detection Devices (Non-volumetric Type) for Underground Storage Tanks”,.	Not applicable; tank systems are aboveground.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.8	Visual leak detection procedures shall be performed in conformance with Sentence 8.4.1(3).	Conforms. See BAF-PH1-310-PRO-0001 Fuel Dipping/ Tank Farm Inspection (2014) and BAF-PH1-830-P16-0008 Environmental Protection Plan (2014).
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.9(1)	A pressure liquid media leak detection test shall be in conformance with the requirements of a precision leak detection test and: (a) the test device shall be third-party performance certified; and (b) testing technicians shall be trained in the care and use of the test device	Not applicable as spools were tested prior to construction of piping systems.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.10(1)	A static liquid media leak detection test shall be in conformance with the following requirements: (a) leak rate shall not exceed 0.38 L/h; (b) the duration of the test shall be a minimum of 1 hour; (c) there shall be no visual evidence of a leak; and (d) the test fluid shall exceed the elevation of piping and electrical conduit openings installed in sumps at the time of the leak detection test.	Not applicable as spools were tested prior to construction of piping systems.

Part	Section	Reference	Requirement	Comment
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.11(1)	A high-pressure inert gas or vacuum leak detection test for piping shall be in conformance with the following procedures, as applicable: (a) a high-pressure decline test using an inert gas or a vacuum test may be used as a leak detection test for piping systems that are in use and that have a volume of less than 1,000 L; (b)whenever permitted by the equipment design and installation, product contained in the piping system shall be drained prior to conducting the high-pressure inert gas or vacuum test procedure; (c) pumps, dispensers or other auxiliary equipment connected to the piping that cannot be subjected to the pressure of the test shall be isolated from the test procedures to prevent equipment damage; (d) a test pressure or vacuum shall, as applicable: (i) be more than 350 kPa (gauge) or 1.5 times the maximum operating pressure, whichever is greater; (ii) not exceed 700 kPa (gauge), except when the piping system is designed for such pressures; and (iii not exceed the equipment manufacturer's design limitations. (e) stabilization is required after pressurization or vacuum is achieved; (f) a piping system with a volume of less than or equal to 500 L shall have the pressure or vacuum maintained for a period of at least 60 min after stabilization; (g) a piping system with a volume of greater than 500 L but less than or equal to 1,000 L shall have the test pressure or vacuum maintained for a period of at least two hours after stabilization; (h) a piping system with a volume greater than 1000 L shall be tested using a procedure acceptable to the authority having jurisdiction (See Appendix B, Note B6.2.11 (1) (h); and (i) a piping system shall be considered to be leaking when pressure variations that occur after stabilization and within the test time period are greater than two percent of the test pressure or vacuum.	All piping has been tested in conformance with B31.3 - Process Piping; conforms.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.12(1)	A low-pressure inert gas or vacuum leak detection test for piping shall be conducted in conformance with the following procedures, as applicable: (a) a low-pressure decline test using an inert gas or a vacuum test may be used to conduct a leak detection test on the secondary containment of double-wall tanks and double-wall pipe; (b) product contained in the secondary containment system shall be drained prior to conducting the low-pressure decline or vacuum test procedure; (c) a test pressure or vacuum shall, as applicable: (i) be between 20 kPa and 35 kPa; and (ii) not exceed the equipment manufacturer's design limitations; (d) stabilization is required after pressurization or vacuum is achieved; (e) secondary containment shall have the test pressure or vacuum maintained for a period of at least two hours after stabilization; and (f) a piping system shall be considered to be leaking when pressure variations that occur after stabilization and within the test time period are greater than two percent of the test pressure or vacuum.	All piping has been tested in conformance with B31.3 - Process Piping; conforms.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.2 General Requirements	6.2.13(1)	A precision leak detection test shall be in conformance with (See Appendix B, note B.6.2.13(1)): (a) ORD-C58.12-1992, "Leak Detection Devices (Volumetric Type) for Underground Storage Tanks;" or (b) ORD-58.14-1992, "Leak Detection Devices (Non-volumetric Type) for Underground Tanks."	Not applicable; tank systems are aboveground.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.3 Leak Detection Interlocks and Alarms	6.3.1(1)	Subject to Sentence (2), an automatic leak detection device, including a high-technology secondary containment monitoring device and precision line leak detection device, shall be electrically interlocked in such a manner that: (a) when the automatic leak detection device is activated, product flow shall be shut off; and (b) except for on-site maintenance activities, when the automatic leak detection device is turned off or bypassed for more than one minute, product flow shall be terminated.	Not applicable; see 6.7.2(1) Table 4 and Table 6.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.3 Leak Detection Interlocks and Alarms	6.3.1(2)	When an electrical interlock as specified in Sentence (1) is not possible, the authority having jurisdiction shall be notified whenever the leak detection device or method indicates a leak. (See Appendix B, note B.6.3.1(2))	Complies.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.3 Leak Detection Interlocks and Alarms	6.3.2	A suction pump shall be equipped with a single check valve installed directly below the suction pump and piping shall slope so the contents of the pipe will drain back to the storage tank if the suction is broken.	Not applicable.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.3 Leak Detection Interlocks and Alarms	6.3.3	A leak detection alarm shall be located where the staff routinely work and in a place where such alarms can be readily heard and seen.	Not applicable; see 6.7.2(1) Table 4 and Table 6.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.4 Monitoring Wells	Not Applicable.	Not Applicable.	Not applicable; systems do not include monitoring wells.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.5 Groundwater Monitoring Wells	Not Applicable.	Not Applicable.	Not applicable; systems do not include groundwater monitoring wells.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.6 Vapour Monitoring Wells	Not Applicable.	Not Applicable.	Not applicable; systems do not include vapour monitoring wells.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.7 Frequency and Method	6.7.1	The reference letters in Table 2 represent the leak detection and monitoring methods specified in Tables 3 through 9.	Used to complete answers below for 6.7 Frequency and Method.

Part	Section	Reference	Requirement	Comment
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.7 Frequency and Method	6.7.2(1)	Tables 3 through 9 specify the frequencies and methods of leak detection and monitoring that shall be used upon installation and, as applicable (See Appendix B, note B.6.7.2(1)): (a) for in-service monitoring; (b) for periodic leak detection testing; or (c) if a leak is suspected.	(a) Conforms; (b) Conforms; (c) Not applicable.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.7 Frequency and Method	Table 4	Aboveground Storage Tanks: (a) Containment type; (b) Final installation leak detection; (c) In-service monitoring; (d) Periodic leak detection; (e) Leak suspected.	(a) API standard 650-98 (within approved secondary containment); (b) API 650 Standard; (c) IR and VLD; (d) API 653; (e) API 653.
Part 6: Monitoring and Leak Detection of Storage Tank Systems	6.7 Frequency and Method	Table 6	Aboveground Piping: (a) Containment type; (b) Final installation leak detection; (c) In-service monitoring; (d) Periodic leak detection; (e) Leak suspected.	(a) All types; (b) HPVLDT; (c) VLD; (d) Not required; (e) HPVLDT.
Part 7: Upgrading of Existing Storage Tank Systems	7.2 General Requirements	7.2.1	No person shall upgrade, or cause to be upgraded, an existing storage tank system unless approval has been obtained from the authority having jurisdiction.	Conforms.
Part 7: Upgrading of Existing Storage Tank Systems	7.2 General Requirements	7.2.2(1)	Where an existing storage tank system is upgraded to be in conformance with this Code, the owner shall provide a revised as-built drawing to the authority having jurisdiction in the manner and time frame as specified by the authority having jurisdiction.	As-built drawings form part of this report.
Part 7: Upgrading of Existing Storage Tank Systems	7.2 General Requirements	7.2.2(2)	A revised as-built drawing shall be in conformance with Sentence 3.2.7(2) or 4.2.8(2), as applicable.	As-built drawings form part of this report.
Part 7: Upgrading of Existing Storage Tank Systems	7.2 General Requirements	7.2.3	A partially buried storage tank is considered neither an aboveground nor underground storage tank and shall be withdrawn from service and removed in conformance with Part 9 within two years of the effective date of this Code.	Not applicable; system does not have a "partially buried storage tank".
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.1	An existing aboveground storage tank system not in conformance with Section 3.6 shall be withdrawn from service and removed in conformance with Part 9 within two years of the effective date of this Code.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.2(1)	Where underground piping connected to an aboveground storage tank has corrosion protection in conformance with Section 4.5 at the effective date of this Code, the piping may continue in service.	Not applicable; system does not contain underground piping.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.2(2)	Where underground piping connected to an aboveground storage tank does not have corrosion protection in conformance with Section 4.5 at the effective date of this Code: (a) the piping must be withdrawn from service and removed in conformance with Part 9 within two years of the effective date of this Code; or (b) best management practices shall be implemented within two years of the effective date of this Code in conformance with: i) API Std 2610-94, “Design, Construction, Operation, Maintenance and Inspection of Terminal and Tank Facilities”; and ii) API 570-98, “Piping Inspection Code: Inspection, Repair, Alteration, and Rerating of In-Service Piping Systems”.	Not applicable; system does not contain underground piping.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.3(1)	Except as specified in Sentence (2), an aboveground storage tank system shall be upgraded within two years of the effective date of this Code to include, as applicable: (a) liquid and vapour-tight connections, caps and adapters for a storage tank with a capacity of 5 000 L or more; (b) overfill protection in conformance with Article 3.6.2 for a storage tank with a capacity of 5 000 L or more; (c) underground piping in conformance with Section 5.4; (d) dispenser sumps in conformance with Article 3.6.3, where an underground piping run terminates under a dispenser; and (e) secondary containment in conformance with Section 3.9 and Sentences 7.3.4(1) and (2).	(a) Conforms; (b) Conforms; (c) Not applicable; (d) Not applicable; (e) Conforms. As-built drawings show engineered dyke basin, visit showed dyke completed according to plans, membrane of approved type observed, volume confirmed to be within acceptable construction tolerances of design.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.3(2)	Where secondary containment is not upgraded as provided in Clause (1)(e), an annual precision leak detection test shall be performed.	Secondary containment was upgraded as part of the fuel tank farm expansion.

Part	Section	Reference	Requirement	Comment
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.4(1)	Except as provided in Sentence (2), an existing field-erected aboveground storage tank not upgraded to be in conformance with Section 3.3 shall be withdrawn from service and removed in conformance with Part 9 within five years of the effective date of this Code.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.4(2)	Where authorized by the authority having jurisdiction, an existing field-erected aboveground storage tank may be exempt from adding an impermeable barrier under the tank to meet the secondary containment requirements of Section 3.9 provided that within two years of the effective date of this Code: (a) best management practices are followed in conformance with API Std 653-01, “Tank Inspection, Repair, Alteration, and Reconstruction”; or (b) if inspection requires replacing or lining the tank bottom, then 3.9.2(1)(b) shall apply (See Appendix B, note B.7.3.4(2)(b)).	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.4(3)	In the event that a storage tank owner chooses the exemption provided in Clause 7.3.4(2)(b) and the storage tank bottom or shell becomes perforated, then all other storage tanks with equal or more years of similar service at that site that are being managed under API Std 653-01, “Tank Inspection, Repair, Alteration, and Reconstruction”, shall be: (a) inspected within one year; or (b) re-evaluated within the time frame specified by the new corrosion rate.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.5	An existing aboveground storage tank not upgraded with spill containment and runoff collection in conformance with Section 3.10 shall be withdrawn from service and removed in conformance with Part 9 within five years of the effective date of this Code.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.3 Aboveground Storage Tank Systems	7.3.6	An existing shop fabricated aboveground storage tank system not upgraded to be in conformance with Sections 3.4, 3.5, and this Section shall be withdrawn from service and removed in conformance with Part 9 within two years of the effective date of this Code.	Not applicable.
Part 7: Upgrading of Existing Storage Tank Systems	7.4 Underground Storage Tank Systems	Not Applicable.	Not Applicable.	Not applicable.
Part 8: Operation and Maintenance	Not applicable for Construction.	Not applicable for Construction.	Not applicable for Construction.	Current operational control documents and SOPs for Baffinland relating to the fuel tank system equipment are listed in Appendix J of this report. Operator checklists are found in Section 3 of document BAF-PH1-830-P16-0008 Environmental Protection Plan (2014) for fuel handling activities. These documents are referenced to address Baffinland’s requirements relating to Part 8 of the CCME code compliance. In an effort to address requirements relating to additional fuel tank system equipment and requirements associated with the CCME code not currently captured within these referenced documents, operational control documents are currently undergoing revision and development as deemed required and can be provided once available.
Part 9: Withdrawal from Service of Storage Tank Systems	Not Applicable.	Not Applicable.	Not Applicable.	Not applicable.