AGNICO EAGLE
HOPE BAY

September 8, 2022

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

Sent via Email: ali.shaikh@nwb-oen.ca

Re: Water License 2AM-DOH1335 – Conditions Applying to Construction and Operation – Construction of Naartok Development Infrastructure

Dear Mr. Shaikh,

This letter represents Agnico Eagle Mines (**Agnico**) written notification to the Nunavut Water Board (**NWB**) regarding the planned construction of the following infrastructure associated with the development at Naartok:

- Naartok Pad
- Non-Contact Water Culvert
- Diversion Berm
- Fuel Storage

This notification is being provided to the NWB prior to commencement of work, as required under the Type A Water License 2AM-DOH1335 Part D Item 1. The accompanying design report, along with final design and Issue for Construction (IFC) drawings are provided in Attachment 1.

Should you have any questions please feel free to contact me at nancy.harvey@agnicoeagle.com

Sincerely,

Nancy Duquet Harvey
Environmental Superintendent - Agnico Eagle Mines Limited - Hope Bay Mine

Cc:
Licencing (NWB)

Attachments
Design Report for the Naartok Pad, Berm, Culvert and Fuel Storage

Hope Bay Naartok Pad

Design Report for the Naartok Pad, Berm, Non-Contact Culvert and Fuel Storage

DOC. #: 6205-400-132-REP-001_R0

Hope Bay Naartok Pad

Design Report for the Naartok Pad, Berm, Culvert and Fuel Storage

Prepared by:

Dindo Pangilinan, P. Eng. (APEGA Reg.# 85859)

Karl Wolter, P. Eng. (APEGA Reg.# 63208)

Verified by:

REGISTERED PROFESSIONAL ENGINEER
A.L. BABCOCK
LICENSEE
2022-Sep-06
NT/NU

Arlen Babcock, P. Eng.

PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Heidari
Date 2022-Sep-06
PERMIT NUMBER: P942
NT/NU Association of Professional Engineers and Geoscientists

Approved by:

Bruno Roy
Digitally signed by Bruno Roy
Date: 2022.09.07 07:10:57 -04'00'

Bruno Roy, P. Eng.
AEM - Construction Engineering

OIQ Member No. 146797
NAPEG Member No L3836

Guy Dufour
AEM - Environment

#300 6815 8 St NE, Calgary, AB
Canada T2E 7H7

60 Days Notice

Table of Contents

1. Introduction

1. Site Location and Access

The Naartok Pad is located on the upstream west side of the Naartok East Ramp portal in Nunavut Territory about 720 km northeast of Yellowknife. The nearest settlement is Omingmaktok located about 70 km to the west on the east cost of Bathurst Inlet. Naartok Pad can be accessed via the Naartok East Road which connects to the Doris-Windy and Madrid North all weather roads that runs north and south of the Naartok Pad respectively. Please refer to Appendix A for the General Location Plan.

2. Purpose of Document

The purpose of this design report is to summarize the site condition, design basis and considerations for the various components that are part of this 60 days notice which includes the following:

1. Naartok pad.
2. Culverts to handle the non-contact surface water runoff in accordance with water license 2AM-DOH1335.
3. West berm to separate the non-contact water from the contact water.
4. Fuel storage tanks secondary containment berm and pad.

All design shall be in accordance with the following latest technical specification documents:

- Technical Specifications – Earthworks and Geotechnical Engineering - Hope Bay Project - Nunavut, Canada, Issue For Construction (SRK Consulting (Canada Inc., April 2018)
- RMMS Corporate Standard – Water Management (Agnico Eagle Mines, July 2021)

3. Existing and Future Facilities at the Project Site

The Naartok Pad will be the site for the future office trailers and maintenance shop, generator sets, laydown and parking areas, fuel tank farm and cold storage shed and other containers.

The infrastructure will support the development of the Madrid East underground workings via the existing and approved crown pillar for Madrid.

There are currently no existing facilities on the project site.

2. Naartok Pad Design

4. Pad Description and Location

The purpose of the pad design which covers approximately 16,300 m² is to provide space for the construction of the maintenance shop facilities, fuel storage tanks, cold storage sheds, genset pads, office trailers, as well as parking and laydown areas.

Please refer to Appendix A which shows the proposed location of the pad.

5. Design Rationale, Requirements, Criteria and Parameters

The design of the pad was completed with the following considerations:

1. To provide a stable and properly graded pad for the construction of various facilities as described per above Section 2.1.
2. Minimize impact on the tundra and permafrost by constructing the pad with a minimum 2.0m of fill for cover. However, the 2.0m fill can be reduced over top of outcrop areas provided that the design grade is achieved.
3. The pad is designed with an average slope of 5.5% and generally sheet flows to the east towards the existing Naartok Pit Sump. The base of the maintenance shop and other facilities will be built-up separately as required to achieve a level base while respecting the design grades around the facilities to ensure positive drainage.
4. Hydrologic and hydraulic analyses were performed to determine the estimated peak flow from a 1 in 100 year 24-hour rainfall (62.30mm) using the Intensity-Frequency-Duration (IDF) curve developed for the local Doris weather station and complimented with data from the nearby Environment Canada weather station at Cambridge Bay and adjusted to account for the effect of climate change based on information from the Intergovernmental Government Panel on Climate Change (IPCC) for the climate change scenario referred to as Representative Concentration Pathway (RCP) 4.5, year 2050. To account for the pemafrost condition, the analysis assumes no surface infiltration. The estimated peak flow is 0.29m³/s while the estimated volume of contact water from the pad that will drain into the Naartok Pit Sump is 1,000 m³.
5. Run of Quarry (ROQ) consisting of non-potentially acid generating (PAG) and non-leachable material will be used for fill. Material gradation shall be in accordance with the Technical Specifications - Earthworks and Geotechnical Engineering as noted under Section 1.2.

6. Water Management during Construction

To avoid placement of rockfill in wet conditions, construction will be staged respecting water management. Any water accumulation in the pad area will be drained towards the Naartok pit prior to placing the rockfill. Likewise, any runoff from construction activities due to rainfall will also be directed towards the pit. Erosion control devices will be used if required.

7. Construction Methods and Equipment Access

Approximately 43,800 m³ of select ROQ material (non-PAG and non-leachable) will be placed directly above the existing unstripped surface inclusive of the tank farm base. The maximum lift thickness is 0.30m or as per Geotechnical Engineer's recommendation and rolled over repeatedly until the desired compaction is achieved.

HDPE liner will be installed underneath the maintenance shop building footprint to prevent any possible ground contamination while geotextile fabric will be placed below and above the liner for protection. The liner will be installed concurrently with the pad grading. Please refer to Appendix G for the HDPE liner specification.

The equipment used for the pad grading will use the Naartok East Road as the main access to the pad.

Please refer to the pad design drawings presented in Appendix B.

8. Quality Control/Assurance

A record of as-built survey and drawings will be produced.

9. Timeline

The anticipated construction start date is by November 2022.

3. Berm Design

1. Berm Description and Location

The proposed 3.0m wide berm runs along the west and south side of the Naartok pad. The primary function of the berm is to separate the offsite (non-contact) water runoff from the contact water and drain it towards Patch Lake. Contact water will flow to the Naartok Pit Sump.

2. Design Rationale, Requirements, Criteria and Parameters

The berm was designed with the following considerations:

1. Provide a minimum top of berm width of 3.0m to allow service vehicle access if necessary.
2. The height of the berm is set at minimum 0.50m above the pad design grade.
3. The berm side slope is set at minimum 2H:1V with the external side covered with 0.50m (hor. thickness) of riprap for erosion protection.
4. A liner system within the berm to prevent water seepage/interaction of the contact water and non-contact water. Please refer to Appendix E for the HDPE liner specification.
5. Divert non-contact water flow generated from a 1 in 100 year 24-hour rainfall (62.30mm) as per described under Section 2.2.4 plus a 30-day snowmelt (151mm) and a catchment area of approximately 25.90 ha.

3. Water Management During Construction

The base of the berm should be dry prior to placement of rock materials to build the berm. If surface water accumulates during a heavy rainfall event, ensure that the area is clear of debris to prevent blockage of the drainage flow path. Additional measures include pumping out to the Naartok Pit Sump any accumulated surface water.

4. Construction Method and Equipment Access

The berm will be constructed using ROQ consisting of non-PAG and non-leachable material for fill. The inner side slope of the berm will be built as an integral part of the pad. A liner system wrapped with bedding material consisting of crushed rock will be installed along the outer side slope to prevent non-contact water from seeping into the berm and mixing with the contact water. Select ROQ materials will then be placed along the outer side slope for erosion protection.

The same equipment to construct the pad will be used for the berm construction and access is via the Naartok East Road.

Please refer to the berm design drawings presented in Appendix C.

5. Quality Control/Assurance

A record of as-built survey and drawings will be produced.

6. Timeline

The anticipated construction start date is by November 2022.

4. Culvert Design

1. Culvert Description and Location

The proposed CMP culverts will be located on the downstream end of the diversion berm to receive the non-contact water and discharge towards Patch Lake through the Naartok East Road.

2. Design Rationale, Requirements, Criteria and Parameters

The culverts are designed with the following consideration:

1. The rainfall Intensity-Frequency-Duration (IDF) curve developed for the local Doris weather station and complimented with data from the nearby Environment Canada weather station at Cambridge Bay was used for the hydrologic analyses but adjusted to account for the effect of climate change-based information from the Intergovernmental Government Panel on Climate Change (IPCC) for the climate change scenario referred to as Representative Concentration Pathway (RCP) 4.5, year 2050.
2. To account for the permafrost condition, the analysis assumes no surface infiltration.
3. The Rational Method (verified by PCSWMM modelling) was used to estimate the peak flow generated by a 1 in 100 year 24-hour rainfall event (62.30mm). In addition, a 2-year 30-day snowmelt volume (151mm) was also considered in the analysis. This resulted in an estimated total design peak flow of 5.2 m^3/s.

4. A combination of culverts and onsite ponding/storage will be used to attenuate the total design peak flow of 5.2 m³/s where the proposed culverts consisting of 3 – 750mm diameter pipes will accommodate about 2.95 m³/s of the design flow peak flow while the excess of the flow will pond on a short-term basis in the immediate area upstream of the culverts. The diversion berm to the east and access roads to the west and south will act as barriers to contain the excess non-contact water runoff. The volume of ponding is estimated at 1,475 m³.
5. The proposed culvert material will be standard galvanized corrugated steel with profile of 68 x 13mm and minimum thickness of 2.0mm.
6. One of the three culvert barrels will be set at 0.20m above the other two for contingency against ice build-up.
7. To control erosion, the culverts will be provided with rip-rap protection at the inlet and outlet sides.

3. Water Management During Construction

Any surface water runoff that accumulates on the west side of the diversion berm (i.e. non-contact) during culvert construction will be pumped and discharged towards Patch Lake. A method of limiting sediment transport will be used at the end of the discharge hose to prevent total suspended solids from being carried into the lake.

4. Construction Method and Equipment Access

The backfill around the culverts will be granular fill 0-50mm, or an approved equal, to be placed in layer of not more than 0.30m compacted thickness or as per Geotechnical Engineer's recommendations.

The equipment access for the culvert construction will be via the Naartok East Road. Please refer to the culvert design drawings found on Appendix D.

5. Quality Control/Assurance

A record of as-built survey and drawings will be produced.

6. Timeline

The anticipated date of construction start is by November 2022.

5. Fuel Storage System Design

1. Fuel Storage Description and Location

The fuel storage system consists of diesel storage tanks, dispensing and pumping equipment, and distribution piping to various nearby fuel burning equipment on the Naartok Pad. The main storage tank area will consist of one 45,500L horizontal double walled aboveground storage tank with the provision to add a future 45,500L tank should a future increase in storage capacity be required. Three 4,500L tanks and one 10,000L will be located adjacent fuel burning equipment located on the Naartok Pad nearby the main storage tank. An additional 4,500L tank may be installed should the need arise for additional fuel burning equipment.

The main storage tank footprint will be lined and within a spill containment berm. A lined spill containment pad will be constructed adjacent to the storage tank berm such that it drains into the main storage tank secondary containment. This pad will be used for truck offloading, vehicle refueling, and location of the fuel pumphouse. Within this spill containment pad diesel will be offloaded from tanker trucks to the main storage tank. From this tank it will be dispensed from the pumphouse to motorized vehicles and heavy equipment. On demand the pumphouse will also provide transfer from the main storage tank to the various 4,500L and 10,000L day tanks installed on site. Fuel transfer process piping will be connected between the main storage area and the fuel burning equipment day tanks routed aboveground on pipe racks. The 4,500L and 10,000L day tanks are double walled aboveground storage tanks. The day tanks are used to supply equipment such as gensets and a heating unit that cannot be fed continuously from the dispensing skid as they have internal fuel pumping capabilities. The day tanks will also be filled up manually by site personnel as needed.

The main storage tank will be located within the secondary containment berm with liner in the south-west corner of the Naartok pad. The day tanks will be located north of the main storage tank adjacent various fuel burning equipment that are all located around the maintenance shop.

2. Design Rationale, Requirements, Criteria and Parameters

The design rationale is as follows:

(1) Fuel storage tanks will be horizontal aboveground double walled tanks certified to ULC-S601.

(2) As a precautionary measure, tertiary containment will be provided for the main storage tank(s) with a lined earth berm.

(3) Spill protection will be provided for tanker truck offloading and fuel dispensing pad using a containment liner with drainage into the main storage tank secondary containment.

The requirements of the fuel storage system are defined by the *Canadian Council of Ministers of the Environment (CCME) – Code of Practice for Storage Tank Systems Containing Petroleum and Allied Products (PN 1326).* The aboveground storage tanks selected for the site are ULC-S601 certified tanks which satisfy the requirements of Part 3 of this code. As such, secondary containment is not required as these tanks are double walled with a capacity of 50,000L or less, which meets the requirements of Section 3.9.1(3) (c) of this code.

The *Code of Practice for Storage Tank Systems Containing Petroleum and Allied Products* is to be read in conjunction with the *National Fire Code of Canada* (NFCC) and *CAN/CSA B139-Series:19 Installation Code for Oil Burning Equipment (B139).* As these tanks will be used to supply power generation equipment, a heating unit, and an air compressor, *B139* applies. Per the NFCC, Section 4.1.1.1.3) (b), the NFCC does not apply for appliances within the scope of B139. The aboveground storage tanks selected for the site are double walled with integral containment. Based on the requirements of B139 Section 8.7.2, No secondary containment is required as these tanks are double walled with a capacity of 80,000L or less.

The fuel storage system will be designed in compliance with the following codes and standards:

- *Canadian Council of Ministers of the Environment (CCME) – Code of Practice for Storage Tank Systems Containing Petroleum and Allied Products (PN 1326)*
- *National Research Council (NRC) – National Building Code of Canada 2020 (NBCC), 2022*
- *National Research Council (NRC) – National Fire Code of Canada (NFCC), 2015*
- *Canadian Standards Association – CAN/CSA B139-Series:19 Installation Code for Oil Burning Equipment (B139), 2019*
- *American Society of Mechanical Engineers (ASME) – B31.3 Process Piping (B31.3), 2020*

3. Water Management During Construction

Surface drainage from the loading and offloading berm and interior slopes of secondary containment berm will collect into the sump located at the internal southwest corner of the secondary berm. From there it will be pumped out and discharge into the Naartok pit as required.

4. Construction Method and Equipment Access

The secondary containment berm will be constructed together with the pad using ROQ consisting of non-PAG and non-leachable material. The quantity of the ROQ material is already included in the quantity for the pad (refer to Section 2.7). A liner system wrapped with bedding material consisting of crushed rock will be installed at the berm to prevent ground contamination. Please refer to Appendix G for the HDPE liner specification.

The same equipment to construct the pad will be used for the berm construction and access is via the Naartok East Road as shown on the drawings presented in Appendix A.

5. Quality Control/Assurance

A record of as-built survey and drawings will be produced.

6. Timeline

The anticipated date of construction start is by November 2022.

6. Appendices

Appendix A – General Location Plan

Appendix B – Pad Drawings

Appendix C – Berm Drawings

Appendix D – Culvert Drawings

Appendix E – Fuel Containment Drawings

Appendix F – Materials and Quantities

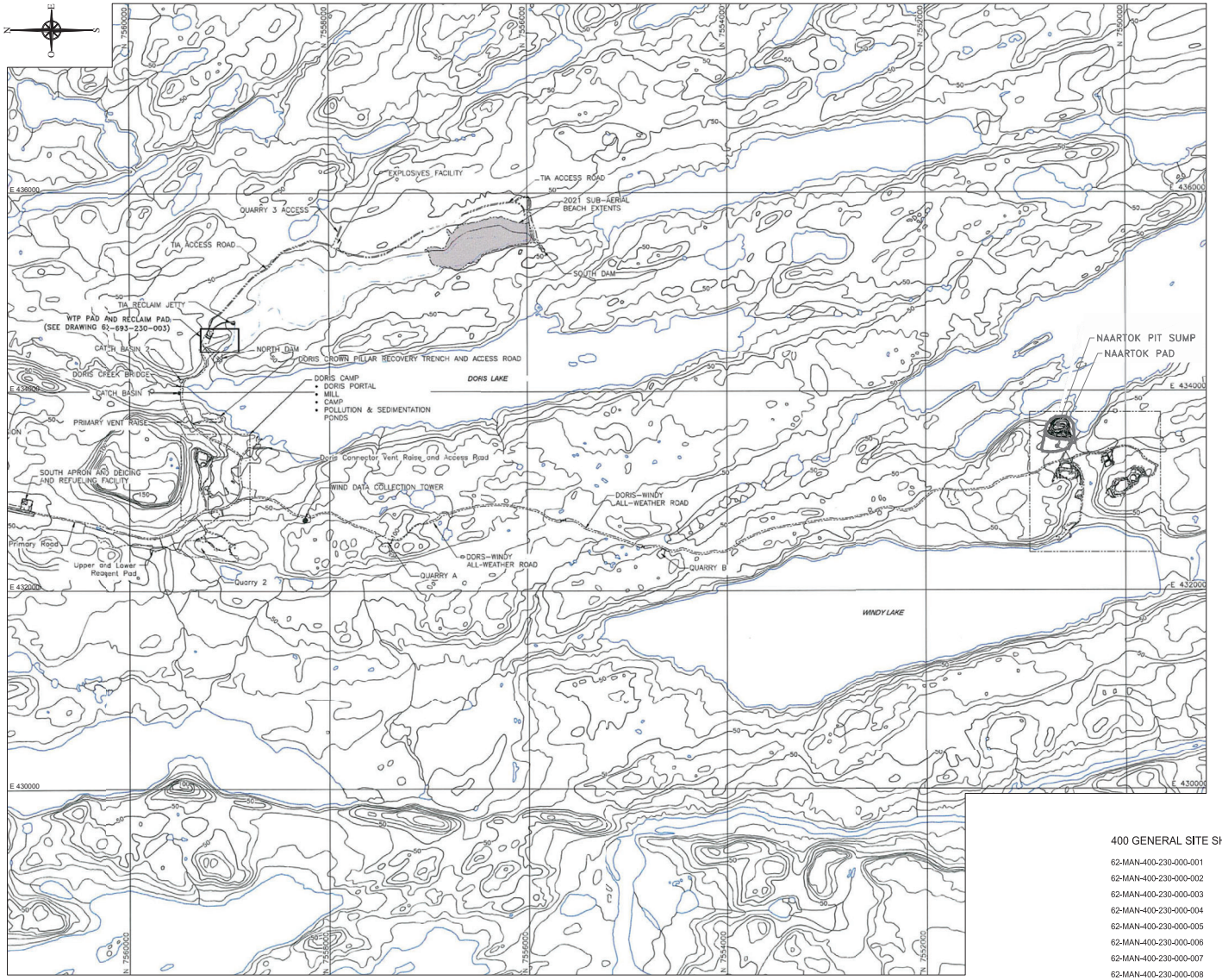
Appendix G – HDPE Liner Specification

A

General Location Plan

NO. DESSIN
DRAWING NO. 62-MAN-400-230-000-001

FORMAT ARCHD



LOCATION PLAN
SCALE: 1 : 20 000

400 GENERAL SITE SHEET LIST

PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Harding
Date 2022-Sep-08
PERMIT NUMBER: P942
NTINU Association of Professional Engineers and Geoscientists

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2022-09-02

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2022-09-02	ISSUED FOR CONSTRUCTION	MDH	ALB	AE
B	2022-08-25	ISSUED FOR COMMENT	MDH	ALB	AE
A	2022-08-23	ISSUED FOR COMMENT	MDH	ALB	AE

REVISIONS

CIMA+

TITRE / TITLE
AGNICO EAGLE
HOPE BAY NAARTOK PAD
400 GENERAL SITE
230 GENERAL EARTHWORKS
LOCATION PLAN
& SHEET LIST

DESSINÉ PAR DRAWN BY	M. HARDING PL.eng	DATE 2022-09-02
VÉRIFIÉ PAR CHECKED BY	D. PANGILINAN P.eng	2022-09-02
APPROUVÉ PAR APPROVED BY	A. BABCOCK P.eng	2022-09-02
ÉCHELLE SCALE	AS SHOWN	DATE 2022-09-02

NO. DESSIN
DRAWING NO. 62-MAN-400-230-000-001

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6205	0	1 / 1

AE-CART-ARCH D

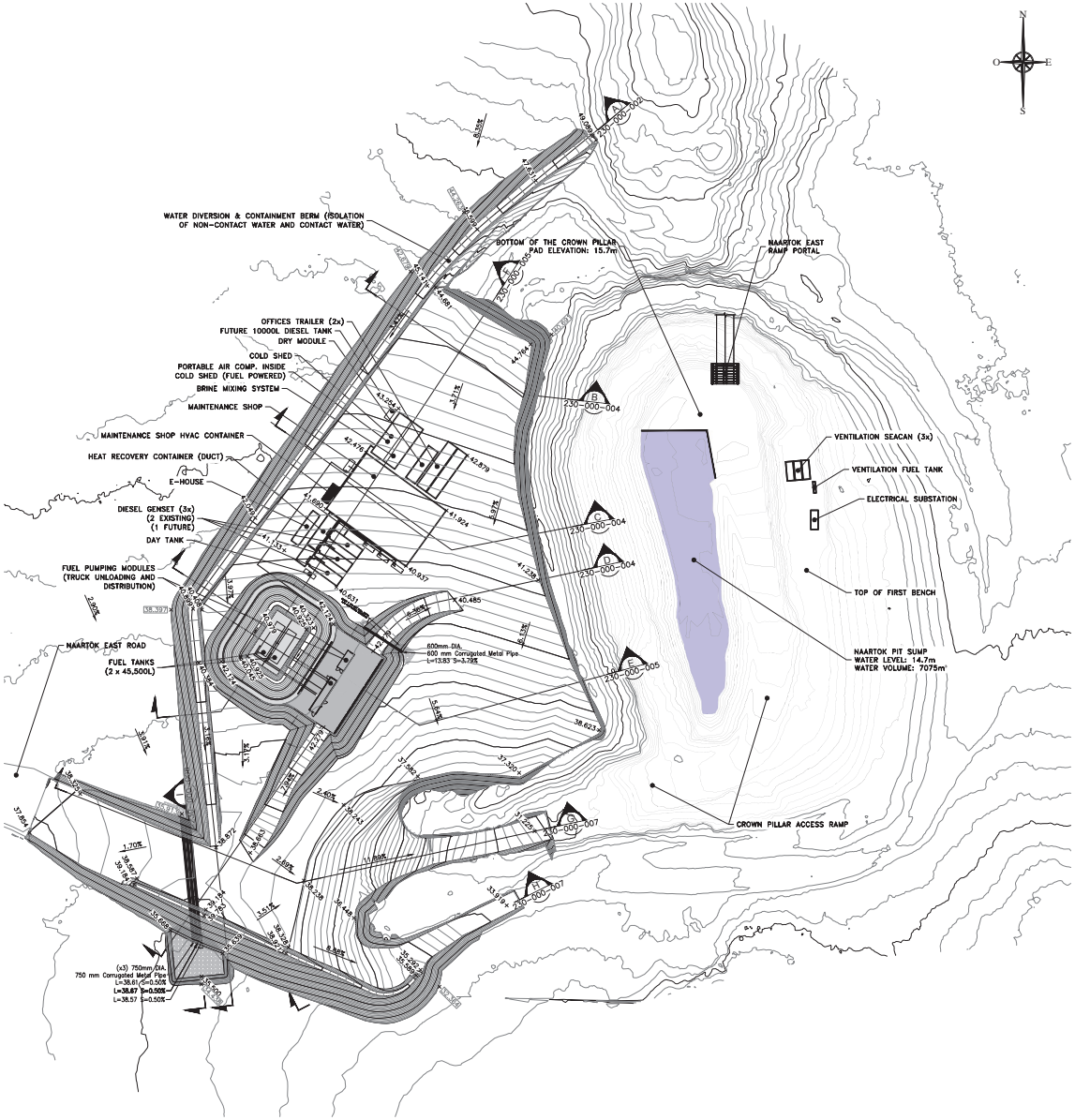
FILE NO. 62-MAN-400-230-000-001.dwg

B

Pad Drawings

NO. DESSIN DRAWING NO. 62-MAN-400-230-000-002

FORMAT ARCHD



PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2022-09-02

L'INFORMATION CI-CONTENUE EST LA PROPRIÉTÉ DE AGNICO EAGLE LTÉE ET EST FOURNIE SUR SEMAINE. SANS AUTORISATION ÉCRITE PRÉALABLE, TOUTE TRANSMISSION OU EXPOSÉ À AUTRE ET TOUTE UTILISATION AUTRE QUE CELLE POUR LAQUELLE L'INFORMATION EST PRÊTÉE SONT INTERDITES.
© AGNICO EAGLE LTÉE
THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF AGNICO EAGLE LTÉE AND IS SUBMITTED ON A CONFIDENTIAL BASIS. NO DISCLOSURE, REPRODUCTION OR USE OTHER THAN THAT FOR WHICH IT IS LOANED MAY BE PERMITTED.

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
D	2022-09-02	ISSUED FOR CONSTRUCTION	MDH	ALB	AE
B	2022-08-25	ISSUED FOR COMMENT	MDH	ALB	AE
A	2022-08-23	ISSUED FOR COMMENT	MDH	ALB	AE

REVISIONS

CIMA+

TITRE / TITLE

AGNICO EAGLE
HOPE BAY NAARTOK PAD
400 GENERAL SITE
230 GENERAL EARTHWORKS
SITE PLAN

DESSINÉ PAR DRAWN BY	M. HARDING P.Leng	DATE 2022-09-02
VÉRIFIÉ PAR CHECKED BY	D. PANGILINAN P.eng	2022-09-02
APPROUVÉ PAR APPROVED BY	A. BABCOCK P.eng	2022-09-02
ÉCHELLE SCALE	1:1000	DATE 2022-09-02

NO. DESSIN DRAWING NO. 62-MAN-400-230-000-002

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6205	0	1 / 1

A.L. BABCOCK
LICENCE
2022-Sep-06
NT/NU

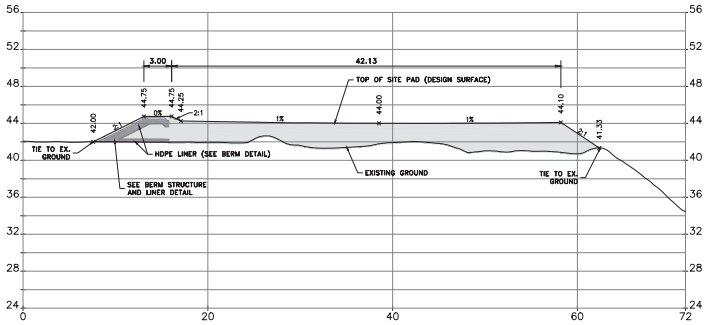
PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Harding
Date 2022-Sep-06
PERMIT NUMBER: P942
NT/NU Association of Professional Engineers and Geoscientists

AE-CART-ARCH D

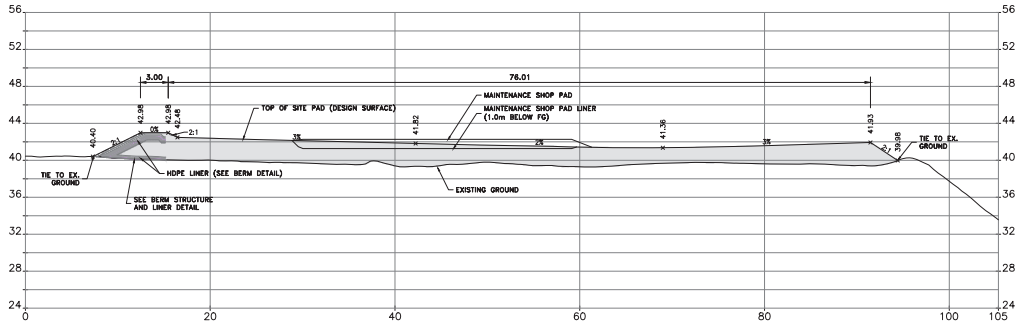
FILE NO. 62-MAN-400-230-000-002.dwg

NO. DESSIN DRAWING NO. 62-MAN-400-230-000-004

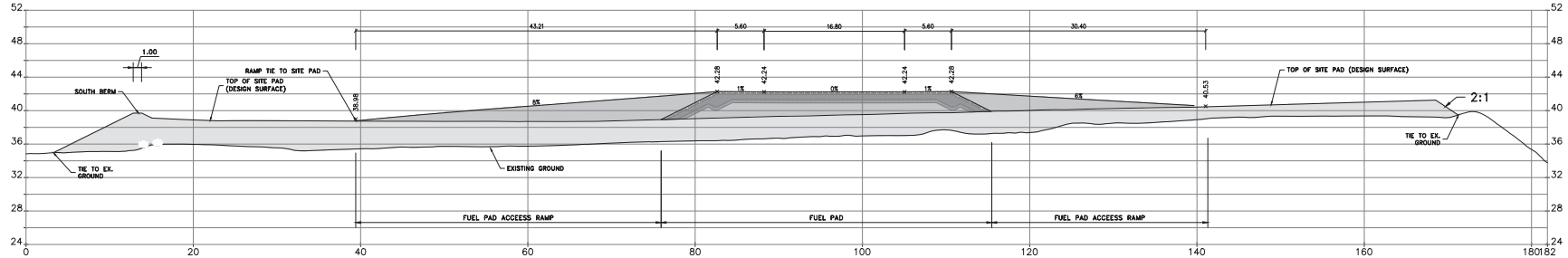
FORMAT ARCHD



SECTION B - W to E North End of Site Pad



SECTION C - W to E Thorugh Maintenance Shop



SECTION D - S to E Through Tank Farm Ramp

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2022-09-02

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
D	2022-09-02	ISSUED FOR CONSTRUCTION	MDH	ALB	AE
B	2022-08-25	ISSUED FOR COMMENT	MDH	ALB	AE
A	2022-08-23	ISSUED FOR COMMENT	MDH	ALB	AE

REVISIONS

CIMA+

TITRE / TITLE

AGNICO EAGLE
HOPE BAY NAARTOK PAD
400 GENERAL SITE
230 GENERAL EARTHWORKS
SITE SECTIONS – NORTH

DESSINÉ PAR DRAWN BY	M. HARDING P.Leng	DATE 2022-09-02
VÉRIFIÉ PAR CHECKED BY	D. PANGILINAN P.eng	2022-09-02
APPROUVÉ PAR APPROVED BY	A. BABCOCK P.eng	2022-09-02
ÉCHELLE SCALE	1:1000	DATE 2022-09-02

NO. DESSIN DRAWING NO. 62-MAN-400-230-000-004

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6205	0	1 / 1

ALBERTA PROFESSIONAL ENGINEER
A.L. BABCOCK
LICENSEE
2022-Dec-31
NT/NU

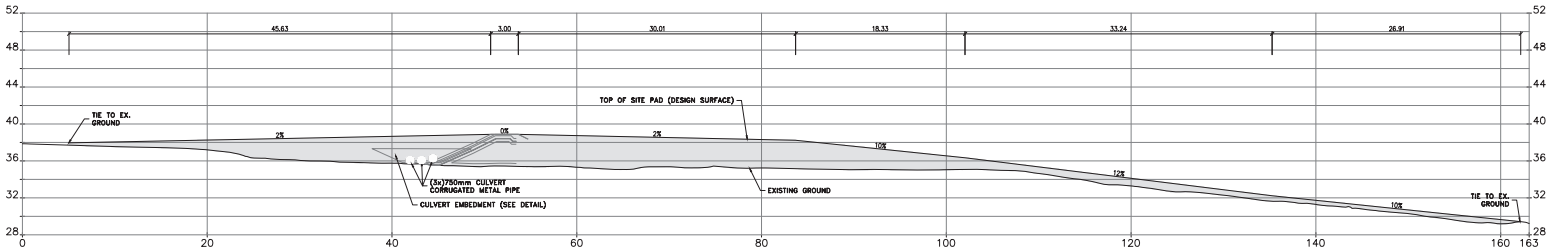
PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Harding
Date 2022-Sep-06
PERMIT NUMBER: P942
NT/NU Association of Professional Engineers and Geoscientists

AE-CART-ARCH D

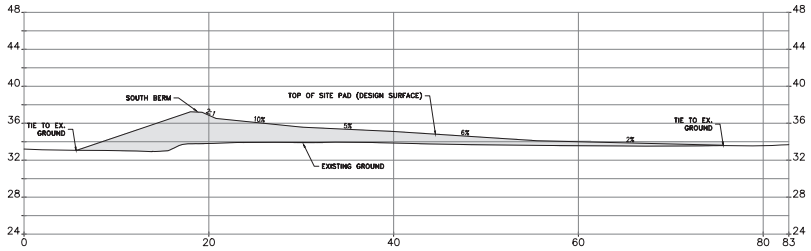
FILE NO. 62-MAN-400-230-000-004.dwg

NO. DESSIN
DRAWING NO. 62-MAN-400-230-000-007

FORMAT ARCHD



SECTION G - W to E Entrance to Crown Pillar Ramp



SECTION H - W to E Site Entrance to Ventilation Raise Road

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2022-09-02

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
D	2022-09-02	ISSUED FOR CONSTRUCTION	MDH	ALB	AE
B	2022-08-25	ISSUED FOR COMMENT	MDH	ALB	AE
A	2022-08-23	ISSUED FOR COMMENT	MDH	ALB	AE

REVISIONS

CIMA+

TITRE / TITLE
AGNICO EAGLE
HOPE BAY NAARTOK RAMP
400 GENERAL SITE
230 GENERAL EARTHWORKS
SITE SECTIONS – SOUTH

DESSINÉ PAR DRAWN BY	M. HARDING P.Eng	DATE 2022-09-02
VERIFIÉ PAR CHECKED BY	D. PANGILINAN P.eng	2022-09-02
APPROUVÉ PAR APPROVED BY	A. BABCOCK P.eng	2022-09-02
ÉCHELLE SCALE	1:1000	DATE 2022-09-02

NO. DESSIN
DRAWING NO. 62-MAN-400-230-000-007

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6205	0	1 / 1

A.L. BABCOCK
LICENCE
2022-Sep-06
NT/NU

PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Harding
Date 2022-Sep-06
PERMIT NUMBER: P942
NT/NU Association of Professional Engineers and Geoscientists

AE-GMT-ARCH D

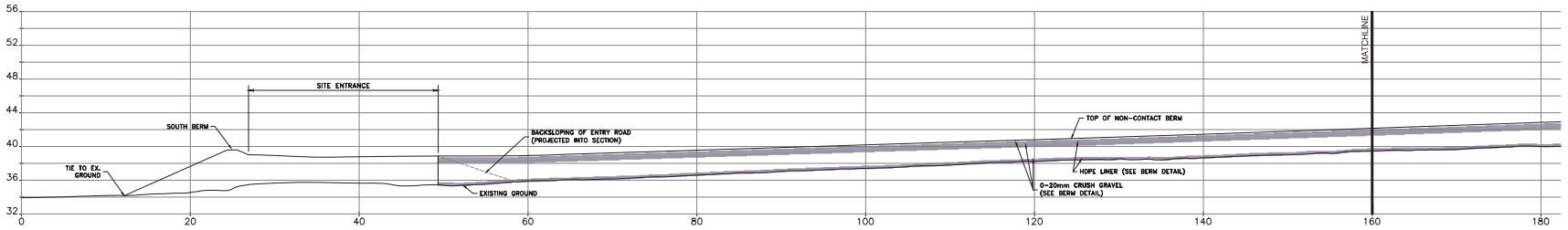
FILE NO. 62-MAN-400-230-000-007.dwg

C

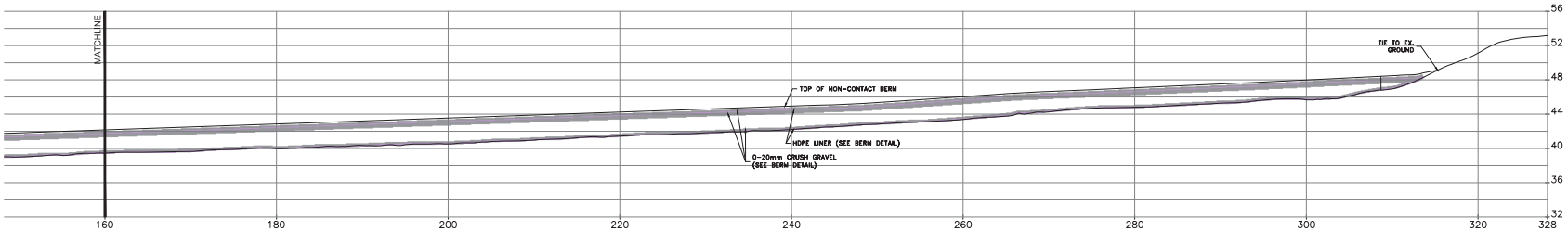
Berm Drawings

NO. DESSIN DRAWING NO. 62-MAN-400-230-000-003

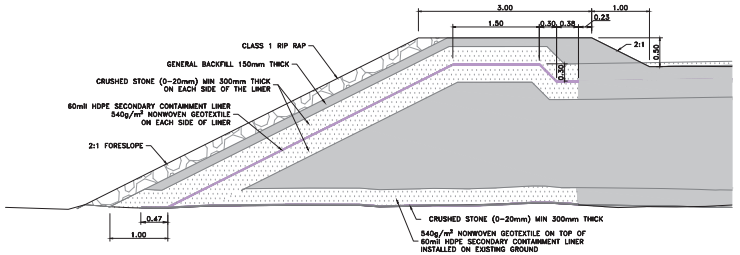
FORMAT ARCHD



SECTION A - S to N Along Non-Contact Berm



SECTION A - S to N Along Non-Contact Berm



BERM DETAIL - LINER COMPOSITION

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2022-09-02

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
D	2022-09-02	ISSUED FOR CONSTRUCTION	MDH	ALB	AE
B	2022-08-25	ISSUED FOR COMMENT	MDH	ALB	AE
A	2022-08-23	ISSUED FOR COMMENT	MDH	ALB	AE

REVISIONS

CIMA+

TITRE / TITLE

AGNICO EAGLE
HOPE BAY NAARTOK PAD
400 GENERAL SITE
230 GENERAL EARTHWORKS
NON-CONTACT BERM

DESSINÉ PAR DRAWN BY	M. HARDING P.Eng	DATE 2022-09-02
VÉRIFIÉ PAR CHECKED BY	D. PANGILINAN P.eng	2022-09-02
APPROUVÉ PAR APPROVED BY	A. BABCOCK P.eng	2022-09-02
ÉCHELLE SCALE	1:1000	DATE 2022-09-02

NO. DESSIN DRAWING NO. 62-MAN-400-230-000-003

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6205	0	1 / 1

PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Harding
Date 2022-Sep-06
PERMIT NUMBER: P942
NT/NU Association of Professional Engineers and Geoscientists

A.L. BABCOCK LICENCE 2022-Sep-06 NT/NU

AE-GMT-ARCH D

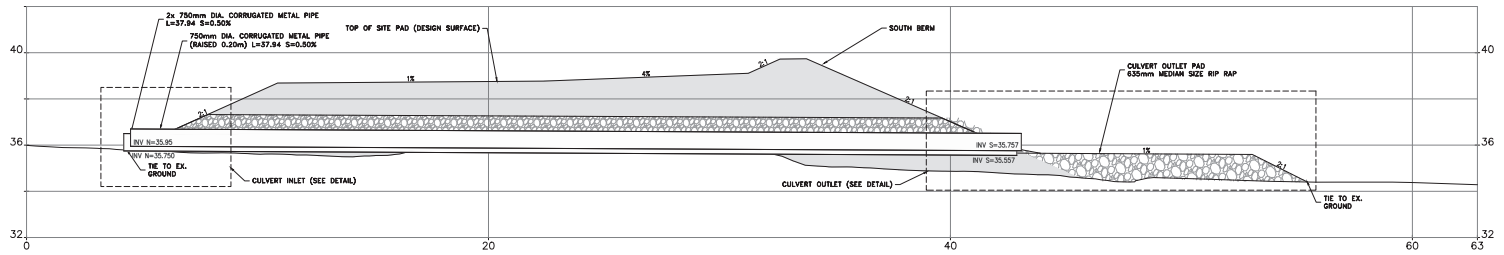
FILE NO. 62-MAN-400-230-000-003.dwg

D

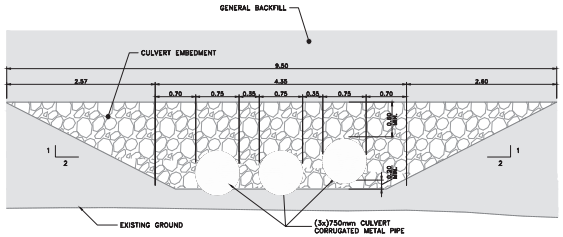
Culvert Drawings

NO. DESSIN
DRAWING NO. 62-MAN-400-230-000-008

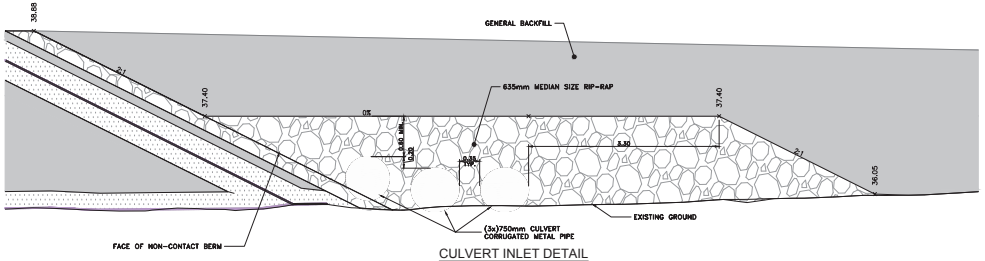
FORMAT ARCHD



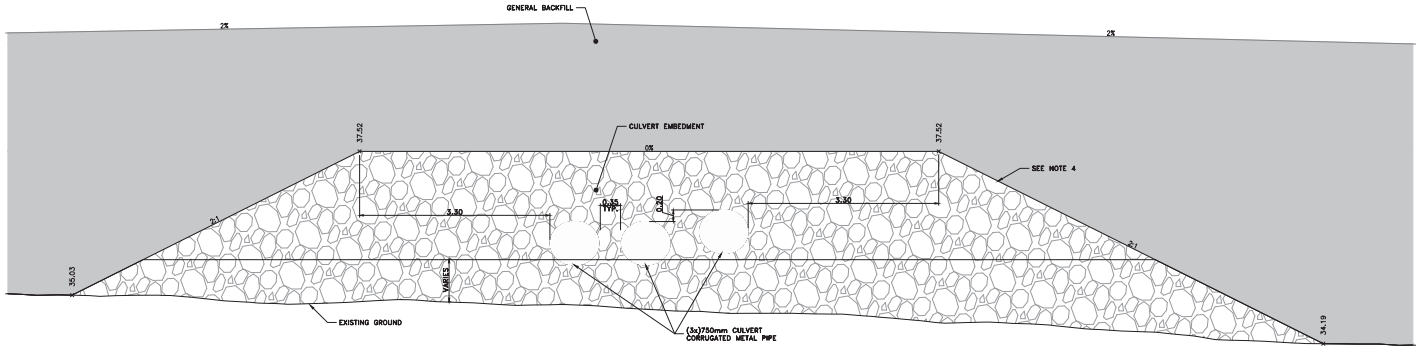
SECTION I - CULVERT PIPE PROFILE



CULVERT PIPE BEDDING



CULVERT INLET DETAIL



CULVERT OUTLET DETAIL

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

NOTES

1. ALL UNITS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. ENGINEERED BACKFILL TO MEET MANUFACTURER'S INSTALLATION SPECIFICATIONS FOR CMP CULVERT, SEE REFERENCES
3. 3 X 750MM CMP PIPES ARE REQUIRED. ONE CULVERT SHOULD BE PERCHED (LIM HIGHER THAN THE OTHERS).
4. RIPRAP WILL COVER ALL EXPOSED AREA OF THE ENGINEERED BACKFILL ENVELOPE.
5. OPTIONAL INSTALLATION OF STEAM PIPE FOR EACH CULVERT TO FACILITATE DEICING, SHOULD IT BE REQUIRED.

REFERENCES

REFER TO ARMTEC STANDARD DETAIL DRAWINGS CSP-BF-01 AND CSP-BF-04 FOR CULVERT INSTALLATION AND BACKFILL SPECIFICATION DETAILS.

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2022-09-02

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
D	2022-09-02	ISSUED FOR CONSTRUCTION	MDH	ALB	AE
B	2022-08-25	ISSUED FOR COMMENT	MDH	ALB	AE
A	2022-08-23	ISSUED FOR COMMENT	MDH	ALB	AE

REVISIONS

CIMA+

TITRE / TITLE

AGNICO EAGLE
HOPE BAY NAARTOK RAMP
400 GENERAL SITE
230 GENERAL EARTHWORKS
SITE SECTIONS – CULVERT

DESSINÉ PAR DRAWN BY	M. HARDING P.Eng	DATE 2022-09-02
VÉRIFIÉ PAR CHECKED BY	D. PANGILINAN P.eng	2022-09-02
APPROUVÉ PAR APPROVED BY	A. BABCOCK P.eng	2022-09-02
ÉCHELLE SCALE	1:1000	DATE 2022-09-02

NO. DESSIN DRAWING NO. 62-MAN-400-230-000-008

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6205	0	1 / 1

A.L. BABCOCK
LICENCE
2022-Sep-06
NT/NU

PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Hardin
Date 2022-Sep-06
PERMIT NUMBER: P942
NTINU Association of Professional Engineers and Geoscientists

A1-CART-ARCH D

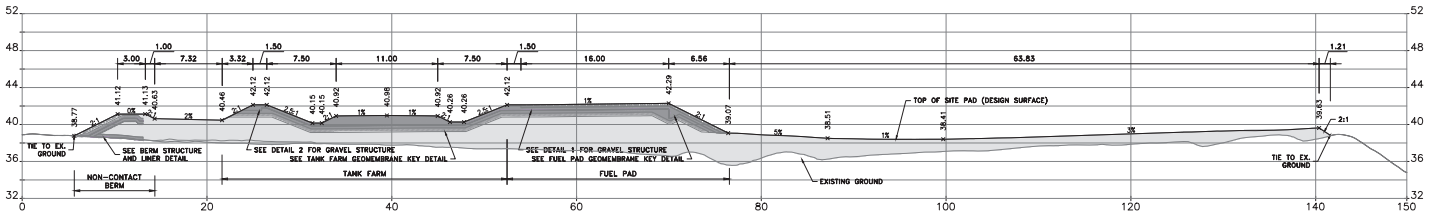
FILE NO. 62-MAN-400-230-000-008.dwg

E

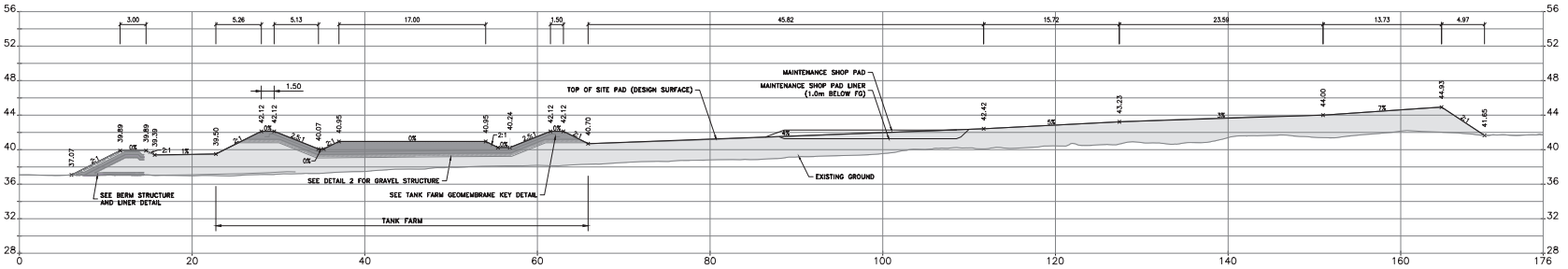
Fuel Containment Drawings

NO. DESSIN
DRAWING NO. 62-MAN-400-230-00-005

FORMAT ARCHD



SECTION E - W to E Through Tank Farm



SECTION F - S to N Through Tank Farm

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2022-09-02

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
D	2022-09-02	ISSUED FOR CONSTRUCTION	MDH	ALB	AE
B	2022-08-26	ISSUED FOR COMMENT	MDH	ALB	AE
A	2022-08-23	ISSUED FOR COMMENT	MDH	ALB	AE

REVISIONS

CIMA+

TITRE / TITLE

AGNICO EAGLE
HOPE BAY NAARTOK PAD
400 GENERAL SITE
230 GENERAL EARTHWORKS
SITE SECTIONS – TANK FARM

DESSINÉ PAR / DRAWN BY	M. HARDING P.Leng	DATE 2022-09-02
VÉRIFIÉ PAR / CHECKED BY	D. PANGILINAN P.eng	2022-09-02
APPROUVÉ PAR / APPROVED BY	A. BABCOCK P.eng	2022-09-02
ÉCHELLE / SCALE	1:1000	DATE 2022-09-02

NO. DESSIN / DRAWING NO. 62-MAN-400-230-000-005

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6205	0	1 / 1

A.L. BABCOCK
LICENCE
2022-Sep-06
NT/NU

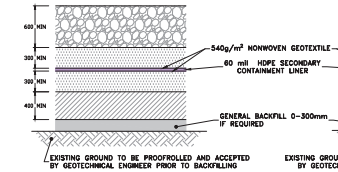
PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Harding
Date 2022-Sep-06
PERMIT NUMBER: P942
NT/NU Association of Professional Engineers and Geoscientists

AE-GMT-ARCH D

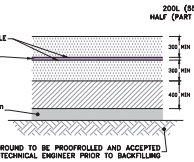
FILE NO. 62-MAN-400-230-00 -005.dwg

NO. DESSIN DRAWING NO. 62-MAN-400-230-000-006

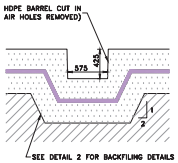
FORMAT ARCHD



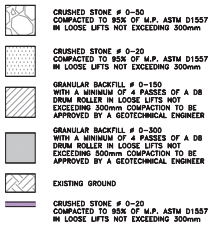
DETAIL 1 - BACKFILL INSTALLATION
DETAIL FOR PUMPING STATION

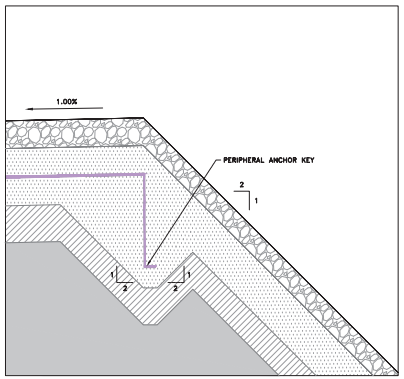


DETAIL 2 - BACKFILL INSTALLATION
DETAIL FOR TANK FARM PAD

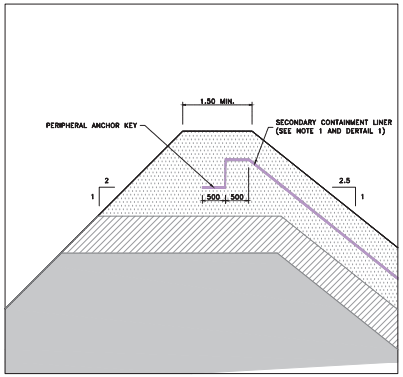


SUMP PIT DETAIL

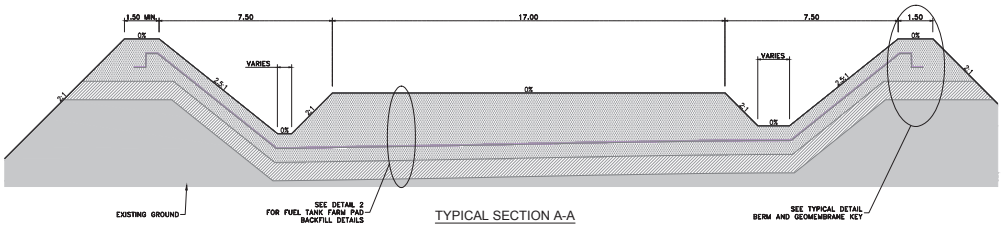




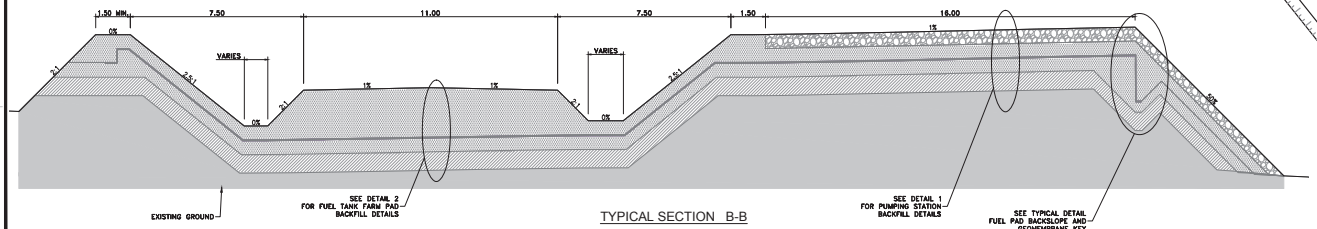
TYPICAL SECTION - FUEL PAD BACKSLOPE AND GEOMEMBRANE KEY



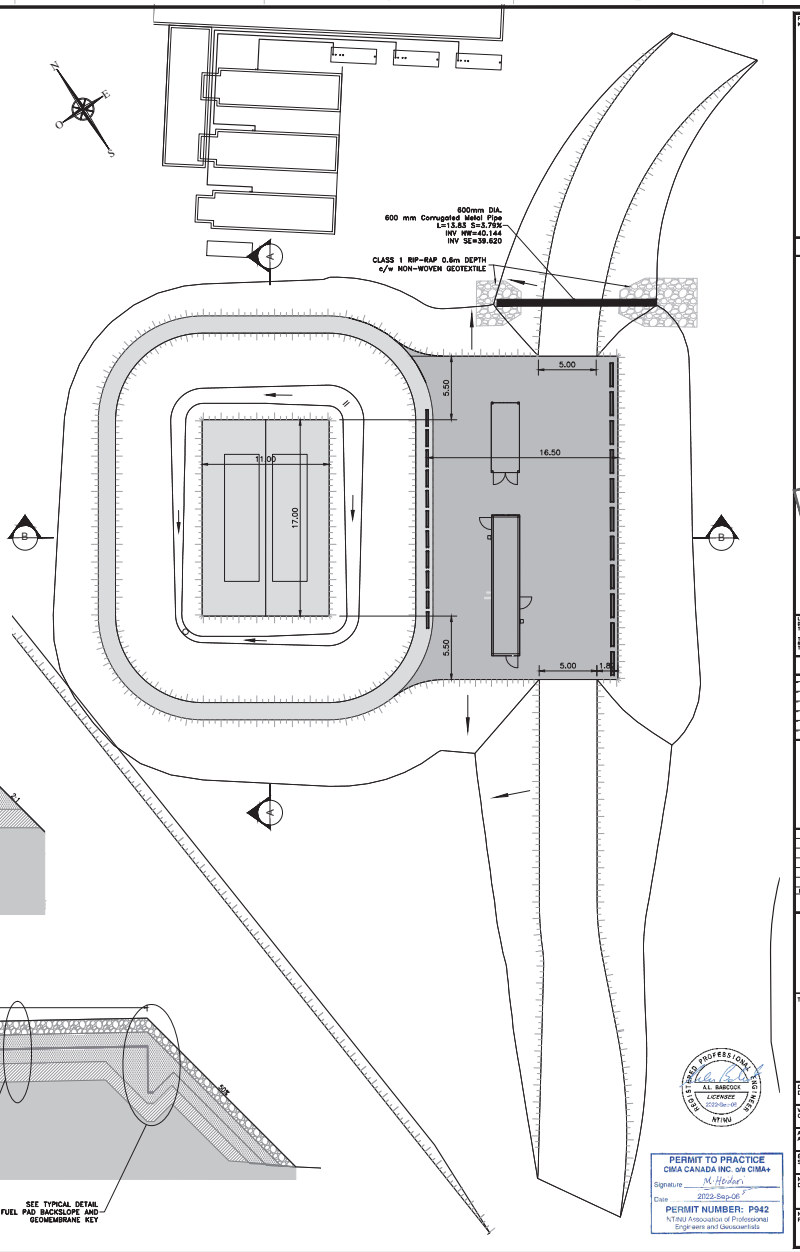
TYPICAL SECTION - BERM AND GEOMEMBRANE KEY



TYPICAL SECTION A-A



TYPICAL SECTION B-B



PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2022-09-02

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REVISIONS

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
D	2022-09-02	ISSUED FOR CONSTRUCTION	MDH	ALB	AE
B	2022-08-25	ISSUED FOR COMMENT	MDH	ALB	AE
A	2022-08-23	ISSUED FOR COMMENT	MDH	ALB	AE

CIMA+

TITRE / TITLE

AGNICO EAGLE
HOPE BAY NAARTOK PAD
400 GENERAL SITE
230 GENERAL EARTHWORKS
TANK FARM PLAN

DESSINÉ PAR DRAWN BY	M. HARDING P.Eng	DATE 2022-09-02
VÉRIFIÉ PAR CHECKED BY	D. PANGILINAN P.eng	2022-09-02
APPROUVÉ PAR APPROVED BY	A. BABCOCK P.eng	2022-09-02
ÉCHELLE SCALE	1:1000	DATE 2022-09-02

NO. DESSIN DRAWING NO. 62-MAN-400-230-000-006

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6205	0	1 / 1

A.L. BABCOCK
LICENCE
2022-09-06
NTI NU

PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Harding
Date 2022-Sep-06
PERMIT NUMBER: P942
NTI NU Association of Professional Engineers and Geoscientists

AE-CART-ARCH D

FILE NO. 62-MAN-400-230-000-006.dwg

F

Materials and Quantities

NO. DESSIN
DRAWING NO. 62-MAN-400-230-000-010

FORMAT ARCHD

NAARTOK PAD - MATERIAL LIST AND QUANTITIES

MATERIAL LIST	UNITS	QTY.
ROQ MATERIALS	m^3	43800
SAND (MIN. 500 THK.) ABOVE LINER	m^3	315
HDPE GEOMEMBRANE LINER (60 mil)	m^2	630
NON-WOVEN GEOTEXTILE	m^2	1260

DIVERSION BERM - MATERIAL LIST AND QUANTITIES

MATERIAL LIST	UNITS	QTY.
ROQ MATERIALS (INCL. GENERAL BACKFILL @ 150mm THK)	m^3	4082
CLASS 1 RIPRAP	m^3	350
CRUSHED STONE (0-20mm) MIN. 300 THK. @ EACH SIDE OF LINER	m^3	1548
HDPE GEOMEMBRANE LINER (60 mil)	m^2	3708
NON-WOVEN GEOTEXTILE	m^2	7416

NON CONTACT CULVERT - MATERIAL LIST AND QUANTITIES

MATERIAL LIST	UNITS	QTY.
750mm DIA. CMP CULVERT	L.m.	117
RIPRAP MATERIAL (635mm MEDIAN SIZE)	m^3	300
ENGINEERED BACKFILL MATERIALS	m^3	352
NON-WOVEN GEOTEXTILE	m^2	450

FUEL TANK FARM - MATERIAL LIST AND QUANTITIES

MATERIAL LIST	UNITS	QTY.
SURFACE COURSE (0-50mm) MIN. 600 mm THK.	m^3	252
CRUSHED STONE (0-20mm) MIN. 300 THK. @ EACH SIDE OF LINER	m^3	1267
GRANULAR STONE (0-150mm) MIN. 400 mm THK	m^3	746
ROQ MATERIALS	m^3	NOTE 1
HDPE GEOMEMBRANE LINER (60 mil)	m^2	1490
NON-WOVEN GEOTEXTILE	m^2	3053
600mm DIA. CMP CULVERT	L.m.	14
CLASS 1 RIPRAP MATERIAL (AROUND CULVERT)	m^3	24

NOTE:
1 - ROQ MATERIALS OF TANK FARM ARE ACCOUNTED FOR IN NAARTOK PAD QUANTITIES

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

NOTES

1. ALL UNITS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. ENGINEERED BACKFILL TO MEET MANUFACTURER'S INSTALLATION SPECIFICATIONS FOR CMP CULVERT, SEE REFERENCES
3. 3 X 750MM CMP PIPES ARE REQUIRED. ONE CULVERT SHOULD BE PERCHED (LM) HIGHER THAN THE OTHERS).
4. RIPRAP WILL COVER ALL EXPOSED AREA OF THE ENGINEERED BACKFILL ENVELOPE.
5. OPTIONAL INSTALLATION OF STEAM PIPE FOR EACH CULVERT TO FACILITATE DEICING, SHOULD IT BE REQUIRED.

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2022-09-02

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
D	2022-09-02	ISSUED FOR CONSTRUCTION	MDH	ALB	AE
B	2022-08-25	ISSUED FOR COMMENT	MDH	ALB	AE
A	2022-08-23	ISSUED FOR COMMENT	MDH	ALB	AE

REVISIONS

CIMA+

TITRE / TITLE

AGNICO EAGLE
HOPE BAY NAARTOK RAMP
400 GENERAL SITE
230 GENERAL EARTHWORKS
MATERIALS AND QUANTITIES

DESSINÉ PAR / DRAWN BY	M. HARDING P.Eng	DATE 2022-09-02
VERIFIÉ PAR / CHECKED BY	D. PANGILINAN P.eng	2022-09-02
APPROUVÉ PAR / APPROVED BY	A. BABCOCK P.eng	2022-09-02
ÉCHELLE / SCALE	1:1000	DATE 2022-09-02

NO. DESSIN / DRAWING NO. 62-MAN-400-230-000-010

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6205	0	1 / 1

PROFESSIONAL ENGINEER
A.L. BABCOCK
LICENCE
2022-Sep-06
NT/NU

PERMIT TO PRACTICE
CIMA CANADA INC. o/a CIMA+
Signature M. Harding
Date 2022-Sep-06
PERMIT NUMBER: P942
NT/NU Association of Professional Engineers and Geoscientists

AE-GART-ARCH D

FILE NO. 62-MAN-400-230-000-010.dwg

G

HDPE Liner Specifications

Table 5(b) - Premium HDPE Geomembrane (Single Textured) Technical Properties

Property	Test Method	Frequency[1]	Unit	Test Value			
				40 mils	60 mils	80 mils	100 mils
Thickness (min. avg.)	ASTM D5994	Every roll	mils	40.0	60.0	80.0	100.0
Thickness (min)				36.0	54.0	72.0	90.0
Asperity Height[3] (min. avg.)	ASTM D7466	Every roll	mils	20	20	20	20
Textured side	-	-		Bottom	Bottom	Bottom	Bottom
Resin Density	ASTM D1505	1/Batch	g/cm^3	< 0.940	< 0.940	< 0.940	< 0.940
Melt Index – 190/2.16 (max.)	ASTM D1238	1/Batch	g/10min	1.0	1.0	1.0	1.0
Sheet Density[8]	ASTM D1505	Every 10 rolls	g/cm^3	≥ 0.94	≥ 0.94	≥ 0.94	≥ 0.94
Carbon Black Content[9]	ASTM D4218	Every 2 rolls	%	2.0 – 3.0	2.0 – 3.0	2.0 – 3.0	2.0 – 3.0
Carbon Black Dispersion	ASTM D5596	Every 6 rolls	Category	Cat. 1 & 2	Cat. 1 & 2	Cat. 1 & 2	Cat. 1 & 2
OIT – Standard (avg.)	ASTM D3895	Per formulation	min	160	160	160	160
HP-OIT – High Pressure (avg.)	ASTM D5885	Per formulation	min	800	800	800	800
Tensile Properties (min. avg.)[2]	ASTM D-6693	Every 2 rolls					
Strength at Yield			ppi	90	132	177	225
Elongation at Yield			%	13	13	13	13
Strength at Break			ppi	75	115	155	230
Elongation at Break			%	200	200	200	200
Tear Resistance (min. avg.)	ASTM D1004	Every 5 rolls	lbf	32	45	60	75
Puncture Resistance (min. avg.)	ASTM D4833	Every 5 rolls	lbf	95	130	160	190
Dimensional Stability	ASTM D1204	Certified	%	± 2	± 2	± 2	± 2
Stress Crack Resistance (avg.)	ASTM D5397	1/Batch	hours	1,000	1,000	1,000	1,000
Multi-Axial Tensile (min. avg.)	ASTM D5617	Per Formulation	%	15	15	15	15
Oven Aging - % retained after 90 days	ASTM D5721	Per Formulation					
HP-OIT (min. avg.)	ASTM D5885		%	80	80	80	80
UV Resistance - % retained after 1600 hr	GRI GM11	Per Formulation					
HP-OIT (min. avg.)	ASTM D5885		%	80	80	80	80
Roll Dimension - Width	-		ft	26.2	26.2	26.2	26.2
Roll Dimension - Length	-		ft	656	443	344	279
Area (Surface / Roll)	-		ft^2	17,187	11,607	9,013	7,310
Color	-		-	Black	Black	Black	Black

*The Premium HDPE geomembranes roll can be supplied in 22.3 ft Width.

Notes:

(1) Testing Frequency based on standard roll dimensions and one batch is approximately 180,000 lbs (or one railcar)
(2) Machine Direction (MD) and Cross Machine Direction (XMD or TD) average value should be on the basis of 5 specimens each direction.
(3) ASTM D7466 is identical to GRI-GM12.
(8) Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
(9) Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.

*All values are nominal test results, except when specified as minimum or maximum.
*The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsibility of the user. SOLMAX assumes no liability in connection with the use of this information.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use Solmax's goods to any particular system, project, purpose, installation or specification.

*Please select the suitable and up to date Technical Data Sheet from Solmax's website or refer to Solmax's sales representative.