AGNICO EAGLE LIMITED

CONSTRUCTION REPORT

CULVERTS KM 64+425

WSP REF.: 141-21815-03

DATE : 4 DECEMBER 2017

CONFIDENTIAL

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CONSTRUCTION REPORT (VERSION 0)

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QUALITY MANAGEMENT

VERSION	DATE	DESCRIPTION
0	2017-12-05	Construction Report

SIGNATURES

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1 INTRODUCTION

To develop its activities, Agnico Eagle Mines undertook the building of a new 64 km road, linking up Meadowbank site with exploration site of Amaruq, in Northern territory of Canada, in Nunavut. AEM delegated WSP to provide professional services in engineering and produce plans and technical specifications for the required work to build the new road.

In order to ensure an adequate water draining on the road and avoid compromising the natural flow of streams, a set-up of many culverts was planned all along the road.

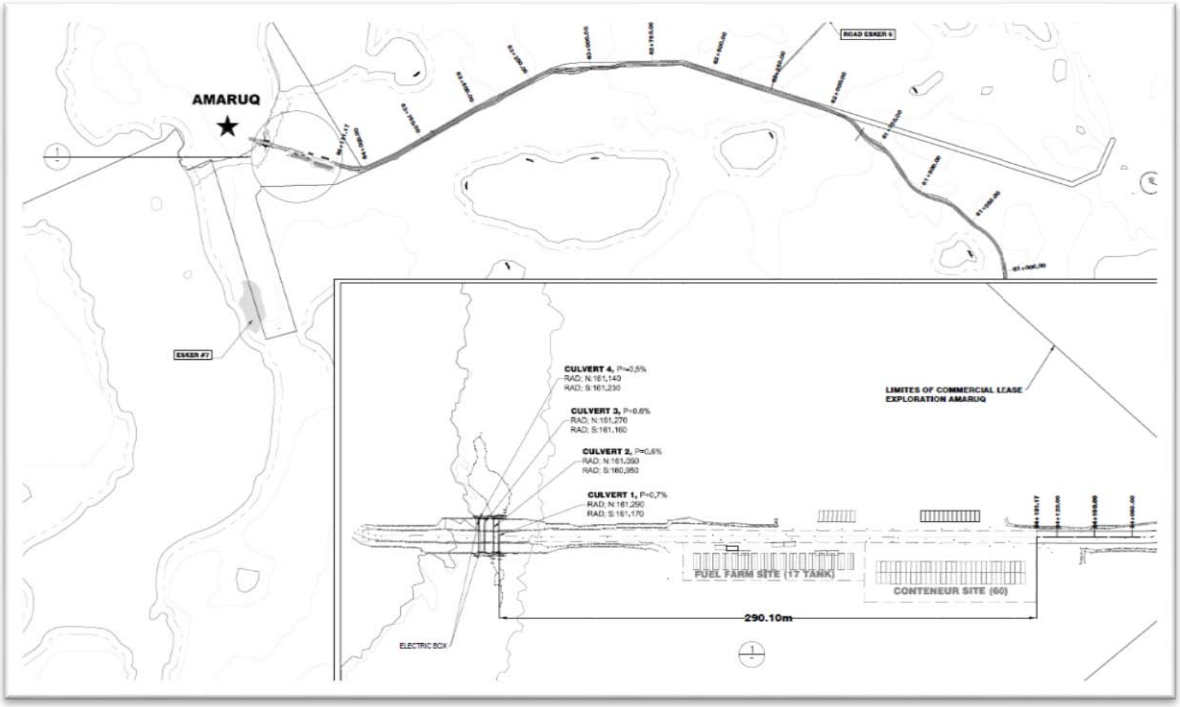
This report sums up accomplished work during the installation of four culverts used as road cross of a stream located at Km 64+425. So, a description of the culverts will be introduced and working steps will be detailed. Finally, an as-built plan of the culverts will be provided.

Reference to mention:

WSP. 2017. Construction report*, Culverts km 64+425*. Report produced for Agnico Eagle Limited. WSP Ref.: 141-21815-03. 4 pages and appendices.

2 LOCATION PLAN

As shown in the following plan, work site is located South of the Amaruq site.



3 WORK DESCRIPTION

3.1 THE CULVERTS

As mentioned previously, the draining of stream water was ensured by installing four culverts. All culverts were made of galvanized corrugated steel pipes with a diameter of 900mm.

As shown in the following picture, culverts are not placed equally as specified in the plans. The location of culverts was confirmed on site by the engineer. The pipes were installed according to the position of the water trickling.

The following picture shows the four culverts after being installed.

3.2 WORK SUMMARY

The work began on September 3rd 2015 by preparing the appropriate materiel and location of projected culverts. The contractor installed a silt fence which was 10 meters away from the culverts location.

Before laying the culvert, a Geomembrane was expanded directly on the Tundra. By the beginning of the second day, more silt fences were installed before starting the work nearby the stream.

After digging and leveling the bottom of the stream, the first culvert was installed by pieces of 20 feet of length. The pieces are attached before backfilling the culvert. The installation of the other culverts was done the same way as the first one. During the work, water was pumped so that the installation could be done adequately.

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4 CONCLUSTION

The installation of culverts was generally done according to the plans. Backfill work and compaction didn't damage the pipes. The high of backfill respects the specifications on plans. The stream was protected from sedimentation using silt fences. And one of the pipes was set 300 mm bellow the stream bed.

Some changes were made for construction purposes. The position of pipes was changed according to the position of the water trickling to ensure a better draining. And available material, without big stones, was used for backfill.

However, some of these changes don't respect the specification on plans. The culverts were installed on a thin layer of bedding material, but the contractor expand a geotextile under the pipes to replace the material needed.

The as-built plan shows that the slope of culvert 4 is in the opposite direction. This could reduce the efficiency by 15%. The culvert will work at 85% of its output. After the verification of the hydraulic study, the culvert is used as an overflow pipe. At 85% of its output, there will be no problem of draining.

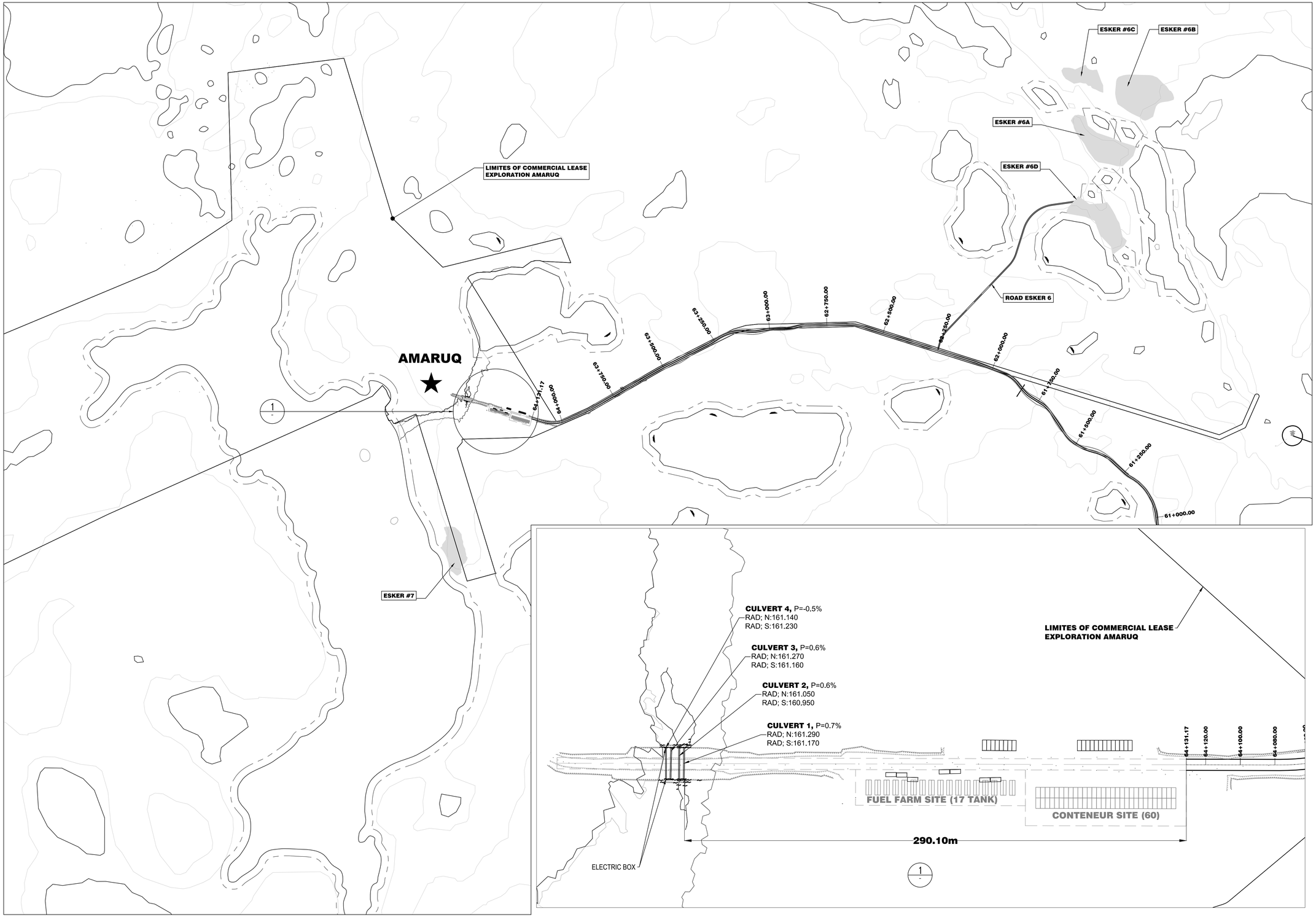
The installation of culverts was done adequately. It's functional for the anticipated lifetime.

APPENDIX

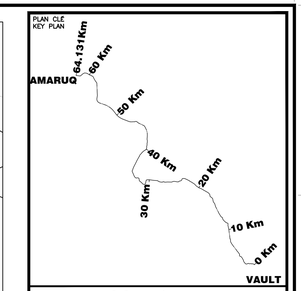
A AS BUILT PLAN

NO. DESSIN
DRAWING NO. 6103–117–230–202

FORMAT ARCHD



PLAN CLÉ
KEY PLAN



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DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
3	2017–11–30	ISUUED FOR TQC CULVERTS	S.D.	S.D.	E.T.
2	2016/02/08	ISSUED FOR CONSTRUCTION	S.D.	S.D.	E.T.
1	2015/11/23	ISSUED FOR CONSTRUCTION	S.D.	S.D.	E.T.
0	2015/10/08	ISSUED FOR CONSTRUCTION	S.D.	S.D.	E.T.

REVISIONS

TITRE / TITLE
AGNICO EAGLE – MEADOWBANK DIVISION
117–ROAD, YARDS, FENCES AND OTHER
230–GENERAL EARTH WORK
LOCALISATION PLAN
AMARUC CONNECTION VIEW

DESSINÉ PAR / DRAWN BY	SYLVIE DUFOUR.	DATE 2016/02/08
VERIFIÉ PAR / CHECKED BY	ÉRIC TRUDEL, P.Eng.	2016/02/08
APPROUVÉ PAR / APPROVED BY	STEPHAN DUPUIS, P.Eng.	2016/02/08
ÉCHELLE / SCALE 1 :7500	DATE 2014/07/07	
NO. DESSIN / DRAWING NO.	6103–117–230–202	
NO. PROJET / PROJECT NO. 6103	REVISION 3	FEUILLE / SHT 1 / 1

AE–CART–ARCH D

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APPENDIX

B PHOTOGRAPHIC REPORT

PHOTOGRAPHIC REPORT

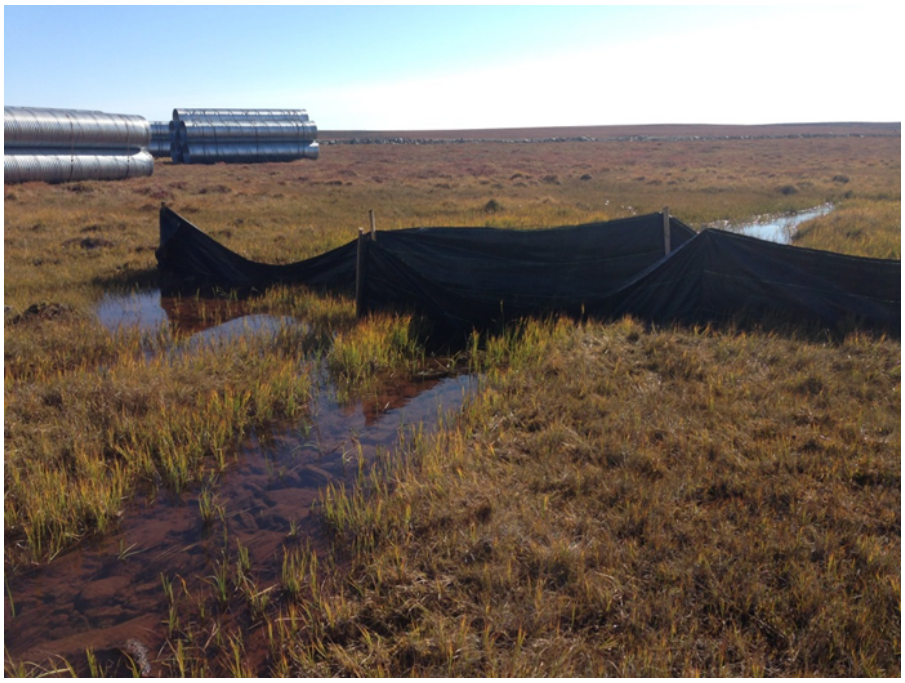

PHOTO 1 **Installation of silt fence before starting digging in the stream**

PHOTO 2 **Installation of the first culvert**

PHOTO 3 **Bedding material**

PHOTO 4 **Backfilling and compacting**